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: P628759

Luminaire Tested: GWS-SA1A-730-U-T2R-W-GRSBK

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: | P628759 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-12) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 1/10/2023 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GWS-SA1A-730-U-T2R-W-GRSBK |
| Description: | GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK |
| Light Source: | (16) 3000K CCT, 70 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 1735.9 lumens |
| Efficiency: | N/A |
| Efficacy: | 88.1 lumens/watt |
| Luminous Opening: | Rectangular (W 0.5' x L: 0.5' x H: 0') |
| IES Classification: | Type II - Short |
| BUG Rating: | B0 - U0 - G0 |

| | |
|---|---|
| Input Watts (W): | 19.7 |
| 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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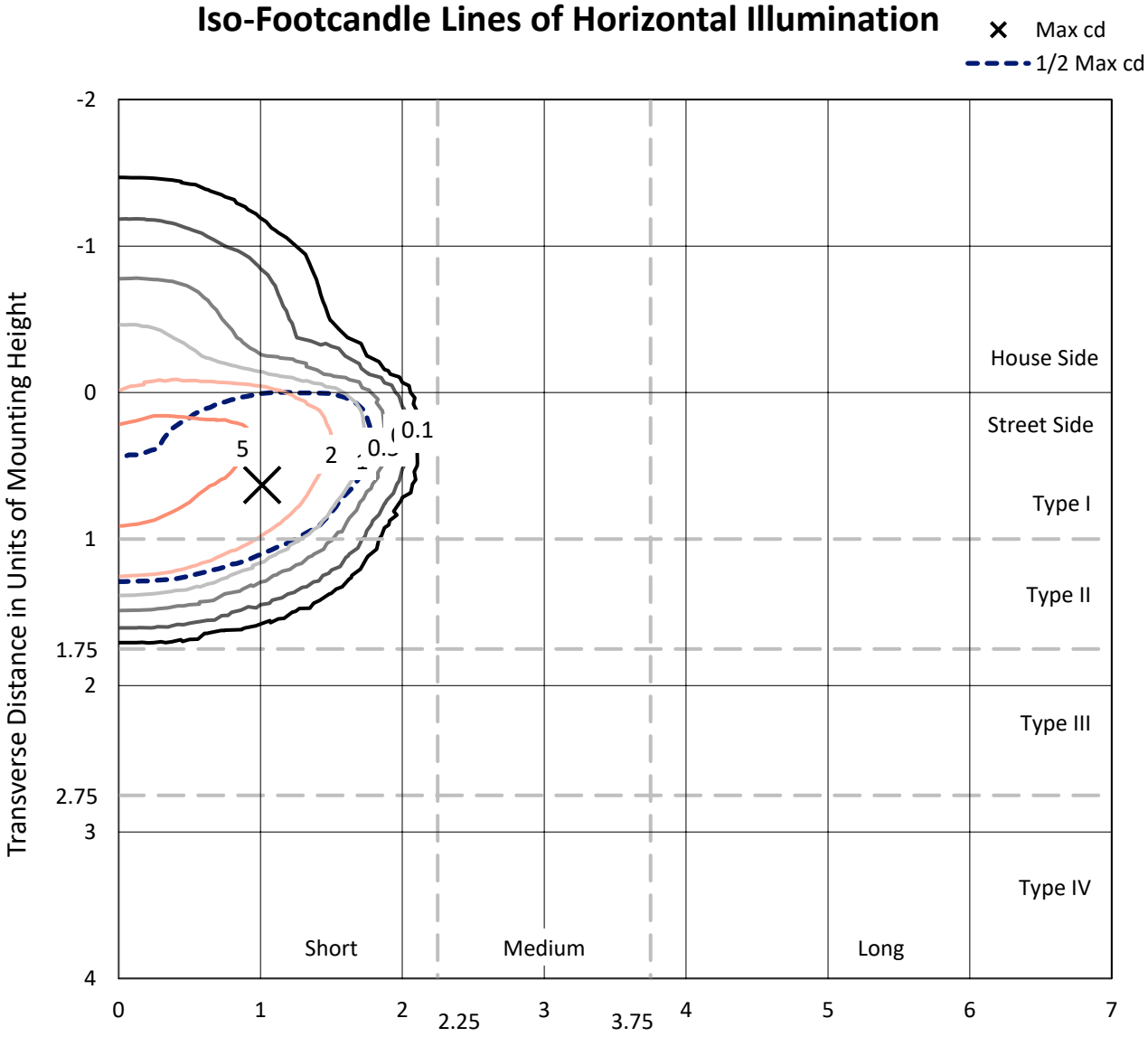
Scaled Data Report

REPORT NUMBER: P628759
CATALOG NUMBER: GWS-SA1A-730-U-T2R-W-GRSBK

## Iso-Footcandle Lines of Horizontal Illumination




Based on 10 foot mounting height. Maximum calculated value = 6.4 fc
Type II - Short - N/A

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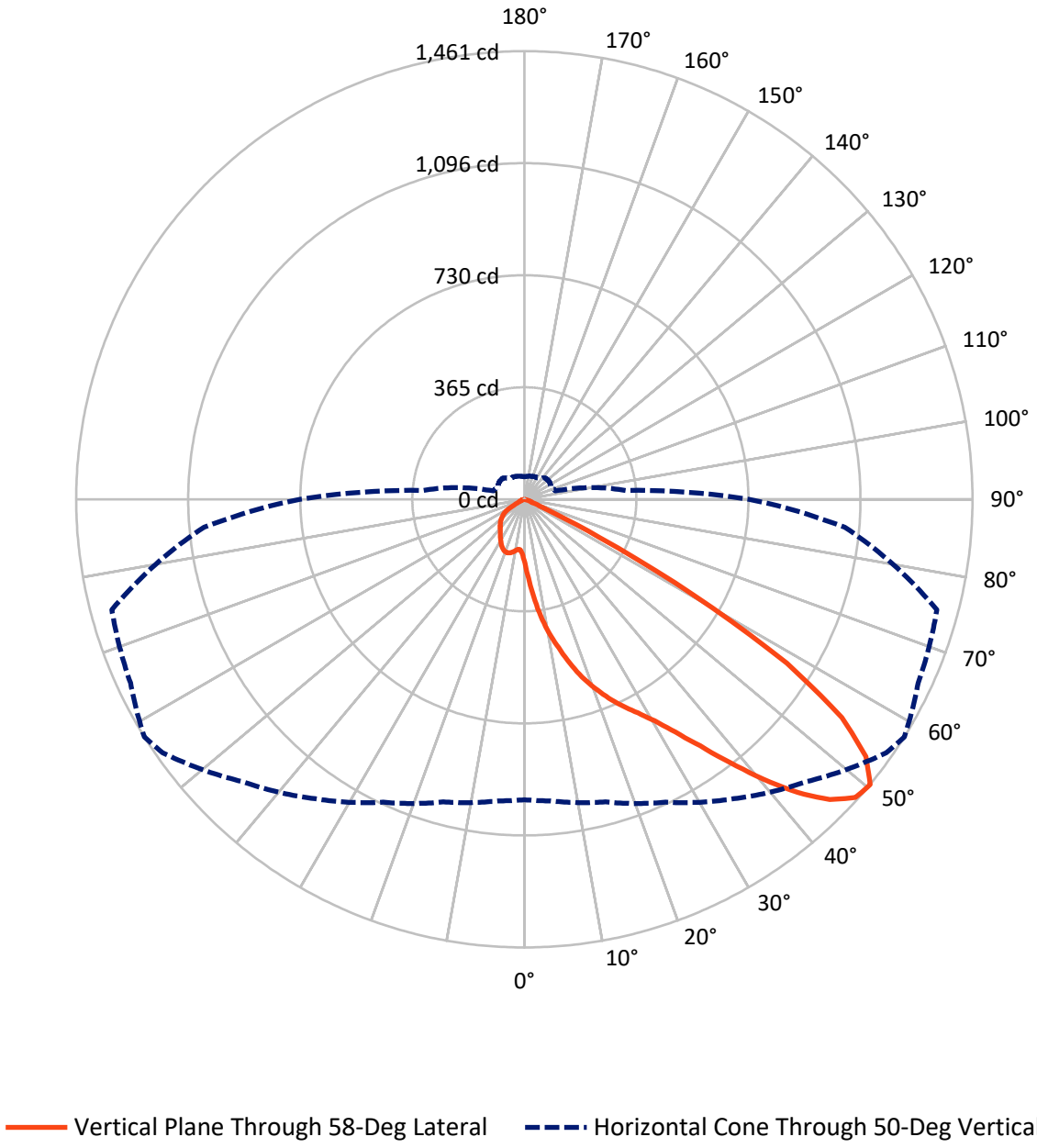
## Luminous Intensity Polar Plot



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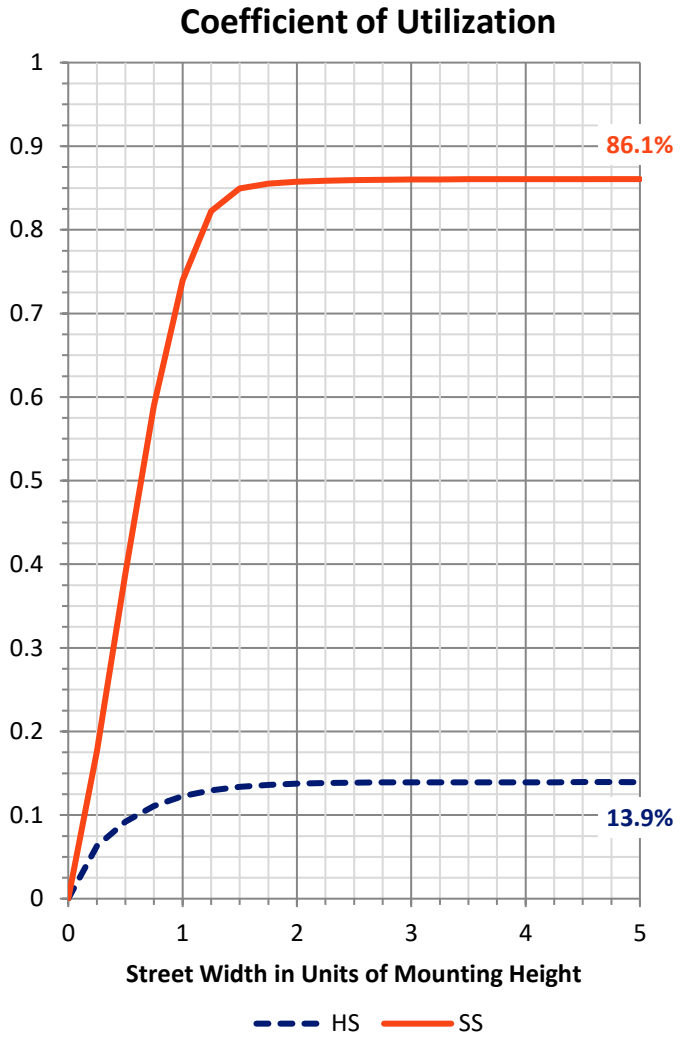
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 243.1 | 0.0 | 243.1 |
| | % Fixture | 14.0 | 0.0 | 14.0 |
| **Street Side** | Lumens | 1492.8 | 0.0 | 1492.8 |
| | % Fixture | 86.0 | 0.0 | 86.0 |
| **Total** | Lumens | 1735.9 | 0.0 | 1735.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 25.7 | 1.5 |
| 10°-20° | 101.7 | 5.9 |
| 20°-30° | 205.8 | 11.9 |
| 30°-40° | 364.0 | 21.0 |
| 40°-50° | 530.7 | 30.6 |
| 50°-60° | 425.4 | 24.5 |
| 60°-70° | 76.6 | 4.4 |
| 70°-80° | 6.0 | 0.3 |
| 80°-90° | 0.0 | 0.0 |
| 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° | 1735.9 | 100.0 |
| 0°-180° | 1735.9 | 100.0 |



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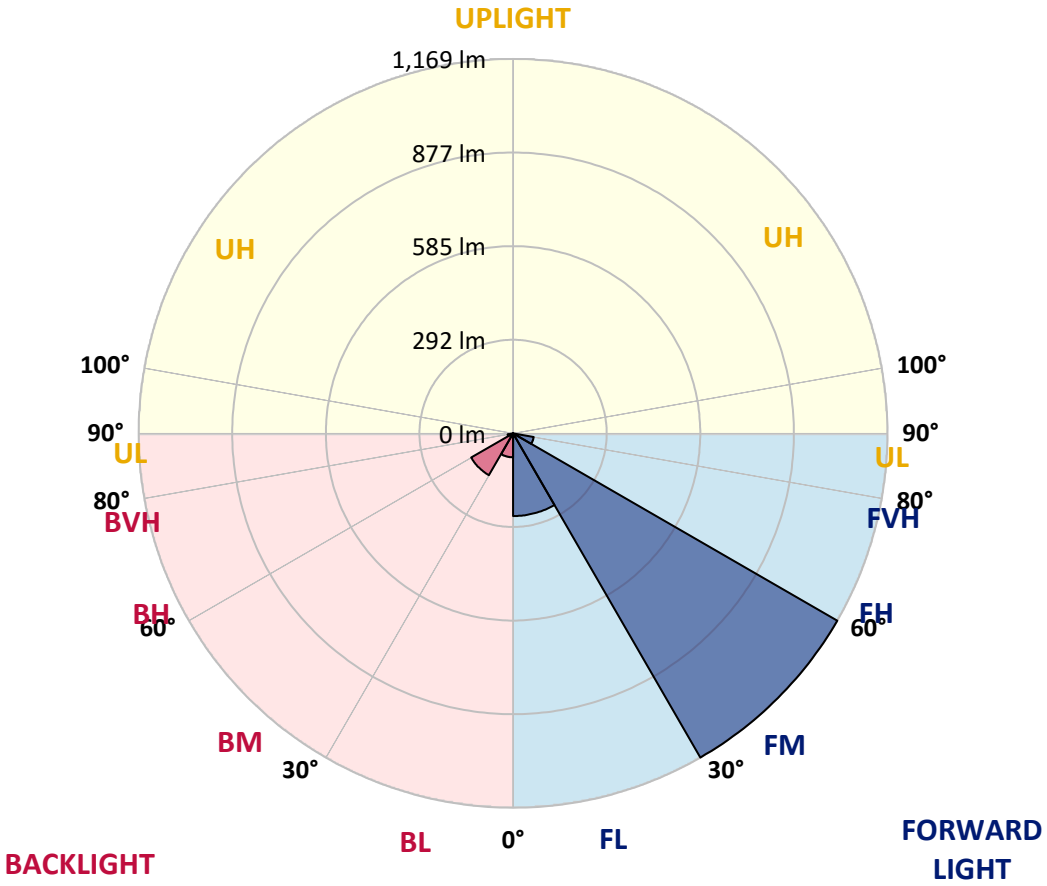
CATALOG NUMBER: GWS-SA1A-730-U-T2R-W-GRSBK

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 258.3 | 14.9 | | | |
| FM | (30°-60°) | 1169.1 | 67.3 | | | |
| FH | (60°-80°) | 65.4 | 3.8 | | | G0/660 |
| FVH | (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| BL | (0°-30°) | 74.9 | 4.3 | B0/110 | | |
| BM | (30°-60°) | 151.0 | 8.7 | B0/220 | | |
| BH | (60°-80°) | 17.3 | 1.0 | B0/110 | | G0/110 |
| BVH | (80°-90°) | 0.0 | 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-G0**
Type II Short



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REPORT NUMBER: P628759
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 207.4 | 207.4 | 207.4 | 207.4 | 207.4 | 207.4 | 207.4 | *207.4* | 207.4 | 207.4 | 207.4 |
| 2.5° | 306.8 | 302.0 | 299.2 | 297.0 | 287.2 | 271.6 | 261.4 | *256.0* | 247.1 | 232.0 | 219.0 |
| 5° | 400.4 | 396.9 | 390.4 | 385.9 | 373.3 | 351.2 | 328.4 | *319.3* | 299.1 | 265.1 | 234.6 |
| 7.5° | 462.4 | 459.8 | 457.4 | 451.5 | 439.6 | 419.5 | 394.3 | *384.8* | 353.6 | 305.4 | 255.4 |
| 10° | 510.1 | 508.1 | 505.3 | 505.1 | 495.8 | 477.8 | 453.1 | *443.3* | 409.5 | 349.2 | 279.9 |
| 12.5° | 552.1 | 550.4 | 549.8 | 555.0 | 549.1 | 535.7 | 509.0 | *496.7* | 460.9 | 393.9 | 307.0 |
| 15° | 580.8 | 580.5 | 582.9 | 593.1 | 596.4 | 590.3 | 567.8 | *554.7* | 513.5 | 438.8 | 336.9 |
| 17.5° | 594.0 | 595.1 | 599.8 | 617.4 | 632.3 | 637.5 | 620.2 | *609.1* | 565.6 | 484.3 | 368.8 |
| 20° | 616.5 | 616.1 | 618.9 | 635.6 | 653.8 | 672.4 | 667.2 | *657.7* | 618.3 | 532.4 | 404.3 |
| 22.5° | 679.8 | 674.4 | 668.5 | 671.1 | 677.6 | 699.3 | 708.9 | *704.1* | 672.7 | 581.8 | 440.9 |
| 25° | 777.1 | 771.5 | 752.4 | 733.8 | 721.5 | 731.4 | 744.6 | *747.0* | 726.7 | 632.4 | 479.1 |
| 27.5° | 880.3 | 875.3 | 853.7 | 825.9 | 790.8 | 773.7 | 783.6 | *788.4* | 779.8 | 692.8 | 519.8 |
| 30° | 977.0 | 970.3 | 946.7 | 912.2 | 871.5 | 845.4 | 834.2 | *837.6* | 842.6 | 764.2 | 567.5 |
| 32.5° | 1060.9 | 1055.9 | 1027.7 | 991.3 | 952.1 | 924.8 | 898.8 | *904.4* | 916.6 | 851.7 | 628.5 |
| 35° | 1132.0 | 1129.4 | 1099.5 | 1063.3 | 1021.9 | 1008.0 | 985.7 | *986.8* | 999.1 | 957.3 | 703.0 |
| 37.5° | 1193.8 | 1189.3 | 1162.2 | 1128.6 | 1095.8 | 1093.6 | 1087.4 | *1088.0* | 1094.3 | 1080.4 | 788.6 |
| 40° | 1232.8 | 1228.7 | 1209.4 | 1188.6 | 1165.2 | 1165.6 | 1197.3 | *1199.7* | 1192.5 | 1201.2 | 879.0 |
| 42.5° | 1247.4 | 1244.5 | 1234.1 | 1234.3 | 1231.8 | 1242.8 | 1302.4 | *1306.8* | 1280.9 | 1296.1 | 956.2 |
| 45° | 1222.0 | 1220.7 | 1221.5 | 1248.2 | 1277.1 | 1310.9 | 1388.3 | *1396.1* | 1359.4 | 1359.0 | 1016.5 |
| 47.5° | 1140.0 | 1137.4 | 1159.1 | 1204.6 | 1271.6 | 1337.3 | 1440.3 | *1452.4* | 1414.3 | 1395.0 | 1054.4 |
| 50° | *979.2* | *986.6* | *1021.0* | *1089.3* | *1191.2* | *1301.1* | *1439.8* | *1460.7* | *1416.4* | *1391.9* | *1048.1* |
| 52.5° | 709.3 | 707.8 | 783.0 | 876.9 | 1000.9 | 1185.3 | 1363.3 | *1393.9* | 1366.8 | 1360.9 | 1034.0 |
| 55° | 385.9 | 399.5 | 450.2 | 574.5 | 729.3 | 966.0 | 1188.6 | *1255.4* | 1286.8 | 1349.5 | 1059.4 |
| 57.5° | 141.8 | 147.8 | 179.5 | 267.5 | 386.1 | 600.7 | 907.9 | *1008.7* | 1105.6 | 1318.0 | 1055.1 |
| 60° | 57.2 | 58.3 | 70.9 | 98.4 | 162.2 | 305.7 | 544.6 | *634.1* | 725.4 | 1008.9 | 809.7 |
| 62.5° | 41.6 | 43.1 | 48.1 | 57.5 | 82.0 | 133.7 | 234.8 | *273.1* | 298.5 | 499.7 | 398.9 |
| 65° | 33.6 | 34.7 | 38.8 | 43.1 | 54.2 | 71.8 | 75.7 | *73.0* | 72.6 | 129.2 | 91.5 |
| 67.5° | 27.8 | 29.0 | 31.9 | 34.9 | 39.0 | 35.8 | 26.0 | *27.3* | 22.3 | 22.1 | 18.0 |
| 70° | 20.4 | 21.7 | 24.7 | 27.8 | 23.4 | 9.7 | 15.0 | *22.3* | 16.9 | 14.1 | 13.7 |
| 72.5° | 15.4 | 16.3 | 19.1 | 18.2 | 6.9 | 3.7 | 10.0 | *16.1* | 13.0 | 10.4 | 10.2 |
| 75° | 11.5 | 12.1 | 9.7 | 3.0 | 0.7 | 0.9 | 3.7 | *6.7* | 7.2 | 5.9 | 5.9 |
| 77.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | *0.6* | 0.7 | 0.9 | 1.1 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | *0.0* | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | *0.0* | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | *0.0* | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 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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Scaled Data Report

REPORT NUMBER: P628759
CATALOG NUMBER: GWS-SA1A-730-U-T2R-W-GRSBK

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 207.4 | 207.4 | 207.4 | 207.4 | 207.4 | 207.4 | 207.4 | 207.4 | 207.4 | 207.4 | 207.4 |
| 2.5° | 211.6 | 203.8 | 192.7 | 183.4 | 176.3 | 169.5 | 164.3 | 159.1 | 158.9 | 156.3 | 155.7 |
| 5° | 220.5 | 206.4 | 186.0 | 171.3 | 162.4 | 157.0 | 153.3 | 151.5 | 150.5 | 149.6 | 149.2 |
| 7.5° | 233.3 | 213.1 | 184.9 | 169.3 | 161.9 | 158.3 | 155.7 | 154.6 | 154.1 | 153.3 | 153.1 |
| 10° | 249.1 | 222.8 | 189.0 | 173.2 | 166.7 | 163.4 | 160.6 | 158.9 | 158.0 | 156.7 | 156.3 |
| 12.5° | 268.1 | 234.6 | 195.5 | 179.7 | 172.8 | 168.4 | 164.7 | 162.2 | 160.9 | 159.3 | 158.9 |
| 15° | 288.5 | 247.4 | 202.7 | 185.6 | 177.5 | 171.7 | 167.1 | 163.4 | 160.9 | 158.9 | 158.3 |
| 17.5° | 309.6 | 260.4 | 209.2 | 189.7 | 179.7 | 172.8 | 166.1 | 161.1 | 158.2 | 155.6 | 154.8 |
| 20° | 333.4 | 273.8 | 213.5 | 190.5 | 178.9 | 169.9 | 162.1 | 155.7 | 152.8 | 149.2 | 148.5 |
| 22.5° | 358.3 | 286.2 | 215.3 | 188.8 | 174.9 | 164.3 | 155.9 | 149.4 | 145.2 | 141.5 | 140.3 |
| 25° | 382.4 | 297.4 | 214.4 | 184.1 | 168.7 | 156.5 | 147.9 | 141.3 | 136.6 | 132.9 | 132.0 |
| 27.5° | 408.0 | 306.7 | 211.1 | 177.3 | 160.4 | 147.9 | 139.8 | 134.0 | 129.8 | 125.7 | 124.7 |
| 30° | 436.8 | 315.2 | 205.7 | 168.9 | 150.5 | 139.2 | 132.9 | 129.0 | 124.4 | 120.1 | 118.8 |
| 32.5° | 471.5 | 322.8 | 197.9 | 158.9 | 141.8 | 131.6 | 128.1 | 125.1 | 119.7 | 115.3 | 114.3 |
| 35° | 511.2 | 329.1 | 188.0 | 148.5 | 133.3 | 126.8 | 126.0 | 122.1 | 115.1 | 109.9 | 108.8 |
| 37.5° | 557.3 | 335.3 | 176.3 | 138.3 | 127.0 | 124.6 | 124.7 | 118.1 | 109.5 | 103.2 | 102.5 |
| 40° | 606.8 | 341.4 | 163.4 | 129.4 | 121.2 | 123.3 | 121.6 | 112.1 | 98.2 | 92.1 | 91.3 |
| 42.5° | 658.4 | 348.1 | 150.2 | 121.0 | 116.4 | 118.2 | 115.8 | 100.2 | 90.2 | 87.1 | 86.7 |
| 45° | 705.0 | 356.0 | 135.9 | 112.7 | 111.6 | 111.0 | 106.9 | 90.8 | 86.5 | 84.3 | 84.1 |
| 47.5° | 738.6 | 354.7 | 120.7 | 104.7 | 106.4 | 104.5 | 92.1 | 86.3 | 82.8 | 79.8 | 79.1 |
| 50° | *732.5* | *332.1* | *104.9* | *95.8* | *99.7* | *98.0* | *82.8* | *81.1* | *78.0* | *74.8* | *73.7* |
| 52.5° | 716.9 | 301.3 | 91.1 | 86.3 | 92.4 | 88.5 | 76.5 | 74.8 | 72.0 | 67.9 | 66.6 |
| 55° | 725.3 | 272.3 | 80.4 | 78.7 | 85.0 | 73.3 | 69.4 | 66.8 | 63.9 | 59.4 | 58.8 |
| 57.5° | 698.3 | 222.2 | 64.6 | 65.7 | 75.2 | 62.6 | 60.9 | 56.8 | 51.8 | 48.8 | 48.4 |
| 60° | 483.4 | 119.4 | 40.5 | 41.8 | 54.4 | 52.5 | 54.6 | 50.9 | 44.7 | 42.0 | 41.4 |
| 62.5° | 222.0 | 47.9 | 22.1 | 21.2 | 28.6 | 35.6 | 46.8 | 46.4 | 38.8 | 34.3 | 34.0 |
| 65° | 53.8 | 21.9 | 15.8 | 14.9 | 16.1 | 21.3 | 30.4 | 36.6 | 31.4 | 26.2 | 25.6 |
| 67.5° | 17.4 | 17.8 | 14.5 | 13.6 | 14.3 | 16.0 | 18.2 | 20.2 | 20.0 | 18.4 | 18.0 |
| 70° | 13.9 | 16.1 | 13.4 | 12.3 | 12.3 | 12.8 | 12.3 | 9.8 | 8.5 | 9.3 | 9.7 |
| 72.5° | 10.4 | 12.3 | 10.6 | 9.5 | 9.1 | 8.9 | 7.6 | 5.6 | 3.9 | 3.5 | 3.3 |
| 75° | 6.1 | 6.9 | 6.5 | 5.6 | 5.2 | 4.6 | 3.7 | 2.4 | 1.3 | 0.9 | 0.6 |
| 77.5° | 1.1 | 1.3 | 1.5 | 1.1 | 0.9 | 0.7 | 0.6 | 0.2 | 0.0 | 0.0 | 0.0 |
| 80° | 0.0 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 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 |

Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

# LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-2-R4

Test Date: 10/03/2019

Luminaire Tested: SA1C-730-U-5WQ

Data in this report applies to families of products SA1C-730-U-5WQ .

Report Generated By FNC07603 / LDUCLS01DT446
Version: v6.13

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

## Test Information

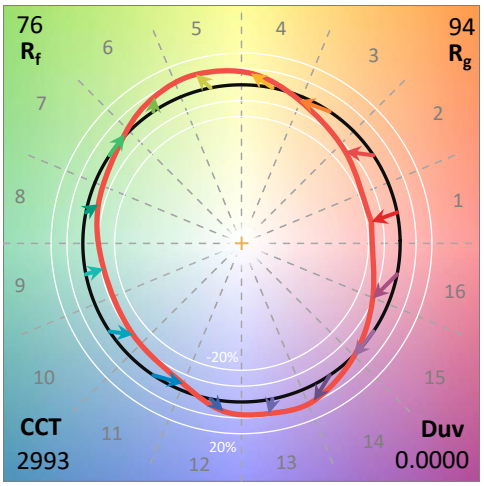
| | |
|---|---|
| Test Method: | LM-79-2008 |
| Report Number: | SP1-1908-441-2-R4 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/28/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | **SA1C-730-U-5WQ** |
| Description: | McGRAW EDISON ROADWAY AND AREA LUMINAIRE |

***THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.***TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 2993 | CRI (Ra): | 71.8 | | |
| CIE u': | 0.2508 | R1: | 67.5 | R9: | -38.3 |
| CIE v': | 0.5215 | R2: | 82.9 | R10: | 62.5 |
| Duv: | 0.0000 | R3: | 94.7 | R11: | 63.7 |
| CIE x: | 0.4374 | R4: | 67.7 | R12: | 57.8 |
| CIE y: | 0.4043 | R5: | 67.9 | R13: | 70.4 |
| CIE z: | 0.1583 | R6: | 77.6 | R14: | 97.3 |
| Peak Wavelength (nm): | 593 | R7: | 76.0 | | |
| Dominant Wavelength (nm): | 582 | R8: | 40.5 | | |
| Purity: | 53 | | | | |

| | |
|---|---|
| Rf: | 75.7 |
| Rg: | 93.9 |




## Test Conditions

| | |
|---|---|
| Stabilization Time: | 53M |
| Operation Time: | 12H |
| Room Temperature (°C) / RH%: | 25.0./44% |
| Sphere Temperature (°C): | 25.7 |

Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

REPORT NUMBER: SP1-1908-441-2-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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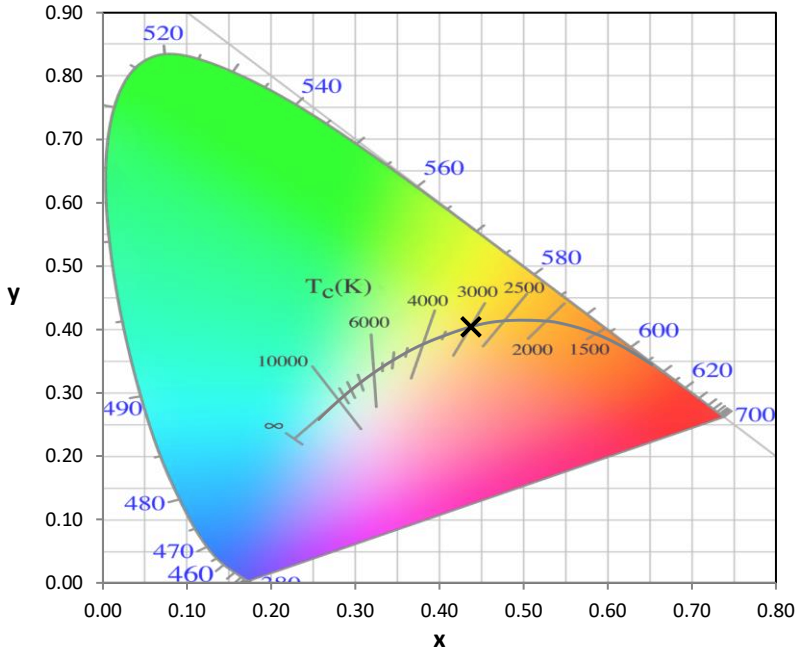
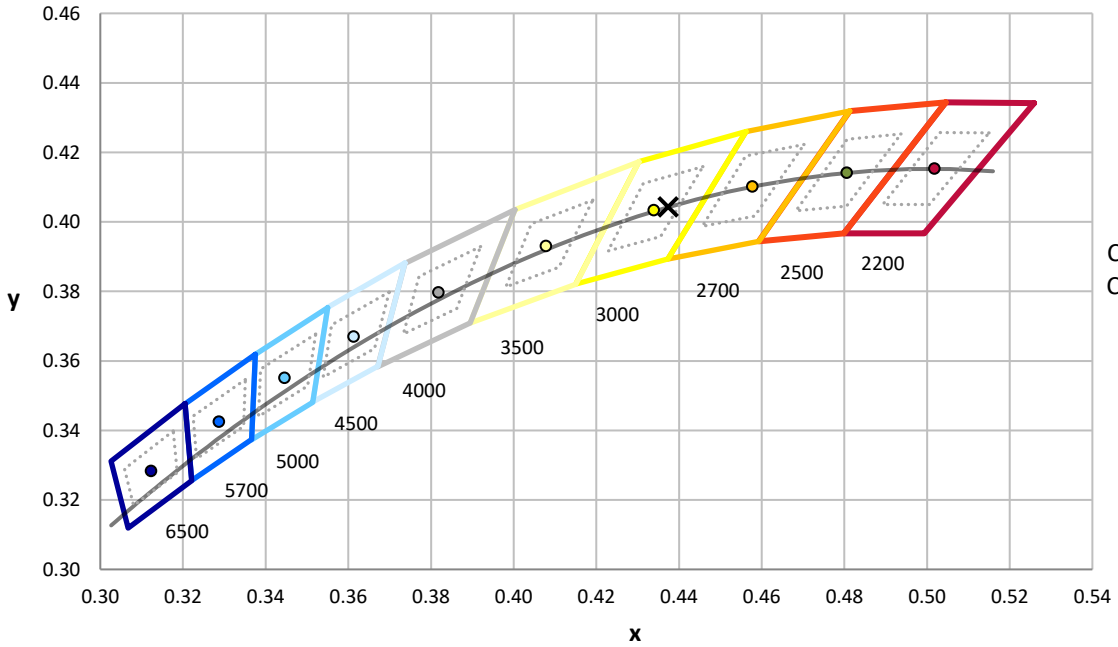
REPORT NUMBER: SP1-1908-441-2-R4

## CIE 1931 Chromaticity Diagram




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




CCT = 2993K
CIE x = 0.4374
CIE y = 0.4043
Duv = 0.0000

Point lies inside the ANSI 3000K 4-step quadrangle

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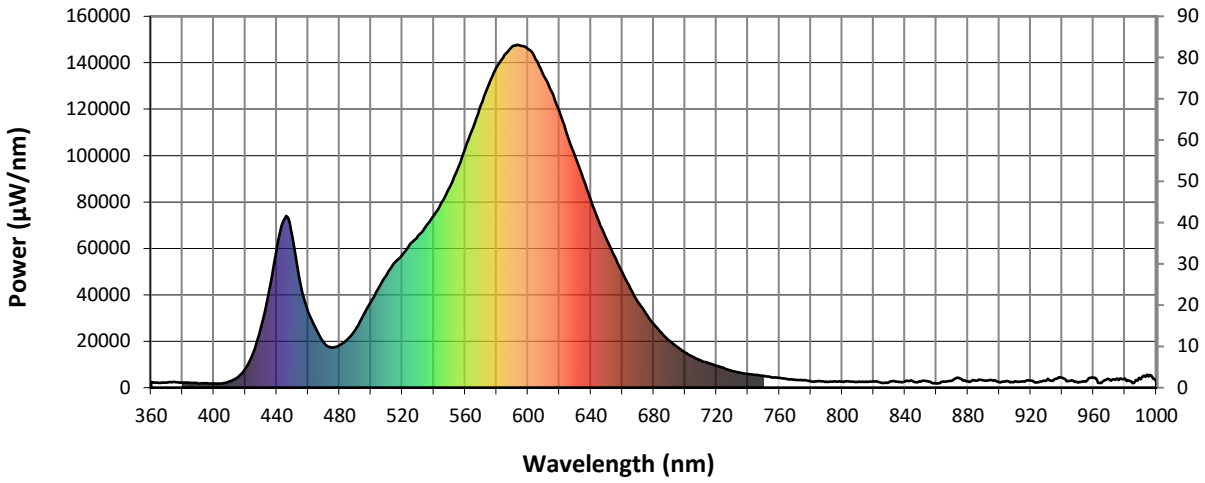
## Photopic Flux vs. Wavelength




######

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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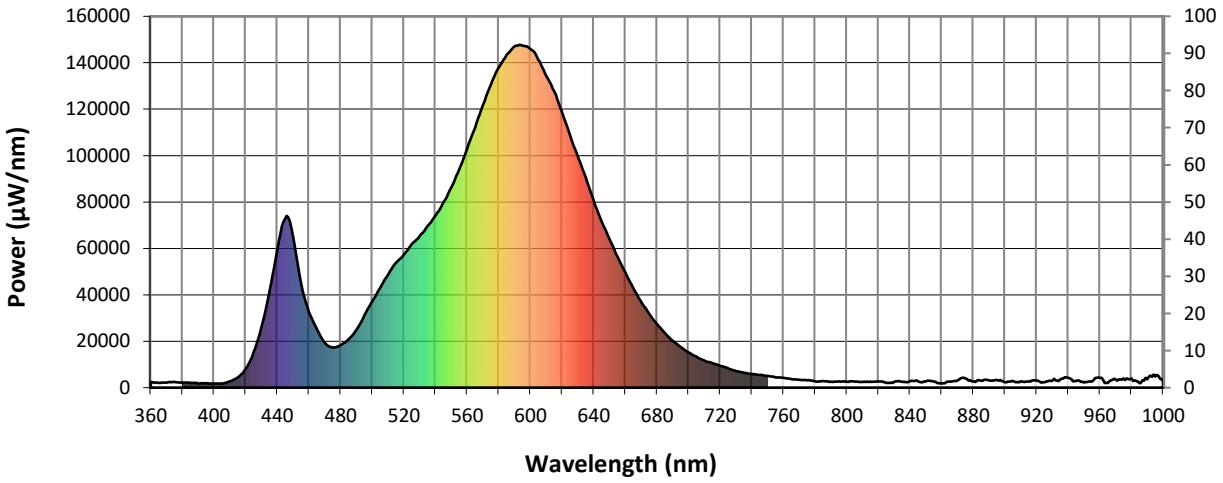
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: 8494.8** **S/P: 1.23**

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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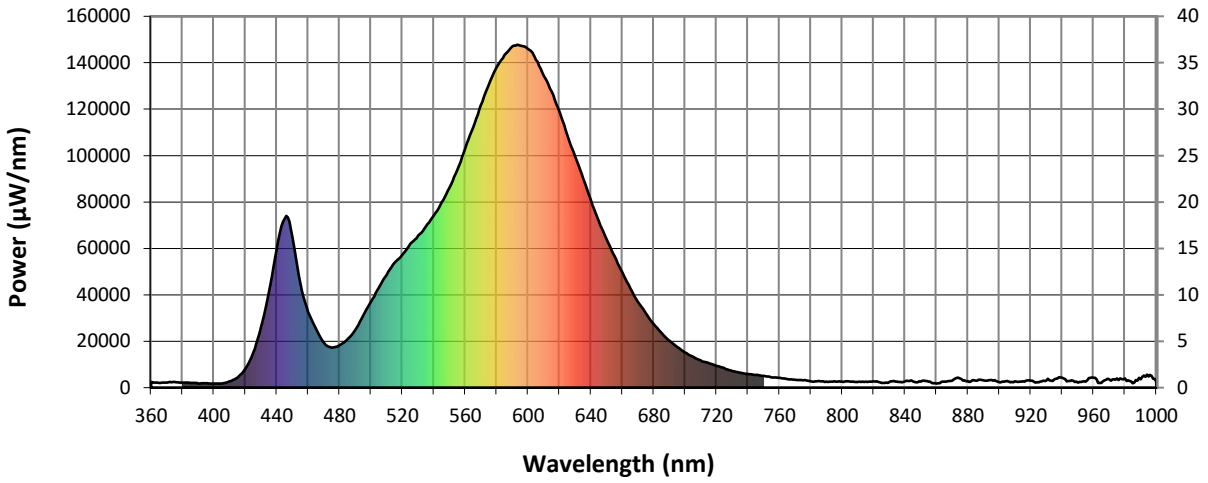
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: 3101.5** **M/P: 0.45**

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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Peachtree City, GA 30269

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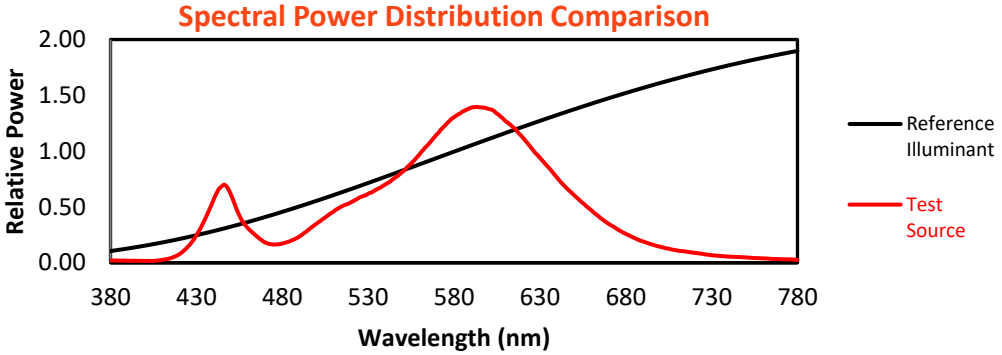
# TM-30-18

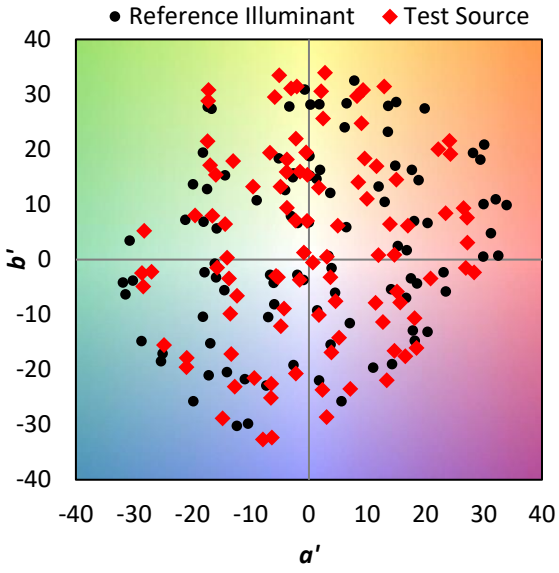
## Summary

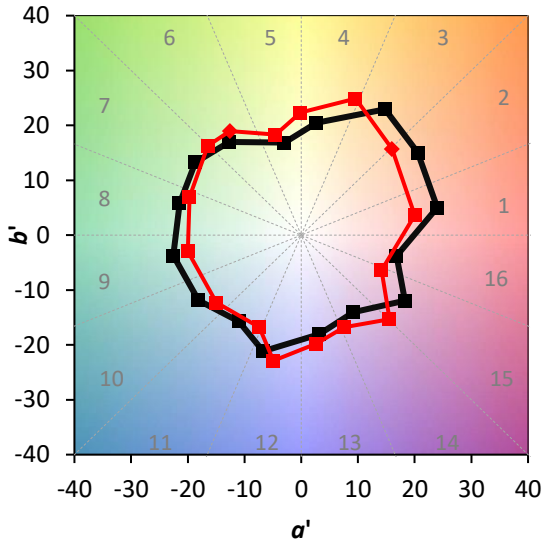
$R_f$ = 75.7
$R_g$ = 93.9
CIE $R_a$ = 71.8
$R_9$ = -38.3

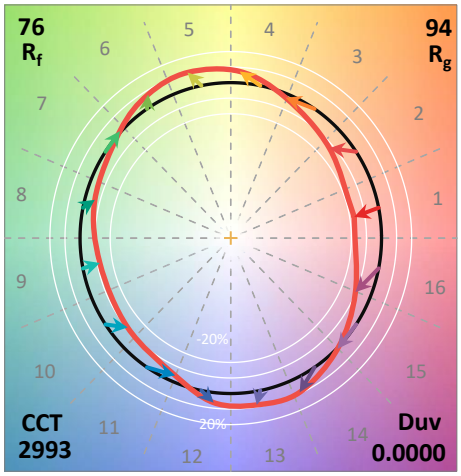
## Spectral Power Distribution Comparison

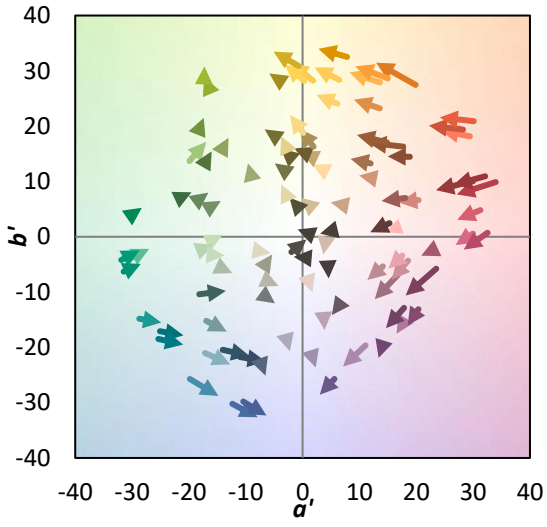



## Color Vector Graphics



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Peachtree City, GA 30269

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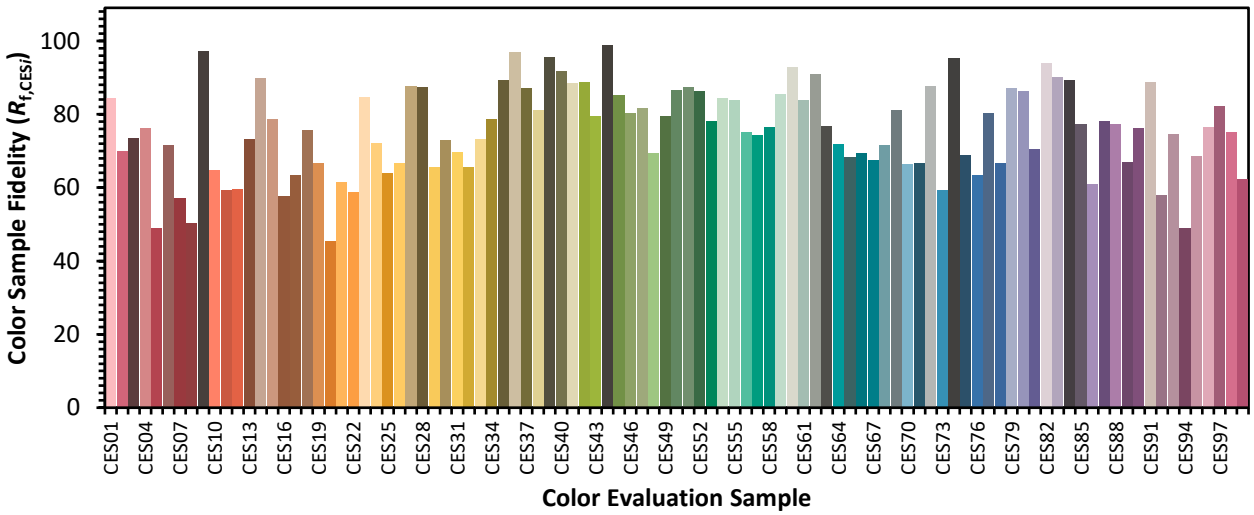
## Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 | |



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Peachtree City, GA 30269

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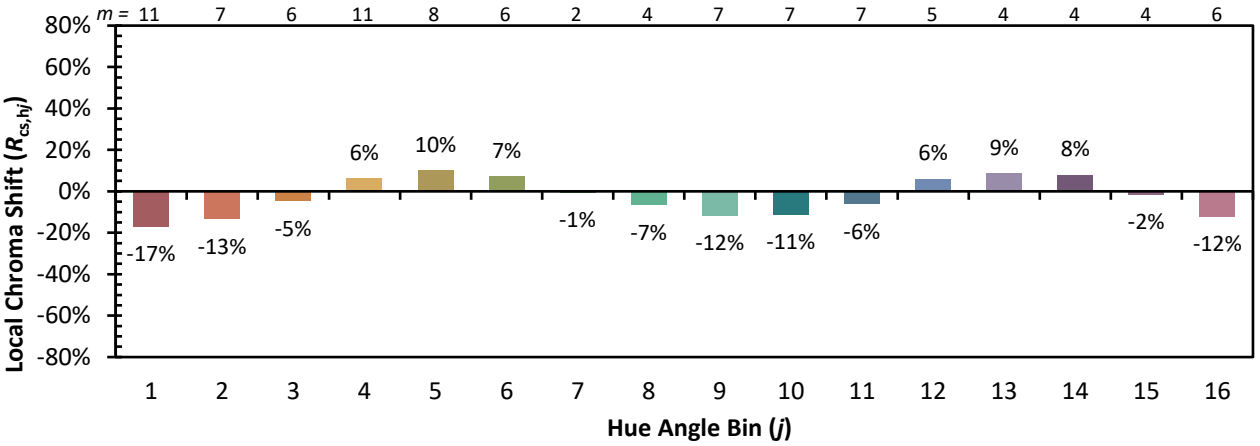
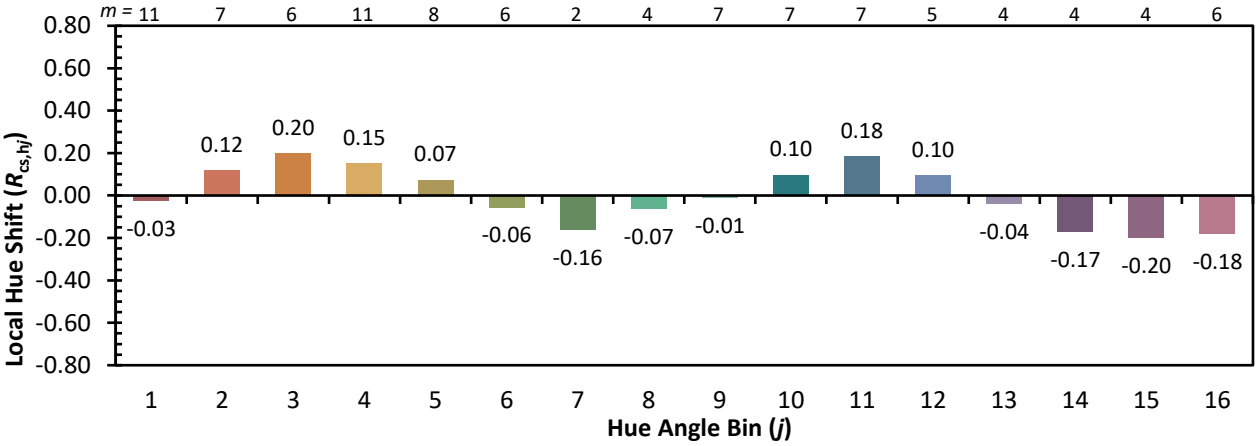
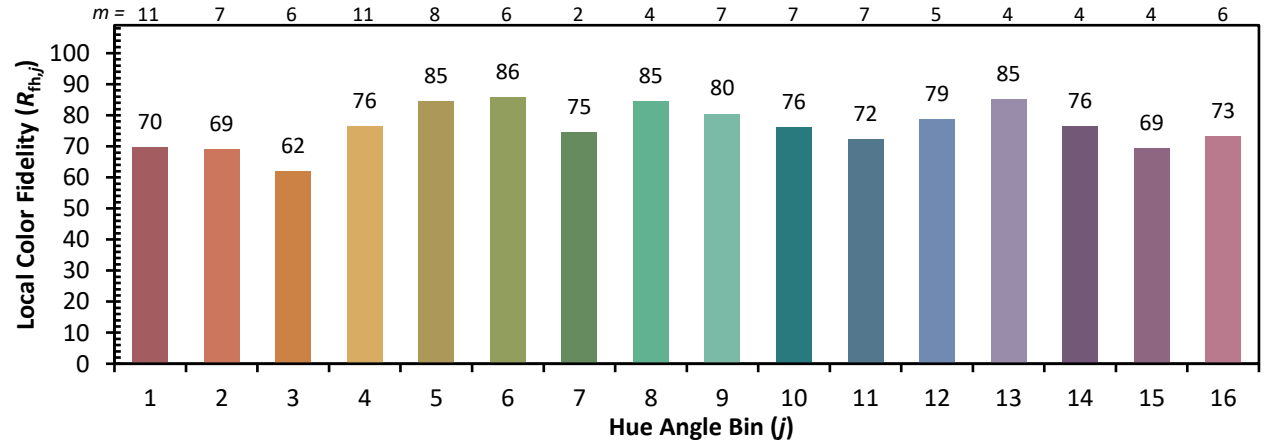
## Color Rendition by Hue-Angle Bin



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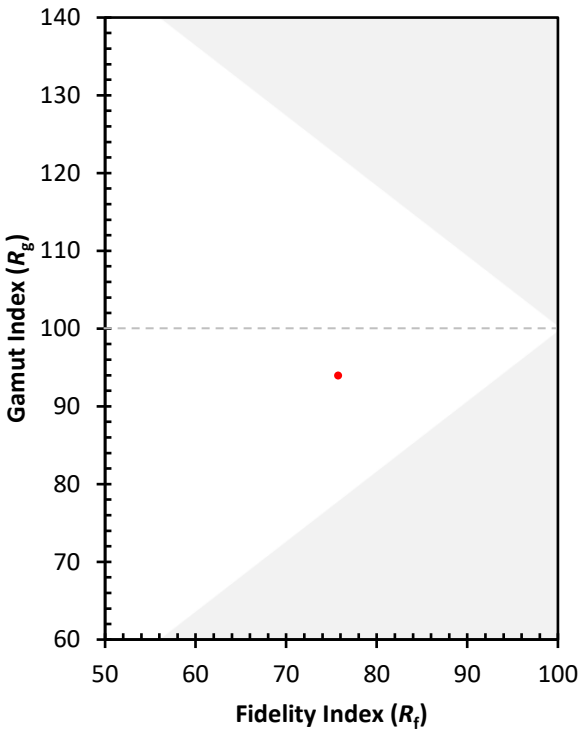
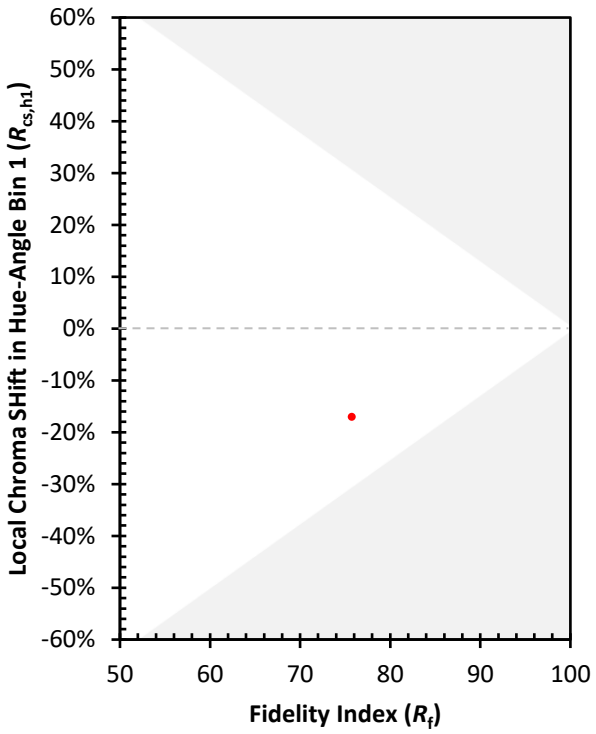
## TM-30-18

### Measure Comparisons




(END OF REPORT)