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: P856066

Luminaire Tested: **FFX-CLB-90-727-U-FR-T5**

Issue Date: 07/16/2024

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: | P856066 |
| Test Lab: | INNOVATION CENTER(G3) |
| Issue Date: | 07/16/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | STREETWORKS |
| Catalog Number: | FFX-CLB-90-727-U-FR-T5 |
| Description: | FAIRFAX POST TOP FIXTURE w/ FAIRFAX REFRACTOR T5 DISTRIBUTION LENS |
| Light Source: | (6) 2700K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 13366.5 lumens |
| Efficiency: | N/A |
| Efficacy: | 148.0 lumens/watt |
| Luminous Opening: | Vertical Cylinder (Dia: 1.17' x H: 1.67') |
| IES Classification: | Type V - Short |
| BUG Rating: | B4 - U5 - G3 |

| | |
|---|---|
| Input Watts (W): | 90.3 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.99 |
| Total Harmonic Distortion (THDi): | 5.6%% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 24 FT |

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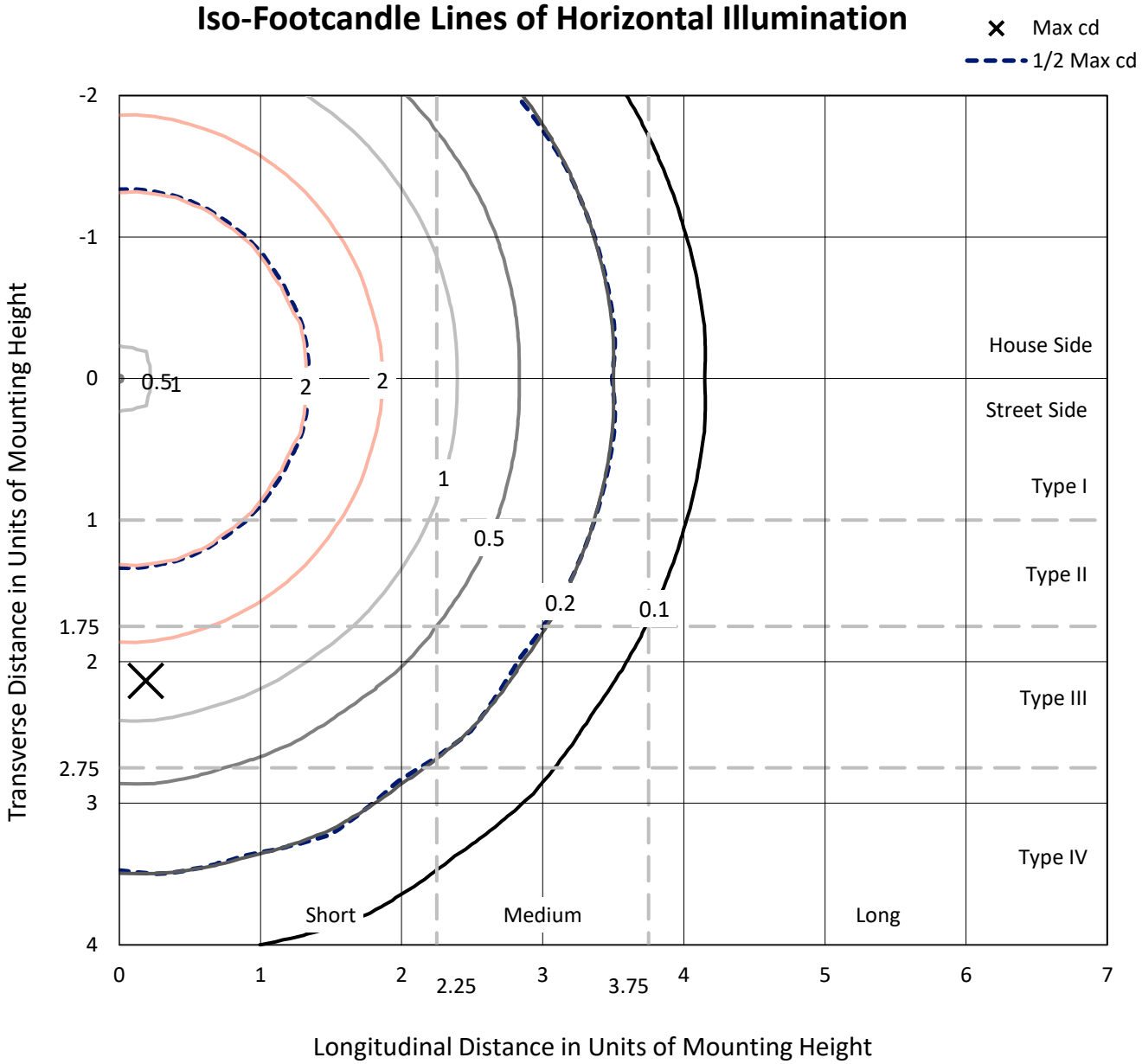
Scaled Data Report

REPORT NUMBER: P856066
CATALOG NUMBER: FFX-CLB-90-727-U-FR-T5

## Iso-Footcandle Lines of Horizontal Illumination




Based on 15 foot mounting height. Maximum calculated value = 2.4 fc
Type V - Short - N/A

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Scaled Data Report

REPORT NUMBER: P856066
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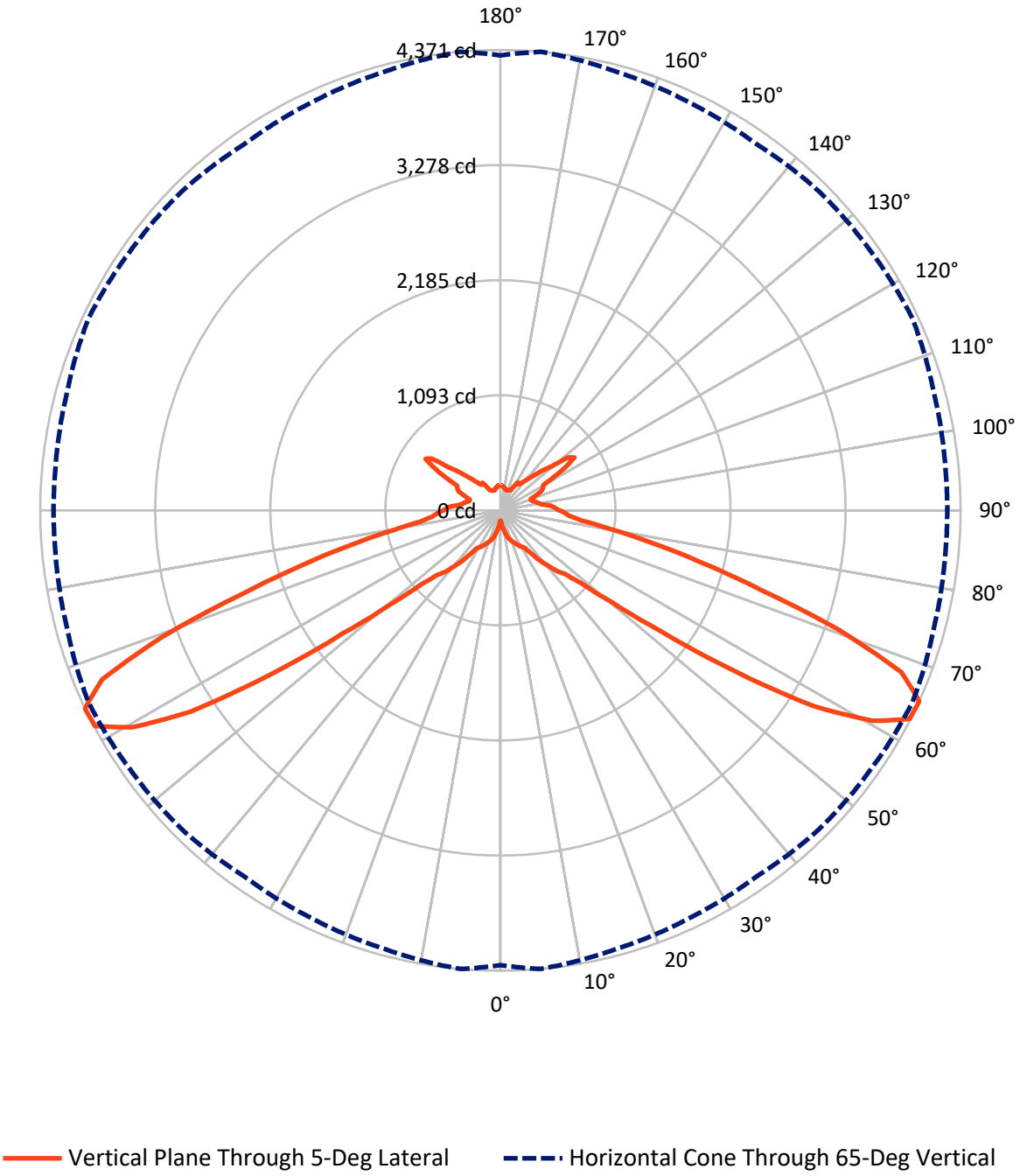
## Luminous Intensity Polar Plot



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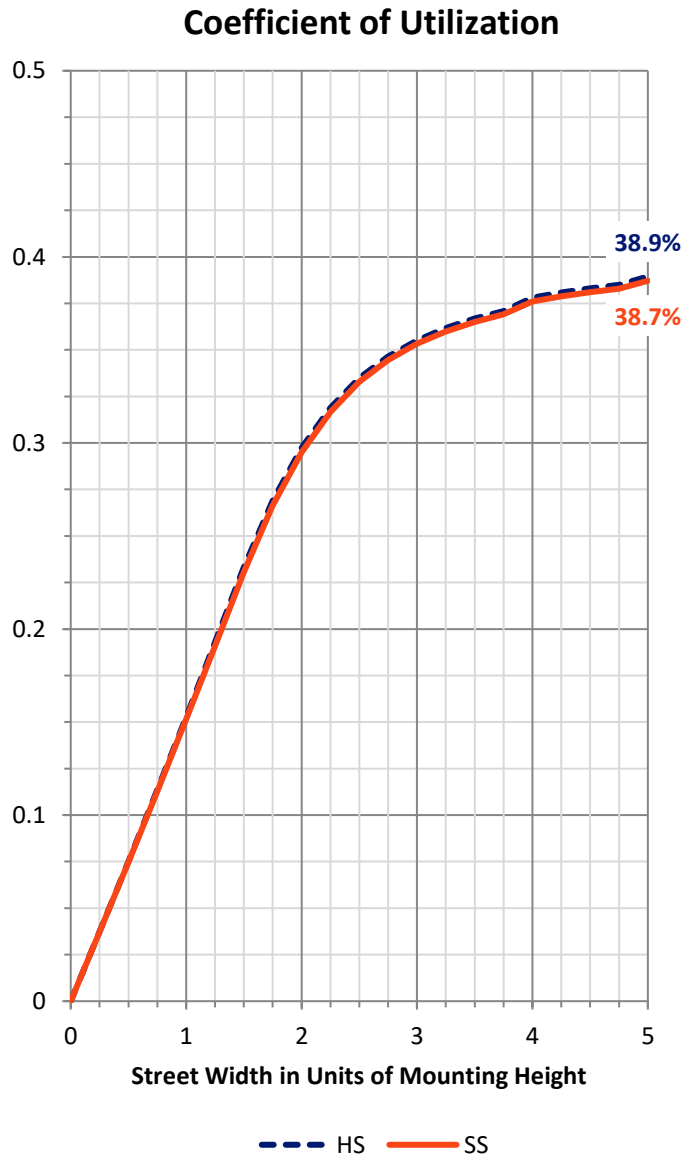
REPORT NUMBER: P856066
CATALOG NUMBER: FFX-CLB-90-727-U-FR-T5

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 5386.1 | 1297.1 | 6683.3 |
| | % Fixture | 40.3 | 9.7 | 50.0 |
| **Street Side** | Lumens | 5386.1 | 1297.1 | 6683.3 |
| | % Fixture | 40.3 | 9.7 | 50.0 |
| **Total** | Lumens | 10772.3 | 2594.3 | 13366.5 |
| | % Fixture | 80.6 | 19.4 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 15.2 | 0.1 |
| 10°-20° | 76.3 | 0.6 |
| 20°-30° | 165.8 | 1.2 |
| 30°-40° | 329.1 | 2.5 |
| 40°-50° | 713.8 | 5.3 |
| 50°-60° | 2458.3 | 18.4 |
| 60°-70° | 4037.5 | 30.2 |
| 70°-80° | 2167.0 | 16.2 |
| 80°-90° | 809.2 | 6.1 |
| 90°-100° | 511.1 | 3.8 |
| 100°-110° | 342.3 | 2.6 |
| 110°-120° | 376.3 | 2.8 |
| 120°-130° | 622.6 | 4.7 |
| 130°-140° | 366.6 | 2.7 |
| 140°-150° | 194.0 | 1.5 |
| 150°-160° | 101.9 | 0.8 |
| 160°-170° | 57.8 | 0.4 |
| 170°-180° | 21.8 | 0.2 |
| 0°-90° | 10772.3 | 80.6 |
| 0°-180° | 13366.5 | 100.0 |



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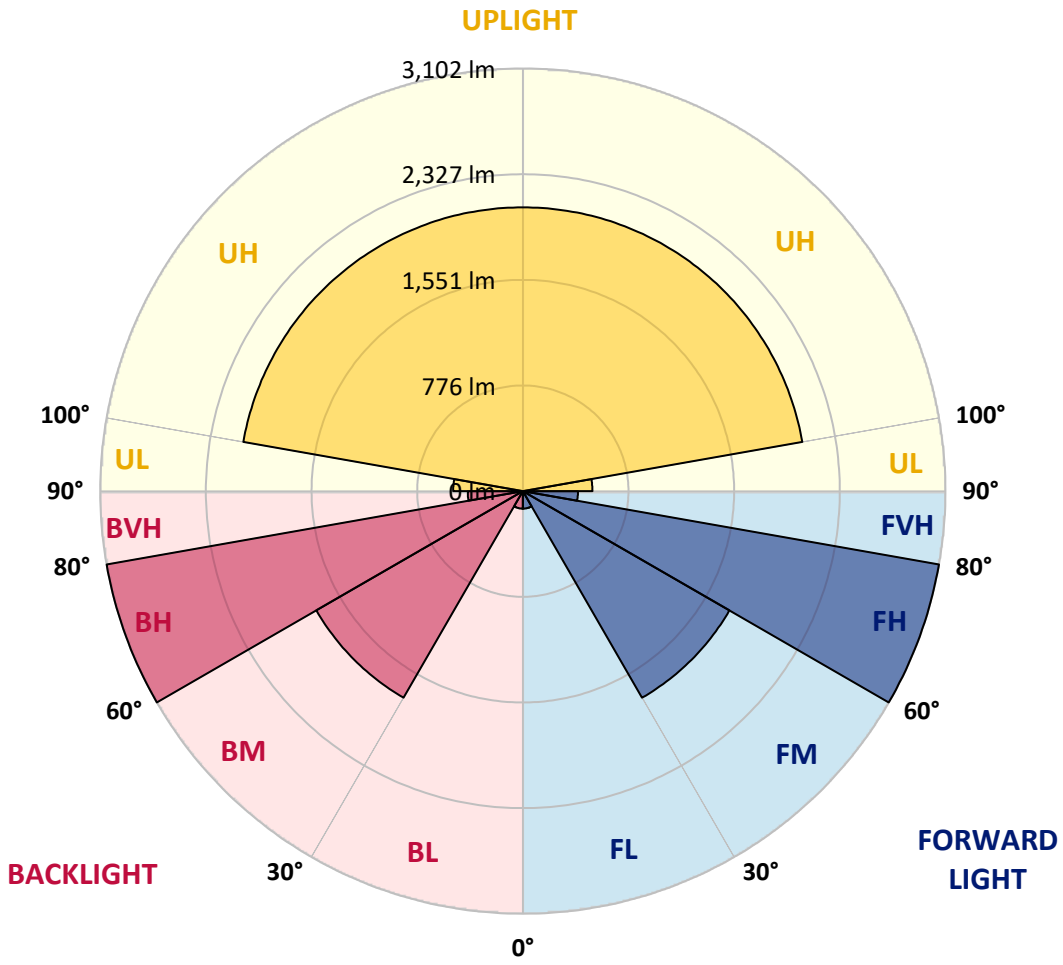
REPORT NUMBER: P856066
CATALOG NUMBER: FFX-CLB-90-727-U-FR-T5

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 128.7 | 1.0 | | | |
| FM | (30°-60°) | 1750.6 | 13.1 | | | |
| FH | (60°-80°) | 3102.2 | 23.2 | | | G2/5000 |
| FVH | (80°-90°) | 404.6 | 3.0 | | | G3/500 |
| BL | (0°-30°) | 128.7 | 1.0 | B1/500 | | |
| BM | (30°-60°) | 1750.6 | 13.1 | B2/2500 | | |
| BH | (60°-80°) | 3102.2 | 23.2 | B4/5000 | | G2/5000 |
| BVH | (80°-90°) | 404.6 | 3.0 | | | G3/500 |
| UL | (90°-100°) | 511.1 | 3.8 | | U4/1000 | |
| UH | (100°-180°) | 2083.2 | 15.6 | | U5 | |

**BUG Rating: B4-U5-G3**
Type V Short



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Scaled Data Report

REPORT NUMBER: P856066
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 99.5 | 99.5 | 99.5 | 99.5 | 99.5 | 99.5 | 99.5 | 99.5 | 99.5 | 99.5 | 99.5 |
| 2.5° | 104.9 | 104.9 | 103.5 | 102.2 | 103.5 | 104.9 | 104.9 | 106.3 | 103.5 | 103.5 | 104.9 |
| 5° | 140.3 | 140.3 | 140.3 | 139.0 | 136.2 | 136.2 | 134.9 | 139.0 | 140.3 | 141.7 | 141.7 |
| 7.5° | 174.4 | 173.0 | 175.7 | 177.1 | 170.3 | 167.6 | 167.6 | 168.9 | 171.7 | 174.4 | 177.1 |
| 10° | 197.5 | 196.2 | 197.5 | 203.0 | 201.6 | 197.5 | 197.5 | 197.5 | 201.6 | 208.4 | 209.8 |
| 12.5° | 233.0 | 233.0 | 235.7 | 239.8 | 241.1 | 237.1 | 234.3 | 234.3 | 239.8 | 241.1 | 239.8 |
| 15° | 271.1 | 271.1 | 269.8 | 268.4 | 269.8 | 268.4 | 268.4 | 269.8 | 273.8 | 272.5 | 272.5 |
| 17.5° | 291.6 | 290.2 | 288.8 | 290.2 | 290.2 | 288.8 | 290.2 | 292.9 | 291.6 | 295.6 | 297.0 |
| 20° | 313.4 | 313.4 | 310.6 | 310.6 | 310.6 | 312.0 | 313.4 | 312.0 | 313.4 | 314.7 | 316.1 |
| 22.5° | 333.8 | 333.8 | 332.4 | 331.1 | 332.4 | 333.8 | 335.1 | 332.4 | 332.4 | 335.1 | 335.1 |
| 25° | 356.9 | 356.9 | 356.9 | 352.9 | 354.2 | 355.6 | 354.2 | 352.9 | 354.2 | 355.6 | 356.9 |
| 27.5° | 382.8 | 382.8 | 380.1 | 376.0 | 377.4 | 377.4 | 378.7 | 376.0 | 378.7 | 378.7 | 378.7 |
| 30° | 404.6 | 401.9 | 400.5 | 397.8 | 397.8 | 400.5 | 403.3 | 399.2 | 400.5 | 400.5 | 401.9 |
| 32.5° | 425.1 | 425.1 | 423.7 | 418.3 | 416.9 | 425.1 | 427.8 | 426.4 | 421.0 | 422.3 | 423.7 |
| 35° | 501.4 | 501.4 | 491.8 | 482.3 | 490.5 | 489.1 | 500.0 | 500.0 | 500.0 | 502.7 | 508.2 |
| 37.5° | 596.7 | 600.8 | 615.8 | 637.6 | 637.6 | 606.3 | 589.9 | 588.6 | 610.4 | 629.4 | 628.1 |
| 40° | 681.2 | 685.3 | 681.2 | 683.9 | 681.2 | 682.6 | 683.9 | 681.2 | 668.9 | 664.8 | 656.7 |
| 42.5° | 786.1 | 787.5 | 761.6 | 731.6 | 734.3 | 749.3 | 767.0 | 768.4 | 742.5 | 730.2 | 727.5 |
| 45° | 859.7 | 862.4 | 852.9 | 848.8 | 848.8 | 854.2 | 852.9 | 852.9 | 843.3 | 842.0 | 839.2 |
| 47.5° | 1039.5 | 1034.1 | 1015.0 | 1008.2 | 1016.3 | 1012.3 | 1038.1 | 1031.3 | 1020.4 | 1020.4 | 1030.0 |
| 50° | 1378.7 | 1373.3 | 1374.7 | 1367.8 | 1389.6 | 1358.3 | 1389.6 | 1381.5 | 1365.1 | 1373.3 | 1380.1 |
| 52.5° | 1933.2 | 1899.2 | 1903.3 | 1889.6 | 1927.8 | 1899.2 | 1950.9 | 1944.1 | 1891.0 | 1914.2 | 1915.5 |
| 55° | 2731.6 | 2688.0 | 2685.3 | 2594.0 | 2664.8 | 2674.4 | 2739.8 | 2756.1 | 2652.6 | 2653.9 | 2660.8 |
| 57.5° | 3523.2 | 3509.5 | 3553.1 | 3495.9 | 3546.3 | 3523.2 | 3521.8 | 3551.8 | 3491.8 | 3500.0 | 3521.8 |
| 60° | 4047.7 | 4058.6 | 4107.6 | 4122.6 | 4140.3 | 4107.6 | 4040.9 | 4054.5 | 4050.4 | 4119.9 | 4125.3 |
| 62.5° | 4328.3 | 4361.0 | 4325.6 | 4314.7 | 4299.7 | 4312.0 | 4303.8 | 4312.0 | 4287.5 | 4320.2 | 4321.5 |
| 65° | 4318.8 | 4370.6 | 4306.5 | 4267.0 | 4242.5 | 4280.6 | 4291.5 | 4316.1 | 4264.3 | 4243.9 | 4243.9 |
| 67.5° | 4045.0 | 4107.6 | 4006.8 | 4002.7 | 3942.8 | 4006.8 | 3989.1 | 4008.2 | 3967.3 | 3938.7 | 3911.4 |
| 70° | 3365.1 | 3422.3 | 3301.1 | 3316.1 | 3212.5 | 3317.4 | 3290.2 | 3325.6 | 3292.9 | 3237.1 | 3204.4 |
| 72.5° | 2535.4 | 2585.8 | 2495.9 | 2519.1 | 2450.9 | 2530.0 | 2487.7 | 2547.7 | 2527.2 | 2502.7 | 2475.5 |
| 75° | 1918.3 | 1957.8 | 1963.2 | 2040.9 | 1959.1 | 1997.3 | 1921.0 | 1956.4 | 1990.5 | 2019.1 | 1989.1 |
| 77.5° | 1411.4 | 1438.7 | 1520.4 | 1606.3 | 1525.9 | 1553.1 | 1476.8 | 1510.9 | 1542.2 | 1591.3 | 1569.5 |
| 80° | 997.3 | 1028.6 | 1103.5 | 1167.6 | 1109.0 | 1133.5 | 1084.5 | 1103.5 | 1128.1 | 1163.5 | 1140.3 |
| 82.5° | 776.6 | 765.7 | 762.9 | 746.6 | 728.9 | 790.2 | 802.5 | 813.3 | 790.2 | 780.7 | 769.8 |
| 85° | 651.2 | 653.9 | 670.3 | 690.7 | 690.7 | 692.1 | 679.8 | 685.3 | 694.8 | 712.5 | 713.9 |
| 87.5° | 598.1 | 606.3 | 652.6 | 668.9 | 662.1 | 664.8 | 653.9 | 656.7 | 663.5 | 673.0 | 670.3 |
| 90° | 527.2 | 547.7 | 591.3 | 607.6 | 596.7 | 602.2 | 596.7 | 600.8 | 595.4 | 598.1 | 592.6 |
| 92.5° | 515.0 | 513.6 | 527.2 | 525.9 | 519.1 | 535.4 | 535.4 | 538.1 | 531.3 | 527.2 | 524.5 |
| 95° | 476.8 | 474.1 | 472.8 | 476.8 | 461.9 | 474.1 | 471.4 | 476.8 | 474.1 | 474.1 | 468.7 |
| 97.5° | 399.2 | 399.2 | 396.5 | 400.5 | 391.0 | 396.5 | 389.6 | 393.7 | 392.4 | 393.7 | 389.6 |
| 100° | 367.8 | 367.8 | 365.1 | 365.1 | 361.0 | 362.4 | 359.7 | 359.7 | 358.3 | 356.9 | 356.9 |
| 102.5° | 346.0 | 348.8 | 344.7 | 346.0 | 340.6 | 340.6 | 337.9 | 339.2 | 337.9 | 337.9 | 336.5 |
| 105° | 325.6 | 327.0 | 324.3 | 324.3 | 320.2 | 318.8 | 316.1 | 317.4 | 318.8 | 316.1 | 316.1 |
| 107.5° | 305.2 | 306.5 | 305.2 | 305.2 | 301.1 | 298.4 | 294.3 | 294.3 | 295.6 | 297.0 | 297.0 |
| 110° | 313.4 | 309.3 | 305.2 | 302.5 | 307.9 | 299.7 | 297.0 | 295.6 | 297.0 | 301.1 | 302.5 |

Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P856066
CATALOG NUMBER: FFX-CLB-90-727-U-FR-T5

**CANDELA DISTRIBUTION (continued):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 112.5° | 374.7 | *371.9* | 371.9 | 359.7 | 373.3 | 365.1 | 359.7 | 350.1 | 354.2 | 356.9 | 356.9 |
| 115° | 434.6 | *436.0* | 419.6 | 414.2 | 406.0 | 404.6 | 408.7 | 397.8 | 396.5 | 397.8 | 395.1 |
| 117.5° | 487.7 | *459.1* | 397.8 | 381.5 | 377.4 | 374.7 | 371.9 | 369.2 | 366.5 | 382.8 | 365.1 |
| 120° | 521.8 | *472.8* | 427.8 | 418.3 | 441.4 | 408.7 | 386.9 | 382.8 | 391.0 | 419.6 | 415.5 |
| 122.5° | 739.8 | *697.5* | 664.8 | 607.6 | 664.8 | 632.2 | 640.3 | 625.3 | 617.2 | 600.8 | 603.5 |
| 125° | 865.1 | *863.8* | 848.8 | 837.9 | 851.5 | 839.2 | 825.6 | 820.2 | 812.0 | 816.1 | 809.3 |
| 127.5° | 803.8 | *816.1* | 797.0 | 818.8 | 769.8 | 783.4 | 780.7 | 790.2 | 782.0 | 784.7 | 773.8 |
| 130° | 636.2 | *645.8* | 628.1 | 617.2 | 595.4 | 619.9 | 621.3 | 636.2 | 619.9 | 598.1 | 595.4 |
| 132.5° | 555.9 | *562.7* | 535.4 | 521.8 | 506.8 | 528.6 | 538.1 | 546.3 | 535.4 | 512.3 | 506.8 |
| 135° | 472.8 | *475.5* | 456.4 | 459.1 | 449.6 | 449.6 | 448.2 | 452.3 | 457.8 | 453.7 | 451.0 |
| 137.5° | 406.0 | *412.8* | 406.0 | 414.2 | 406.0 | 399.2 | 388.3 | 392.4 | 404.6 | 414.2 | 412.8 |
| 140° | 351.5 | *358.3* | 359.7 | 367.8 | 351.5 | 354.2 | 347.4 | 350.1 | 356.9 | 366.5 | 370.6 |
| 142.5° | 312.0 | *317.4* | 305.2 | 298.4 | 292.9 | 309.3 | 321.5 | 322.9 | 314.7 | 303.8 | 307.9 |
| 145° | 303.8 | *298.4* | 303.8 | 298.4 | 303.8 | 301.1 | 302.5 | 301.1 | 301.1 | 301.1 | 301.1 |
| 147.5° | 307.9 | *313.4* | 313.4 | 313.4 | 305.2 | 306.5 | 307.9 | 309.3 | 309.3 | 314.7 | 313.4 |
| 150° | 256.1 | *262.9* | 261.6 | 268.4 | 256.1 | 258.9 | 260.2 | 262.9 | 264.3 | 265.7 | 267.0 |
| 152.5° | 216.6 | *218.0* | 222.1 | 224.8 | 223.4 | 222.1 | 220.7 | 220.7 | 223.4 | 226.2 | 227.5 |
| 155° | 211.2 | *211.2* | 215.3 | 219.3 | 215.3 | 215.3 | 213.9 | 213.9 | 215.3 | 219.3 | 219.3 |
| 157.5° | 203.0 | *204.4* | 204.4 | 207.1 | 204.4 | 205.7 | 204.4 | 204.4 | 205.7 | 207.1 | 208.4 |
| 160° | 198.9 | *200.3* | 200.3 | 200.3 | 200.3 | 200.3 | 200.3 | 200.3 | 200.3 | 201.6 | 201.6 |
| 162.5° | 198.9 | *198.9* | 198.9 | 197.5 | 197.5 | 198.9 | 198.9 | 198.9 | 198.9 | 197.5 | 198.9 |
| 165° | 203.0 | *201.6* | 200.3 | 198.9 | 200.3 | 203.0 | 204.4 | 204.4 | 203.0 | 200.3 | 201.6 |
| 167.5° | 211.2 | *211.2* | 209.8 | 208.4 | 209.8 | 211.2 | 212.5 | 212.5 | 211.2 | 209.8 | 209.8 |
| 170° | 219.3 | *218.0* | 218.0 | 218.0 | 218.0 | 218.0 | 218.0 | 218.0 | 218.0 | 218.0 | 218.0 |
| 172.5° | 224.8 | *224.8* | 226.2 | 224.8 | 226.2 | 226.2 | 224.8 | 224.8 | 224.8 | 224.8 | 226.2 |
| 175° | 233.0 | *233.0* | 233.0 | 233.0 | 234.3 | 234.3 | 234.3 | 234.3 | 234.3 | 234.3 | 234.3 |
| 177.5° | 238.4 | *238.4* | 238.4 | 238.4 | 238.4 | 238.4 | 238.4 | 238.4 | 238.4 | 238.4 | 238.4 |
| 180° | 239.8 | *239.8* | 239.8 | 239.8 | 239.8 | 239.8 | 239.8 | 239.8 | 239.8 | 239.8 | 239.8 |

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: SP1-2406-133-3

Test Date: 07/12/2024

Luminaire Tested: FFX-CLB-100-727-U-FR-T5

Data in this report applies to families of products including FFX-CLB-100-727-U-FR-T5.

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.03

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

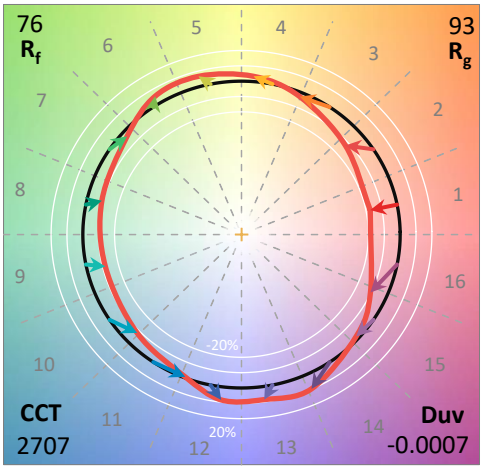
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2406-133-3 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 07/12/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | Streetworks |
| Catalog Number: | **FFX-CLB-100-727-U-FR-T5** |
| Description: | FAIRFAX ACORN W/ FAIRFAX REFRACTOR 100W T5 |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 2707 |
| CIE u': | 0.2624 |
| CIE v': | 0.5261 |
| Duv: | -0.0007 |
| CIE x: | 0.4580 |
| CIE y: | 0.4082 |
| CIE z: | 0.1338 |
| Peak Wavelength (nm): | 599 |
| Dominant Wavelength (nm): | 584 |
| Purity: | 59.99901 |
| Rf: | 75.5 |
| Rg: | 92.5 |

| | |
|---|---|
| CRI (Ra): | 71.3 |
| R1: | 67.8 |
| R2: | 84.5 |
| R3: | 94.2 |
| R4: | 64.8 |
| R5: | 66.9 |
| R6: | 79.2 |
| R7: | 74.4 |
| R8: | 38.8 |
| R9: | -34.9 |
| R10: | 65.1 |
| R11: | 59.2 |
| R12: | 54.2 |
| R13: | 71.2 |
| R14: | 97.5 |
| R15: | 59.4 |




## Test Conditions

| | |
|---|---|
| Stabilization Time: | 0.813602M |
| Operation Time: | 1H |
| Sphere Temperature (°C): | 24.7 |

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

REPORT NUMBER: SP1-2406-133-3

| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

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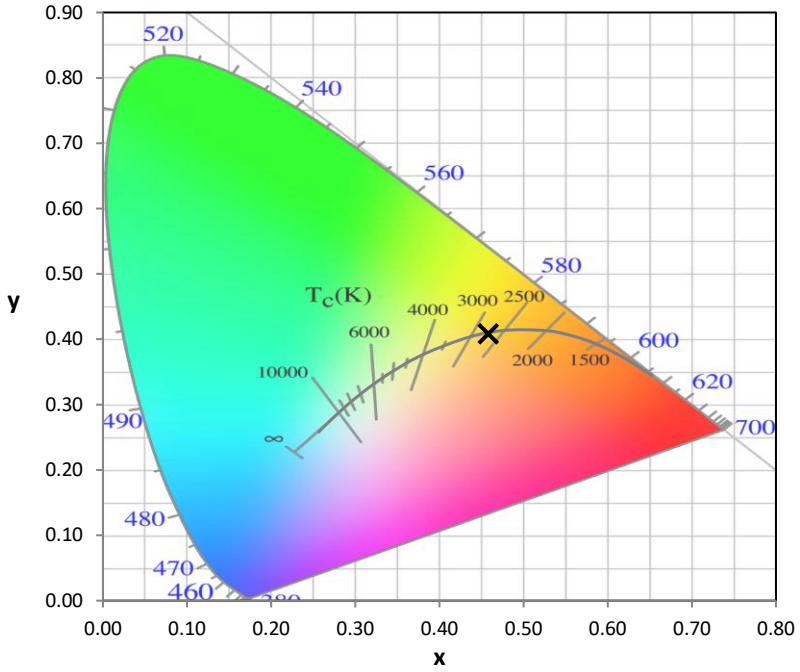
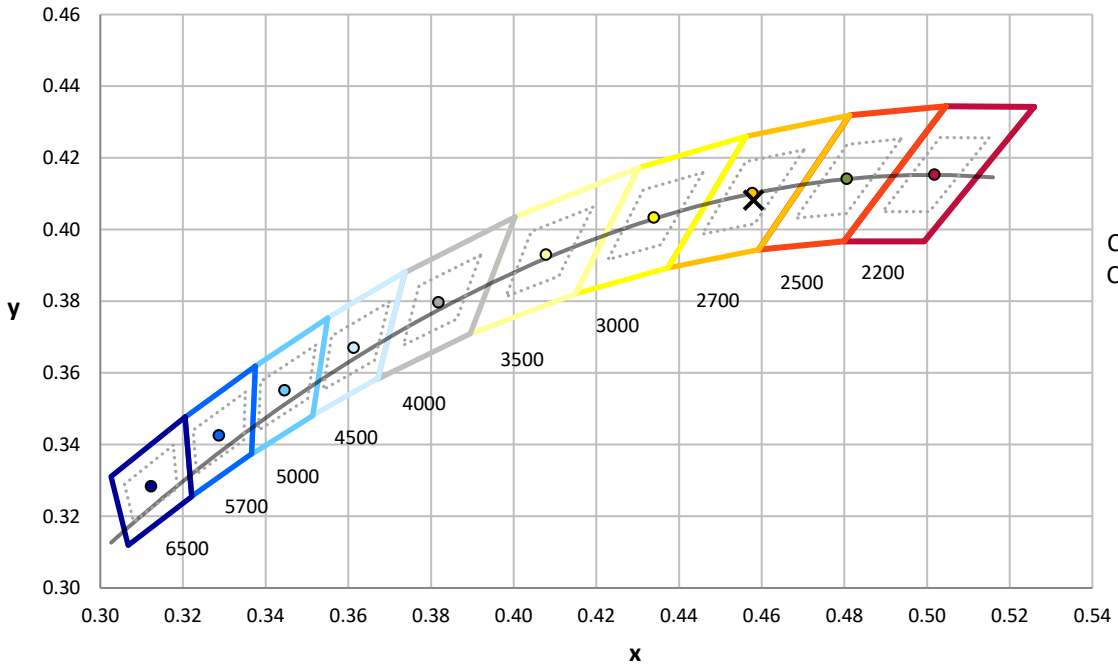
REPORT NUMBER: SP1-2406-133-3

## CIE 1931 Chromaticity Diagram




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



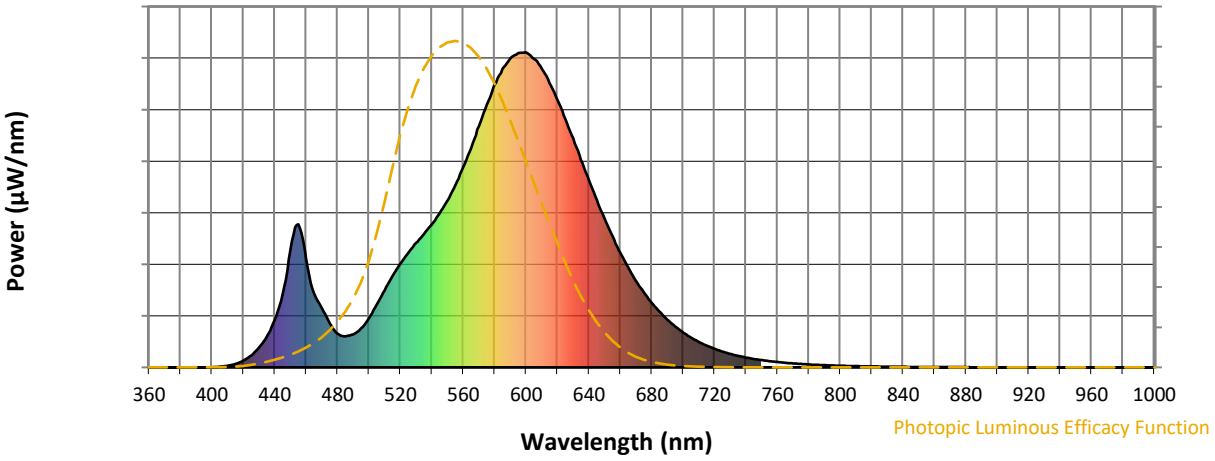

CCT = 2707K
CIE x = 0.4580
CIE y = 0.4082
Duv = -0.0007

Point lies inside the ANSI 2700K 4-step quadrangle

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

REPORT NUMBER: SP1-2406-133-3

## 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 | 105 | NR | 620 | 849 | NR | 750 | 23 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 124 | NR | 625 | 789 | NR | 755 | 20 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 156 | NR | 630 | 727 | NR | 760 | 17 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 200 | NR | 635 | 659 | NR | 765 | 15 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 245 | NR | 640 | 595 | NR | 770 | 13 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 290 | NR | 645 | 531 | NR | 775 | 11 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 330 | NR | 650 | 472 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 363 | NR | 655 | 417 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 395 | NR | 660 | 364 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 424 | NR | 665 | 317 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 454 | NR | 670 | 274 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 490 | NR | 675 | 237 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 21 | NR | 550 | 530 | NR | 680 | 206 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 579 | NR | 685 | 176 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 63 | NR | 560 | 635 | NR | 690 | 152 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 99 | NR | 565 | 697 | NR | 695 | 129 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 150 | NR | 570 | 765 | NR | 700 | 111 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 233 | NR | 575 | 834 | NR | 705 | 95 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 372 | NR | 580 | 897 | NR | 710 | 81 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 454 | NR | 585 | 948 | NR | 715 | 69 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 345 | NR | 590 | 982 | NR | 720 | 59 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 235 | NR | 595 | 998 | NR | 725 | 50 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 187 | NR | 600 | 1000 | NR | 730 | 43 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 141 | NR | 605 | 980 | NR | 735 | 36 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 107 | NR | 610 | 949 | NR | 740 | 31 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 99 | NR | 615 | 902 | NR | 745 | 27 | NR | 875 | 1 | NR | | | |

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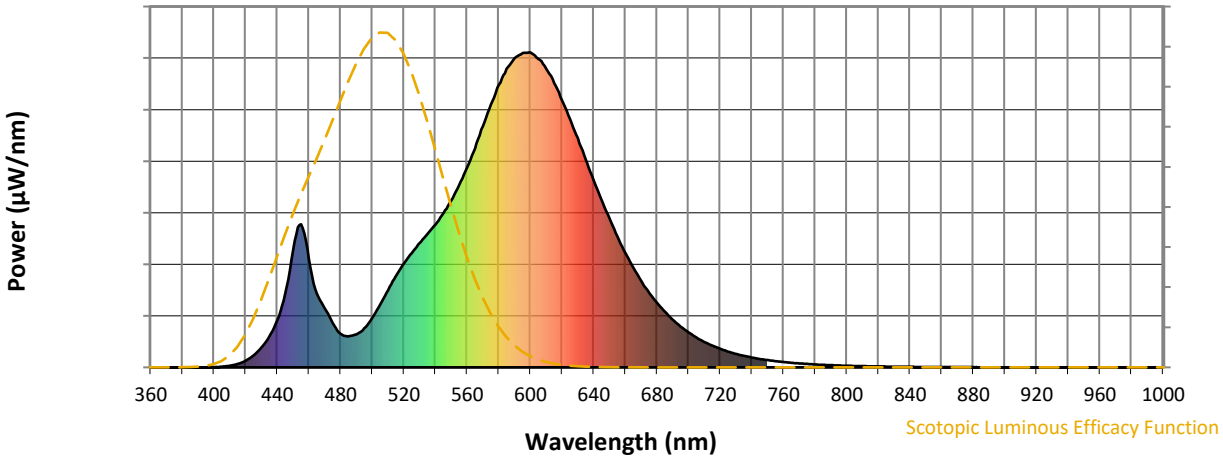
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: NR** **S/P: 1.12**

| 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 | 105 | NR | 620 | 849 | NR | 750 | 23 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 124 | NR | 625 | 789 | NR | 755 | 20 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 156 | NR | 630 | 727 | NR | 760 | 17 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 200 | NR | 635 | 659 | NR | 765 | 15 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 245 | NR | 640 | 595 | NR | 770 | 13 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 290 | NR | 645 | 531 | NR | 775 | 11 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 330 | NR | 650 | 472 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 363 | NR | 655 | 417 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 395 | NR | 660 | 364 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 424 | NR | 665 | 317 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 454 | NR | 670 | 274 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 490 | NR | 675 | 237 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 21 | NR | 550 | 530 | NR | 680 | 206 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 579 | NR | 685 | 176 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 63 | NR | 560 | 635 | NR | 690 | 152 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 99 | NR | 565 | 697 | NR | 695 | 129 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 150 | NR | 570 | 765 | NR | 700 | 111 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 233 | NR | 575 | 834 | NR | 705 | 95 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 372 | NR | 580 | 897 | NR | 710 | 81 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 454 | NR | 585 | 948 | NR | 715 | 69 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 345 | NR | 590 | 982 | NR | 720 | 59 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 235 | NR | 595 | 998 | NR | 725 | 50 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 187 | NR | 600 | 1000 | NR | 730 | 43 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 141 | NR | 605 | 980 | NR | 735 | 36 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 107 | NR | 610 | 949 | NR | 740 | 31 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 99 | NR | 615 | 902 | NR | 745 | 27 | NR | 875 | 1 | NR | | | |

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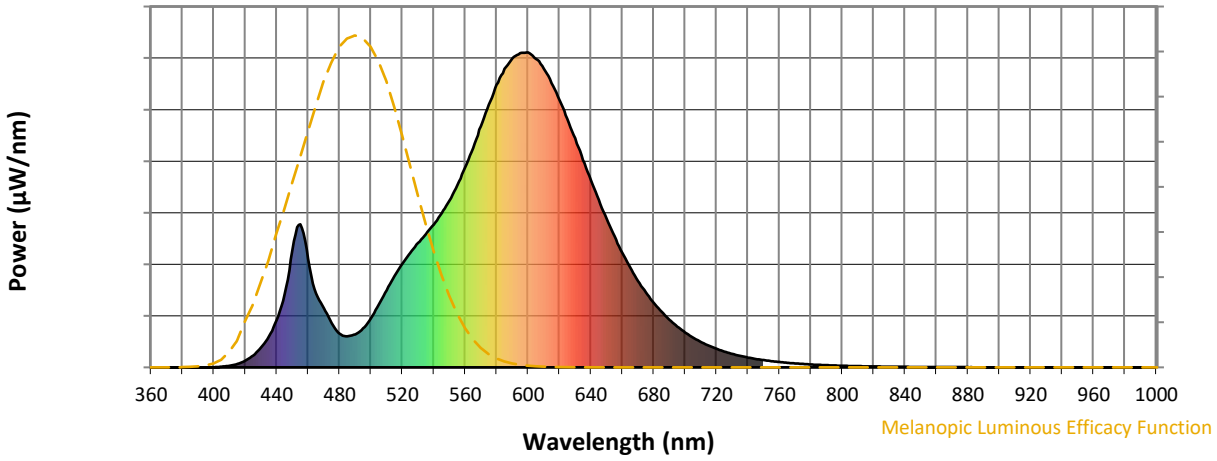
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.03**

| 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 | 105 | NR | 620 | 849 | NR | 750 | 23 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 124 | NR | 625 | 789 | NR | 755 | 20 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 156 | NR | 630 | 727 | NR | 760 | 17 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 200 | NR | 635 | 659 | NR | 765 | 15 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 245 | NR | 640 | 595 | NR | 770 | 13 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 290 | NR | 645 | 531 | NR | 775 | 11 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 330 | NR | 650 | 472 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 363 | NR | 655 | 417 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 395 | NR | 660 | 364 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 424 | NR | 665 | 317 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 454 | NR | 670 | 274 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 490 | NR | 675 | 237 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 21 | NR | 550 | 530 | NR | 680 | 206 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 579 | NR | 685 | 176 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 63 | NR | 560 | 635 | NR | 690 | 152 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 99 | NR | 565 | 697 | NR | 695 | 129 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 150 | NR | 570 | 765 | NR | 700 | 111 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 233 | NR | 575 | 834 | NR | 705 | 95 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 372 | NR | 580 | 897 | NR | 710 | 81 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 454 | NR | 585 | 948 | NR | 715 | 69 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 345 | NR | 590 | 982 | NR | 720 | 59 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 235 | NR | 595 | 998 | NR | 725 | 50 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 187 | NR | 600 | 1000 | NR | 730 | 43 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 141 | NR | 605 | 980 | NR | 735 | 36 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 107 | NR | 610 | 949 | NR | 740 | 31 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 99 | NR | 615 | 902 | NR | 745 | 27 | NR | 875 | 1 | NR | | | |

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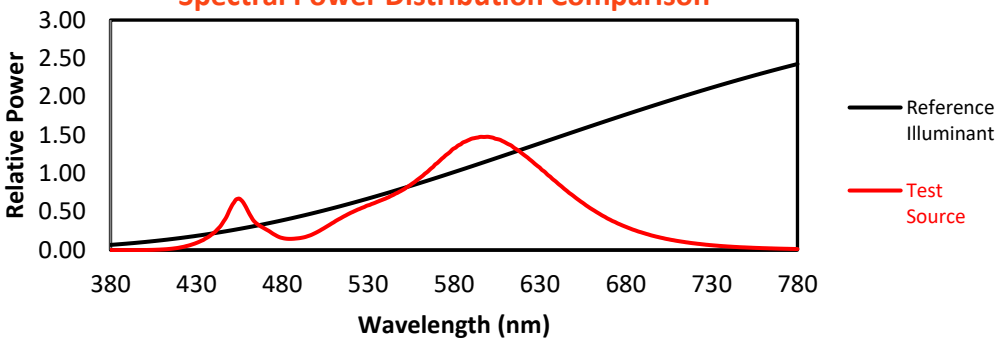
# TM-30-18

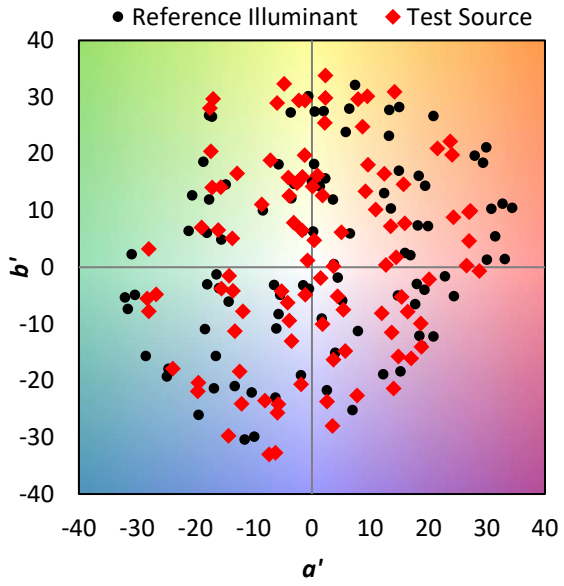
## Summary

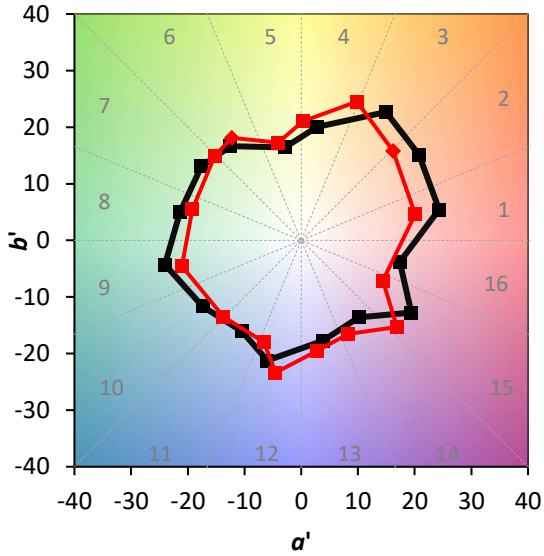
$R_f$ = 75.5
$R_g$ = 92.5
CIE $R_a$ = 71.3
$R_9$ = -34.9

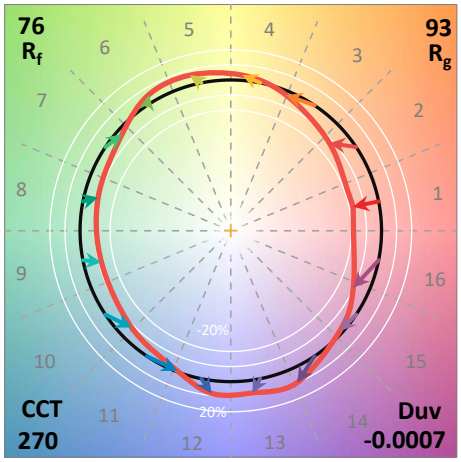
## Spectral Power Distribution Comparison

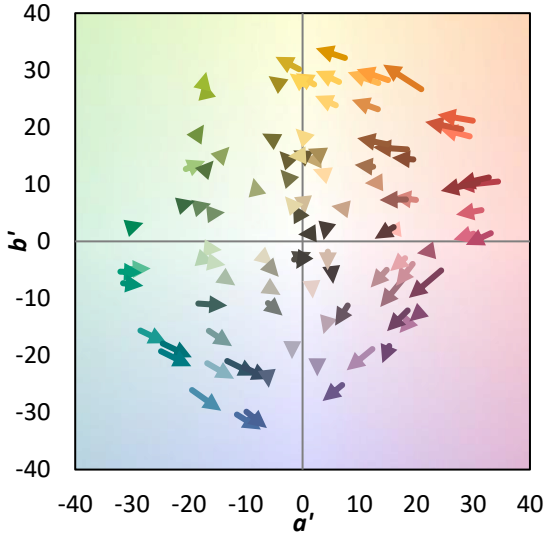



## Color Vector Graphics



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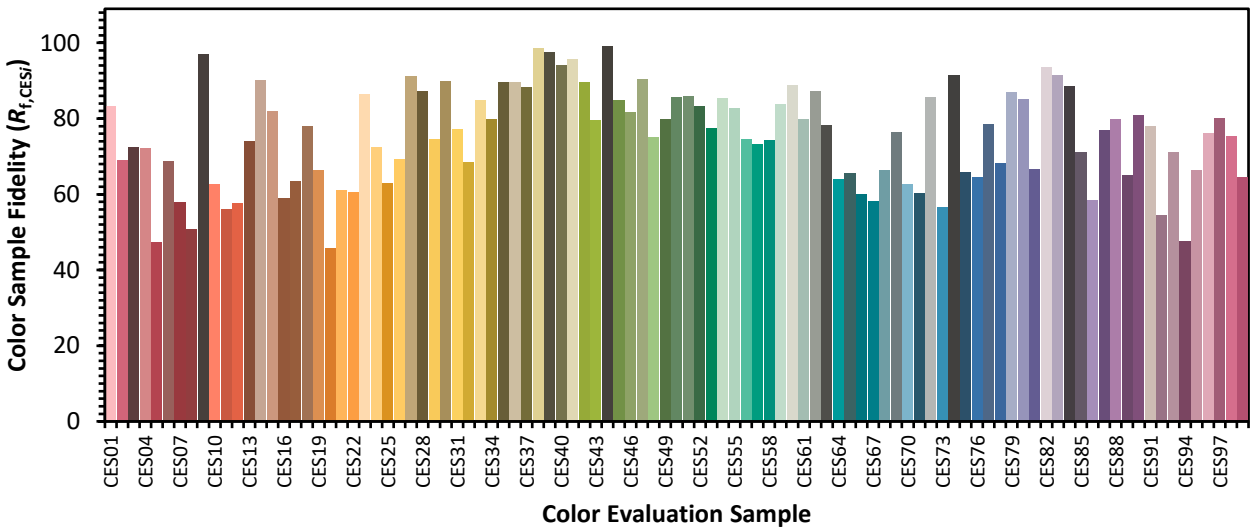
# TM-30-18

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

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 69 | CES51 = 86 | CES76 = 64 |
| CES02 = 63 | CES27 = 91 | CES52 = 83 | CES77 = 79 |
| CES03 = 31 | CES28 = 87 | CES53 = 77 | CES78 = 68 |
| CES04 = 71 | CES29 = 75 | CES54 = 85 | CES79 = 87 |
| CES05 = 50 | CES30 = 90 | CES55 = 83 | CES80 = 85 |
| CES06 = 52 | CES31 = 77 | CES56 = 75 | CES81 = 67 |
| CES07 = 42 | CES32 = 68 | CES57 = 73 | CES82 = 93 |
| CES08 = 41 | CES33 = 85 | CES58 = 74 | CES83 = 91 |
| CES09 = 29 | CES34 = 80 | CES59 = 84 | CES84 = 89 |
| CES10 = 77 | CES35 = 89 | CES60 = 89 | CES85 = 71 |
| CES11 = 60 | CES36 = 90 | CES61 = 80 | CES86 = 59 |
| CES12 = 66 | CES37 = 88 | CES62 = 87 | CES87 = 77 |
| CES13 = 43 | CES38 = 99 | CES63 = 78 | CES88 = 80 |
| CES14 = 74 | CES39 = 97 | CES64 = 64 | CES89 = 65 |
| CES15 = 72 | CES40 = 94 | CES65 = 66 | CES90 = 81 |
| CES16 = 48 | CES41 = 96 | CES66 = 60 | CES91 = 78 |
| CES17 = 51 | CES42 = 90 | CES67 = 58 | CES92 = 54 |
| CES18 = 57 | CES43 = 80 | CES68 = 66 | CES93 = 71 |
| CES19 = 73 | CES44 = 99 | CES69 = 76 | CES94 = 48 |
| CES20 = 67 | CES45 = 85 | CES70 = 63 | CES95 = 66 |
| CES21 = 88 | CES46 = 82 | CES71 = 60 | CES96 = 76 |
| CES22 = 80 | CES47 = 90 | CES72 = 86 | CES97 = 80 |
| CES23 = 92 | CES48 = 75 | CES73 = 57 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 92 | CES99 = 64 |
| CES25 = 73 | CES50 = 86 | CES75 = 66 | |



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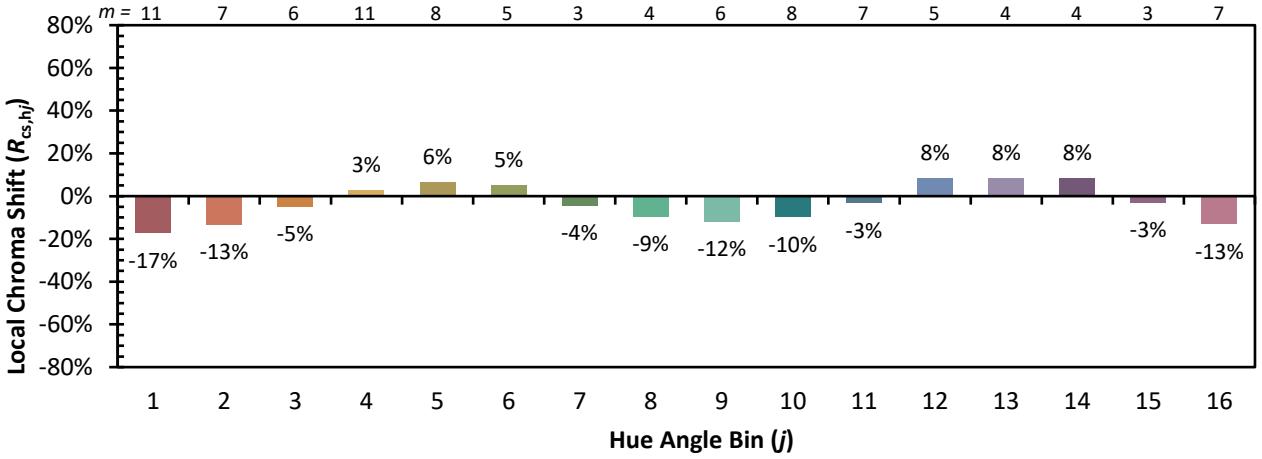
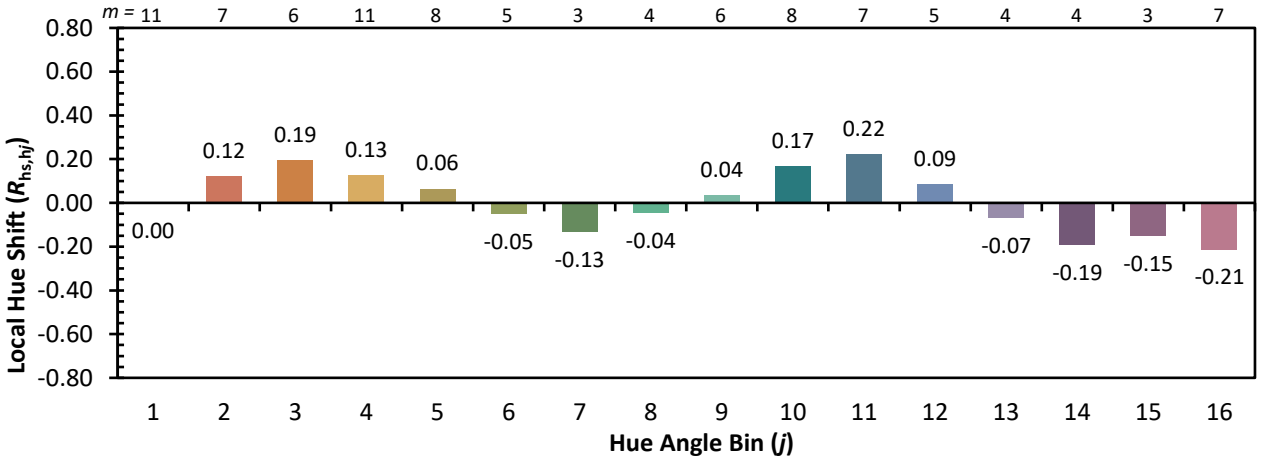
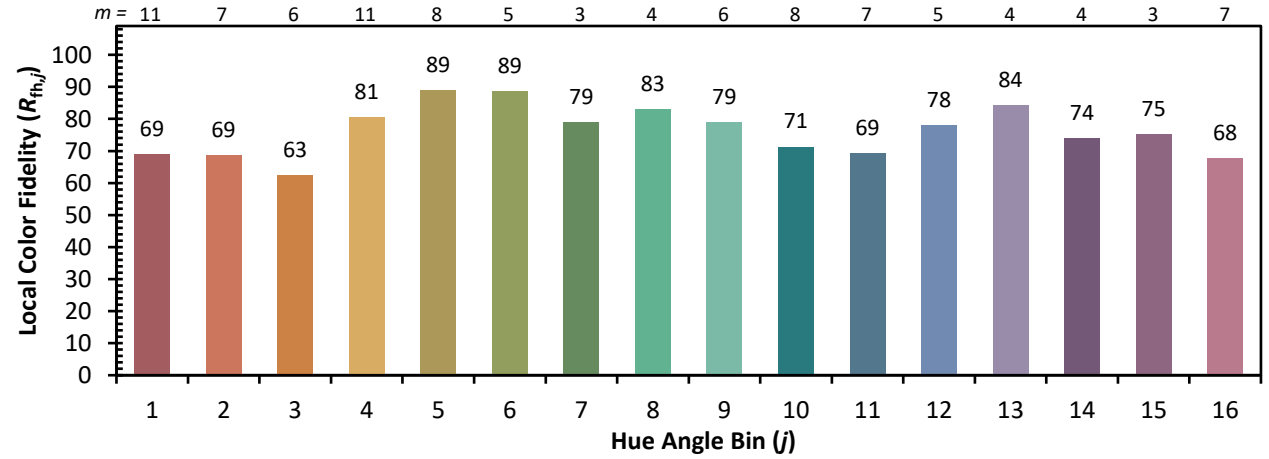
## TM-30-18

### Color Rendition by Hue-Angle Bin



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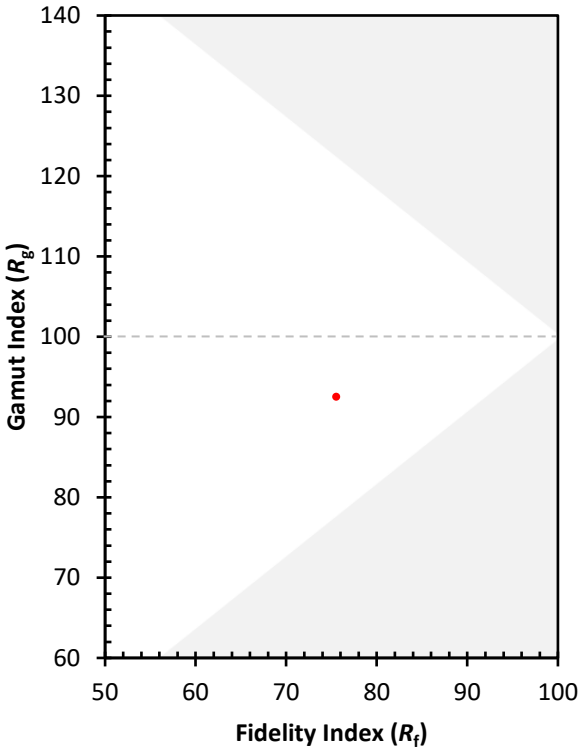
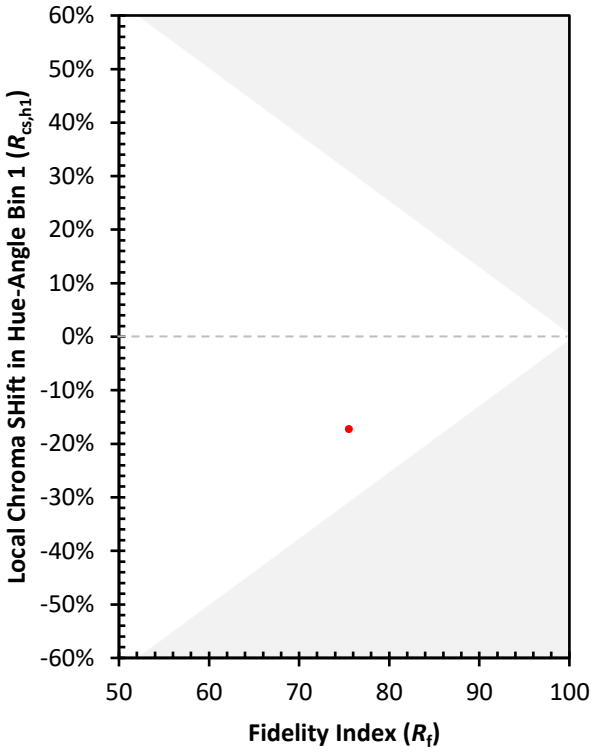
### Measure Comparisons




(END OF REPORT)