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: STREETWORKS

Report Number: P981121

Luminaire Tested: **FFX-CLB-70-740-U-FR-T5-UPLR**

Issue Date: 04/15/2025

Report Generated By 670245763

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: | P981121 |
| Test Lab: | INNOVATION CENTER(G3) |
| Issue Date: | 04/15/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | STREETWORKS |
| Catalog Number: | FFX-CLB-70-740-U-FR-T5-UPLR |
| Description: | FAIRFAX POST TOP FIXTURE w/ FAIRFAX REFRACTOR T5 DISTRIBUTION LENS AND UPLIGHT REFLECTOR |
| Light Source: | (6) 4000K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 11180.2 lumens |
| Efficiency: | N/A |
| Efficacy: | 157.0 lumens/watt |
| Luminous Opening: | Vertical Cylinder (Dia: 1.17' x H: 1.67') |
| IES Classification: | Type V - Short |
| BUG Rating: | B4 - U4 - G3 |

| | |
|---|---|
| Input Watts (W): | 71.2 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.99 |
| Total Harmonic Distortion (THDi): | 6.93% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

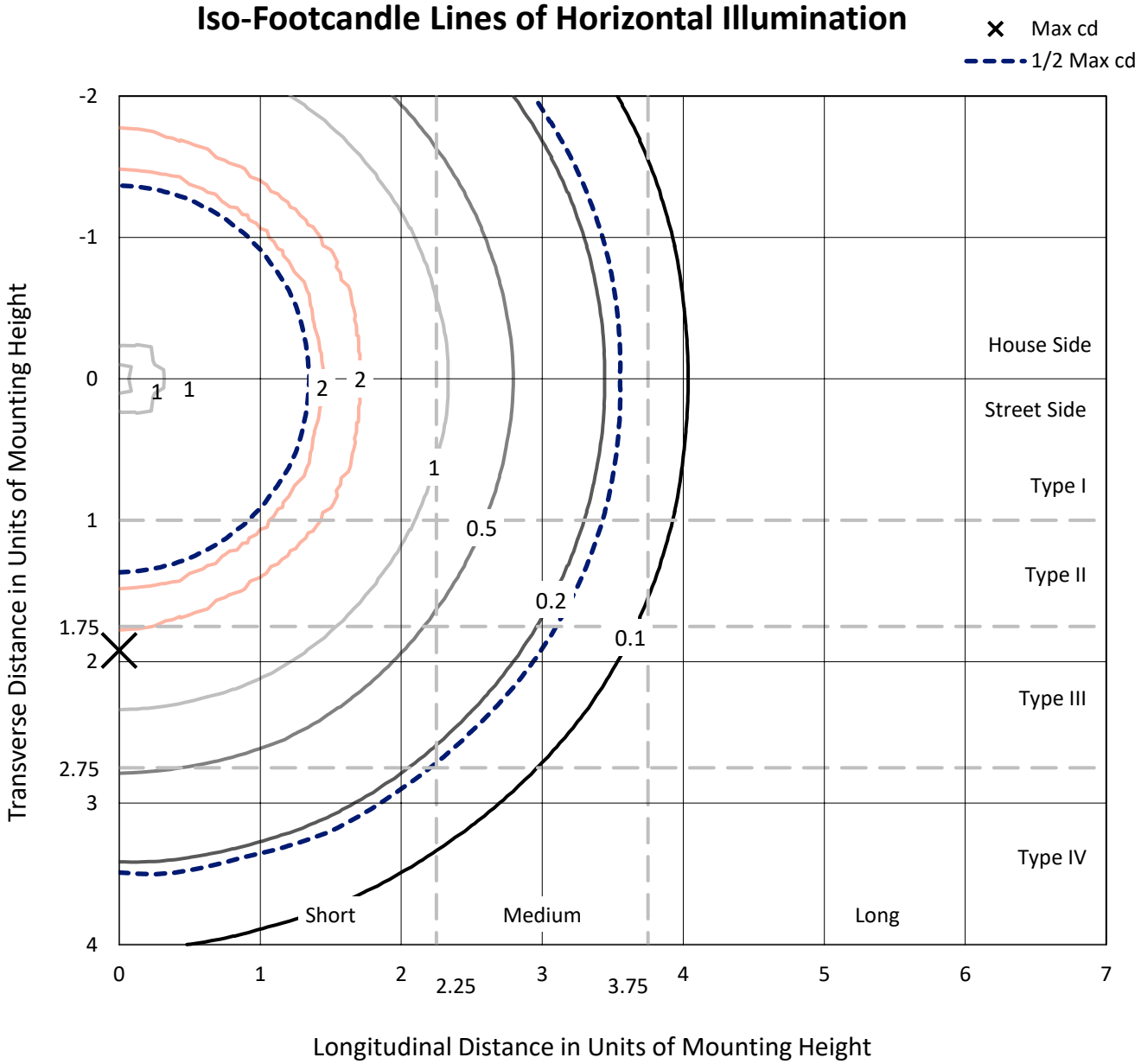


Cooper Lighting Solutions Photometric Lab
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Scaled Data Report

REPORT NUMBER: P981121
CATALOG NUMBER: FFX-CLB-70-740-U-FR-T5-UPLR

## Iso-Footcandle Lines of Horizontal Illumination



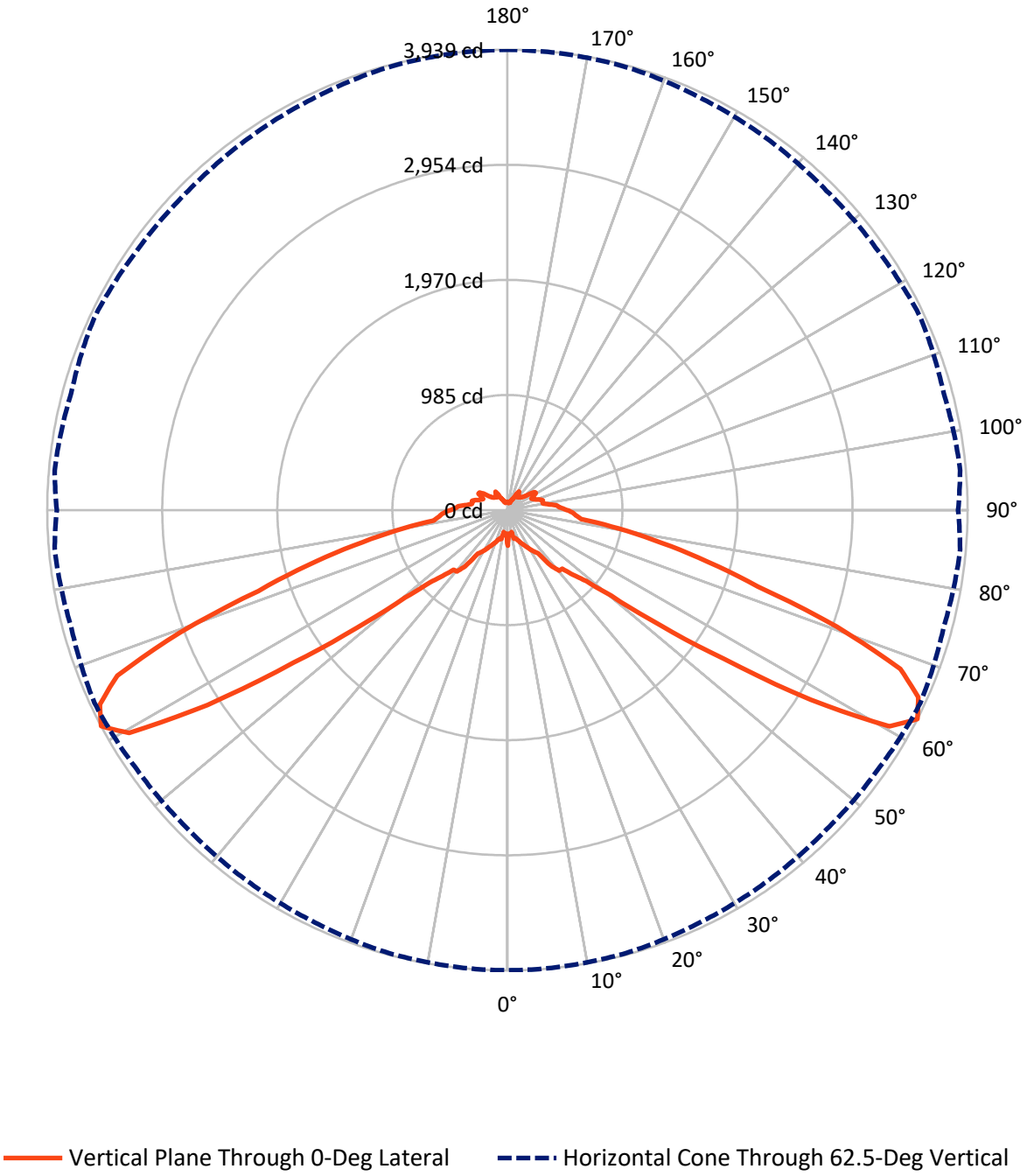

Based on 15 foot mounting height. Maximum calculated value = 2.1 fc
Type V - Short - N/A

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Scaled Data Report

REPORT NUMBER: P981121
CATALOG NUMBER: FFX-CLB-70-740-U-FR-T5-UPLR

## Luminous Intensity Polar Plot



Cooper Lighting Solutions Photometric Lab
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Scaled Data Report

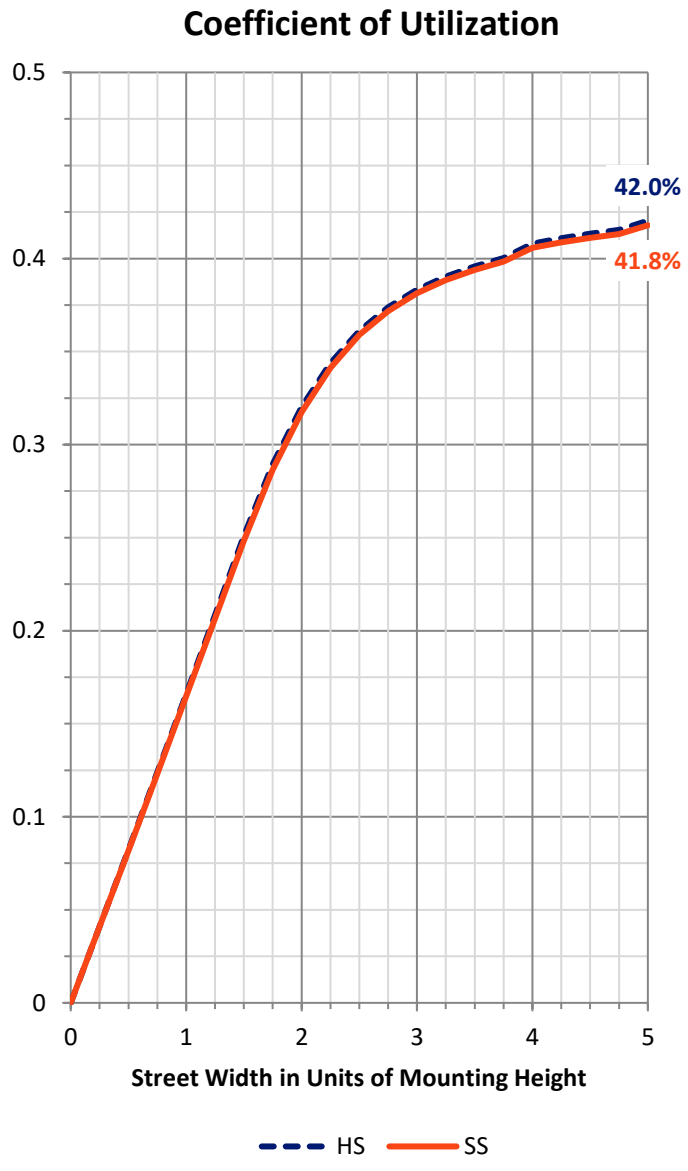
REPORT NUMBER: P981121
CATALOG NUMBER: FFX-CLB-70-740-U-FR-T5-UPLR

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 4866.1 | 724.0 | 5590.1 |
| | % Fixture | 43.5 | 6.5 | 50.0 |
| **Street Side** | Lumens | 4866.1 | 724.0 | 5590.1 |
| | % Fixture | 43.5 | 6.5 | 50.0 |
| **Total** | Lumens | 9732.2 | 1448.0 | 11180.2 |
| | % Fixture | 87.0 | 13.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 19.1 | 0.2 |
| 10°-20° | 70.9 | 0.6 |
| 20°-30° | 155.4 | 1.4 |
| 30°-40° | 319.3 | 2.9 |
| 40°-50° | 659.3 | 5.9 |
| 50°-60° | 2153.5 | 19.3 |
| 60°-70° | 3630.9 | 32.5 |
| 70°-80° | 1976.4 | 17.7 |
| 80°-90° | 747.4 | 6.7 |
| 90°-100° | 454.3 | 4.1 |
| 100°-110° | 286.6 | 2.6 |
| 110°-120° | 218.0 | 1.9 |
| 120°-130° | 186.3 | 1.7 |
| 130°-140° | 125.2 | 1.1 |
| 140°-150° | 103.1 | 0.9 |
| 150°-160° | 48.7 | 0.4 |
| 160°-170° | 19.3 | 0.2 |
| 170°-180° | 6.4 | 0.1 |
| 0°-90° | 9732.2 | 87.0 |
| 0°-180° | 11180.2 | 100.0 |



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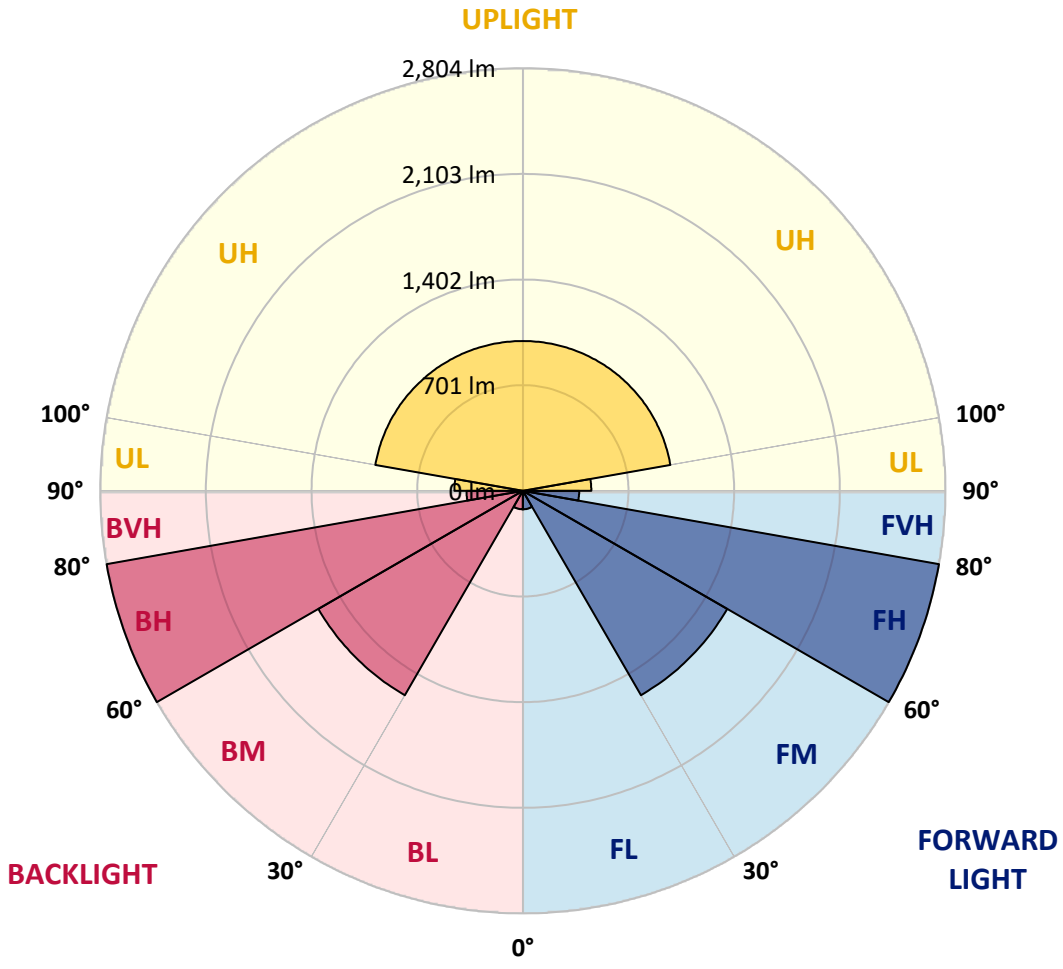
Scaled Data Report

REPORT NUMBER: P981121
CATALOG NUMBER: FFX-CLB-70-740-U-FR-T5-UPLR

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 122.7 | 1.1 | | | |
| FM | (30°-60°) | 1566.1 | 14.0 | | | |
| FH | (60°-80°) | 2803.6 | 25.1 | | | G2/5000 |
| FVH | (80°-90°) | 373.7 | 3.3 | | | G3/500 |
| BL | (0°-30°) | 122.7 | 1.1 | B1/500 | | |
| BM | (30°-60°) | 1566.1 | 14.0 | B2/2500 | | |
| BH | (60°-80°) | 2803.6 | 25.1 | B4/5000 | | G2/5000 |
| BVH | (80°-90°) | 373.7 | 3.3 | | | G3/500 |
| UL | (90°-100°) | 454.3 | 4.1 | | U3/500 | |
| UH | (100°-180°) | 993.6 | 8.9 | | U4/1000 | |

**BUG Rating: B4-U4-G3**
Type V Short



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Scaled Data Report

REPORT NUMBER: P981121
CATALOG NUMBER: FFX-CLB-70-740-U-FR-T5-UPLR

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 304.4 | 304.4 | 304.4 | 304.4 | 304.4 | 304.4 | 304.4 | 304.4 | 304.4 | 304.4 | 304.4 |
| 2.5° | 202.7 | 210.8 | 255.8 | 292.6 | 291.9 | 266.1 | 232.9 | 235.9 | 255.8 | 273.5 | 277.9 |
| 5° | 204.2 | 201.2 | 199.0 | 190.2 | 187.2 | 191.7 | 188.7 | 179.9 | 176.2 | 176.9 | 190.9 |
| 7.5° | 212.3 | 208.6 | 187.2 | 171.0 | 168.8 | 178.4 | 199.0 | 199.0 | 176.9 | 160.0 | 159.2 |
| 10° | 190.9 | 190.2 | 197.6 | 204.9 | 207.1 | 198.3 | 189.4 | 185.0 | 183.5 | 182.1 | 180.6 |
| 12.5° | 252.1 | 249.2 | 233.7 | 224.1 | 222.6 | 227.0 | 233.7 | 231.5 | 220.4 | 214.5 | 214.5 |
| 15° | 250.6 | 252.1 | 254.3 | 250.6 | 249.9 | 250.6 | 254.3 | 252.1 | 248.4 | 244.0 | 244.0 |
| 17.5° | 264.6 | 265.4 | 266.1 | 267.6 | 266.1 | 263.9 | 263.9 | 263.2 | 263.9 | 265.4 | 265.4 |
| 20° | 286.0 | 286.7 | 286.7 | 286.7 | 286.0 | 281.6 | 281.6 | 282.3 | 281.6 | 283.1 | 282.3 |
| 22.5° | 309.6 | 308.9 | 308.9 | 308.9 | 306.6 | 303.0 | 302.2 | 303.0 | 300.7 | 300.7 | 300.7 |
| 25° | 332.4 | 333.9 | 336.1 | 335.4 | 331.7 | 328.8 | 326.5 | 327.3 | 325.8 | 325.8 | 325.8 |
| 27.5° | 361.2 | 359.7 | 364.1 | 362.7 | 359.0 | 359.0 | 356.8 | 356.8 | 354.6 | 353.8 | 353.1 |
| 30° | 393.6 | 392.9 | 392.9 | 393.6 | 392.2 | 390.7 | 390.7 | 389.2 | 385.5 | 386.3 | 387.7 |
| 32.5° | 425.3 | 424.6 | 423.1 | 423.9 | 423.1 | 420.9 | 424.6 | 424.6 | 423.1 | 423.9 | 428.3 |
| 35° | 456.3 | 460.7 | 471.0 | 478.4 | 480.6 | 479.9 | 482.8 | 488.0 | 484.3 | 482.1 | 484.3 |
| 37.5° | 603.7 | 600.8 | 589.7 | 583.1 | 584.5 | 588.2 | 580.1 | 574.2 | 570.5 | 569.8 | 573.5 |
| 40° | 681.1 | 678.2 | 661.9 | 663.4 | 652.4 | 656.0 | 659.7 | 664.9 | 661.2 | 653.1 | 653.1 |
| 42.5° | 687.7 | 688.5 | 711.3 | 746.0 | 735.7 | 713.5 | 692.9 | 703.2 | 718.7 | 728.3 | 732.0 |
| 45° | 789.5 | 799.1 | 799.1 | 801.3 | 802.0 | 802.7 | 788.0 | 794.6 | 807.2 | 822.6 | 821.9 |
| 47.5° | 906.7 | 912.6 | 916.3 | 920.7 | 918.5 | 920.7 | 939.8 | 934.7 | 948.7 | 947.2 | 945.7 |
| 50° | 1152.1 | 1177.2 | 1181.6 | 1198.6 | 1188.3 | 1190.5 | 1225.9 | 1228.8 | 1228.8 | 1226.6 | 1229.5 |
| 52.5° | 1635.0 | 1657.1 | 1653.4 | 1615.8 | 1634.2 | 1667.4 | 1705.7 | 1678.4 | 1717.5 | 1698.4 | 1689.5 |
| 55° | 2248.3 | 2249.0 | 2273.3 | 2325.7 | 2350.0 | 2324.2 | 2344.8 | 2294.0 | 2379.5 | 2389.8 | 2364.0 |
| 57.5° | 3062.0 | 3077.5 | 3082.7 | 3096.0 | 3076.8 | 3073.8 | 3088.6 | 3056.9 | 3096.7 | 3057.6 | 3073.1 |
| 60° | 3757.9 | 3738.0 | 3681.2 | 3600.9 | 3609.7 | 3641.4 | 3698.9 | 3679.0 | 3651.0 | 3596.5 | 3583.9 |
| 62.5° | 3939.2 | 3936.3 | 3924.5 | 3895.0 | 3877.3 | 3863.3 | 3870.7 | 3900.9 | 3865.5 | 3889.8 | 3857.4 |
| 65° | 3864.8 | 3862.6 | 3873.6 | 3899.4 | 3880.3 | 3833.1 | 3791.8 | 3841.2 | 3819.1 | 3900.2 | 3876.6 |
| 67.5° | 3626.7 | 3617.1 | 3606.0 | 3654.0 | 3623.7 | 3555.9 | 3525.7 | 3530.1 | 3516.9 | 3597.9 | 3574.4 |
| 70° | 2991.3 | 2975.8 | 2996.4 | 3072.4 | 3028.9 | 2968.4 | 2933.8 | 2948.5 | 2952.2 | 3003.8 | 3011.9 |
| 72.5° | 2241.6 | 2260.8 | 2281.4 | 2332.3 | 2322.0 | 2288.8 | 2308.0 | 2330.1 | 2351.5 | 2370.6 | 2362.5 |
| 75° | 1774.3 | 1797.1 | 1755.8 | 1780.9 | 1772.1 | 1797.9 | 1815.6 | 1825.9 | 1823.7 | 1803.8 | 1794.9 |
| 77.5° | 1349.0 | 1367.4 | 1357.8 | 1350.4 | 1357.1 | 1382.9 | 1438.9 | 1432.2 | 1400.6 | 1366.6 | 1373.3 |
| 80° | 970.1 | 1002.5 | 1006.2 | 1003.2 | 1017.2 | 1020.9 | 1068.1 | 1055.6 | 1029.8 | 1029.0 | 1036.4 |
| 82.5° | 635.4 | 650.2 | 696.6 | 737.9 | 748.9 | 730.5 | 761.5 | 773.3 | 779.9 | 780.6 | 778.4 |
| 85° | 588.2 | 604.4 | 593.4 | 615.5 | 620.7 | 625.8 | 631.0 | 635.4 | 642.8 | 649.4 | 652.4 |
| 87.5° | 555.8 | 582.3 | 580.9 | 595.6 | 594.1 | 604.4 | 614.0 | 617.0 | 608.1 | 598.6 | 595.6 |
| 90° | 496.8 | 518.2 | 526.3 | 535.2 | 539.6 | 538.1 | 546.2 | 546.2 | 540.3 | 535.9 | 534.4 |
| 92.5° | 446.0 | 457.8 | 465.1 | 476.2 | 479.1 | 477.7 | 485.8 | 482.1 | 482.8 | 484.3 | 485.8 |
| 95° | 421.6 | 426.8 | 424.6 | 429.0 | 423.1 | 418.0 | 420.9 | 416.5 | 414.3 | 410.6 | 410.6 |
| 97.5° | 352.3 | 351.6 | 351.6 | 353.1 | 350.1 | 345.7 | 347.9 | 347.2 | 347.9 | 347.9 | 345.0 |
| 100° | 308.9 | 308.1 | 303.7 | 303.0 | 302.2 | 300.7 | 298.5 | 299.3 | 299.3 | 298.5 | 299.3 |
| 102.5° | 308.1 | 301.5 | 291.9 | 281.6 | 281.6 | 279.4 | 280.1 | 279.4 | 278.6 | 274.2 | 272.0 |
| 105° | 314.0 | 303.7 | 287.5 | 266.8 | 263.9 | 264.6 | 266.8 | 266.1 | 263.2 | 258.7 | 255.8 |
| 107.5° | 290.4 | 278.6 | 269.1 | 255.8 | 252.1 | 251.4 | 252.8 | 253.6 | 250.6 | 244.7 | 240.3 |
| 110° | 257.3 | 252.8 | 248.4 | 243.3 | 239.6 | 238.8 | 238.8 | 238.8 | 235.9 | 233.7 | 228.5 |

Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P981121
CATALOG NUMBER: FFX-CLB-70-740-U-FR-T5-UPLR

**CANDELA DISTRIBUTION (continued):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 112.5° | *242.5* | 237.4 | 232.2 | 227.8 | 225.6 | 224.8 | 223.4 | 221.9 | 219.7 | 217.5 | 214.5 |
| 115° | *228.5* | 228.5 | 224.8 | 208.6 | 204.9 | 204.2 | 203.4 | 203.4 | 203.4 | 203.4 | 202.7 |
| 117.5° | *247.7* | 245.5 | 231.5 | 210.8 | 204.2 | 200.5 | 197.6 | 199.0 | 198.3 | 203.4 | 202.0 |
| 120° | *283.8* | 267.6 | 237.4 | 222.6 | 216.7 | 213.8 | 214.5 | 215.2 | 214.5 | 213.0 | 210.1 |
| 122.5° | *280.8* | 263.2 | 244.7 | 233.7 | 227.0 | 226.3 | 229.2 | 228.5 | 221.9 | 211.6 | 203.4 |
| 125° | *246.9* | 237.4 | 226.3 | 216.0 | 212.3 | 210.8 | 212.3 | 210.1 | 205.7 | 200.5 | 192.4 |
| 127.5° | *191.7* | 190.2 | 184.3 | 179.9 | 180.6 | 182.8 | 186.5 | 186.5 | 184.3 | 181.3 | 176.9 |
| 130° | *171.8* | 170.3 | 171.0 | 172.5 | 171.8 | 171.8 | 168.1 | 165.1 | 170.3 | 174.7 | 172.5 |
| 132.5° | *158.5* | 159.2 | 166.6 | 177.6 | 175.4 | 169.5 | 160.7 | 159.2 | 167.3 | 176.2 | 175.4 |
| 135° | *152.6* | 153.3 | 159.2 | 170.3 | 167.3 | 160.0 | 156.3 | 157.0 | 161.4 | 165.9 | 165.1 |
| 137.5° | *152.6* | 152.6 | 151.1 | 154.8 | 154.8 | 154.8 | 154.1 | 156.3 | 159.2 | 159.2 | 157.0 |
| 140° | *150.4* | 151.8 | 147.4 | 148.2 | 150.4 | 152.6 | 153.3 | 156.3 | 157.0 | 156.3 | 153.3 |
| 142.5° | *137.8* | 139.3 | 143.7 | 149.6 | 151.1 | 152.6 | 157.0 | 156.3 | 156.3 | 156.3 | 154.8 |
| 145° | *169.5* | 169.5 | 173.2 | 178.4 | 176.2 | 173.2 | 174.7 | 175.4 | 176.9 | 178.4 | 176.9 |
| 147.5° | *187.2* | 187.2 | 182.8 | 181.3 | 177.6 | 177.6 | 182.1 | 181.3 | 180.6 | 179.1 | 179.9 |
| 150° | *154.8* | 154.1 | 150.4 | 148.9 | 148.9 | 147.4 | 149.6 | 149.6 | 147.4 | 146.0 | 146.7 |
| 152.5° | *110.6* | 111.3 | 109.8 | 111.3 | 113.5 | 115.7 | 117.9 | 119.4 | 119.4 | 119.4 | 117.9 |
| 155° | *100.2* | 98.8 | 98.0 | 99.5 | 100.2 | 99.5 | 98.0 | 98.0 | 98.0 | 96.6 | 95.8 |
| 157.5° | *87.0* | 86.2 | 85.5 | 86.2 | 86.2 | 87.0 | 87.7 | 88.5 | 88.5 | 87.0 | 86.2 |
| 160° | *75.2* | 75.2 | 75.2 | 75.9 | 75.9 | 75.2 | 74.5 | 75.2 | 76.7 | 76.7 | 76.7 |
| 162.5° | *67.8* | 68.6 | 69.3 | 70.8 | 70.8 | 69.3 | 67.8 | 67.8 | 69.3 | 70.8 | 70.8 |
| 165° | *62.7* | 62.7 | 64.1 | 67.1 | 67.8 | 65.6 | 63.4 | 63.4 | 65.6 | 68.6 | 69.3 |
| 167.5° | *62.7* | 63.4 | 65.6 | 67.8 | 67.1 | 64.9 | 62.7 | 62.7 | 64.9 | 67.1 | 67.1 |
| 170° | *67.1* | 67.1 | 66.3 | 65.6 | 64.9 | 64.9 | 64.9 | 65.6 | 66.3 | 65.6 | 65.6 |
| 172.5° | *70.8* | 70.0 | 67.8 | 65.6 | 64.9 | 67.1 | 68.6 | 67.8 | 67.1 | 65.6 | 65.6 |
| 175° | *72.2* | 71.5 | 70.0 | 68.6 | 68.6 | 70.0 | 70.8 | 69.3 | 67.8 | 67.1 | 66.3 |
| 177.5° | *64.9* | 64.9 | 64.1 | 64.1 | 64.9 | 64.1 | 64.1 | 64.1 | 63.4 | 62.7 | 61.9 |
| 180° | *56.0* | 56.0 | 56.0 | 56.0 | 56.0 | 56.0 | 56.0 | 56.0 | 56.0 | 56.0 | 56.0 |

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

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2501-332-1

Test Date: 03/20/2025

Luminaire Tested: FFX-CLB-100-740-U-FR-T5

Data in this report applies to families of products including FFX-CLB-100-740-U-FR-T5

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

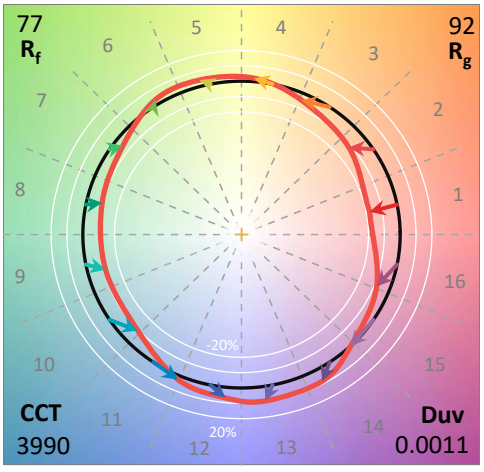
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2501-332-1 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 03/31/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | Streetworks |
| Catalog Number: | **FFX-CLB-100-740-U-FR-T5** |
| Description: | FAIRFAX ACORN W/ FAIRFAX REFRACTOR 100W T5 |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 3990 | CRI (Ra): | 73.9 | | |
| CIE u': | 0.2247 | R1: | 69.6 | R9: | -36.4 |
| CIE v': | 0.5031 | R2: | 83.0 | R10: | 60.9 |
| Duv: | 0.0011 | R3: | 93.1 | R11: | 66.8 |
| CIE x: | 0.3816 | R4: | 70.6 | R12: | 52.5 |
| CIE y: | 0.3798 | R5: | 70.6 | R13: | 72.5 |
| CIE z: | 0.2386 | R6: | 76.4 | R14: | 96.4 |
| Peak Wavelength (nm): | 450 | R7: | 79.8 | R15: | 61.3 |
| Dominant Wavelength (nm): | 578 | R8: | 48.1 | | |
| Purity: | 28.50862 | | | | |

| | |
|---|---|
| Rf: | 77.5 |
| Rg: | 91.9 |



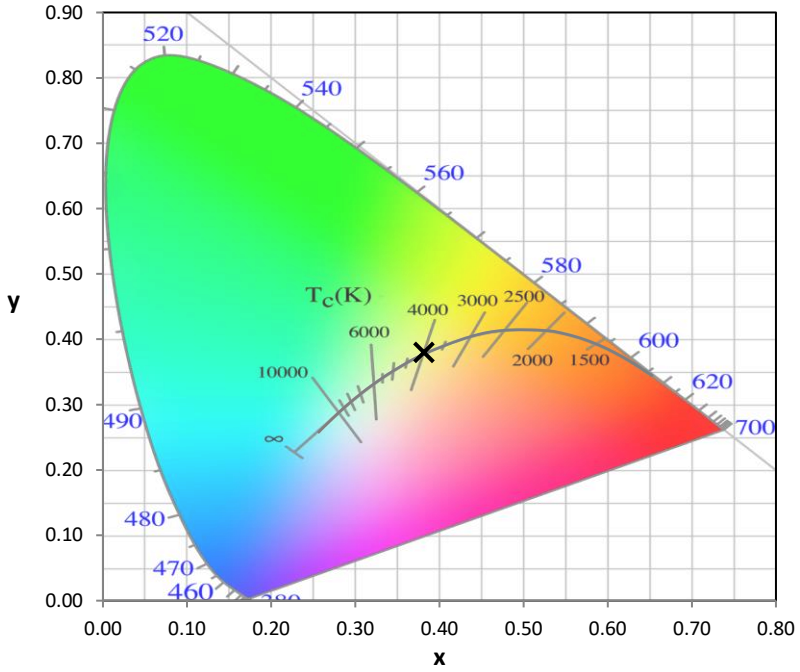

## Test Conditions

| | |
|---|---|
| Stabilization Time: | 70M |
| Operation Time: | 2H 10M |
| Sphere Temperature (°C): | 25.0 |

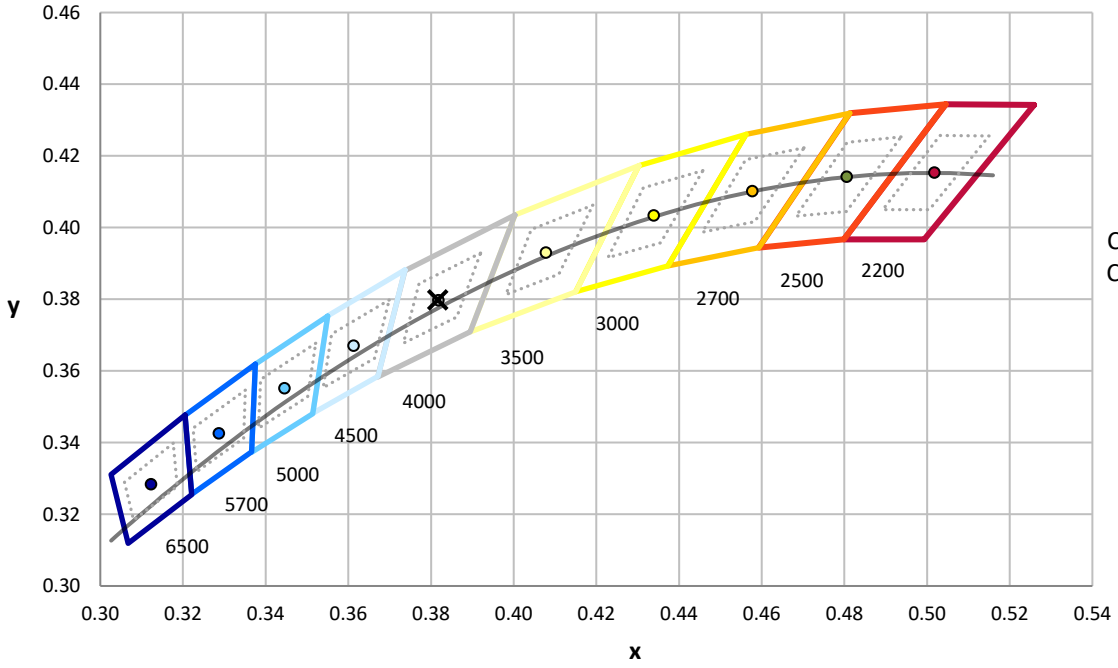
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 12/16/2024 | 6/16/2025 |
| Power Meter | INXT2011004 | 1/21/2025 | 1/21/2026 |
| AC Power Source | IN0063 | 10/22/2024 | 10/22/2025 |
| DC Power Source | IN0208 | 10/22/2024 | 10/22/2025 |
| Sphere Thermometer | IN0085 | 10/22/2024 | 10/22/2025 |
| Room Thermometer | IN0046 | 10/22/2024 | 10/22/2025 |

REPORT NUMBER: SP1-2501-332-1

## CIE 1931 Chromaticity Diagram




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

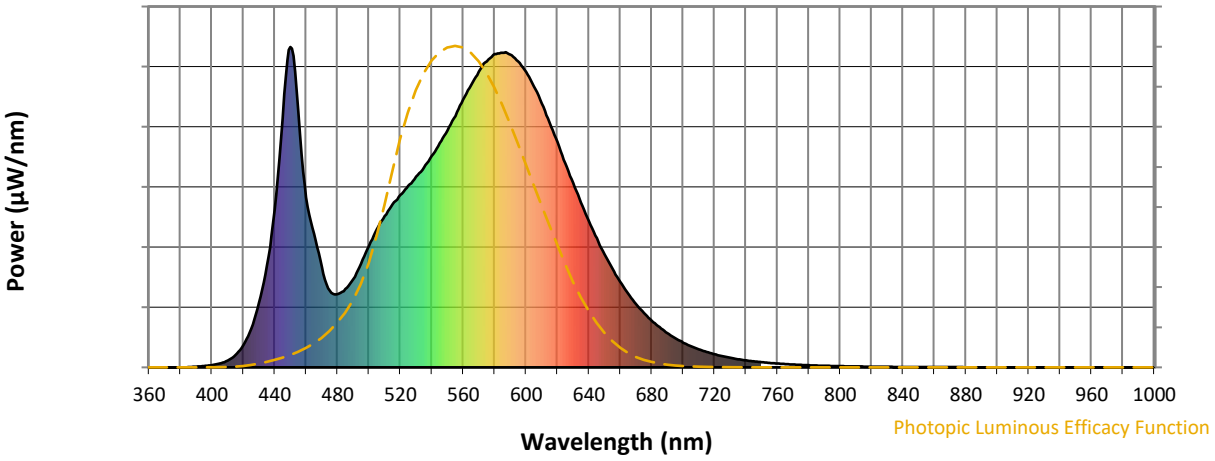



CCT = 3990K
CIE x = 0.3816
CIE y = 0.3798
Duv = 0.0011

Point lies inside the ANSI 4000K 4-step quadrangle

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## Photopic Flux vs. Wavelength

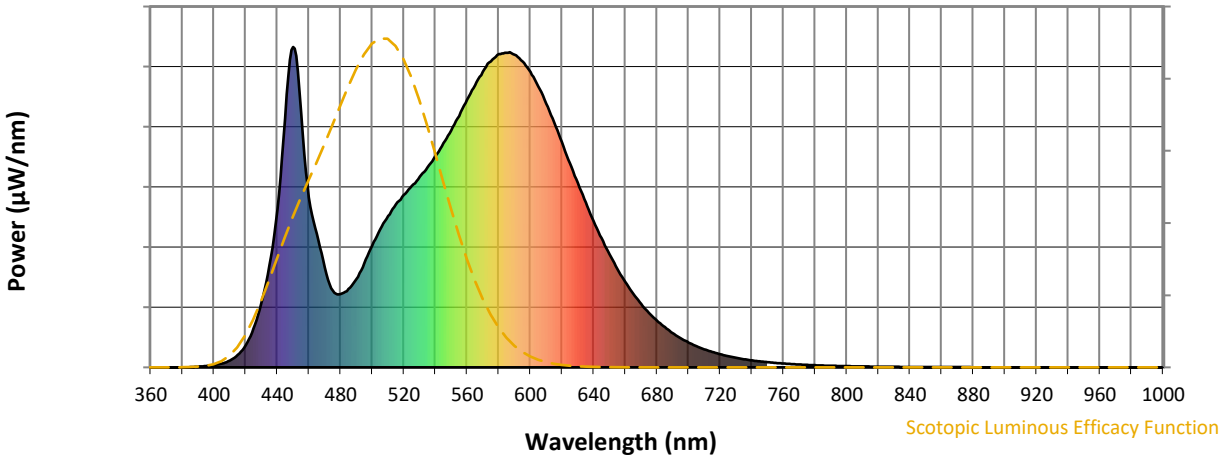



## Photopic Lumens: NR

| 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 | 275 | NR | 620 | 703 | NR | 750 | 16 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 324 | NR | 625 | 637 | NR | 755 | 14 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 380 | NR | 630 | 576 | NR | 760 | 12 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 431 | NR | 635 | 514 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 472 | NR | 640 | 456 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 508 | NR | 645 | 403 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 538 | NR | 650 | 353 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 567 | NR | 655 | 307 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 595 | NR | 660 | 266 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 12 | NR | 535 | 624 | NR | 665 | 230 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 21 | NR | 540 | 660 | NR | 670 | 198 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 39 | NR | 545 | 700 | NR | 675 | 170 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 739 | NR | 680 | 146 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 121 | NR | 555 | 784 | NR | 685 | 125 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 202 | NR | 560 | 836 | NR | 690 | 107 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 319 | NR | 565 | 881 | NR | 695 | 91 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 492 | NR | 570 | 923 | NR | 700 | 77 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 777 | NR | 575 | 955 | NR | 705 | 66 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 978 | NR | 710 | 56 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 797 | NR | 585 | 982 | NR | 715 | 48 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 530 | NR | 590 | 976 | NR | 720 | 41 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 418 | NR | 595 | 955 | NR | 725 | 35 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 311 | NR | 600 | 922 | NR | 730 | 30 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 239 | NR | 605 | 877 | NR | 735 | 25 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 229 | NR | 610 | 823 | NR | 740 | 22 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 245 | NR | 615 | 764 | NR | 745 | 19 | NR | 875 | 1 | NR | | | |

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## Scotopic Flux vs. Wavelength

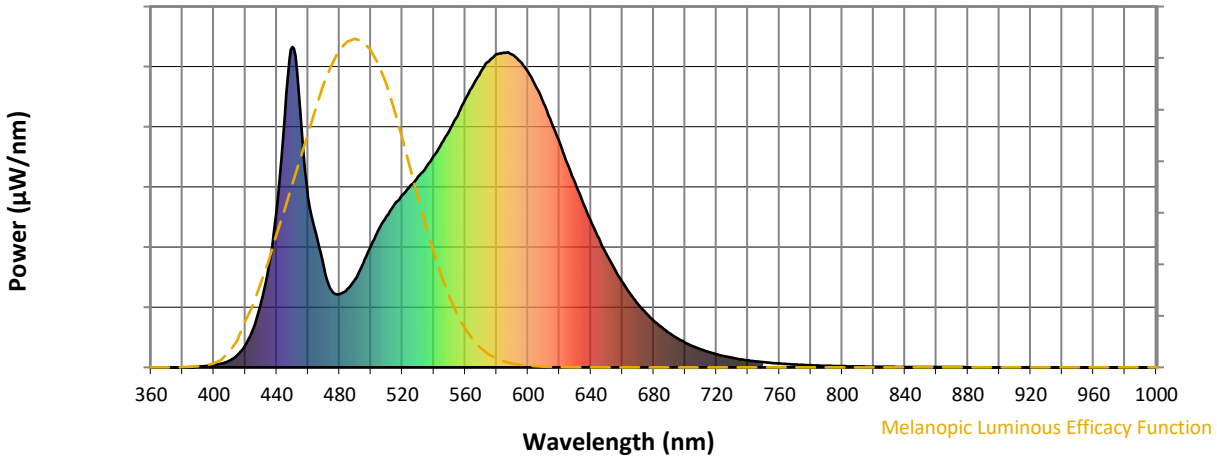



**Scotopic Lumens: NR** **S/P: 1.59**

| 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 | 275 | NR | 620 | 703 | NR | 750 | 16 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 324 | NR | 625 | 637 | NR | 755 | 14 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 380 | NR | 630 | 576 | NR | 760 | 12 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 431 | NR | 635 | 514 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 472 | NR | 640 | 456 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 508 | NR | 645 | 403 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 538 | NR | 650 | 353 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 567 | NR | 655 | 307 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 595 | NR | 660 | 266 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 12 | NR | 535 | 624 | NR | 665 | 230 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 21 | NR | 540 | 660 | NR | 670 | 198 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 39 | NR | 545 | 700 | NR | 675 | 170 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 739 | NR | 680 | 146 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 121 | NR | 555 | 784 | NR | 685 | 125 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 202 | NR | 560 | 836 | NR | 690 | 107 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 319 | NR | 565 | 881 | NR | 695 | 91 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 492 | NR | 570 | 923 | NR | 700 | 77 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 777 | NR | 575 | 955 | NR | 705 | 66 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 978 | NR | 710 | 56 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 797 | NR | 585 | 982 | NR | 715 | 48 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 530 | NR | 590 | 976 | NR | 720 | 41 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 418 | NR | 595 | 955 | NR | 725 | 35 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 311 | NR | 600 | 922 | NR | 730 | 30 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 239 | NR | 605 | 877 | NR | 735 | 25 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 229 | NR | 610 | 823 | NR | 740 | 22 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 245 | NR | 615 | 764 | NR | 745 | 19 | NR | 875 | 1 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 3.21**

| 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 | 275 | NR | 620 | 703 | NR | 750 | 16 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 324 | NR | 625 | 637 | NR | 755 | 14 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 380 | NR | 630 | 576 | NR | 760 | 12 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 431 | NR | 635 | 514 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 472 | NR | 640 | 456 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 508 | NR | 645 | 403 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 538 | NR | 650 | 353 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 567 | NR | 655 | 307 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 595 | NR | 660 | 266 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 12 | NR | 535 | 624 | NR | 665 | 230 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 21 | NR | 540 | 660 | NR | 670 | 198 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 39 | NR | 545 | 700 | NR | 675 | 170 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 739 | NR | 680 | 146 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 121 | NR | 555 | 784 | NR | 685 | 125 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 202 | NR | 560 | 836 | NR | 690 | 107 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 319 | NR | 565 | 881 | NR | 695 | 91 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 492 | NR | 570 | 923 | NR | 700 | 77 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 777 | NR | 575 | 955 | NR | 705 | 66 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 978 | NR | 710 | 56 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 797 | NR | 585 | 982 | NR | 715 | 48 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 530 | NR | 590 | 976 | NR | 720 | 41 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 418 | NR | 595 | 955 | NR | 725 | 35 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 311 | NR | 600 | 922 | NR | 730 | 30 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 239 | NR | 605 | 877 | NR | 735 | 25 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 229 | NR | 610 | 823 | NR | 740 | 22 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 245 | NR | 615 | 764 | NR | 745 | 19 | NR | 875 | 1 | NR | | | |

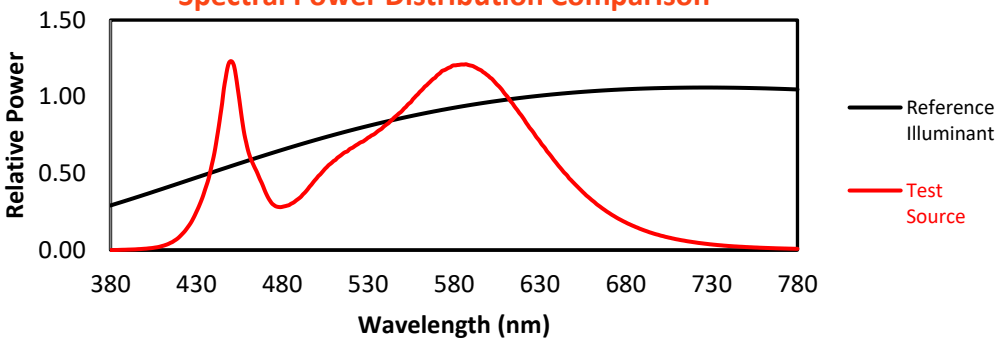
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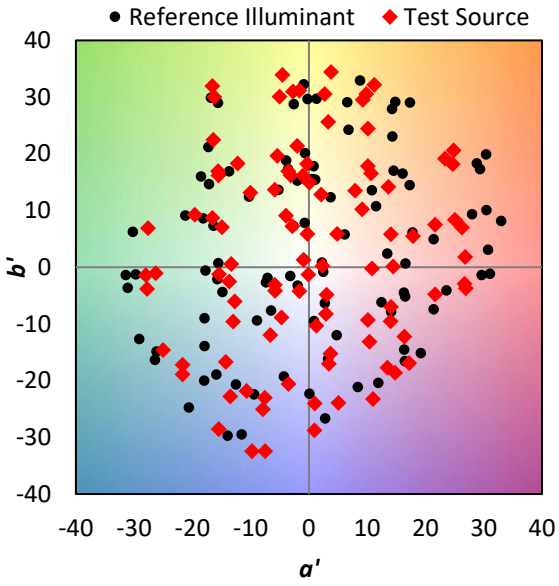
## Summary

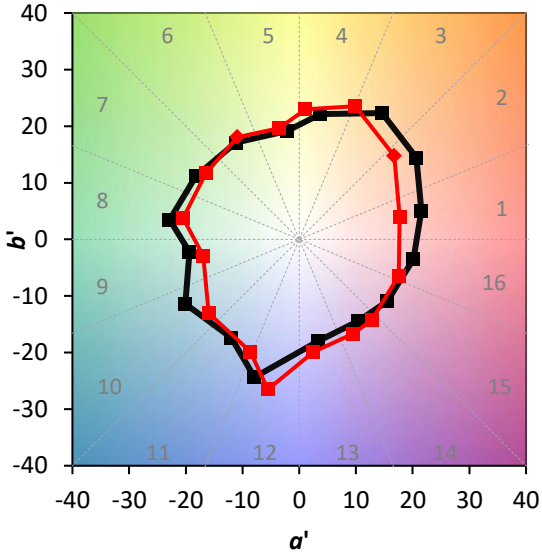
$R_f$ = 77.5
$R_g$ = 91.9
CIE $R_a$ = 73.9
$R_9$ = -36.4

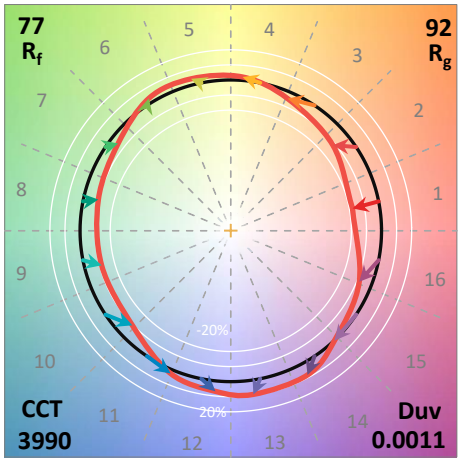
## Spectral Power Distribution Comparison

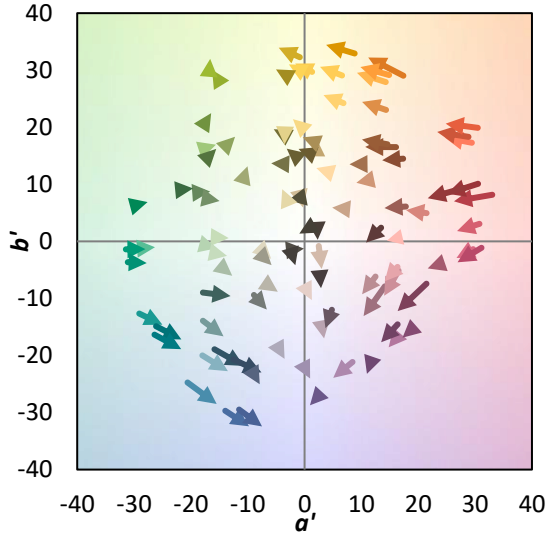



## Color Vector Graphics



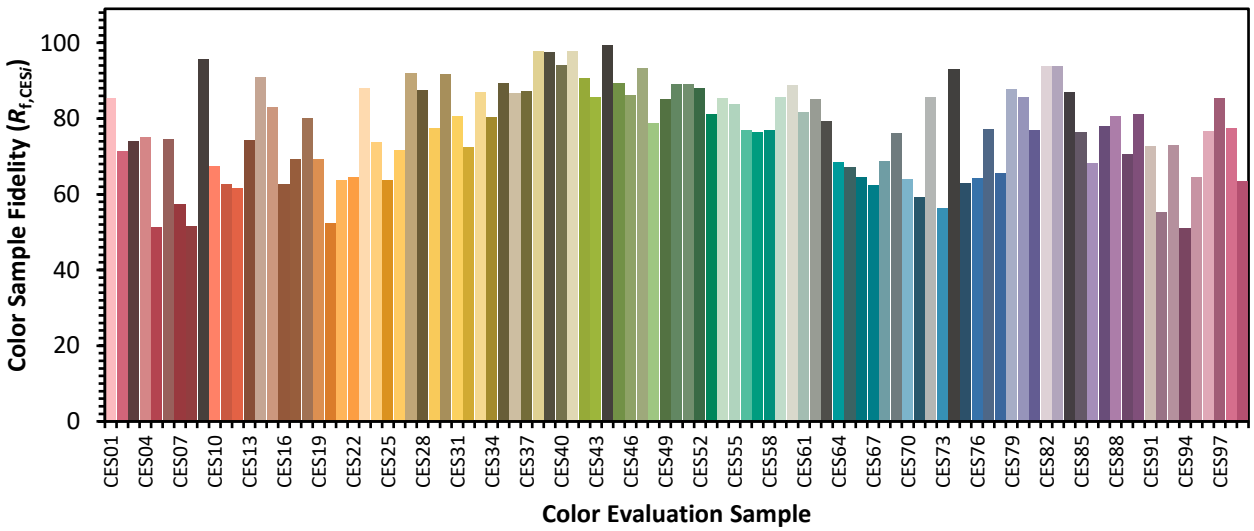



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**Individual Sample Fidelity Index ($R_{f,i}$)**

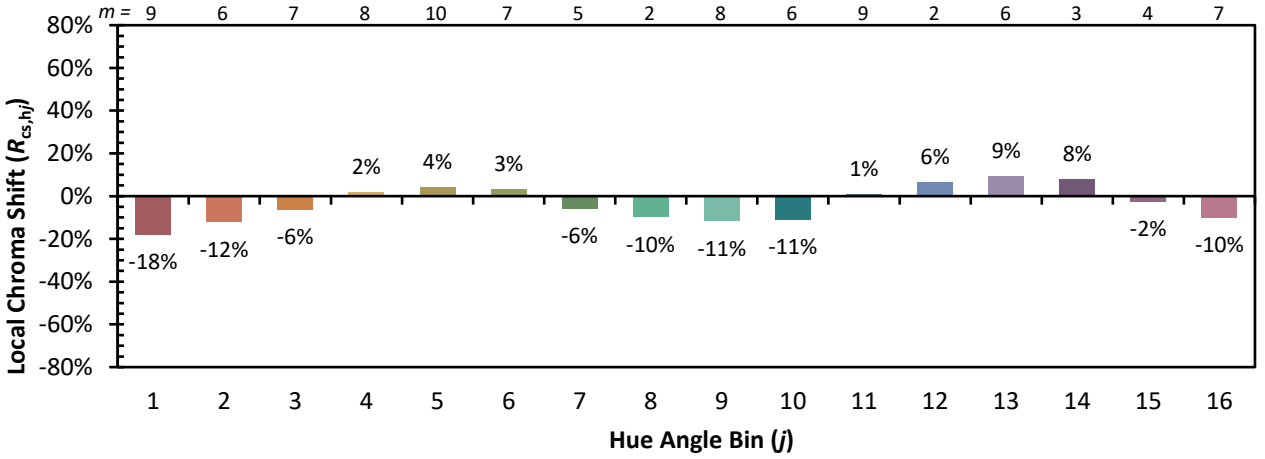
| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 72 | CES51 = 89 | CES76 = 64 |
| CES02 = 61 | CES27 = 92 | CES52 = 88 | CES77 = 77 |
| CES03 = 30 | CES28 = 88 | CES53 = 81 | CES78 = 65 |
| CES04 = 70 | CES29 = 78 | CES54 = 85 | CES79 = 88 |
| CES05 = 47 | CES30 = 92 | CES55 = 84 | CES80 = 86 |
| CES06 = 50 | CES31 = 81 | CES56 = 77 | CES81 = 77 |
| CES07 = 40 | CES32 = 72 | CES57 = 76 | CES82 = 94 |
| CES08 = 39 | CES33 = 87 | CES58 = 77 | CES83 = 94 |
| CES09 = 29 | CES34 = 80 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 89 | CES60 = 89 | CES85 = 76 |
| CES11 = 57 | CES36 = 87 | CES61 = 82 | CES86 = 68 |
| CES12 = 63 | CES37 = 87 | CES62 = 85 | CES87 = 78 |
| CES13 = 42 | CES38 = 98 | CES63 = 79 | CES88 = 81 |
| CES14 = 74 | CES39 = 98 | CES64 = 68 | CES89 = 71 |
| CES15 = 71 | CES40 = 94 | CES65 = 67 | CES90 = 81 |
| CES16 = 46 | CES41 = 98 | CES66 = 65 | CES91 = 73 |
| CES17 = 49 | CES42 = 91 | CES67 = 62 | CES92 = 55 |
| CES18 = 56 | CES43 = 86 | CES68 = 69 | CES93 = 73 |
| CES19 = 72 | CES44 = 99 | CES69 = 76 | CES94 = 51 |
| CES20 = 65 | CES45 = 89 | CES70 = 64 | CES95 = 65 |
| CES21 = 86 | CES46 = 86 | CES71 = 59 | CES96 = 77 |
| CES22 = 78 | CES47 = 93 | CES72 = 86 | CES97 = 85 |
| CES23 = 92 | CES48 = 79 | CES73 = 56 | CES98 = 77 |
| CES24 = 91 | CES49 = 85 | CES74 = 93 | CES99 = 63 |
| CES25 = 72 | CES50 = 89 | CES75 = 63 | |

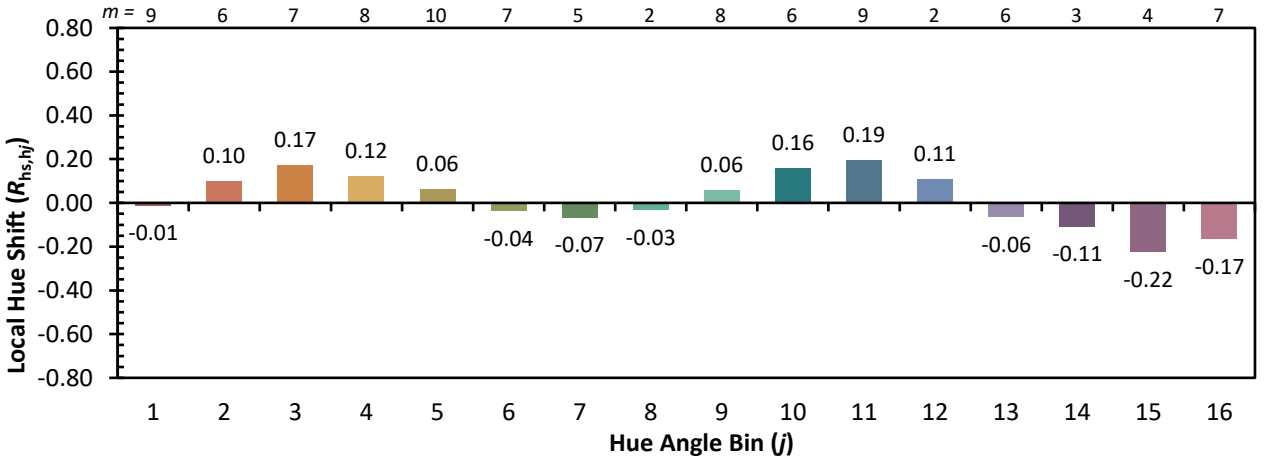


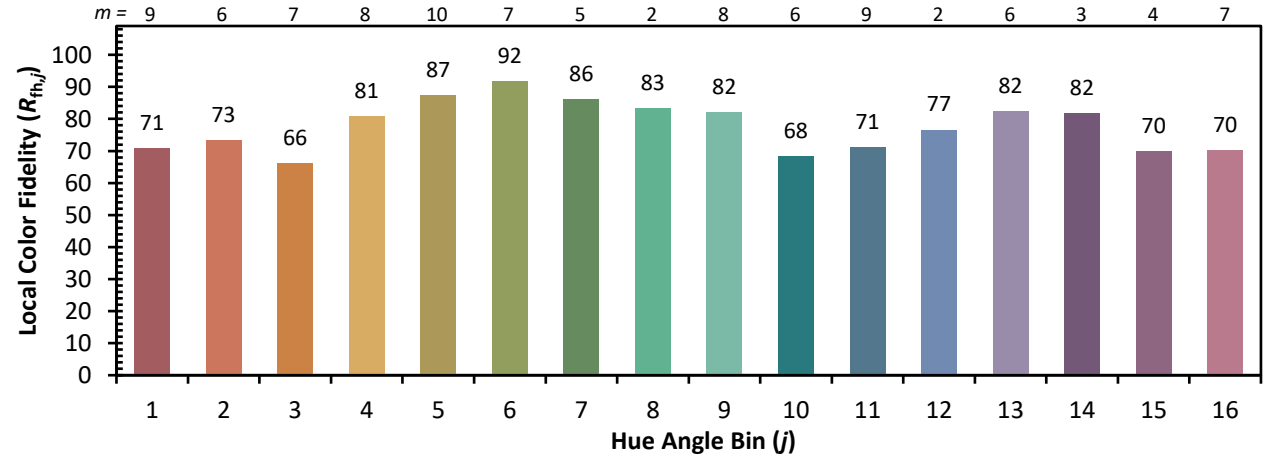
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## Color Rendition by Hue-Angle Bin



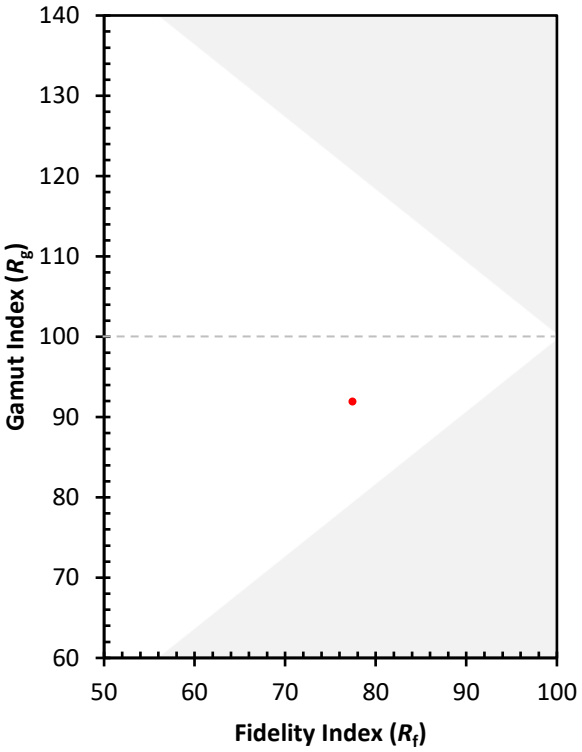



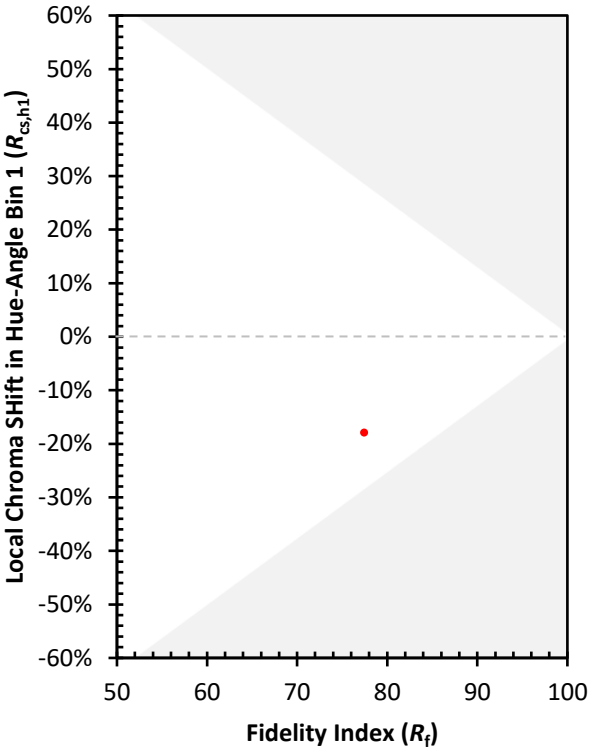



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## Measure Comparisons




(END OF REPORT)