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

Scaled data based on original data using

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

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P640279

Luminaire Tested: GWS-SA5D-750-U-AFL-W-HSS

Issue Date: 1/10/2023

Report Generated By 670246102 / DESKTOP-G35701P

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P640279 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-48) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 1/10/2023 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GWS-SA5D-750-U-AFL-W-HSS |
| Description: | GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS WITH HOUSE SIDE SHIELD |
| Light Source: | (80) 5000K CCT, 70 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 25769.5 lumens |
| Efficiency: | N/A |
| Efficacy: | 126.0 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1' x H: 0') |
| IES Classification: | Type II - Short |
| BUG Rating: | B2 - U0 - G2 |

| | |
|---|---|
| Input Watts (W): | 204.6 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 0 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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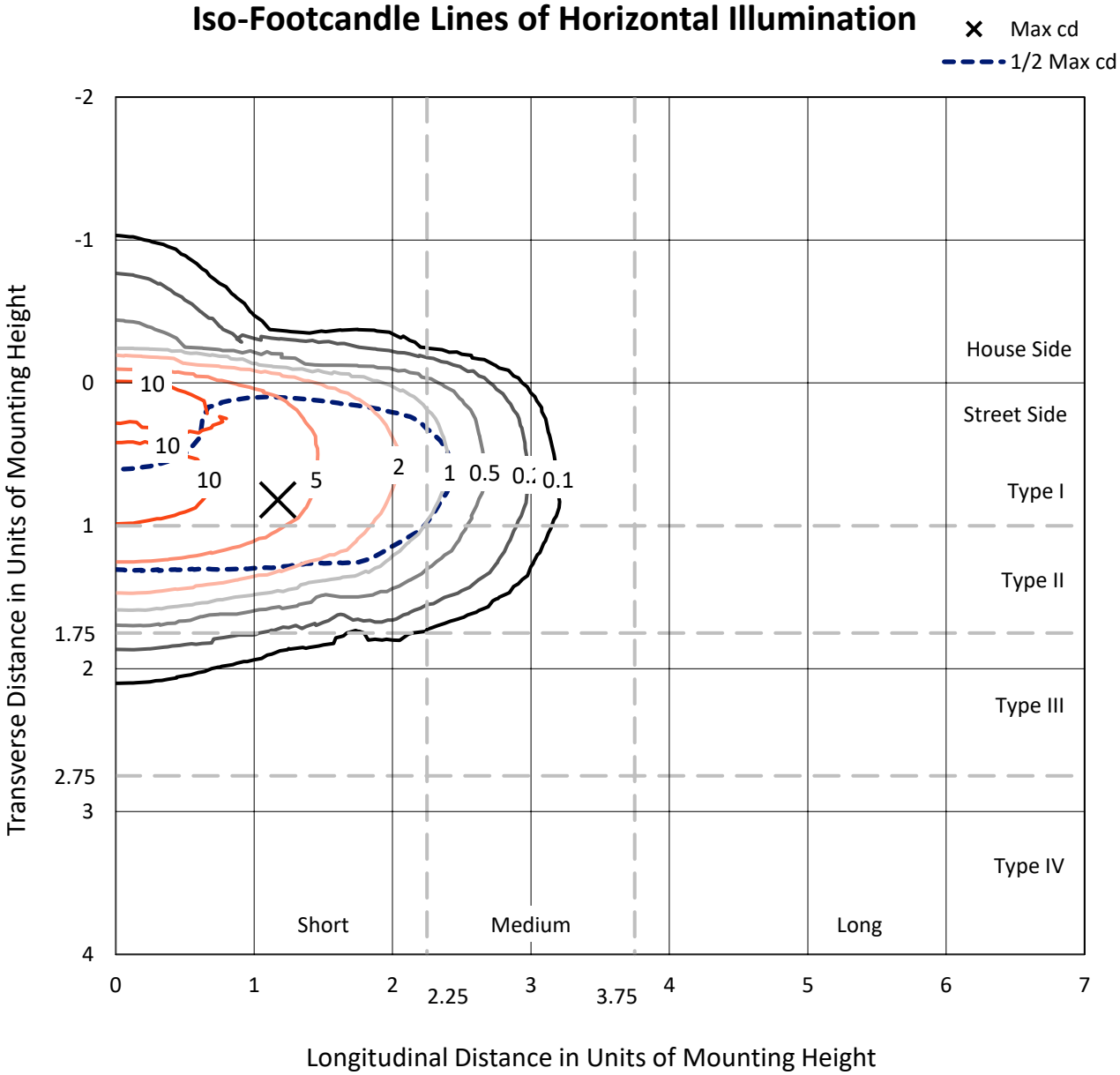
Scaled Data Report

REPORT NUMBER: P640279
CATALOG NUMBER: GWS-SA5D-750-U-AFL-W-HSS

## Iso-Footcandle Lines of Horizontal Illumination




Based on 25 foot mounting height. Maximum calculated value = 14 fc
Type II - Short - N/A

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REPORT NUMBER: P640279
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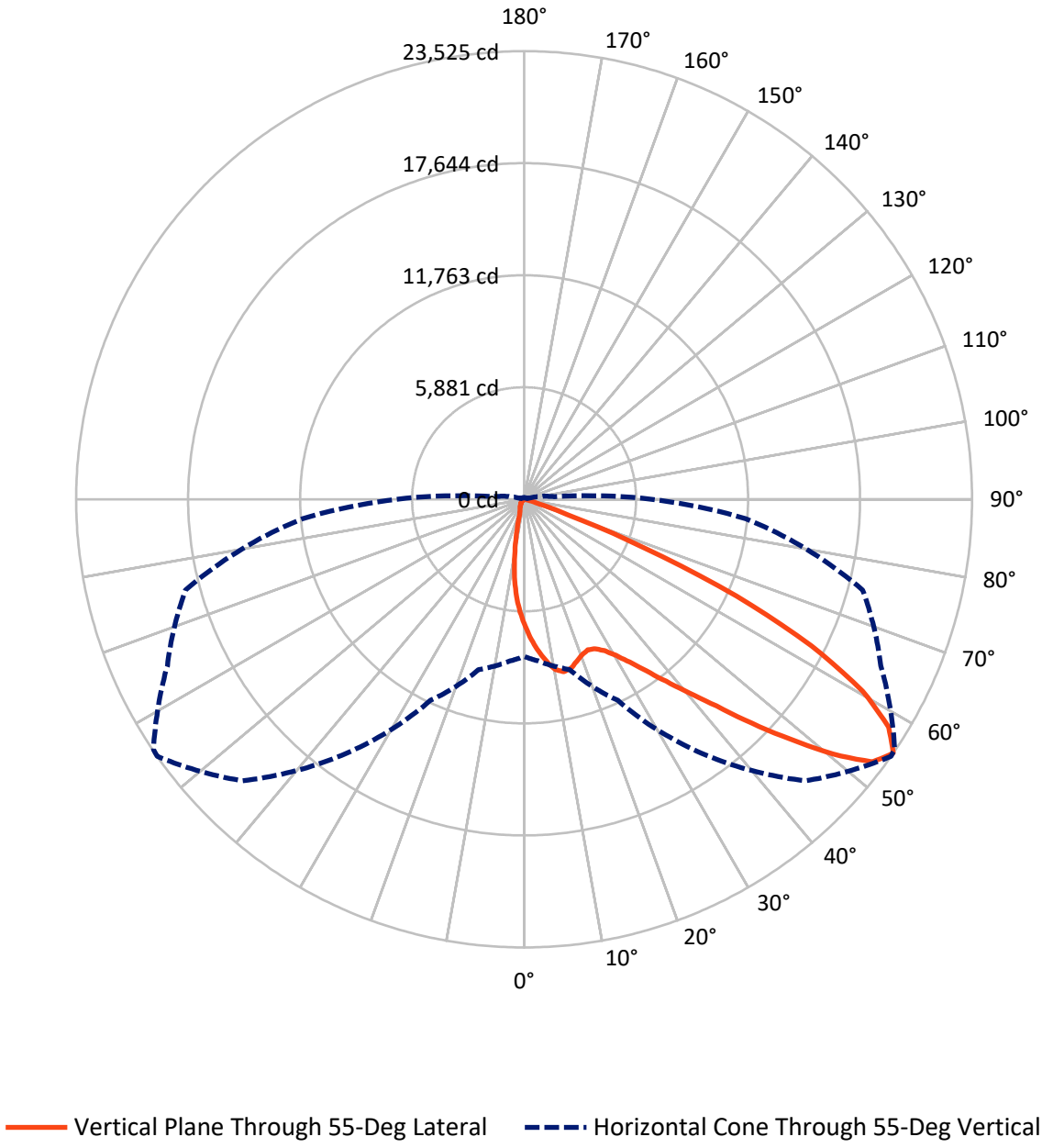
## Luminous Intensity Polar Plot



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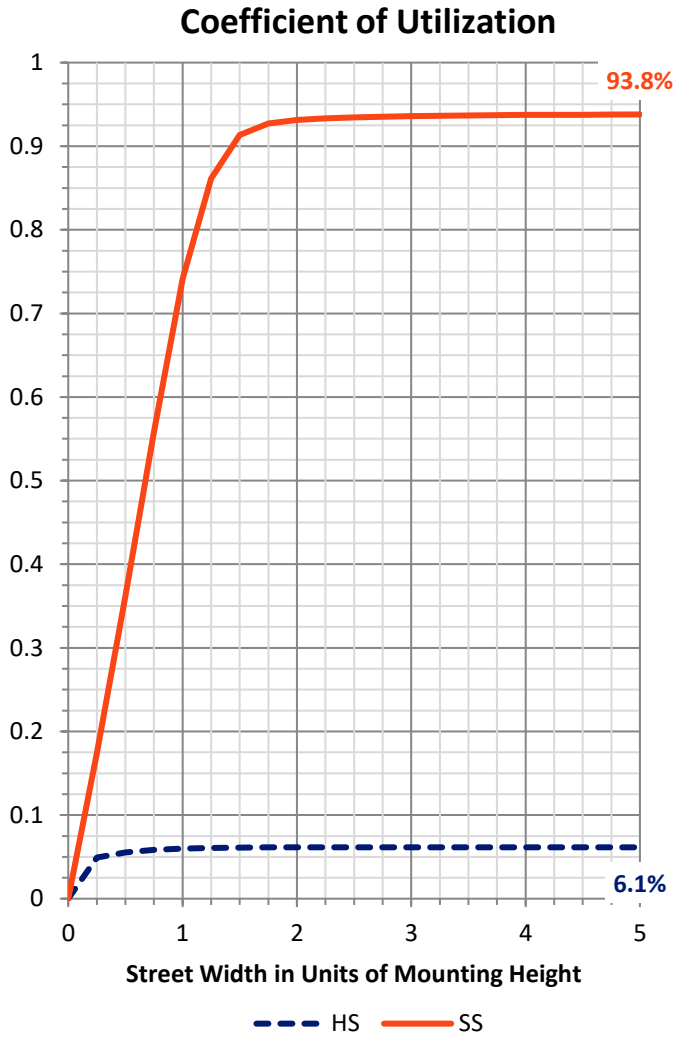
REPORT NUMBER: P640279
CATALOG NUMBER: GWS-SA5D-750-U-AFL-W-HSS

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1590.1 | 0.0 | 1590.1 |
| | % Fixture | 6.2 | 0.0 | 6.2 |
| **Street Side** | Lumens | 24179.4 | 0.0 | 24179.4 |
| | % Fixture | 93.8 | 0.0 | 93.8 |
| **Total** | Lumens | 25769.5 | 0.0 | 25769.5 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 588.3 | 2.3 |
| 10°-20° | 1418.4 | 5.5 |
| 20°-30° | 2362.3 | 9.2 |
| 30°-40° | 4025.4 | 15.6 |
| 40°-50° | 6570.9 | 25.5 |
| 50°-60° | 6879.4 | 26.7 |
| 60°-70° | 3469.8 | 13.5 |
| 70°-80° | 438.3 | 1.7 |
| 80°-90° | 16.6 | 0.1 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 25769.5 | 100.0 |
| 0°-180° | 25769.5 | 100.0 |



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REPORT NUMBER: P640279
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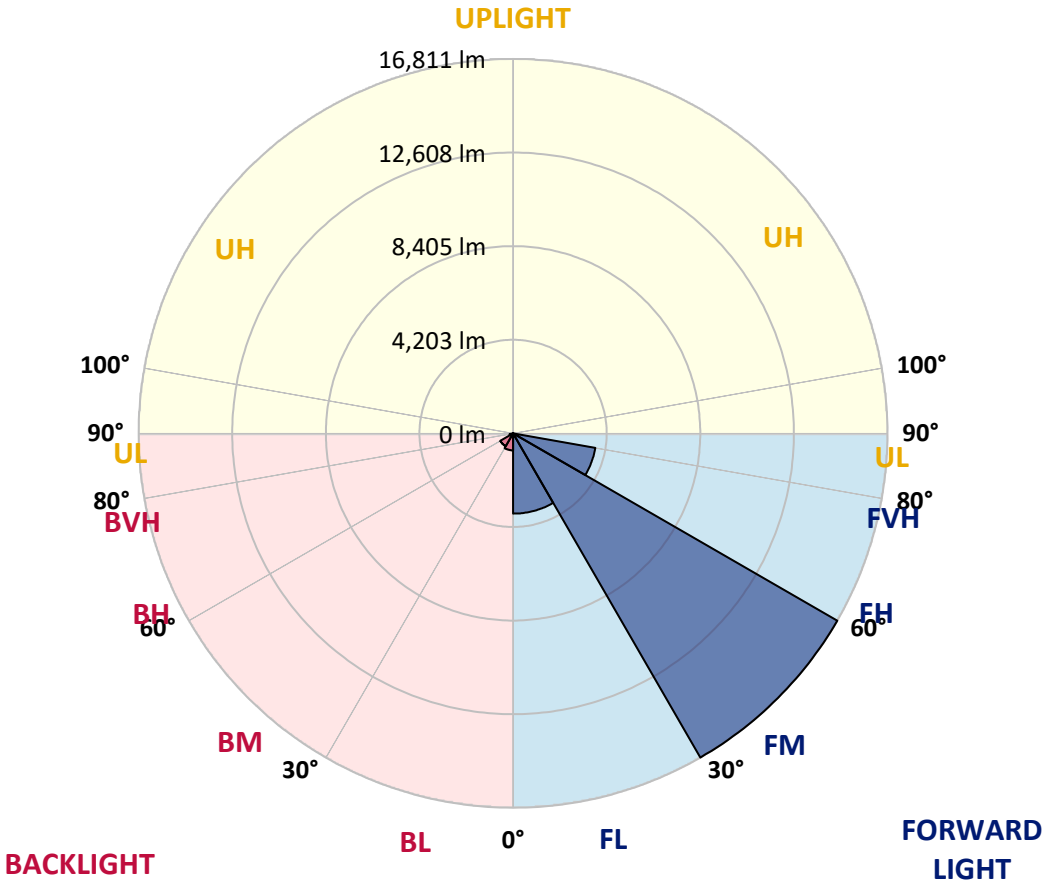
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 3604.8 | 14.0 | | | |
| FM | (30°-60°) | 16810.9 | 65.2 | | | |
| FH | (60°-80°) | 3748.6 | 14.5 | | | G2/5000 |
| FVH | (80°-90°) | 15.1 | 0.1 | | | G1/100 |
| BL | (0°-30°) | 764.3 | 3.0 | B2/1000 | | |
| BM | (30°-60°) | 664.8 | 2.6 | B1/1000 | | |
| BH | (60°-80°) | 159.5 | 0.6 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 1.5 | 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-G2**
Type II Short



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Scaled Data Report

REPORT NUMBER: P640279
CATALOG NUMBER: GWS-SA5D-750-U-AFL-W-HSS

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 56° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 |
| 2.5° | 7761.0 | 7723.6 | 7780.8 | 7714.7 | 7602.4 | 7507.7 | 7384.3 | 7340.2 | 7142.0 | 6954.7 | 6774.1 |
| 5° | 8703.9 | 8714.9 | 8697.3 | 8604.7 | 8446.1 | 8269.9 | 8021.0 | 7965.9 | 7620.0 | 7263.1 | 6877.6 |
| 7.5° | 8937.4 | 8930.8 | 8968.2 | 9003.5 | 8977.0 | 8888.9 | 8618.0 | 8562.9 | 8133.3 | 7598.0 | 7036.2 |
| 10° | 8217.0 | 8221.4 | 8298.5 | 8536.4 | 8831.6 | 9137.9 | 9096.0 | 9065.2 | 8644.4 | 7976.9 | 7212.5 |
| 12.5° | 7199.3 | 7238.9 | 7320.4 | 7659.7 | 8159.7 | 8855.9 | 9287.7 | 9318.5 | 9113.6 | 8393.3 | 7419.6 |
| 15° | 6758.7 | 6767.5 | 6833.6 | 7038.4 | 7410.7 | 8269.9 | 9206.1 | 9292.1 | 9505.8 | 8811.8 | 7644.3 |
| 17.5° | 6747.7 | 6758.7 | 6787.3 | 6877.6 | 7119.9 | 7809.5 | 8944.0 | 9093.8 | 9800.9 | 9261.2 | 7913.0 |
| 20° | 7161.8 | 7155.2 | 7135.4 | 7086.9 | 7192.6 | 7657.5 | 8701.7 | 8866.9 | 9961.8 | 9699.6 | 8184.0 |
| 22.5° | 7913.0 | 7904.2 | 7816.1 | 7615.6 | 7529.7 | 7796.3 | 8582.7 | 8732.5 | 10058.7 | 10089.5 | 8406.5 |
| 25° | 8778.8 | 8840.5 | 8675.2 | 8371.2 | 8159.7 | 8150.9 | 8688.5 | 8794.2 | 10142.4 | 10435.4 | 8558.5 |
| 27.5° | 9728.2 | 9748.1 | 9607.1 | 9265.6 | 8959.4 | 8719.3 | 8994.7 | 9074.0 | 10234.9 | 10743.8 | 8644.4 |
| 30° | 10770.2 | 10763.6 | 10602.8 | 10206.3 | 9834.0 | 9488.1 | 9510.2 | 9541.0 | 10450.8 | 11096.3 | 8739.1 |
| 32.5° | 12072.2 | 12100.8 | 11814.4 | 11274.7 | 10827.5 | 10349.5 | 10184.3 | 10188.7 | 10840.7 | 11550.1 | 8882.3 |
| 35° | 13841.2 | 13770.7 | 13391.8 | 12622.9 | 11860.7 | 11345.2 | 11063.2 | 11039.0 | 11442.1 | 12160.3 | 9131.2 |
| 37.5° | 15526.4 | 15533.0 | 15136.5 | 14290.6 | 13327.9 | 12515.0 | 12116.3 | 12050.2 | 12288.1 | 13006.2 | 9545.4 |
| 40° | 16696.2 | 16718.2 | 16553.0 | 16110.2 | 15090.2 | 13940.3 | 13354.3 | 13286.0 | 13385.2 | 14076.9 | 10087.3 |
| 42.5° | 17315.2 | 17376.9 | 17423.2 | 17526.7 | 16753.5 | 15720.3 | 14819.3 | 14812.7 | 14709.1 | 15297.3 | 10715.2 |
| 45° | 17339.5 | 17432.0 | 17714.0 | 18421.1 | 18509.2 | 17751.4 | 16771.1 | 16623.5 | 16224.8 | 16603.7 | 11276.9 |
| 47.5° | 16381.2 | 16594.9 | 17194.1 | 18595.1 | 19520.4 | 19771.5 | 18800.0 | 18709.7 | 17590.6 | 17636.9 | 11697.7 |
| 50° | 14147.4 | 14369.9 | 15473.6 | 17702.9 | 19775.9 | 21375.3 | 21027.2 | 20840.0 | 18731.7 | 18319.8 | 11900.4 |
| 52.5° | 11856.3 | 12059.0 | 12808.0 | 15579.3 | 18716.3 | 21879.7 | 22904.1 | 22681.6 | 19756.1 | 18557.7 | 11816.6 |
| 55° | 8250.1 | 8521.0 | 9252.4 | 11644.8 | 16275.4 | 20897.2 | 23525.4 | 23479.1 | 20670.3 | 18407.9 | 11686.7 |
| 57.5° | 4044.6 | 4313.4 | 5042.6 | 7179.4 | 12056.8 | 18244.9 | 22575.9 | 22820.4 | 21216.7 | 18247.1 | 11580.9 |
| 60° | 1689.7 | 1799.8 | 2051.0 | 3150.2 | 6745.4 | 13788.3 | 20432.4 | 20771.7 | 20881.8 | 18029.0 | 11569.9 |
| 62.5° | 980.3 | 997.9 | 1024.4 | 1306.4 | 2623.7 | 7904.2 | 16949.5 | 17432.0 | 19121.6 | 17740.4 | 11395.9 |
| 65° | 740.2 | 746.8 | 735.8 | 801.9 | 1083.9 | 2998.2 | 12246.2 | 12902.7 | 15960.4 | 16612.5 | 10708.6 |
| 67.5° | 608.0 | 608.0 | 579.4 | 592.6 | 680.7 | 1123.5 | 6760.9 | 7677.3 | 11810.0 | 13653.9 | 8842.7 |
| 70° | 484.7 | 495.7 | 482.4 | 464.8 | 486.9 | 621.2 | 2405.6 | 2982.8 | 6877.6 | 8062.8 | 5157.1 |
| 72.5° | 367.9 | 367.9 | 389.9 | 376.7 | 361.3 | 389.9 | 839.3 | 942.9 | 2760.3 | 3361.7 | 1861.5 |
| 75° | 284.2 | 293.0 | 308.4 | 295.2 | 273.2 | 231.3 | 403.1 | 427.4 | 832.7 | 782.0 | 416.4 |
| 77.5° | 145.4 | 147.6 | 196.1 | 215.9 | 202.7 | 141.0 | 176.2 | 193.9 | 271.0 | 242.3 | 154.2 |
| 80° | 88.1 | 92.5 | 110.1 | 169.6 | 134.4 | 74.9 | 72.7 | 77.1 | 127.8 | 110.1 | 63.9 |
| 82.5° | 37.5 | 39.7 | 61.7 | 61.7 | 55.1 | 28.6 | 28.6 | 28.6 | 61.7 | 57.3 | 26.4 |
| 85° | 0.0 | 0.0 | 11.0 | 8.8 | 8.8 | 11.0 | 11.0 | 11.0 | 15.4 | 22.0 | 13.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 6.6 | 6.6 |
| 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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REPORT NUMBER: P640279
CATALOG NUMBER: GWS-SA5D-750-U-AFL-W-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 | 6657.3 |
| 2.5° | 6657.3 | 6516.3 | 6326.9 | 6155.1 | 5923.7 | 5793.8 | 5613.1 | 5465.5 | 5340.0 | 5300.3 | 5282.7 |
| 5° | 6659.5 | 6417.2 | 6011.9 | 5606.5 | 5108.7 | 4716.5 | 4313.4 | 3994.0 | 3731.8 | 3648.1 | 3626.1 |
| 7.5° | 6703.6 | 6346.7 | 5690.2 | 4954.4 | 4121.7 | 3434.4 | 2819.8 | 2269.0 | 2013.5 | 1927.6 | 1910.0 |
| 10° | 6763.1 | 6287.2 | 5317.9 | 4172.4 | 2976.2 | 2092.8 | 1482.6 | 1130.1 | 962.7 | 870.2 | 883.4 |
| 12.5° | 6840.2 | 6238.8 | 4906.0 | 3326.5 | 1969.4 | 1149.9 | 815.1 | 682.9 | 647.7 | 630.0 | 621.2 |
| 15° | 6943.7 | 6181.5 | 4394.9 | 2487.1 | 1207.2 | 740.2 | 627.8 | 592.6 | 579.4 | 570.6 | 568.4 |
| 17.5° | 7049.5 | 6115.4 | 3875.0 | 1749.1 | 801.9 | 614.6 | 564.0 | 546.3 | 537.5 | 530.9 | 528.7 |
| 20° | 7161.8 | 6003.1 | 3264.8 | 1205.0 | 632.2 | 552.9 | 519.9 | 500.1 | 489.1 | 478.0 | 475.8 |
| 22.5° | 7210.3 | 5822.4 | 2681.0 | 843.7 | 561.8 | 508.9 | 467.0 | 442.8 | 429.6 | 420.8 | 420.8 |
| 25° | 7164.0 | 5529.4 | 2077.4 | 641.1 | 511.1 | 460.4 | 418.6 | 392.1 | 381.1 | 372.3 | 372.3 |
| 27.5° | 7040.6 | 5152.7 | 1515.6 | 530.9 | 456.0 | 409.7 | 370.1 | 345.9 | 337.1 | 332.6 | 332.6 |
| 30° | 6904.1 | 4676.9 | 1068.4 | 456.0 | 394.3 | 356.9 | 323.8 | 308.4 | 306.2 | 301.8 | 301.8 |
| 32.5° | 6787.3 | 4231.9 | 735.8 | 400.9 | 348.1 | 310.6 | 288.6 | 282.0 | 284.2 | 279.8 | 282.0 |
| 35° | 6723.4 | 3795.7 | 546.3 | 356.9 | 310.6 | 275.4 | 264.4 | 264.4 | 264.4 | 262.2 | 262.2 |
| 37.5° | 6749.9 | 3366.1 | 445.0 | 326.0 | 277.6 | 251.1 | 240.1 | 244.5 | 248.9 | 248.9 | 248.9 |
| 40° | 6882.0 | 2985.0 | 394.3 | 297.4 | 248.9 | 229.1 | 220.3 | 226.9 | 233.5 | 237.9 | 237.9 |
| 42.5° | 7049.5 | 2676.6 | 356.9 | 273.2 | 229.1 | 207.1 | 202.7 | 209.3 | 215.9 | 220.3 | 220.3 |
| 45° | 7155.2 | 2366.0 | 319.4 | 242.3 | 209.3 | 182.8 | 182.8 | 191.7 | 189.5 | 191.7 | 191.7 |
| 47.5° | 7203.7 | 2119.2 | 282.0 | 209.3 | 178.4 | 158.6 | 160.8 | 165.2 | 160.8 | 165.2 | 165.2 |
| 50° | 7084.7 | 1870.3 | 248.9 | 174.0 | 147.6 | 138.8 | 143.2 | 141.0 | 141.0 | 149.8 | 149.8 |
| 52.5° | 6866.6 | 1685.3 | 220.3 | 147.6 | 125.6 | 123.4 | 127.8 | 119.0 | 121.2 | 121.2 | 119.0 |
| 55° | *6705.8* | *1579.5* | *196.1* | *127.8* | *107.9* | *110.1* | *107.9* | *92.5* | *83.7* | *74.9* | *72.7* |
| 57.5° | 6626.5 | 1537.7 | 178.4 | 114.6 | 96.9 | 96.9 | 88.1 | 63.9 | 48.5 | 37.5 | 33.0 |
| 60° | 6608.9 | 1487.0 | 160.8 | 99.1 | 85.9 | 81.5 | 63.9 | 37.5 | 24.2 | 17.6 | 15.4 |
| 62.5° | 6441.4 | 1363.6 | 145.4 | 79.3 | 74.9 | 66.1 | 39.7 | 22.0 | 13.2 | 8.8 | 6.6 |
| 65° | 5892.9 | 1121.3 | 130.0 | 61.7 | 57.3 | 48.5 | 24.2 | 13.2 | 6.6 | 2.2 | 0.0 |
| 67.5° | 4687.9 | 795.3 | 114.6 | 46.3 | 39.7 | 30.8 | 15.4 | 8.8 | 2.2 | 0.0 | 0.0 |
| 70° | 2703.0 | 429.6 | 94.7 | 33.0 | 26.4 | 19.8 | 11.0 | 4.4 | 0.0 | 0.0 | 0.0 |
| 72.5° | 903.2 | 200.5 | 72.7 | 22.0 | 19.8 | 15.4 | 6.6 | 2.2 | 0.0 | 0.0 | 0.0 |
| 75° | 198.3 | 119.0 | 48.5 | 15.4 | 13.2 | 11.0 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 74.9 | 83.7 | 24.2 | 11.0 | 8.8 | 6.6 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 28.6 | 55.1 | 11.0 | 6.6 | 6.6 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 15.4 | 22.0 | 6.6 | 4.4 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 8.8 | 11.0 | 4.4 | 2.2 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 4.4 | 2.2 | 2.2 | 2.2 | 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-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Report Generated By FNC07603 / LDUCLS01DT446
Version: v6.13

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1121 Highway 74 South
Peachtree City, GA 30269

## Test Information

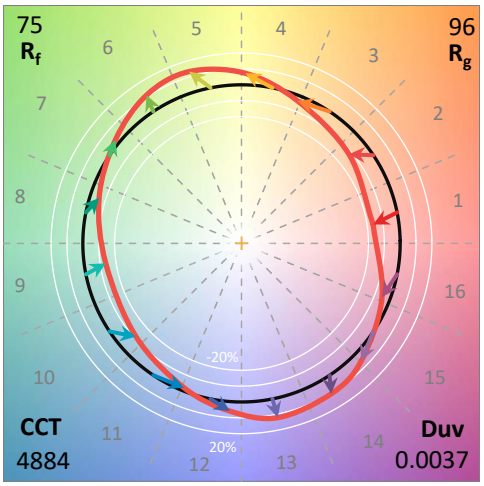
| | |
|---|---|
| Test Method: | LM-79-2008 |
| Report Number: | SP1-1908-441-4-R4 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/28/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | **SA1C-750-U-5WQ** |
| Description: | McGRAW EDISON ROADWAY AND AREA LUMINAIRE |

***THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.***TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 4884 | CRI (Ra): | 73.5 | | |
| CIE u': | 0.2101 | R1: | 70.5 | R9: | -28.4 |
| CIE v': | 0.4904 | R2: | 77.7 | R10: | 48.6 |
| Duv: | 0.0037 | R3: | 84.6 | R11: | 73.2 |
| CIE x: | 0.3493 | R4: | 74.7 | R12: | 50.7 |
| CIE y: | 0.3624 | R5: | 71.9 | R13: | 71.2 |
| CIE z: | 0.2884 | R6: | 70.7 | R14: | 91.4 |
| Peak Wavelength (nm): | 444 | R7: | 81.2 | | |
| Dominant Wavelength (nm): | 571 | R8: | 56.9 | | |
| Purity: | 13.7 | | | | |

| | |
|---|---|
| Rf: | 74.9 |
| Rg: | 96.3 |




## Test Conditions

| | |
|---|---|
| Stabilization Time: | 240M |
| Operation Time: | 12H |
| Room Temperature (°C) / RH%: | 25.0./44% |
| Sphere Temperature (°C): | 25.7 |

Cooper Lighting Solutions Photometric Lab
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REPORT NUMBER: SP1-1908-441-4-R4

| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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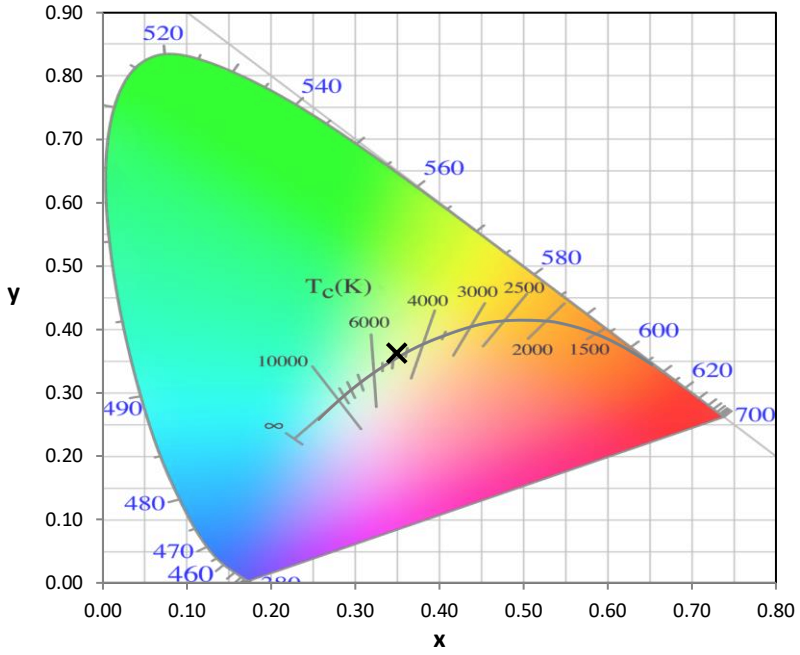
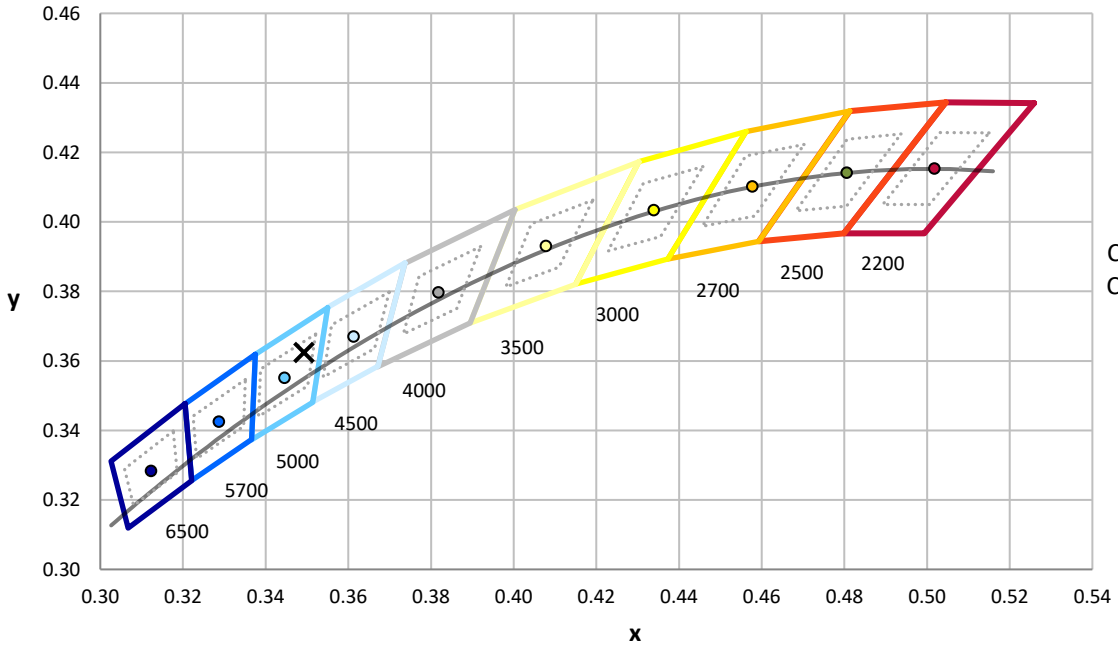
1121 Highway 74 South
Peachtree City, GA 30269

REPORT NUMBER: SP1-1908-441-4-R4

## CIE 1931 Chromaticity Diagram




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




CCT = 4884K
CIE x = 0.3493
CIE y = 0.3624
Duv = 0.0037

Point lies inside the ANSI 5000K 4-step quadrangle

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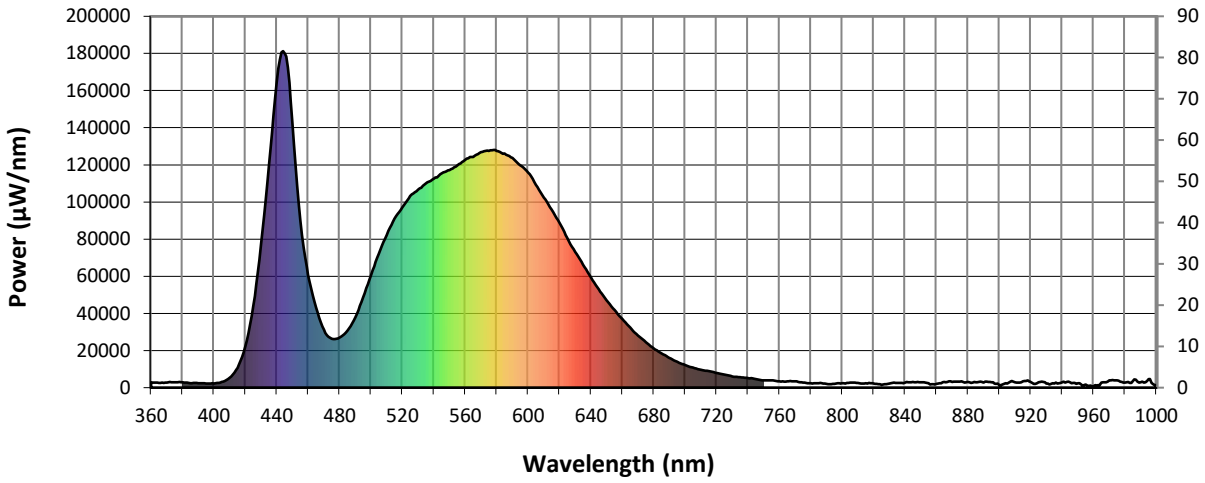
## Photopic Flux vs. Wavelength




######

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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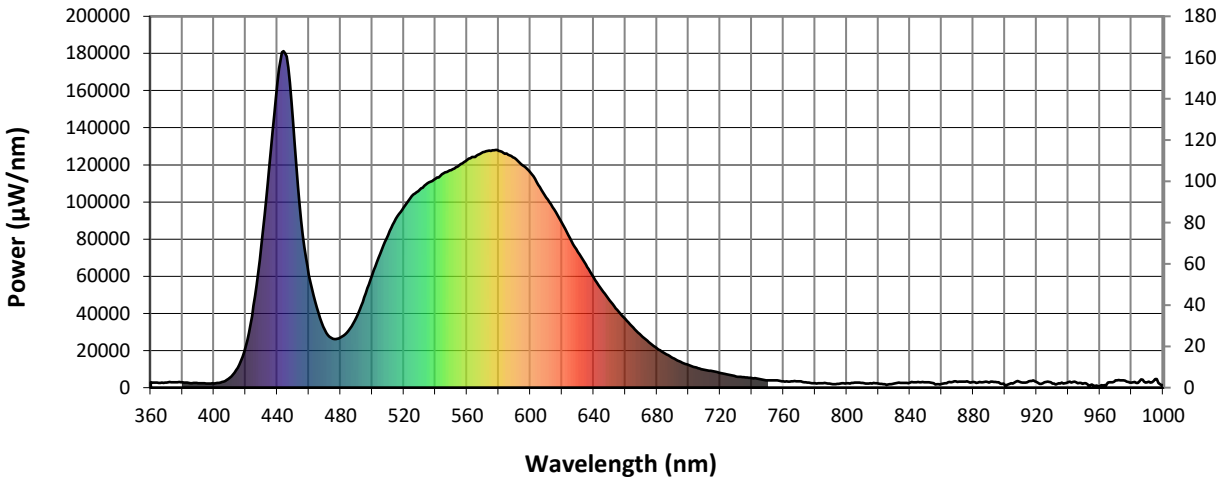
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: 13493.5** **S/P: 1.77**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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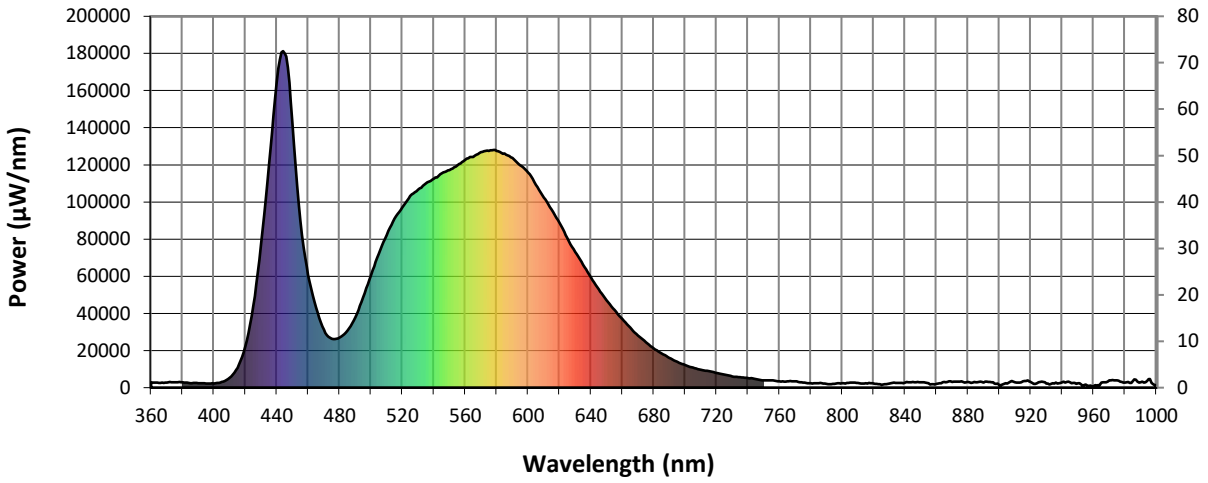
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: 5378.9 M/P: 0.71**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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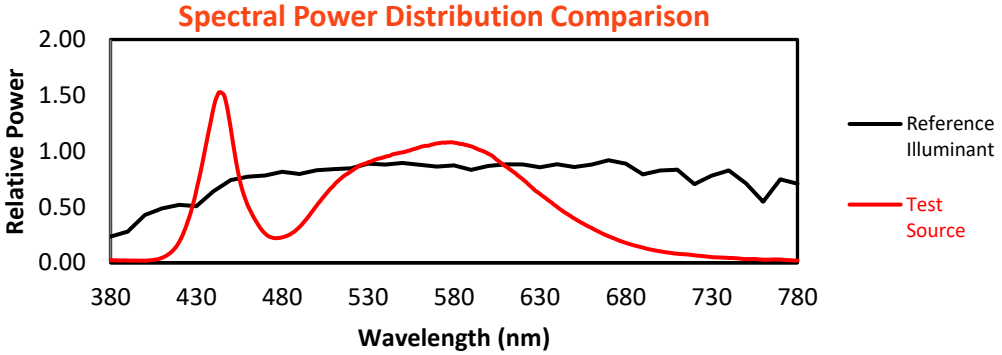
# TM-30-18

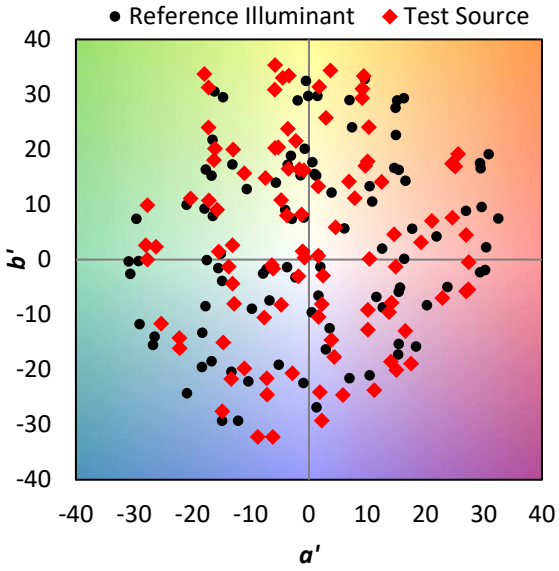
## Summary

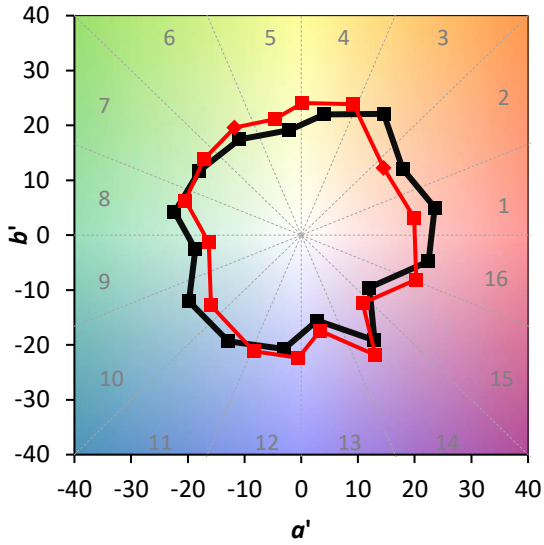
$R_f$ = 74.9
$R_g$ = 96.3
CIE $R_a$ = 73.5
$R_9$ = -28.4

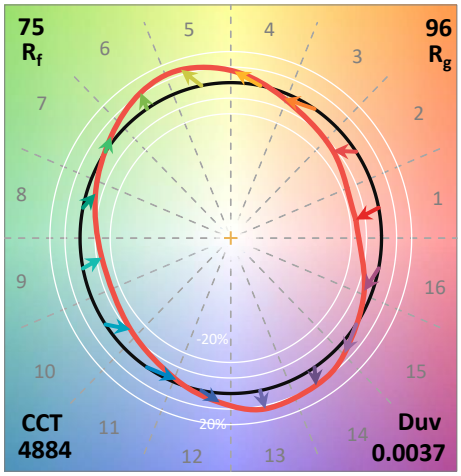
## Spectral Power Distribution Comparison

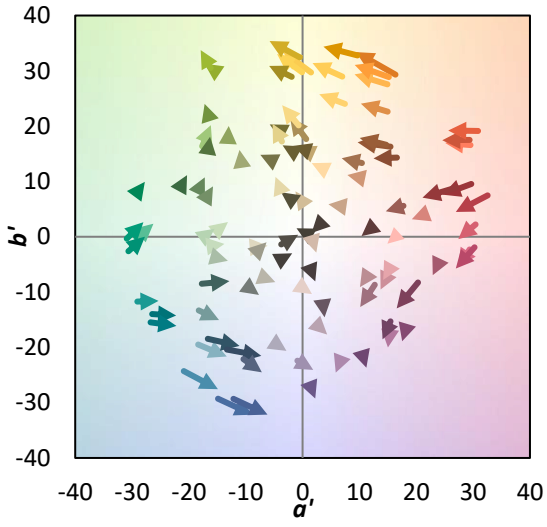



## Color Vector Graphics



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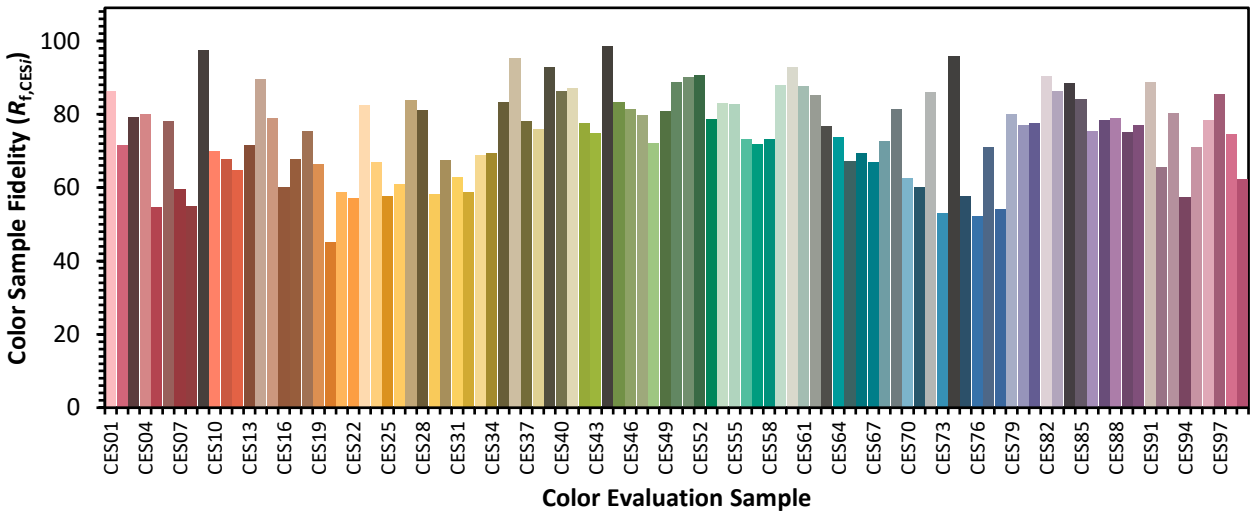
## TM-30-18

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

| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 | |



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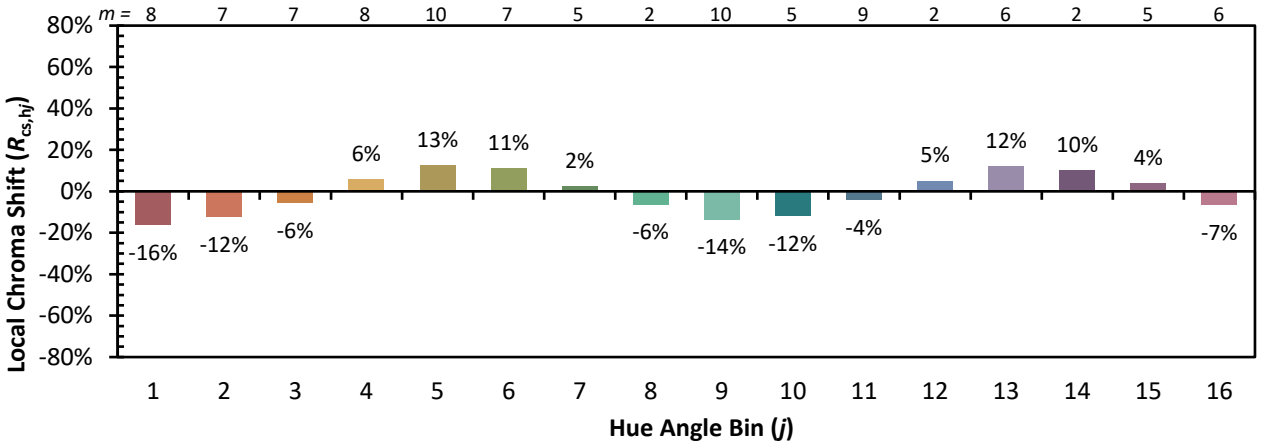
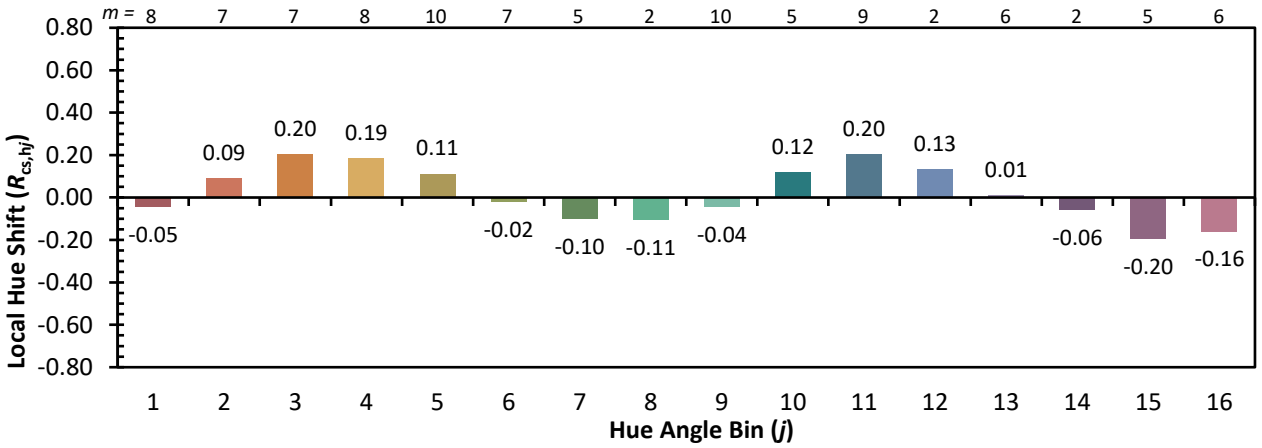
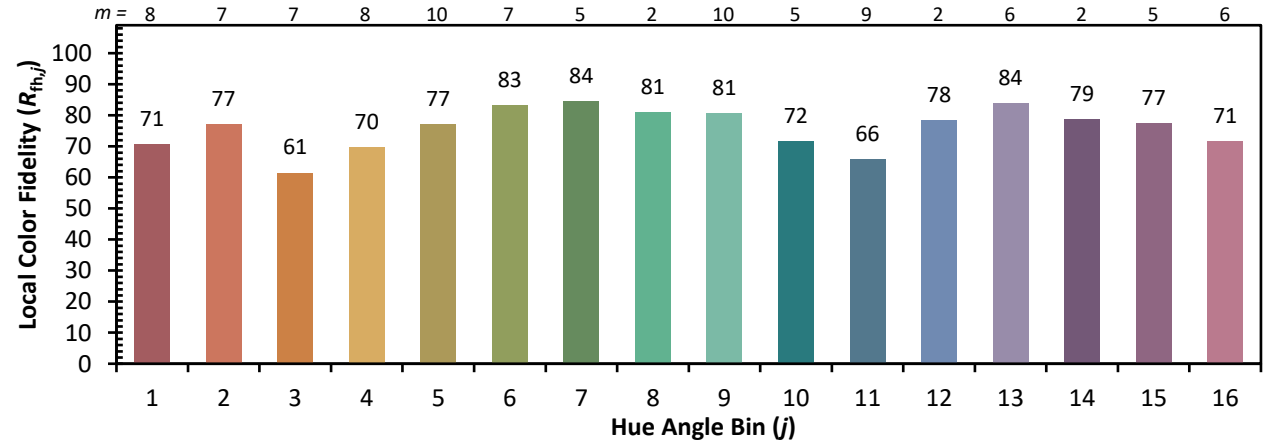
## Color Rendition by Hue-Angle Bin



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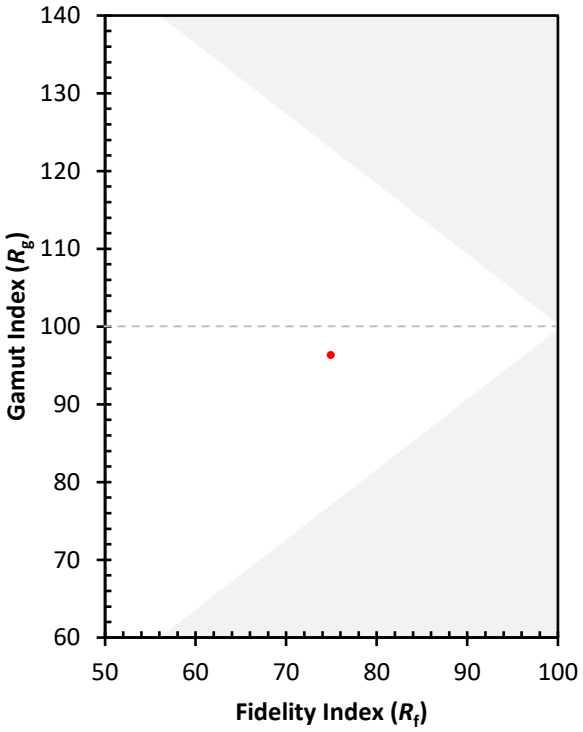
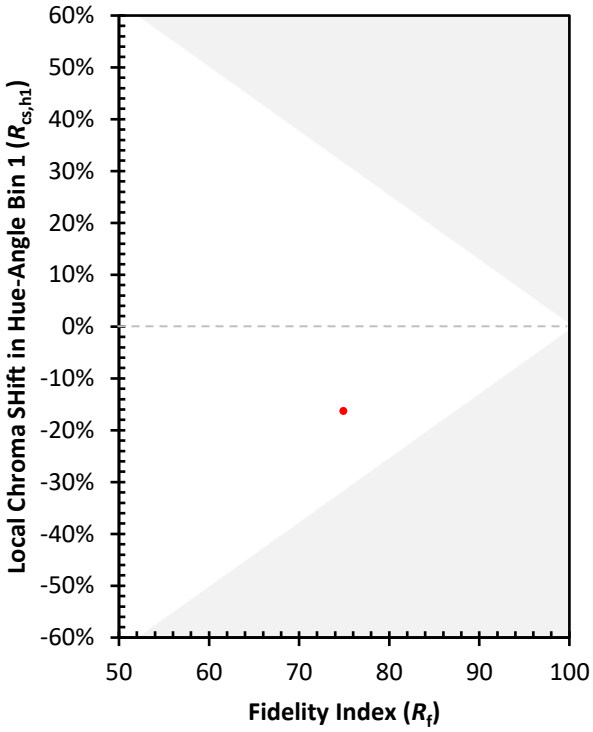
### Measure Comparisons




(END OF REPORT)