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: P1048759

Luminaire Tested: **GALN-SA5C-935-U-T4BC**

Issue Date: 07/10/2025

Report Generated By 670347003

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: | P1048759 |
| Test Lab: | INNOVATION CENTER(G3) |
| Issue Date: | 07/10/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GALN-SA5C-935-U-T4BC |
| Description: | GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 5xLight Square PACKAGE 90CRI 3500K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL |
| Light Source: | (70) 3500K CCT, 90 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 20527.9 lumens |
| Efficiency: | N/A |
| Efficacy: | 87.0 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B0 - U0 - G4 |

| | |
|---|---|
| Input Watts (W): | 236 |
| 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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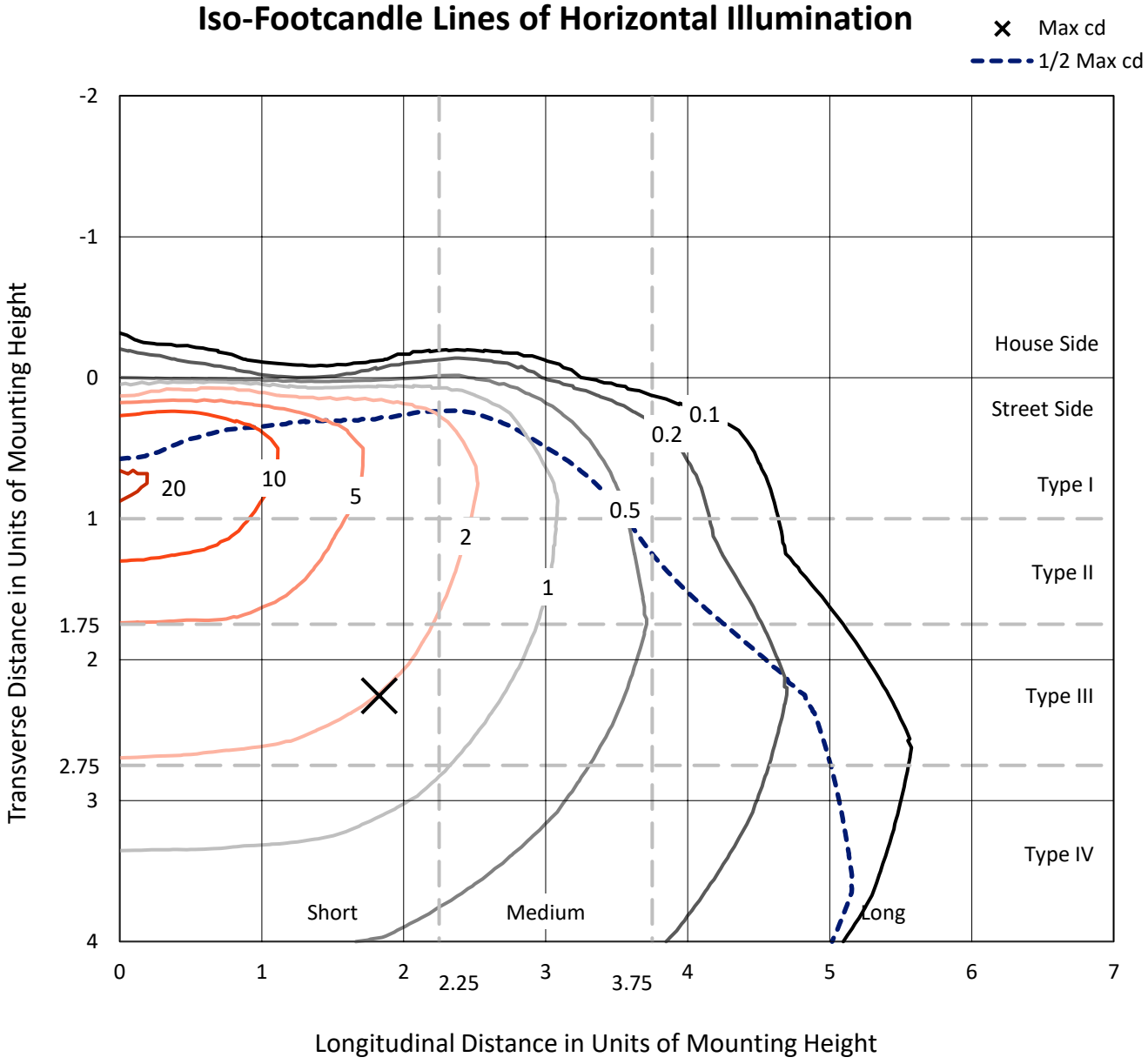
Scaled Data Report

REPORT NUMBER: P1048759
CATALOG NUMBER: GALN-SA5C-935-U-T4BC

## Iso-Footcandle Lines of Horizontal Illumination




Based on 15 foot mounting height. Maximum calculated value = 21.1 fc
Type IV - Short - N/A

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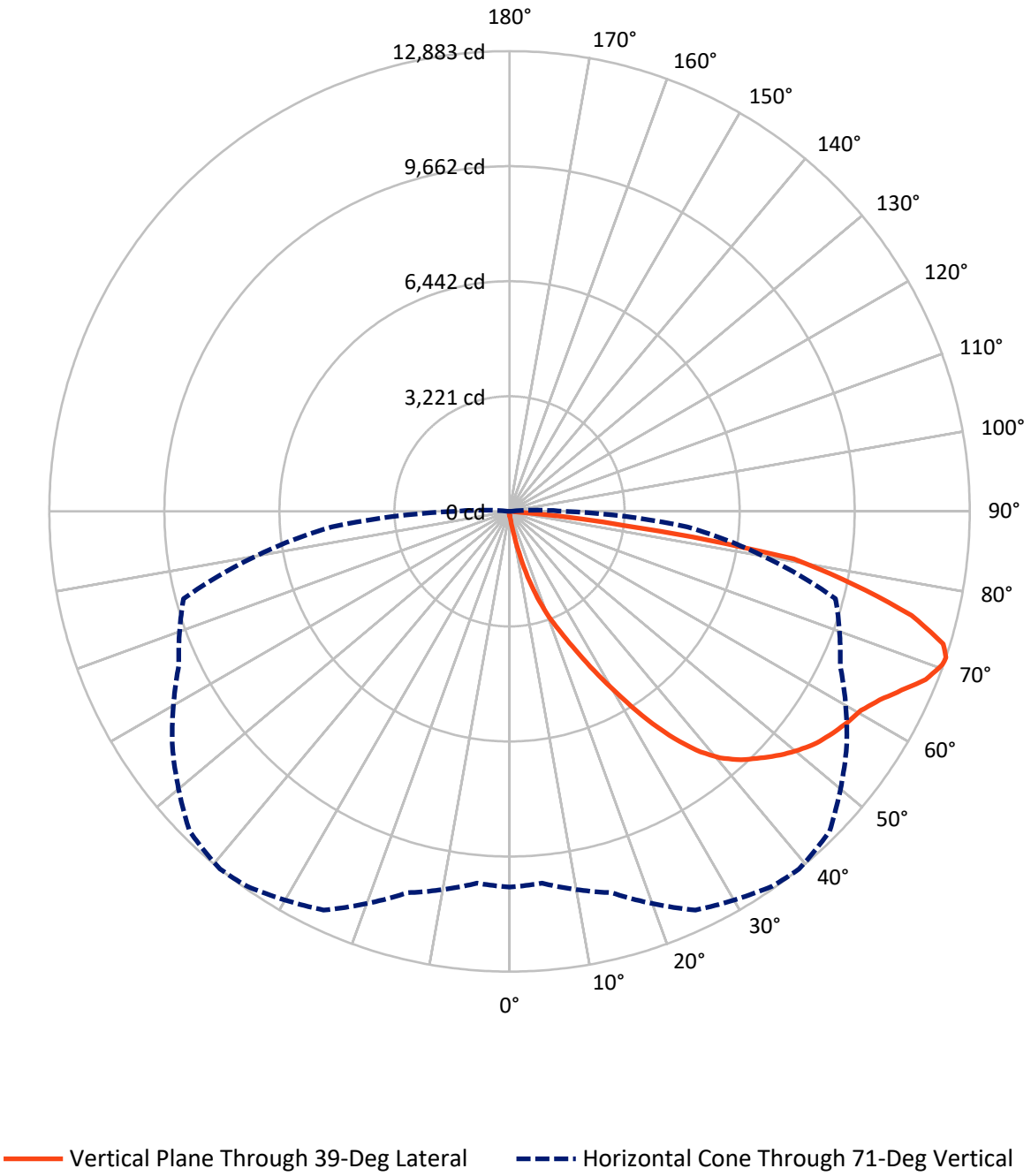
## Luminous Intensity Polar Plot



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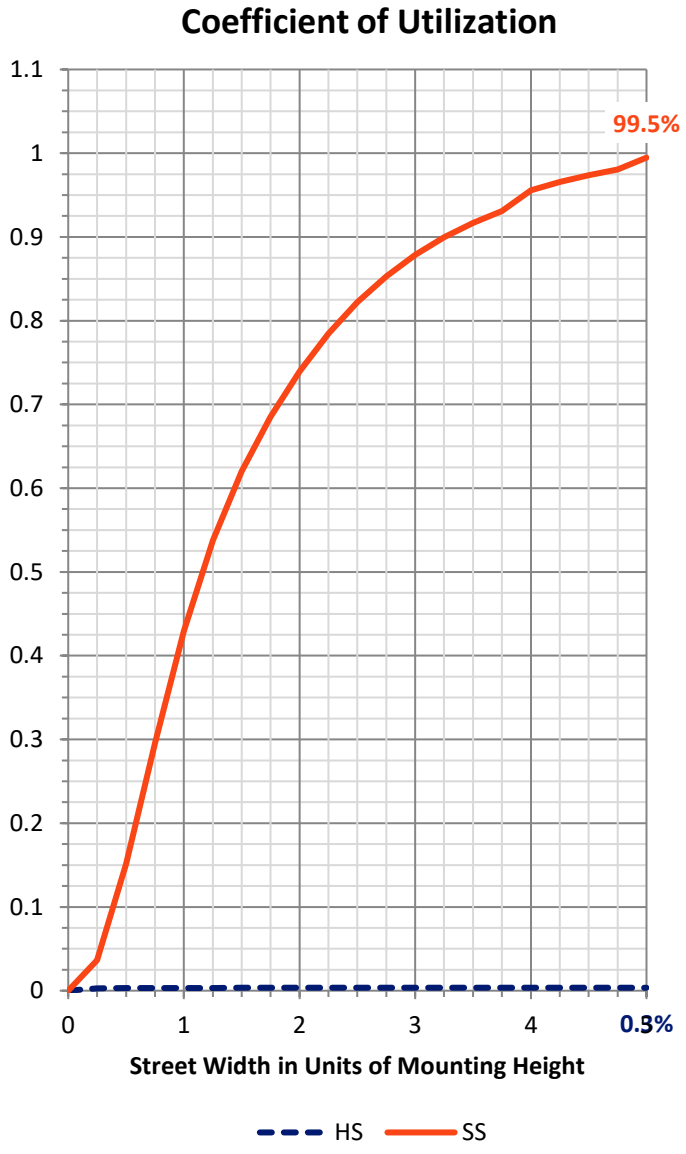
REPORT NUMBER: P1048759
CATALOG NUMBER: GALN-SA5C-935-U-T4BC

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 72.9 | 0.0 | 72.9 |
| | % Fixture | 0.4 | 0.0 | 0.4 |
| **Street Side** | Lumens | 20455.0 | 0.0 | 20455.0 |
| | % Fixture | 99.6 | 0.0 | 99.6 |
| **Total** | Lumens | 20527.9 | 0.0 | 20527.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 17.2 | 0.1 |
| 10°-20° | 219.4 | 1.1 |
| 20°-30° | 781.3 | 3.8 |
| 30°-40° | 1883.1 | 9.2 |
| 40°-50° | 3151.5 | 15.4 |
| 50°-60° | 4047.8 | 19.7 |
| 60°-70° | 5122.5 | 25.0 |
| 70°-80° | 4566.9 | 22.2 |
| 80°-90° | 738.2 | 3.6 |
| 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° | 20527.9 | 100.0 |
| 0°-180° | 20527.9 | 100.0 |



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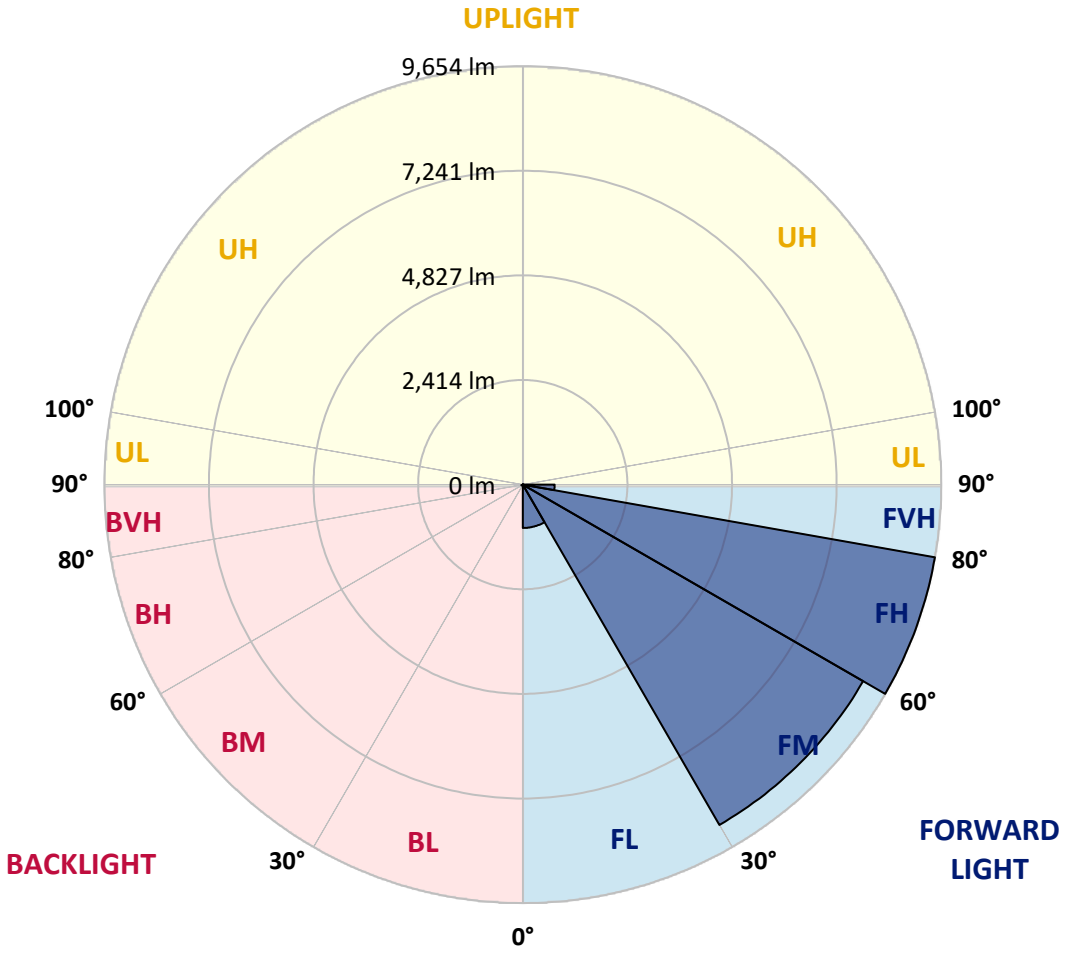
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1000.3 | 4.9 | | | |
| FM | (30°-60°) | 9065.5 | 44.2 | | | |
| FH | (60°-80°) | 9654.3 | 47.0 | | | G4/12000 |
| FVH | (80°-90°) | 734.9 | 3.6 | | | G4/750 |
| BL | (0°-30°) | 17.6 | 0.1 | B0/110 | | |
| BM | (30°-60°) | 16.9 | 0.1 | B0/220 | | |
| BH | (60°-80°) | 35.1 | 0.2 | B0/110 | | G0/110 |
| BVH | (80°-90°) | 3.3 | 0.0 | | | G0/10 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B0-U0-G4**
Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 39° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | *112.6* | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 |
| 2.5° | 129.2 | 129.2 | 129.2 | 125.1 | 125.1 | *123.7* | 122.3 | 122.3 | 119.5 | 118.1 | 115.3 |
| 5° | 195.9 | 191.8 | 182.0 | 176.5 | 165.4 | *158.4* | 151.5 | 141.7 | 132.0 | 125.1 | 116.7 |
| 7.5° | 443.3 | 453.0 | 421.1 | 361.3 | 300.2 | *273.8* | 229.3 | 184.8 | 152.9 | 132.0 | 118.1 |
| 10° | 1129.8 | 1124.2 | 1015.8 | 896.3 | 692.0 | *610.0* | 478.0 | 301.5 | 197.3 | 144.5 | 119.5 |
| 12.5° | 1921.9 | 1916.3 | 1788.5 | 1625.9 | 1356.3 | *1185.4* | 935.2 | 562.8 | 283.5 | 164.0 | 119.5 |
| 15° | 2587.5 | 2565.3 | 2525.0 | 2363.8 | 2048.3 | *1905.2* | 1574.4 | 995.0 | 458.6 | 197.3 | 122.3 |
| 17.5° | 3028.0 | 3008.5 | 2971.0 | 2912.7 | 2712.6 | *2543.0* | 2277.6 | 1563.3 | 742.1 | 255.7 | 127.8 |
| 20° | 3432.4 | 3418.5 | 3387.9 | 3376.8 | 3247.6 | *3157.2* | 2937.7 | 2216.5 | 1156.2 | 347.4 | 136.2 |
| 22.5° | 3988.2 | 3959.1 | 3971.6 | 3904.9 | 3778.4 | *3670.0* | 3535.2 | 2900.2 | 1662.0 | 500.3 | 151.5 |
| 25° | 4669.2 | 4655.3 | 4620.5 | 4573.3 | 4398.2 | *4303.7* | 4096.6 | 3544.9 | 2227.6 | 700.4 | 168.1 |
| 27.5° | 5491.8 | 5476.5 | 5468.2 | 5359.8 | 5158.3 | *5055.5* | 4766.4 | 4153.6 | 2864.0 | 981.1 | 190.4 |
| 30° | 6439.5 | 6446.5 | 6392.3 | 6253.3 | 6018.5 | *5874.0* | 5576.6 | 4791.4 | 3515.8 | 1310.4 | 214.0 |
| 32.5° | 7420.6 | 7406.7 | 7323.3 | 7159.4 | 6949.5 | *6814.7* | 6436.8 | 5490.4 | 4199.5 | 1745.4 | 241.8 |
| 35° | 8478.1 | 8451.7 | 8232.2 | 8044.6 | 7865.3 | *7695.8* | 7351.1 | 6302.0 | 4883.2 | 2233.1 | 279.3 |
| 37.5° | 9545.4 | 9421.7 | 8981.2 | 8743.5 | 8619.9 | *8480.9* | 8159.9 | 7167.7 | 5562.7 | 2777.9 | 325.2 |
| 40° | 10351.3 | 10255.5 | 9733.0 | 9295.2 | 9196.6 | *9078.4* | 8839.4 | 7915.3 | 6285.3 | 3362.9 | 380.8 |
| 42.5° | 10797.4 | 10744.6 | 10274.9 | 9842.7 | 9610.7 | *9506.5* | 9302.2 | 8568.5 | 6999.6 | 4009.1 | 461.4 |
| 45° | 10987.8 | 10905.8 | 10591.8 | 10390.3 | 10020.6 | *9848.3* | 9605.1 | 9061.8 | 7745.8 | 4742.8 | 573.9 |
| 47.5° | 10929.4 | 10882.2 | 10657.1 | 10730.7 | 10462.5 | *10194.3* | 9837.2 | 9439.8 | 8383.6 | 5584.9 | 728.2 |
| 50° | 10562.6 | 10522.3 | 10452.8 | 10851.6 | 10818.3 | *10501.4* | 10137.3 | 9738.5 | 8904.7 | 6453.4 | 967.2 |
| 52.5° | 9865.0 | 9848.3 | 10026.2 | 10757.1 | 11019.8 | *10772.4* | 10426.4 | 10002.6 | 9391.1 | 7360.9 | 1309.0 |
| 55° | 8965.9 | 9034.0 | 9542.6 | 10609.8 | 11122.6 | *10972.5* | 10682.1 | 10249.9 | 9781.6 | 8172.4 | 1813.5 |
| 57.5° | 8596.2 | 8614.3 | 9249.4 | 10505.6 | 11168.4 | *11149.0* | 10930.8 | 10486.1 | 10140.1 | 8821.4 | 2583.3 |
| 60° | 9028.4 | 9000.6 | 9335.5 | 10584.8 | 11260.2 | *11307.4* | 11151.8 | 10705.7 | 10451.4 | 9378.6 | 3608.9 |
| 62.5° | 9809.4 | 9794.1 | 9901.1 | 10922.5 | 11528.4 | *11624.2* | 11458.9 | 10864.1 | 10726.5 | 9745.5 | 4778.9 |
| 65° | 10507.0 | 10475.0 | 10673.7 | 11521.4 | 11999.4 | *12067.5* | 11923.0 | 11135.1 | 10847.4 | 10012.3 | 5878.1 |
| 67.5° | 10808.5 | 10801.6 | 11121.2 | 12091.2 | 12494.2 | *12567.8* | 12441.3 | 11508.9 | 10819.7 | 10097.0 | 6363.1 |
| 70° | 10671.0 | 10644.6 | 11155.9 | 12333.0 | 12773.5 | *12856.8* | 12734.6 | 11647.9 | 10518.1 | 9828.8 | 5644.7 |
| 71° | *10519.5* | *10448.6* | *11051.7* | *12316.3* | *12812.4* | *12883.3* | *12669.2* | *11521.4* | *10215.2* | *9448.1* | *4992.9* |
| 72.5° | 10049.8 | 10062.3 | 10765.5 | 12142.6 | 12719.3 | *12698.4* | 12299.6 | 11068.4 | 9849.7 | 8583.7 | 4010.5 |
| 75° | 8893.6 | 8967.3 | 9838.6 | 11413.0 | 11888.3 | *11622.9* | 11012.8 | 10202.7 | 9116.0 | 6154.7 | 2784.8 |
| 77.5° | 7267.8 | 7377.5 | 8335.0 | 10009.5 | 9874.7 | *9848.3* | 9823.3 | 8989.5 | 7784.7 | 3305.9 | 1937.1 |
| 80° | 3469.9 | 3707.5 | 5027.7 | 7145.5 | 7762.5 | *8061.2* | 7873.6 | 7244.1 | 6019.9 | 1574.4 | 1157.6 |
| 82.5° | 226.5 | 223.7 | 316.8 | 600.3 | 2530.5 | *3271.2* | 5197.2 | 5177.8 | 4196.7 | 767.1 | 472.5 |
| 85° | 107.0 | 109.8 | 120.9 | 137.6 | 159.8 | *175.1* | 241.8 | 1417.4 | 2008.0 | 365.5 | 102.8 |
| 87.5° | 62.5 | 63.9 | 75.0 | 95.9 | 125.1 | *139.0* | 165.4 | 212.6 | 261.3 | 201.5 | 22.2 |
| 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: P1048759
CATALOG NUMBER: GALN-SA5C-935-U-T4BC

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 |
| 2.5° | 113.9 | 112.6 | 108.4 | 104.2 | 100.1 | 97.3 | 95.9 | 97.3 | 97.3 | 98.7 | 98.7 |
| 5° | 113.9 | 109.8 | 102.8 | 94.5 | 88.9 | 83.4 | 80.6 | 79.2 | 80.6 | 80.6 | 80.6 |
| 7.5° | 112.6 | 105.6 | 95.9 | 86.2 | 79.2 | 72.3 | 69.5 | 68.1 | 68.1 | 69.5 | 69.5 |
| 10° | 109.8 | 102.8 | 90.3 | 79.2 | 70.9 | 62.5 | 58.4 | 54.2 | 54.2 | 54.2 | 55.6 |
| 12.5° | 108.4 | 98.7 | 83.4 | 72.3 | 61.1 | 51.4 | 43.1 | 38.9 | 40.3 | 40.3 | 40.3 |
| 15° | 105.6 | 94.5 | 79.2 | 65.3 | 51.4 | 38.9 | 32.0 | 27.8 | 29.2 | 30.6 | 29.2 |
| 17.5° | 105.6 | 93.1 | 73.7 | 57.0 | 40.3 | 29.2 | 23.6 | 20.8 | 20.8 | 22.2 | 22.2 |
| 20° | 105.6 | 90.3 | 69.5 | 48.6 | 30.6 | 22.2 | 16.7 | 15.3 | 15.3 | 18.1 | 19.5 |
| 22.5° | 108.4 | 90.3 | 63.9 | 40.3 | 25.0 | 16.7 | 12.5 | 11.1 | 12.5 | 15.3 | 16.7 |
| 25° | 112.6 | 88.9 | 58.4 | 36.1 | 20.8 | 12.5 | 9.7 | 6.9 | 8.3 | 11.1 | 12.5 |
| 27.5° | 116.7 | 87.5 | 52.8 | 32.0 | 16.7 | 9.7 | 6.9 | 5.6 | 4.2 | 5.6 | 5.6 |
| 30° | 120.9 | 87.5 | 47.2 | 26.4 | 13.9 | 6.9 | 4.2 | 2.8 | 1.4 | 0.0 | 0.0 |
| 32.5° | 123.7 | 84.8 | 43.1 | 20.8 | 11.1 | 5.6 | 2.8 | 1.4 | 0.0 | 0.0 | 0.0 |
| 35° | 126.5 | 82.0 | 37.5 | 16.7 | 8.3 | 4.2 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 37.5° | 129.2 | 77.8 | 32.0 | 13.9 | 6.9 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 40° | 132.0 | 72.3 | 26.4 | 12.5 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 42.5° | 134.8 | 68.1 | 22.2 | 9.7 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 45° | 141.7 | 65.3 | 18.1 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 47.5° | 154.2 | 62.5 | 16.7 | 5.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 50° | 172.3 | 59.8 | 15.3 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 52.5° | 197.3 | 58.4 | 13.9 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 55° | 241.8 | 57.0 | 12.5 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 57.5° | 318.2 | 55.6 | 12.5 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 60° | 487.8 | 52.8 | 12.5 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 62.5° | 871.3 | 51.4 | 11.1 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 65° | 1518.9 | 52.8 | 11.1 | 2.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 67.5° | 2177.5 | 55.6 | 9.7 | 4.2 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 70° | 1863.5 | 48.6 | 9.7 | 5.6 | 2.8 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 71° | *1518.9* | *43.1* | *9.7* | *5.6* | *2.8* | *1.4* | *1.4* | *0.0* | *0.0* | *0.0* | *0.0* |
| 72.5° | 976.9 | 33.4 | 8.3 | 5.6 | 2.8 | 2.8 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 412.7 | 27.8 | 8.3 | 5.6 | 4.2 | 2.8 | 2.8 | 1.4 | 0.0 | 0.0 | 0.0 |
| 77.5° | 176.5 | 20.8 | 8.3 | 6.9 | 5.6 | 4.2 | 4.2 | 2.8 | 1.4 | 0.0 | 0.0 |
| 80° | 66.7 | 16.7 | 9.7 | 8.3 | 6.9 | 6.9 | 5.6 | 2.8 | 1.4 | 0.0 | 0.0 |
| 82.5° | 30.6 | 13.9 | 9.7 | 8.3 | 8.3 | 6.9 | 5.6 | 4.2 | 2.8 | 0.0 | 0.0 |
| 85° | 19.5 | 12.5 | 9.7 | 8.3 | 8.3 | 6.9 | 6.9 | 4.2 | 2.8 | 0.0 | 0.0 |
| 87.5° | 15.3 | 12.5 | 9.7 | 9.7 | 8.3 | 8.3 | 5.6 | 4.2 | 1.4 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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# LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-15

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-935-U-5WQ

Data in this report applies to families of products including GSS-SB1A-935-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

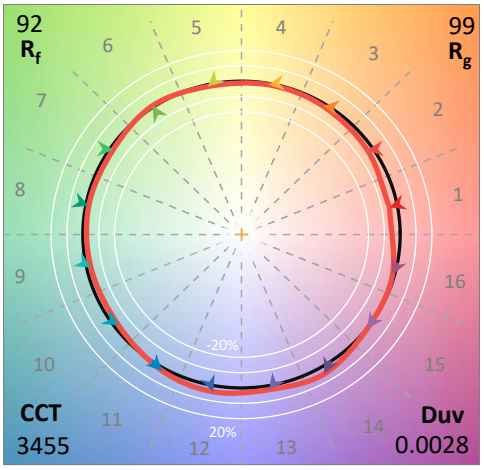
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-15 |
| 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-935-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI 3500K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 3455 |
| CIE u': | 0.2356 |
| CIE v': | 0.5159 |
| Duv: | 0.0028 |
| CIE x: | 0.4109 |
| CIE y: | 0.3999 |
| CIE z: | 0.1892 |
| Peak Wavelength (nm): | 616 |
| Dominant Wavelength (nm): | 579 |
| Purity: | 43.35383 |
| Rf: | 92.3 |
| Rg: | 98.5 |

| | |
|---|---|
| CRI (Ra): | 92.2 |
| R1: | 92.0 |
| R2: | 94.4 |
| R3: | 95.6 |
| R4: | 93.2 |
| R5: | 91.4 |
| R6: | 92.5 |
| R7: | 94.5 |
| R8: | 84.2 |
| R9: | 59.8 |
| R10: | 85.8 |
| R11: | 93.2 |
| R12: | 78.0 |
| R13: | 92.5 |
| R14: | 97.0 |
| R15: | 88.4 |




## Test Conditions

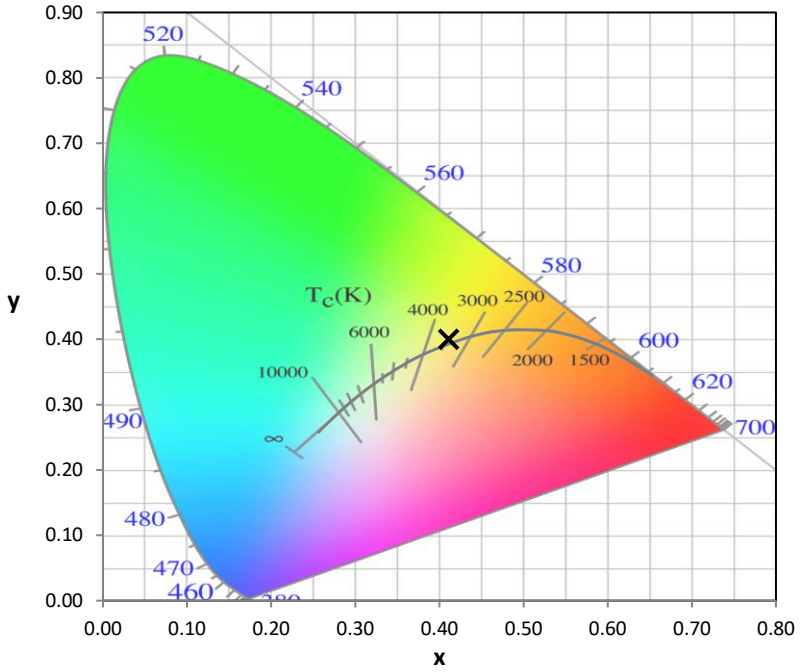
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-184-15

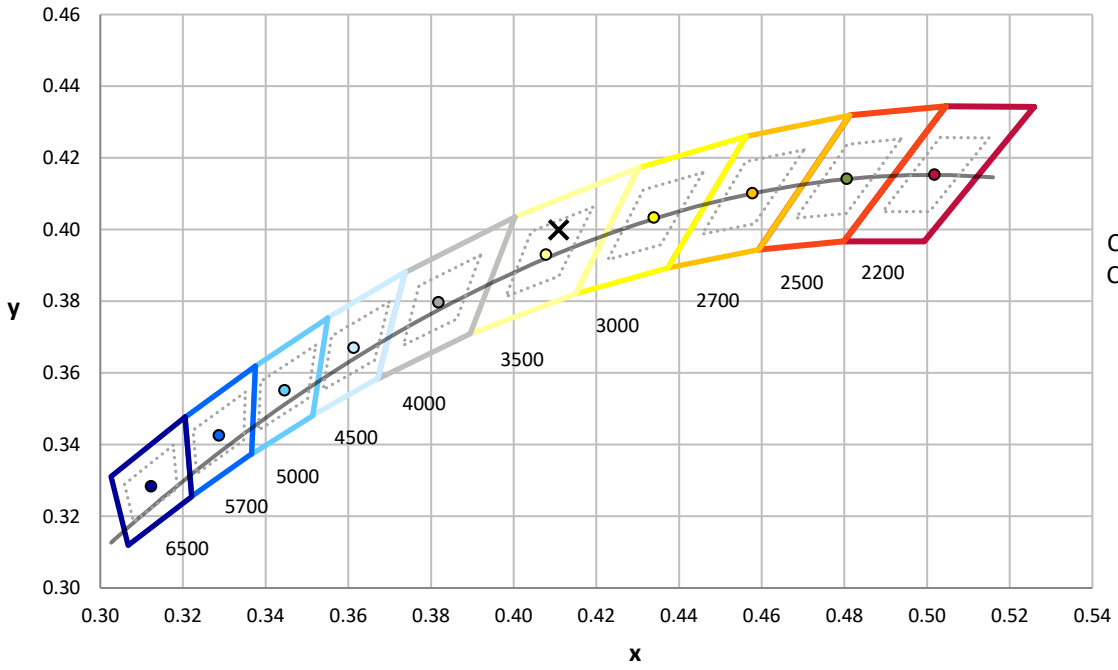
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC 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: SP1-2407-184-15

## CIE 1931 Chromaticity Diagram




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




CCT = 3455K
CIE x = 0.4109
CIE y = 0.3999
Duv = 0.0028

Point lies inside the ANSI 3500K 4-step quadrangle

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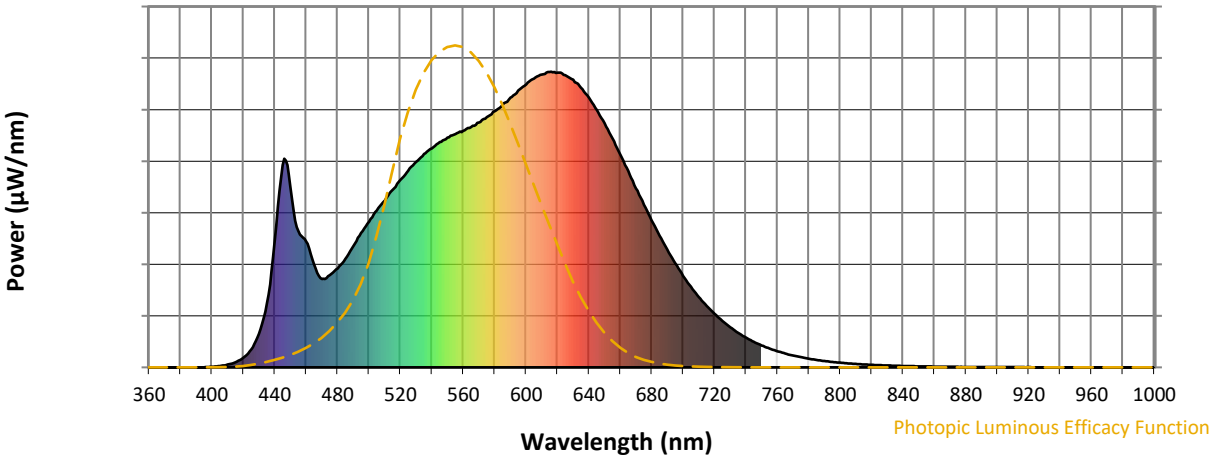
## Photopic Flux vs. Wavelength




## 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 | 410 | NR | 620 | 997 | NR | 750 | 74 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 454 | NR | 625 | 988 | NR | 755 | 64 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 493 | NR | 630 | 973 | NR | 760 | 54 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 530 | NR | 635 | 946 | NR | 765 | 47 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 564 | NR | 640 | 913 | NR | 770 | 40 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 599 | NR | 645 | 870 | NR | 775 | 34 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 634 | NR | 650 | 826 | NR | 780 | 29 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 664 | NR | 655 | 774 | NR | 785 | 25 | NR | 915 | 1 | NR |
| 400 | 2 | NR | 530 | 695 | NR | 660 | 720 | NR | 790 | 21 | NR | 920 | 1 | NR |
| 405 | 4 | NR | 535 | 722 | NR | 665 | 664 | NR | 795 | 18 | NR | 925 | 1 | NR |
| 410 | 9 | NR | 540 | 741 | NR | 670 | 605 | NR | 800 | 16 | NR | 930 | 0 | NR |
| 415 | 17 | NR | 545 | 762 | NR | 675 | 550 | NR | 805 | 13 | NR | 935 | 0 | NR |
| 420 | 32 | NR | 550 | 777 | NR | 680 | 497 | NR | 810 | 12 | NR | 940 | 0 | NR |
| 425 | 61 | NR | 555 | 789 | NR | 685 | 445 | NR | 815 | 10 | NR | 945 | 0 | NR |
| 430 | 114 | NR | 560 | 800 | NR | 690 | 398 | NR | 820 | 9 | NR | 950 | 0 | NR |
| 435 | 218 | NR | 565 | 813 | NR | 695 | 352 | NR | 825 | 7 | NR | 955 | 0 | NR |
| 440 | 427 | NR | 570 | 828 | NR | 700 | 309 | NR | 830 | 6 | NR | 960 | 0 | NR |
| 445 | 684 | NR | 575 | 846 | NR | 705 | 273 | NR | 835 | 5 | NR | 965 | 0 | NR |
| 450 | 611 | NR | 580 | 866 | NR | 710 | 237 | NR | 840 | 5 | NR | 970 | 0 | NR |
| 455 | 461 | NR | 585 | 888 | NR | 715 | 208 | NR | 845 | 4 | NR | 975 | 0 | NR |
| 460 | 427 | NR | 590 | 913 | NR | 720 | 181 | NR | 850 | 4 | NR | 980 | 0 | NR |
| 465 | 349 | NR | 595 | 936 | NR | 725 | 157 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 298 | NR | 600 | 957 | NR | 730 | 136 | NR | 860 | 3 | NR | 990 | 1 | NR |
| 475 | 312 | NR | 605 | 976 | NR | 735 | 117 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 335 | NR | 610 | 990 | NR | 740 | 100 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 367 | NR | 615 | 999 | NR | 745 | 86 | NR | 875 | 2 | NR | | | |

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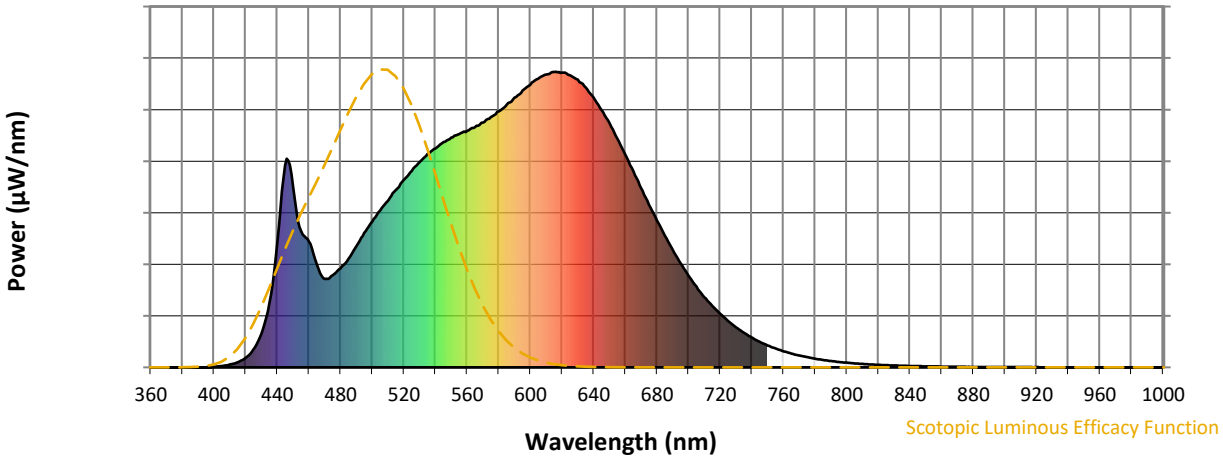
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: NR** **S/P: 1.58**

| 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 | 410 | NR | 620 | 997 | NR | 750 | 74 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 454 | NR | 625 | 988 | NR | 755 | 64 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 493 | NR | 630 | 973 | NR | 760 | 54 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 530 | NR | 635 | 946 | NR | 765 | 47 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 564 | NR | 640 | 913 | NR | 770 | 40 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 599 | NR | 645 | 870 | NR | 775 | 34 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 634 | NR | 650 | 826 | NR | 780 | 29 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 664 | NR | 655 | 774 | NR | 785 | 25 | NR | 915 | 1 | NR |
| 400 | 2 | NR | 530 | 695 | NR | 660 | 720 | NR | 790 | 21 | NR | 920 | 1 | NR |
| 405 | 4 | NR | 535 | 722 | NR | 665 | 664 | NR | 795 | 18 | NR | 925 | 1 | NR |
| 410 | 9 | NR | 540 | 741 | NR | 670 | 605 | NR | 800 | 16 | NR | 930 | 0 | NR |
| 415 | 17 | NR | 545 | 762 | NR | 675 | 550 | NR | 805 | 13 | NR | 935 | 0 | NR |
| 420 | 32 | NR | 550 | 777 | NR | 680 | 497 | NR | 810 | 12 | NR | 940 | 0 | NR |
| 425 | 61 | NR | 555 | 789 | NR | 685 | 445 | NR | 815 | 10 | NR | 945 | 0 | NR |
| 430 | 114 | NR | 560 | 800 | NR | 690 | 398 | NR | 820 | 9 | NR | 950 | 0 | NR |
| 435 | 218 | NR | 565 | 813 | NR | 695 | 352 | NR | 825 | 7 | NR | 955 | 0 | NR |
| 440 | 427 | NR | 570 | 828 | NR | 700 | 309 | NR | 830 | 6 | NR | 960 | 0 | NR |
| 445 | 684 | NR | 575 | 846 | NR | 705 | 273 | NR | 835 | 5 | NR | 965 | 0 | NR |
| 450 | 611 | NR | 580 | 866 | NR | 710 | 237 | NR | 840 | 5 | NR | 970 | 0 | NR |
| 455 | 461 | NR | 585 | 888 | NR | 715 | 208 | NR | 845 | 4 | NR | 975 | 0 | NR |
| 460 | 427 | NR | 590 | 913 | NR | 720 | 181 | NR | 850 | 4 | NR | 980 | 0 | NR |
| 465 | 349 | NR | 595 | 936 | NR | 725 | 157 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 298 | NR | 600 | 957 | NR | 730 | 136 | NR | 860 | 3 | NR | 990 | 1 | NR |
| 475 | 312 | NR | 605 | 976 | NR | 735 | 117 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 335 | NR | 610 | 990 | NR | 740 | 100 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 367 | NR | 615 | 999 | NR | 745 | 86 | NR | 875 | 2 | NR | | | |

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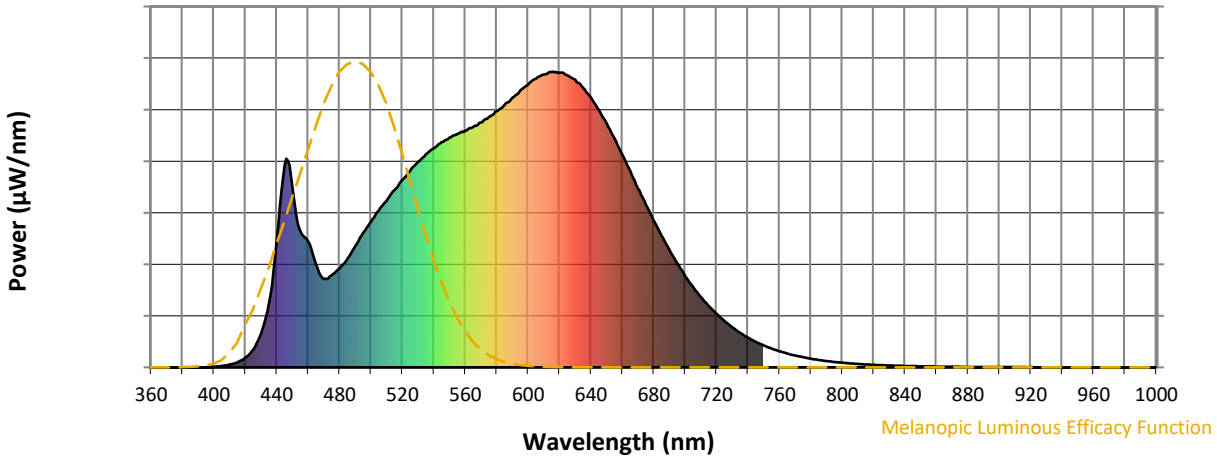
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 3.14**

| 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 | 410 | NR | 620 | 997 | NR | 750 | 74 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 454 | NR | 625 | 988 | NR | 755 | 64 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 493 | NR | 630 | 973 | NR | 760 | 54 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 530 | NR | 635 | 946 | NR | 765 | 47 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 564 | NR | 640 | 913 | NR | 770 | 40 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 599 | NR | 645 | 870 | NR | 775 | 34 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 634 | NR | 650 | 826 | NR | 780 | 29 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 664 | NR | 655 | 774 | NR | 785 | 25 | NR | 915 | 1 | NR |
| 400 | 2 | NR | 530 | 695 | NR | 660 | 720 | NR | 790 | 21 | NR | 920 | 1 | NR |
| 405 | 4 | NR | 535 | 722 | NR | 665 | 664 | NR | 795 | 18 | NR | 925 | 1 | NR |
| 410 | 9 | NR | 540 | 741 | NR | 670 | 605 | NR | 800 | 16 | NR | 930 | 0 | NR |
| 415 | 17 | NR | 545 | 762 | NR | 675 | 550 | NR | 805 | 13 | NR | 935 | 0 | NR |
| 420 | 32 | NR | 550 | 777 | NR | 680 | 497 | NR | 810 | 12 | NR | 940 | 0 | NR |
| 425 | 61 | NR | 555 | 789 | NR | 685 | 445 | NR | 815 | 10 | NR | 945 | 0 | NR |
| 430 | 114 | NR | 560 | 800 | NR | 690 | 398 | NR | 820 | 9 | NR | 950 | 0 | NR |
| 435 | 218 | NR | 565 | 813 | NR | 695 | 352 | NR | 825 | 7 | NR | 955 | 0 | NR |
| 440 | 427 | NR | 570 | 828 | NR | 700 | 309 | NR | 830 | 6 | NR | 960 | 0 | NR |
| 445 | 684 | NR | 575 | 846 | NR | 705 | 273 | NR | 835 | 5 | NR | 965 | 0 | NR |
| 450 | 611 | NR | 580 | 866 | NR | 710 | 237 | NR | 840 | 5 | NR | 970 | 0 | NR |
| 455 | 461 | NR | 585 | 888 | NR | 715 | 208 | NR | 845 | 4 | NR | 975 | 0 | NR |
| 460 | 427 | NR | 590 | 913 | NR | 720 | 181 | NR | 850 | 4 | NR | 980 | 0 | NR |
| 465 | 349 | NR | 595 | 936 | NR | 725 | 157 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 298 | NR | 600 | 957 | NR | 730 | 136 | NR | 860 | 3 | NR | 990 | 1 | NR |
| 475 | 312 | NR | 605 | 976 | NR | 735 | 117 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 335 | NR | 610 | 990 | NR | 740 | 100 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 367 | NR | 615 | 999 | NR | 745 | 86 | NR | 875 | 2 | NR | | | |

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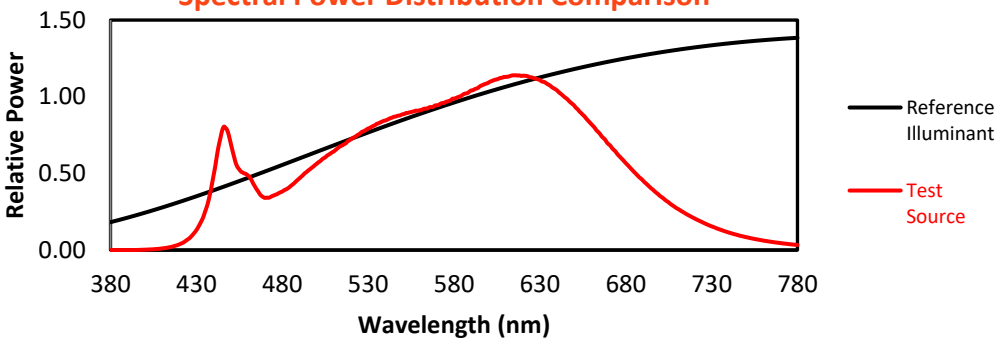
# TM-30-18

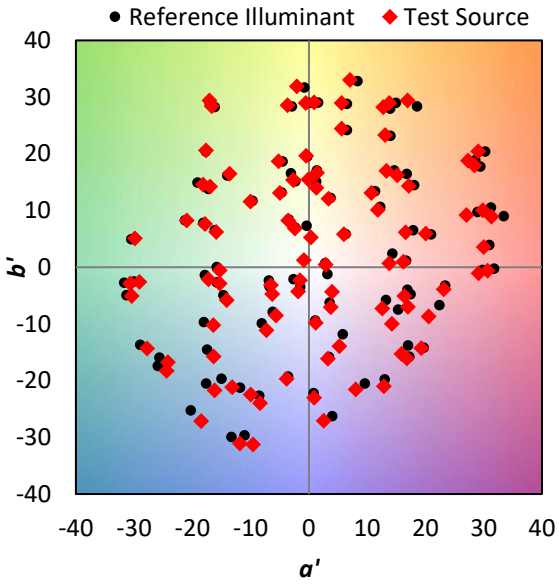
## Summary

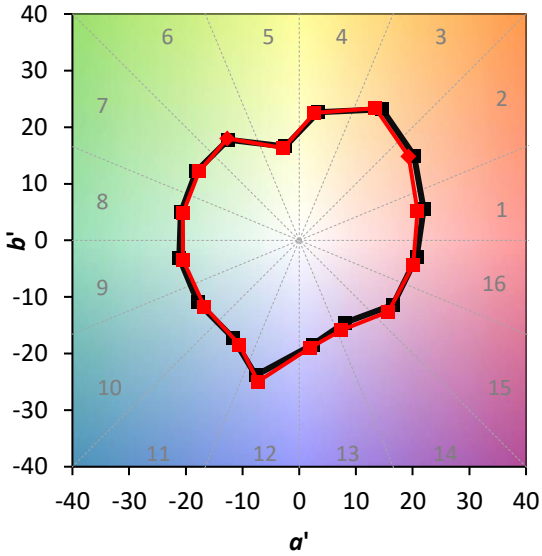
$R_f$ = 92.3
$R_g$ = 98.5
CIE $R_a$ = 92.2
$R_9$ = 59.8

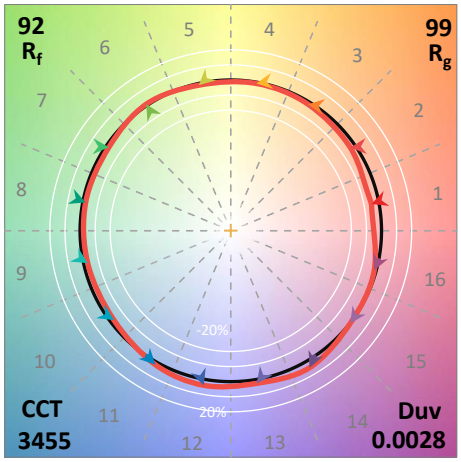
## Spectral Power Distribution Comparison

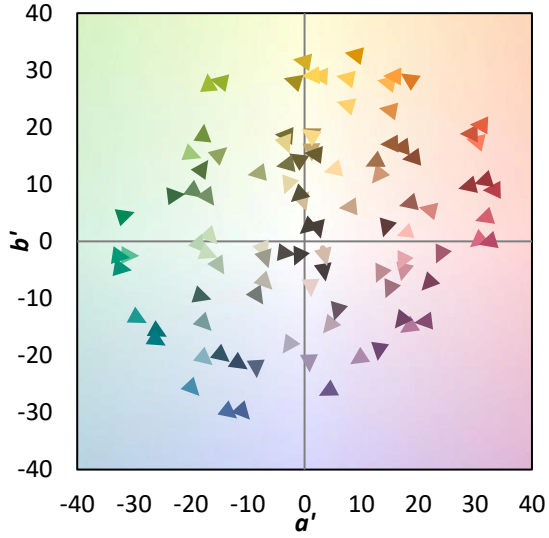



## Color Vector Graphics



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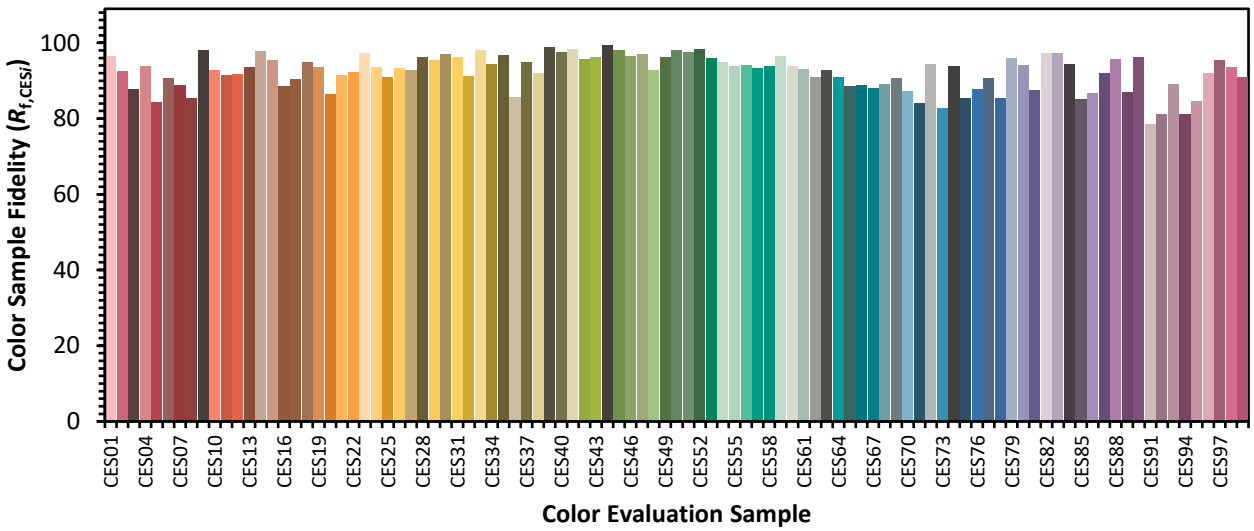
**Individual Sample Fidelity Index ($R_{f,i}$)**

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 93 | CES51 = 97 | CES76 = 88 |
| CES02 = 62 | CES27 = 93 | CES52 = 98 | CES77 = 91 |
| CES03 = 31 | CES28 = 96 | CES53 = 96 | CES78 = 85 |
| CES04 = 70 | CES29 = 95 | CES54 = 95 | CES79 = 96 |
| CES05 = 50 | CES30 = 97 | CES55 = 94 | CES80 = 94 |
| CES06 = 51 | CES31 = 96 | CES56 = 94 | CES81 = 87 |
| CES07 = 42 | CES32 = 91 | CES57 = 93 | CES82 = 97 |
| CES08 = 41 | CES33 = 98 | CES58 = 94 | CES83 = 97 |
| CES09 = 29 | CES34 = 94 | CES59 = 96 | CES84 = 94 |
| CES10 = 75 | CES35 = 97 | CES60 = 94 | CES85 = 85 |
| CES11 = 58 | CES36 = 86 | CES61 = 93 | CES86 = 87 |
| CES12 = 64 | CES37 = 95 | CES62 = 91 | CES87 = 92 |
| CES13 = 43 | CES38 = 92 | CES63 = 93 | CES88 = 96 |
| CES14 = 74 | CES39 = 99 | CES64 = 91 | CES89 = 87 |
| CES15 = 71 | CES40 = 98 | CES65 = 89 | CES90 = 96 |
| CES16 = 47 | CES41 = 98 | CES66 = 89 | CES91 = 78 |
| CES17 = 49 | CES42 = 96 | CES67 = 88 | CES92 = 81 |
| CES18 = 56 | CES43 = 96 | CES68 = 89 | CES93 = 89 |
| CES19 = 71 | CES44 = 99 | CES69 = 91 | CES94 = 81 |
| CES20 = 66 | CES45 = 98 | CES70 = 87 | CES95 = 85 |
| CES21 = 86 | CES46 = 97 | CES71 = 84 | CES96 = 92 |
| CES22 = 78 | CES47 = 97 | CES72 = 95 | CES97 = 95 |
| CES23 = 91 | CES48 = 93 | CES73 = 83 | CES98 = 94 |
| CES24 = 90 | CES49 = 96 | CES74 = 94 | CES99 = 91 |
| CES25 = 71 | CES50 = 98 | CES75 = 85 | |



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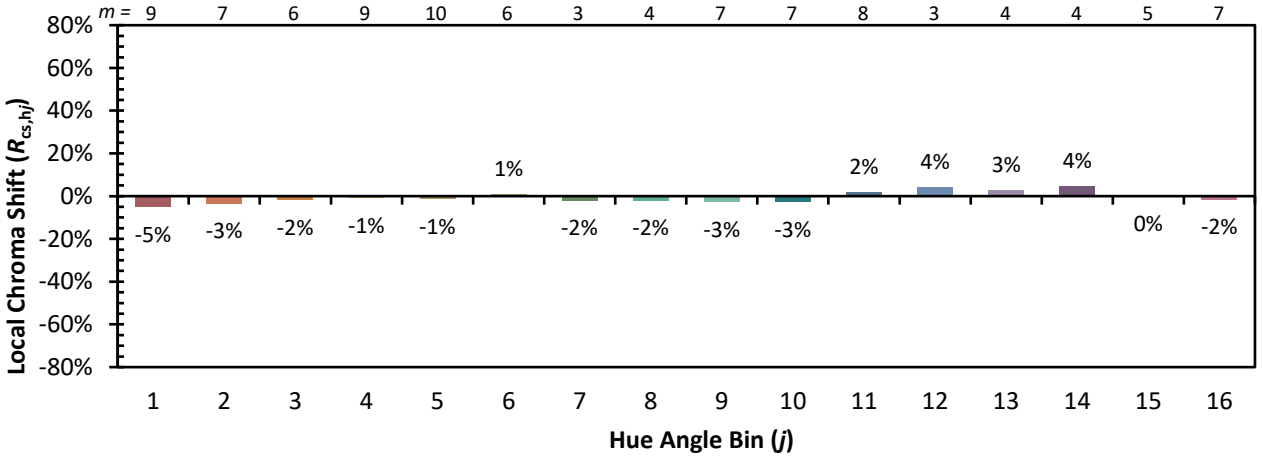
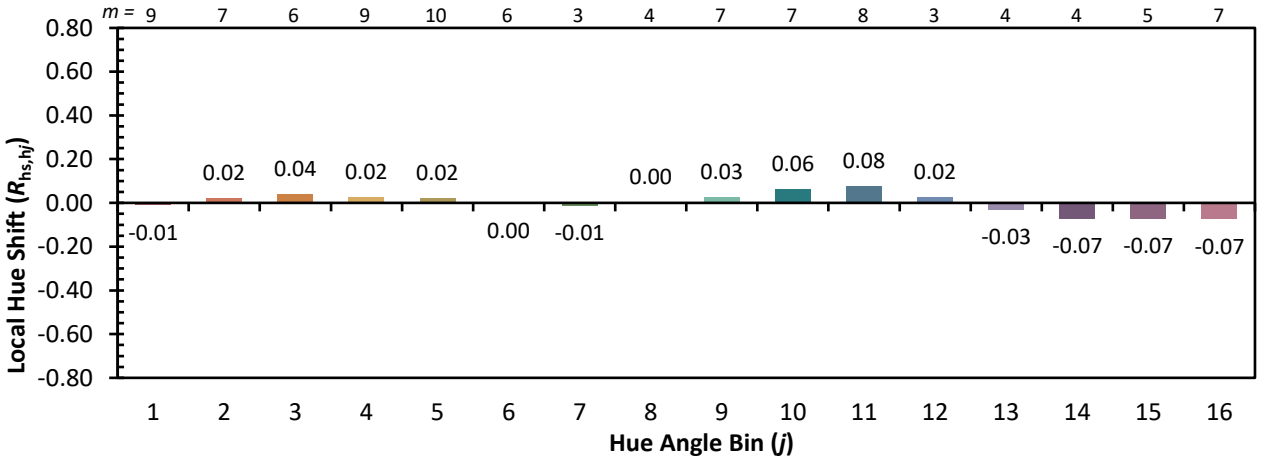
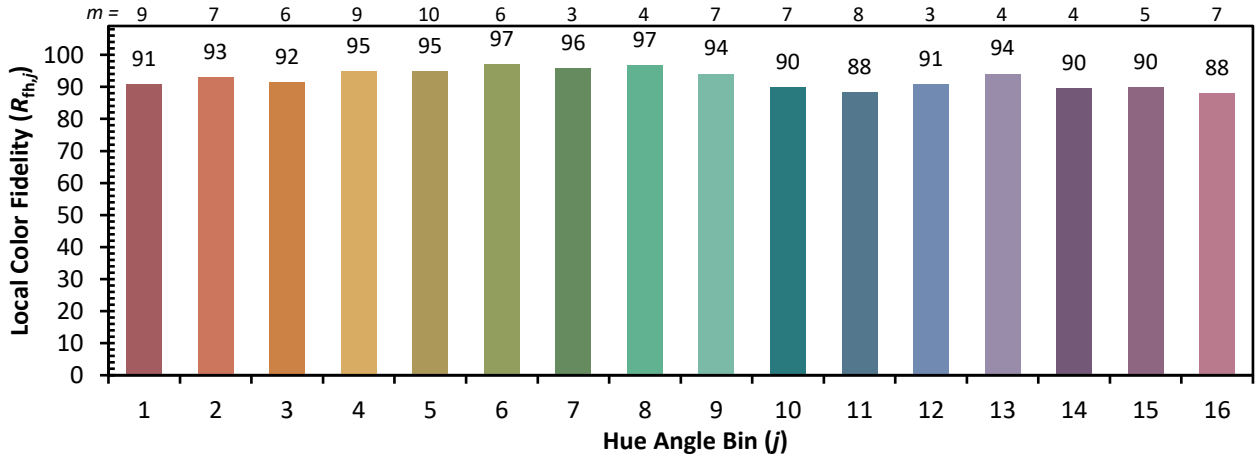
## Color Rendition by Hue-Angle Bin



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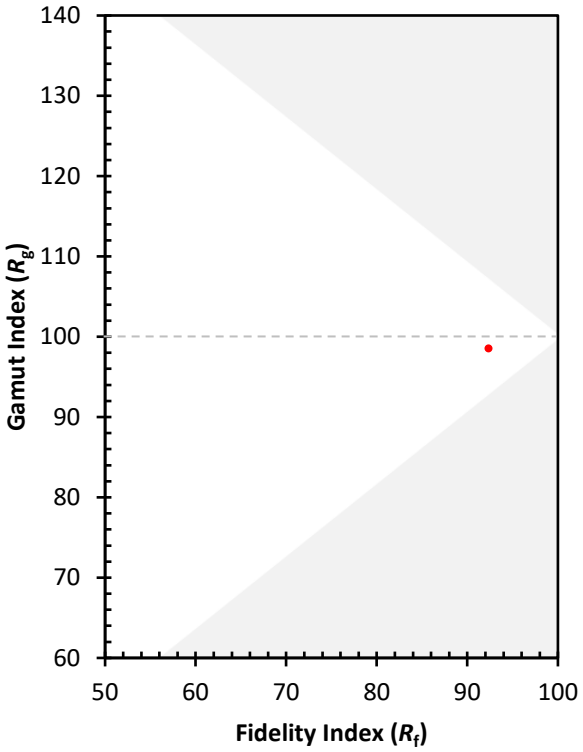
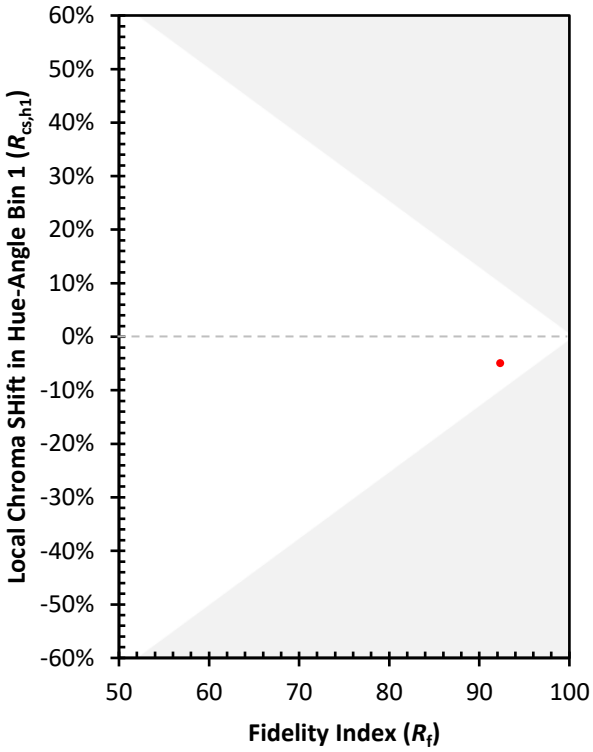
## Measure Comparisons




(END OF REPORT)