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: P981296

Luminaire Tested: **FFX-CLB-30-730-U-VM9-T5**

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: | P981296 |
| Test Lab: | INNOVATION CENTER(G3) |
| Issue Date: | 04/15/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | STREETWORKS |
| Catalog Number: | FFX-CLB-30-730-U-VM9-T5 |
| Description: | FAIRFAX POST TOP FIXTURE w/ ULA ACORN 9 INCH NECK |
| Light Source: | (6) 3000K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 5087.4 lumens |
| Efficiency: | N/A |
| Efficacy: | 166.3 lumens/watt |
| Luminous Opening: | Vertical Cylinder (Dia: 1.33' x H: 2.08') |
| IES Classification: | Type V - Short |
| BUG Rating: | B2 - U5 - G3 |

| | |
|---|---|
| Input Watts (W): | 30.6 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.99 |
| Total Harmonic Distortion (THDi): | 10.8% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

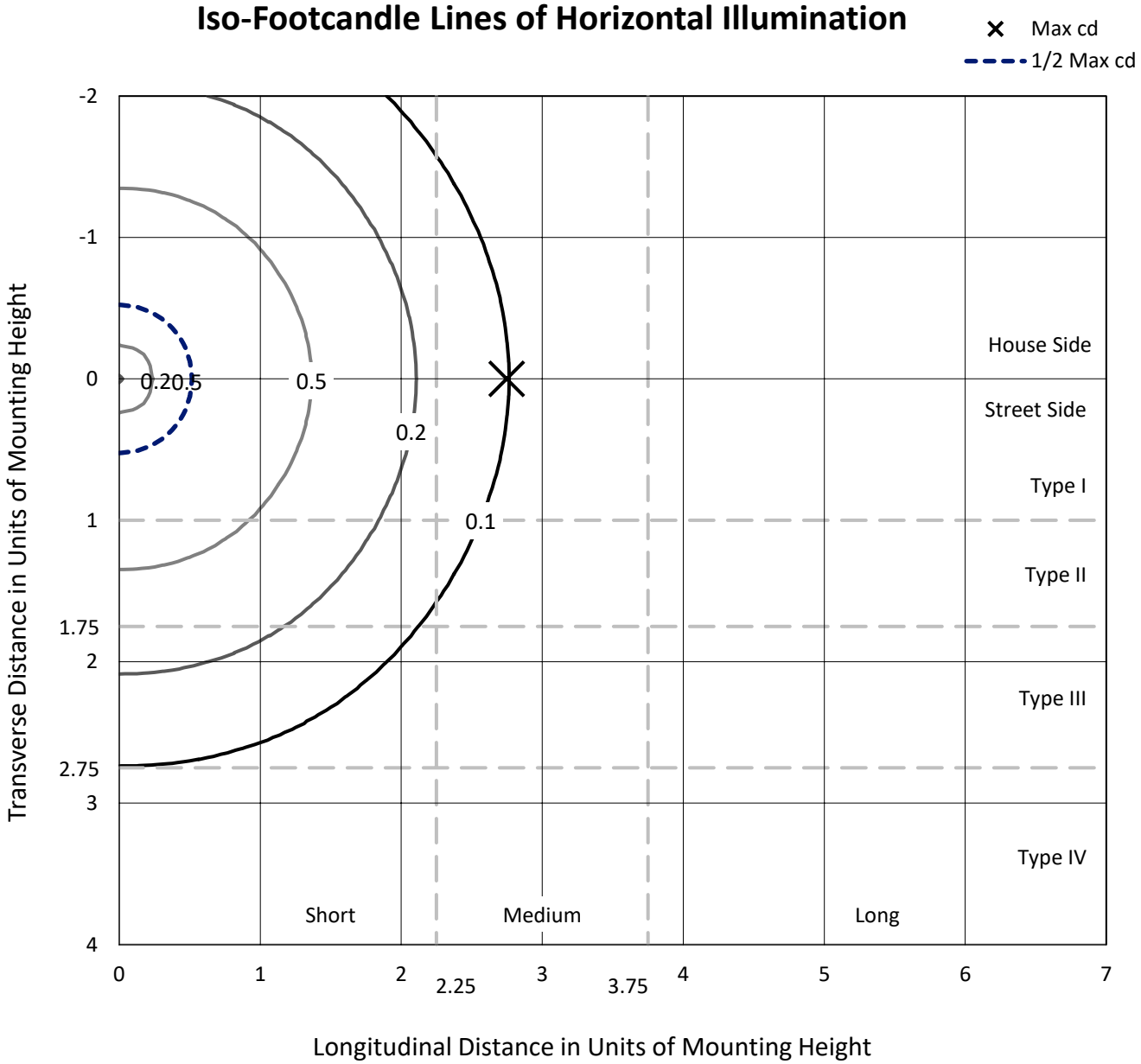


Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P981296
CATALOG NUMBER: FFX-CLB-30-730-U-VM9-T5

## Iso-Footcandle Lines of Horizontal Illumination



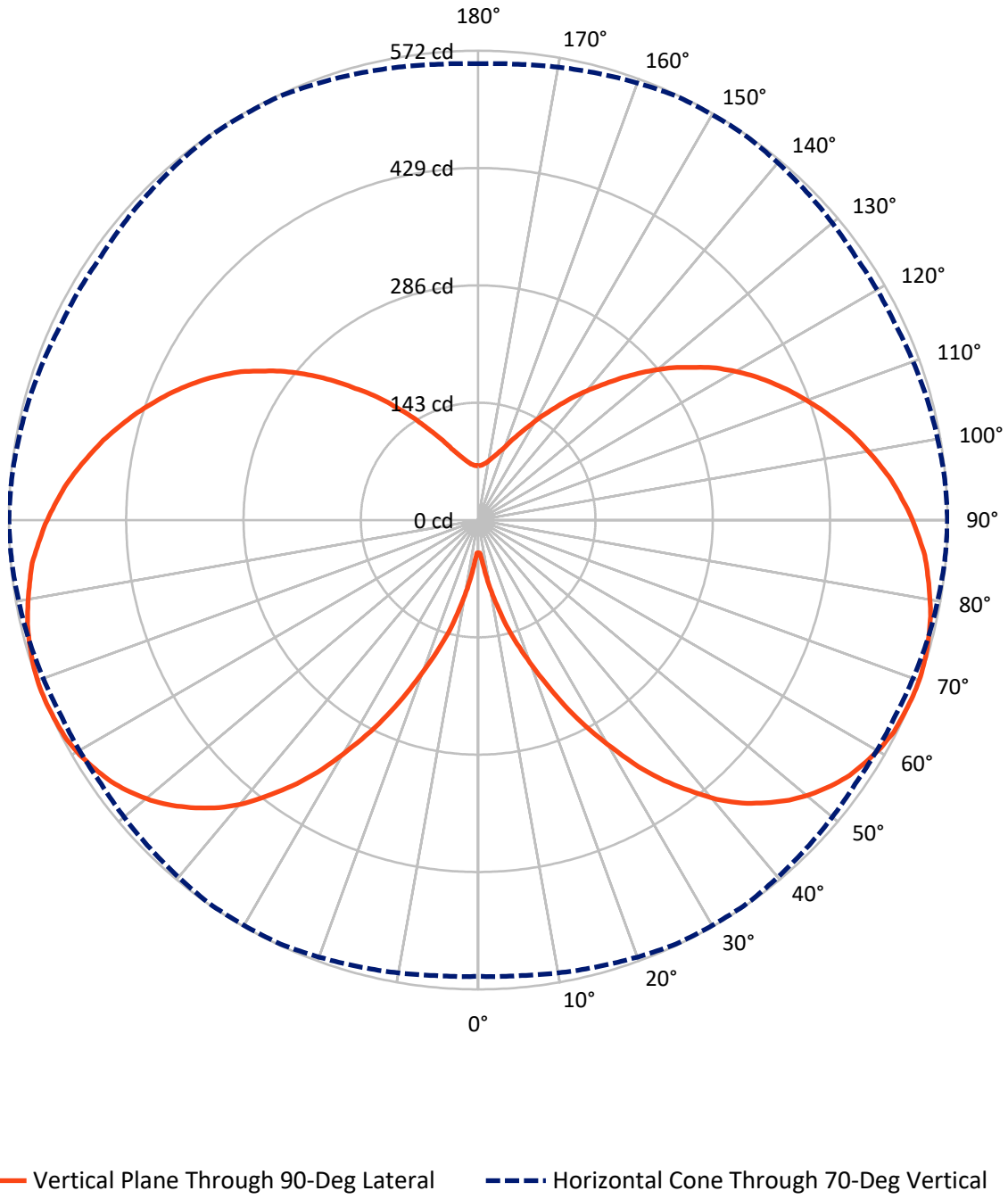

Based on 15 foot mounting height. Maximum calculated value = 1 fc
Type V - Short - N/A

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## Luminous Intensity Polar Plot



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Scaled Data Report

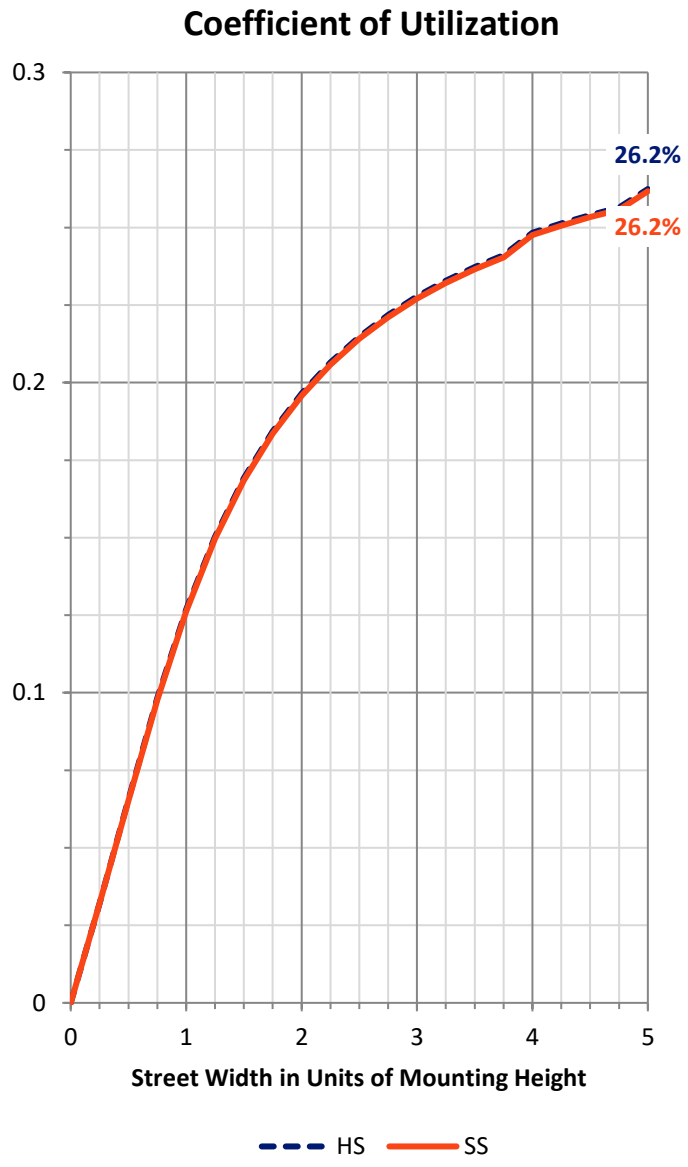
REPORT NUMBER: P981296
CATALOG NUMBER: FFX-CLB-30-730-U-VM9-T5

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1506.0 | 1037.7 | 2543.7 |
| | % Fixture | 29.6 | 20.4 | 50.0 |
| **Street Side** | Lumens | 1506.0 | 1037.7 | 2543.7 |
| | % Fixture | 29.6 | 20.4 | 50.0 |
| **Total** | Lumens | 3012.0 | 2075.4 | 5087.4 |
| | % Fixture | 59.2 | 40.8 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 6.0 | 0.1 |
| 10°-20° | 40.6 | 0.8 |
| 20°-30° | 119.4 | 2.3 |
| 30°-40° | 242.8 | 4.8 |
| 40°-50° | 376.7 | 7.4 |
| 50°-60° | 486.5 | 9.6 |
| 60°-70° | 559.4 | 11.0 |
| 70°-80° | 592.8 | 11.7 |
| 80°-90° | 587.8 | 11.6 |
| 90°-100° | 546.5 | 10.7 |
| 100°-110° | 476.4 | 9.4 |
| 110°-120° | 389.1 | 7.6 |
| 120°-130° | 288.5 | 5.7 |
| 130°-140° | 186.7 | 3.7 |
| 140°-150° | 105.6 | 2.1 |
| 150°-160° | 52.7 | 1.0 |
| 160°-170° | 23.4 | 0.5 |
| 170°-180° | 6.6 | 0.1 |
| 0°-90° | 3012.0 | 59.2 |
| 0°-180° | 5087.4 | 100.0 |



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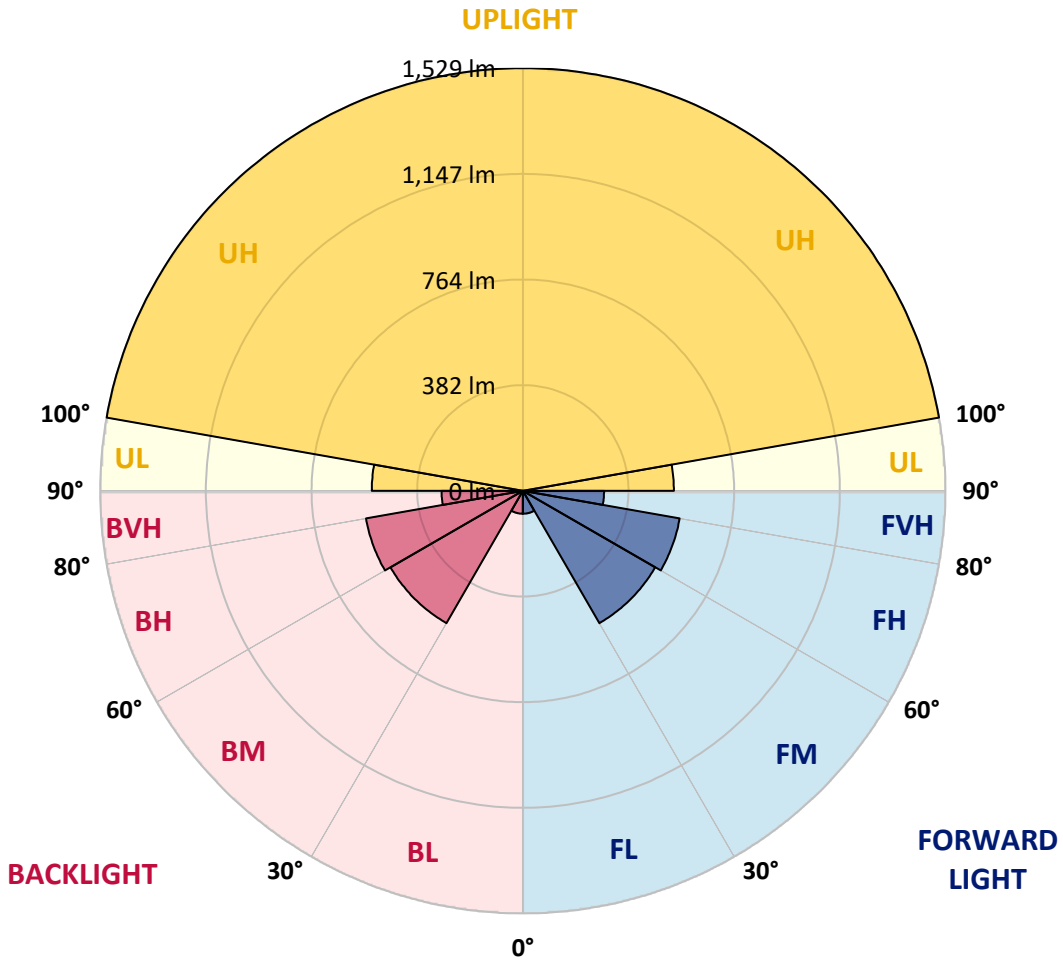
Scaled Data Report

REPORT NUMBER: P981296
CATALOG NUMBER: FFX-CLB-30-730-U-VM9-T5

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 83.0 | 1.6 | | | |
| FM | (30°-60°) | 553.0 | 10.9 | | | |
| FH | (60°-80°) | 576.1 | 11.3 | | | G0/660 |
| FVH | (80°-90°) | 293.9 | 5.8 | | | G3/500 |
| BL | (0°-30°) | 83.0 | 1.6 | B0/110 | | |
| BM | (30°-60°) | 553.0 | 10.9 | B1/1000 | | |
| BH | (60°-80°) | 576.1 | 11.3 | B2/1000 | | G0/660 |
| BVH | (80°-90°) | 293.9 | 5.8 | | | G3/500 |
| UL | (90°-100°) | 546.5 | 10.7 | | U4/1000 | |
| UH | (100°-180°) | 1528.9 | 30.1 | | U5 | |

**BUG Rating: B2-U5-G3**
Type V Short



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Scaled Data Report

REPORT NUMBER: P981296
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 40.5 | 40.5 | 40.5 | 40.5 | 40.5 | 40.5 | 40.5 | 40.5 | 40.5 | 40.5 | 40.5 |
| 2.5° | 40.5 | 40.5 | 40.5 | 40.5 | 40.1 | 40.1 | 40.1 | 40.1 | 40.1 | 40.1 | 40.1 |
| 5° | 49.9 | 49.6 | 49.6 | 49.9 | 49.9 | 49.9 | 49.6 | 49.9 | 49.3 | 49.0 | 49.6 |
| 7.5° | 67.0 | 67.0 | 67.0 | 67.0 | 66.4 | 66.4 | 67.3 | 66.7 | 67.0 | 66.7 | 67.3 |
| 10° | 87.6 | 87.6 | 87.2 | 87.9 | 88.2 | 87.9 | 87.6 | 88.5 | 87.9 | 87.9 | 88.5 |
| 12.5° | 111.0 | 111.3 | 111.3 | 111.6 | 112.2 | 111.3 | 112.2 | 112.2 | 112.2 | 111.6 | 111.3 |
| 15° | 137.8 | 137.5 | 138.1 | 137.8 | 136.6 | 137.8 | 138.1 | 137.5 | 137.8 | 138.1 | 138.5 |
| 17.5° | 162.8 | 162.5 | 162.8 | 162.5 | 163.7 | 164.1 | 163.7 | 163.7 | 163.7 | 164.1 | 163.4 |
| 20° | 190.3 | 190.6 | 189.7 | 190.6 | 190.6 | 191.2 | 192.5 | 192.2 | 192.5 | 191.6 | 190.6 |
| 22.5° | 220.3 | 220.6 | 219.7 | 219.4 | 221.3 | 221.0 | 221.0 | 221.9 | 222.5 | 222.5 | 221.9 |
| 25° | 252.6 | 251.9 | 251.9 | 252.9 | 252.9 | 252.6 | 254.1 | 254.8 | 254.5 | 255.4 | 256.0 |
| 27.5° | 284.8 | 284.2 | 284.2 | 285.4 | 285.4 | 285.4 | 285.4 | 288.3 | 288.6 | 289.2 | 289.6 |
| 30° | 316.1 | 318.3 | 318.3 | 317.7 | 318.6 | 320.2 | 321.2 | 321.2 | 322.1 | 322.1 | 322.4 |
| 32.5° | 350.2 | 350.2 | 350.9 | 351.8 | 351.8 | 354.7 | 353.1 | 355.6 | 355.0 | 356.9 | 358.1 |
| 35° | 382.5 | 383.1 | 383.1 | 385.0 | 385.0 | 385.6 | 386.0 | 387.5 | 389.8 | 389.4 | 389.8 |
| 37.5° | 412.5 | 412.2 | 411.6 | 414.4 | 415.0 | 414.7 | 415.0 | 417.6 | 418.2 | 419.2 | 418.5 |
| 40° | 440.0 | 439.1 | 440.6 | 442.2 | 442.2 | 442.9 | 443.5 | 444.8 | 446.0 | 446.7 | 447.6 |
| 42.5° | 463.1 | 462.8 | 464.4 | 465.6 | 465.9 | 466.3 | 466.3 | 467.2 | 470.4 | 471.3 | 471.9 |
| 45° | 483.3 | 483.0 | 484.9 | 486.5 | 487.4 | 487.4 | 486.5 | 487.7 | 490.6 | 491.5 | 491.9 |
| 47.5° | 500.7 | 501.0 | 503.6 | 505.4 | 506.1 | 505.1 | 504.5 | 505.8 | 508.0 | 510.5 | 510.2 |
| 50° | 515.2 | 515.6 | 518.4 | 521.6 | 521.9 | 520.9 | 519.4 | 520.3 | 523.5 | 525.4 | 525.7 |
| 52.5° | 527.6 | 527.9 | 531.4 | 534.5 | 534.8 | 533.3 | 531.4 | 532.9 | 535.8 | 538.0 | 538.6 |
| 55° | 537.4 | 538.3 | 541.8 | 545.3 | 546.2 | 544.0 | 541.5 | 542.4 | 545.6 | 549.1 | 549.4 |
| 57.5° | 544.6 | 545.0 | 549.4 | 553.2 | 554.4 | 551.3 | 549.4 | 549.4 | 553.2 | 556.3 | 557.0 |
| 60° | 549.7 | 551.0 | 556.0 | 560.5 | 561.1 | 558.2 | 554.8 | 555.4 | 559.5 | 563.0 | 563.9 |
| 62.5° | 554.1 | 555.4 | 560.1 | 565.5 | 566.1 | 562.3 | 558.9 | 559.2 | 563.9 | 567.4 | 568.7 |
| 65° | 556.3 | 557.3 | 563.0 | 568.4 | 569.0 | 565.2 | 561.1 | 561.4 | 565.8 | 569.9 | 570.3 |
| 67.5° | 557.0 | 557.9 | 563.9 | 570.3 | 570.6 | 566.5 | 561.7 | 562.7 | 567.1 | 571.2 | 571.8 |
| 70° | 556.3 | 557.6 | 563.6 | 570.3 | 570.9 | 565.8 | 561.1 | 561.7 | 566.8 | 570.9 | 572.1 |
| 72.5° | 554.1 | 555.7 | 561.7 | 568.7 | 569.0 | 564.2 | 559.5 | 559.5 | 565.2 | 569.6 | 570.3 |
| 75° | 551.3 | 552.9 | 559.5 | 566.5 | 566.8 | 561.7 | 556.7 | 557.3 | 562.7 | 566.8 | 567.4 |
| 77.5° | 548.1 | 549.1 | 555.7 | 563.0 | 563.6 | 558.2 | 553.2 | 553.8 | 558.9 | 563.3 | 563.9 |
| 80° | 543.1 | 544.0 | 551.0 | 557.9 | 558.6 | 553.2 | 547.8 | 549.1 | 554.1 | 558.2 | 558.2 |
| 82.5° | 537.1 | 537.7 | 544.6 | 552.2 | 552.5 | 547.2 | 542.4 | 543.1 | 548.1 | 552.2 | 552.2 |
| 85° | 530.1 | 531.1 | 538.0 | 545.3 | 545.3 | 540.2 | 535.2 | 536.4 | 541.2 | 545.0 | 546.2 |
| 87.5° | 522.5 | 522.8 | 529.8 | 536.4 | 536.7 | 531.7 | 527.3 | 528.2 | 532.9 | 536.4 | 536.7 |
| 90° | 513.7 | 514.3 | 520.9 | 527.3 | 527.6 | 522.5 | 518.4 | 519.7 | 523.5 | 526.6 | 527.6 |
| 92.5° | 503.9 | 504.8 | 511.1 | 517.1 | 516.8 | 512.4 | 508.9 | 510.5 | 513.7 | 516.8 | 516.8 |
| 95° | 493.8 | 495.0 | 500.1 | 505.8 | 505.1 | 501.3 | 498.5 | 499.8 | 502.9 | 505.4 | 506.1 |
| 97.5° | 483.0 | 483.3 | 488.7 | 492.8 | 492.8 | 489.3 | 487.1 | 488.1 | 491.2 | 492.8 | 493.4 |
| 100° | 471.3 | 471.6 | 475.7 | 479.8 | 479.8 | 476.7 | 475.1 | 476.1 | 478.6 | 479.8 | 480.2 |
| 102.5° | 459.6 | 459.3 | 462.8 | 466.3 | 466.3 | 463.7 | 462.5 | 464.4 | 465.6 | 466.6 | 467.2 |
| 105° | 446.3 | 446.0 | 449.2 | 452.3 | 451.7 | 450.1 | 448.9 | 450.4 | 452.0 | 452.7 | 452.7 |
| 107.5° | 431.8 | 433.1 | 435.0 | 437.5 | 437.2 | 435.9 | 435.9 | 436.9 | 437.8 | 438.1 | 438.4 |
| 110° | 419.5 | 419.2 | 421.0 | 422.3 | 422.6 | 422.0 | 422.6 | 422.9 | 423.3 | 423.3 | 423.3 |

Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P981296
CATALOG NUMBER: FFX-CLB-30-730-U-VM9-T5

**CANDELA DISTRIBUTION (continued):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 112.5° | 405.2 | 405.2 | 405.9 | 406.8 | 407.1 | 407.5 | 407.8 | 409.0 | 408.4 | 408.7 | *408.1* |
| 115° | 389.8 | 390.1 | 390.7 | 391.0 | 391.7 | 392.0 | 393.5 | 393.5 | 393.9 | 393.2 | *392.3* |
| 117.5° | 374.3 | 374.9 | 374.6 | 374.3 | 375.5 | 376.5 | 377.4 | 378.1 | 378.1 | 376.8 | *376.2* |
| 120° | 357.5 | 356.9 | 356.9 | 356.9 | 357.8 | 359.4 | 360.7 | 361.0 | 360.7 | 359.1 | *358.8* |
| 122.5° | 339.2 | 339.8 | 338.9 | 339.2 | 339.5 | 341.7 | 342.7 | 343.3 | 342.3 | 340.4 | *341.1* |
| 125° | 320.2 | 320.8 | 319.3 | 319.3 | 320.8 | 321.8 | 322.7 | 323.7 | 322.1 | 321.2 | *320.5* |
| 127.5° | 300.0 | 300.0 | 299.7 | 298.7 | 300.6 | 301.6 | 303.5 | 303.5 | 302.2 | 300.9 | *301.6* |
| 130° | 279.4 | 279.1 | 279.8 | 279.1 | 279.4 | 281.3 | 282.9 | 282.3 | 281.6 | 281.0 | *281.0* |
| 132.5° | 258.3 | 258.9 | 258.3 | 257.9 | 259.5 | 260.2 | 261.7 | 262.4 | 261.1 | 259.5 | *260.2* |
| 135° | 238.3 | 238.0 | 237.7 | 237.7 | 238.7 | 240.2 | 241.2 | 240.9 | 240.9 | 240.2 | *239.6* |
| 137.5° | 217.8 | 218.7 | 218.1 | 218.1 | 218.7 | 220.3 | 221.9 | 221.6 | 221.3 | 220.0 | *219.4* |
| 140° | 199.5 | 198.8 | 199.1 | 199.1 | 200.7 | 200.7 | 202.3 | 202.3 | 202.0 | 201.0 | *201.7* |
| 142.5° | 181.1 | 180.8 | 182.1 | 181.4 | 182.1 | 183.7 | 184.3 | 184.0 | 183.3 | 183.7 | *184.0* |
| 145° | 164.4 | 164.7 | 164.4 | 164.7 | 165.6 | 166.6 | 167.9 | 167.2 | 167.2 | 166.3 | *166.0* |
| 147.5° | 148.6 | 148.6 | 148.3 | 149.5 | 149.8 | 151.1 | 151.4 | 151.7 | 151.1 | 150.5 | *151.4* |
| 150° | 134.7 | 134.3 | 134.3 | 134.7 | 135.3 | 136.2 | 136.9 | 136.9 | 137.2 | 136.6 | *136.2* |
| 152.5° | 121.7 | 121.1 | 121.4 | 122.0 | 122.3 | 123.3 | 123.3 | 123.9 | 123.6 | 123.3 | *123.3* |
| 155° | 110.0 | 110.3 | 110.3 | 110.6 | 111.3 | 111.6 | 112.2 | 111.9 | 112.2 | 111.9 | *111.9* |
| 157.5° | 100.5 | 101.2 | 101.2 | 101.5 | 101.2 | 101.5 | 101.8 | 102.1 | 102.1 | 102.1 | *102.1* |
| 160° | 92.9 | 92.6 | 92.6 | 92.6 | 92.6 | 92.9 | 93.6 | 93.3 | 93.6 | 93.3 | *92.9* |
| 162.5° | 86.0 | 86.0 | 86.0 | 86.0 | 86.3 | 86.3 | 86.3 | 86.6 | 86.3 | 86.3 | *86.3* |
| 165° | 80.3 | 80.6 | 80.3 | 80.3 | 80.3 | 80.6 | 80.6 | 80.6 | 80.6 | 80.6 | *80.6* |
| 167.5° | 75.9 | 76.2 | 76.2 | 76.2 | 76.2 | 76.2 | 76.5 | 76.2 | 76.2 | 76.2 | *76.2* |
| 170° | 72.4 | 72.7 | 72.7 | 72.4 | 72.7 | 72.4 | 72.4 | 72.7 | 72.4 | 72.4 | *72.4* |
| 172.5° | 69.9 | 69.9 | 69.9 | 69.9 | 69.9 | 69.9 | 69.9 | 69.9 | 69.9 | 69.5 | *69.5* |
| 175° | 67.6 | 67.6 | 67.6 | 67.6 | 67.6 | 67.6 | 67.6 | 67.6 | 67.6 | 67.6 | *67.6* |
| 177.5° | 66.4 | 66.4 | 66.7 | 66.4 | 66.4 | 66.4 | 66.4 | 66.4 | 66.4 | 66.4 | *66.4* |
| 180° | 66.1 | 66.1 | 66.1 | 66.1 | 66.1 | 66.1 | 66.1 | 66.1 | 66.1 | 66.1 | *66.1* |

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: SP1-2501-332-4

Test Date: 03/21/2025

Luminaire Tested: FFX-CLB-100-730-U-FR-T5

Data in this report applies to families of products including FFX-CLB-100-730-U-FR-T5

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

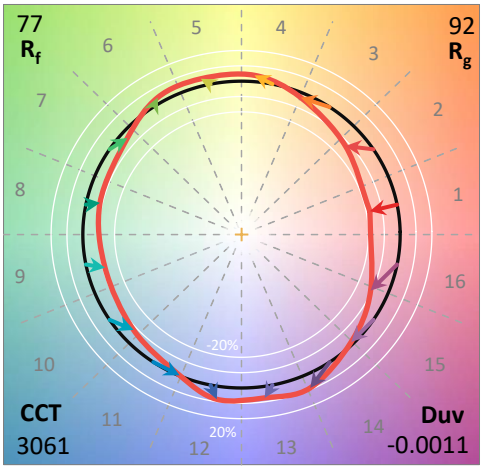
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2501-332-4 |
| 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-100-730-U-FR-T5** |
| Description: | FAIRFAX ACORN W/ FAIRFAX REFRACTOR 100W T5 |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 3061 | CRI (Ra): | 71.7 | | |
| CIE u': | 0.2489 | R1: | 67.8 | R9: | -40.3 |
| CIE v': | 0.5187 | R2: | 85.0 | R10: | 67.2 |
| Duv: | -0.0011 | R3: | 92.9 | R11: | 61.6 |
| CIE x: | 0.4312 | R4: | 66.0 | R12: | 59.9 |
| CIE y: | 0.3995 | R5: | 68.5 | R13: | 71.4 |
| CIE z: | 0.1693 | R6: | 80.2 | R14: | 96.3 |
| Peak Wavelength (nm): | 592 | R7: | 74.5 | R15: | 58.8 |
| Dominant Wavelength (nm): | 582 | R8: | 39.0 | | |
| Purity: | 49.32381 | | | | |

| | |
|---|---|
| Rf: | 76.8 |
| Rg: | 92.2 |




## Test Conditions

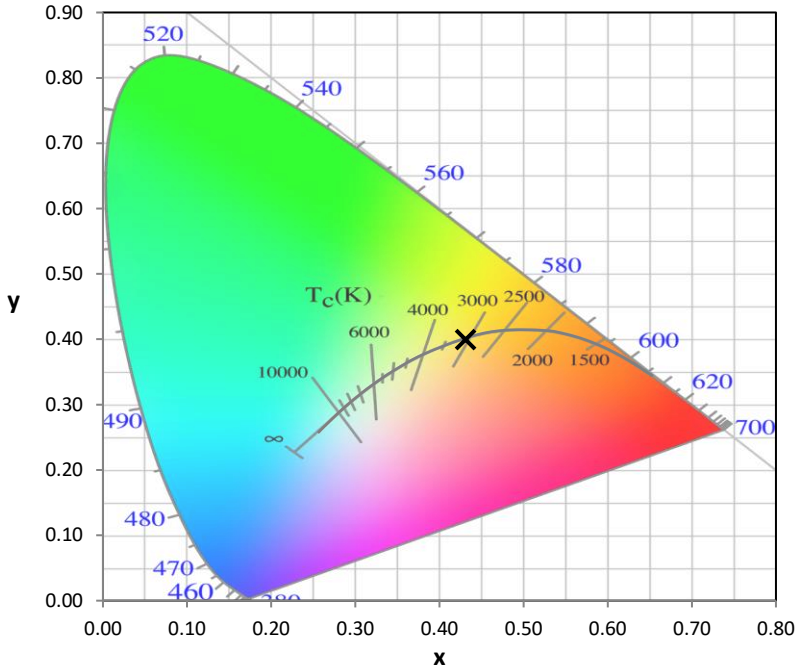
| | |
|---|---|
| Stabilization Time: | 56M |
| Operation Time: | 1H 56M |
| Sphere Temperature (°C): | 24.8 |

REPORT NUMBER: SP1-2501-332-4

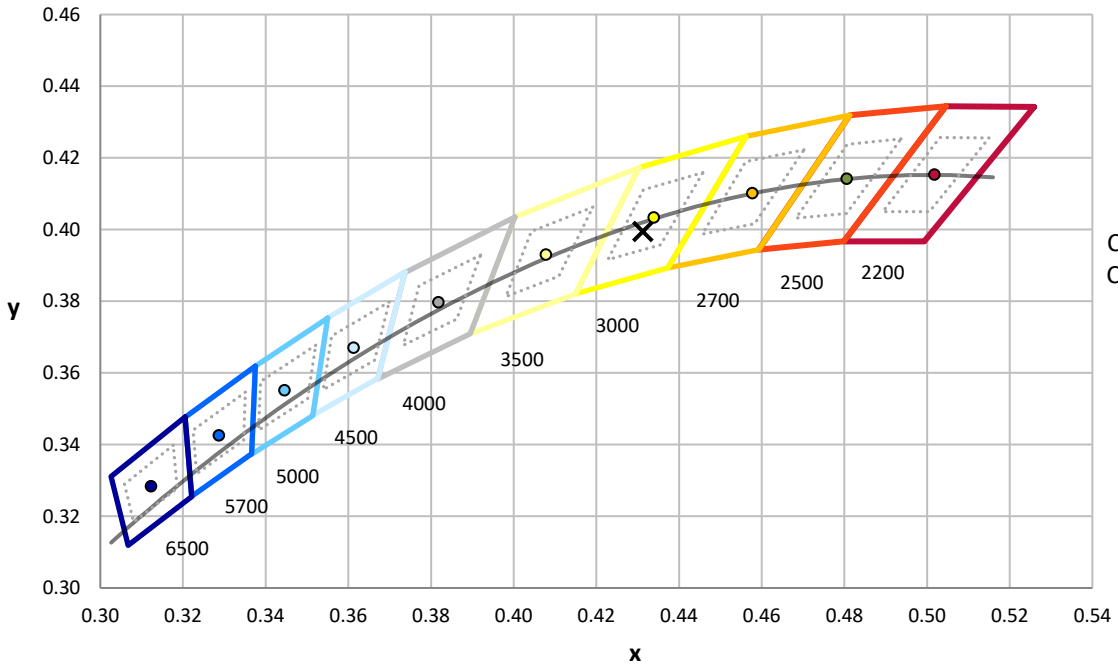
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 12/16/2024 | 6/16/2025 |
| Power Meter | INXT2011004 | 1/21/2025 | 1/21/2026 |
| AC Power Source | IN0063 | 10/22/2024 | 10/22/2025 |
| DC 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: SP1-2501-332-4

## CIE 1931 Chromaticity Diagram




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

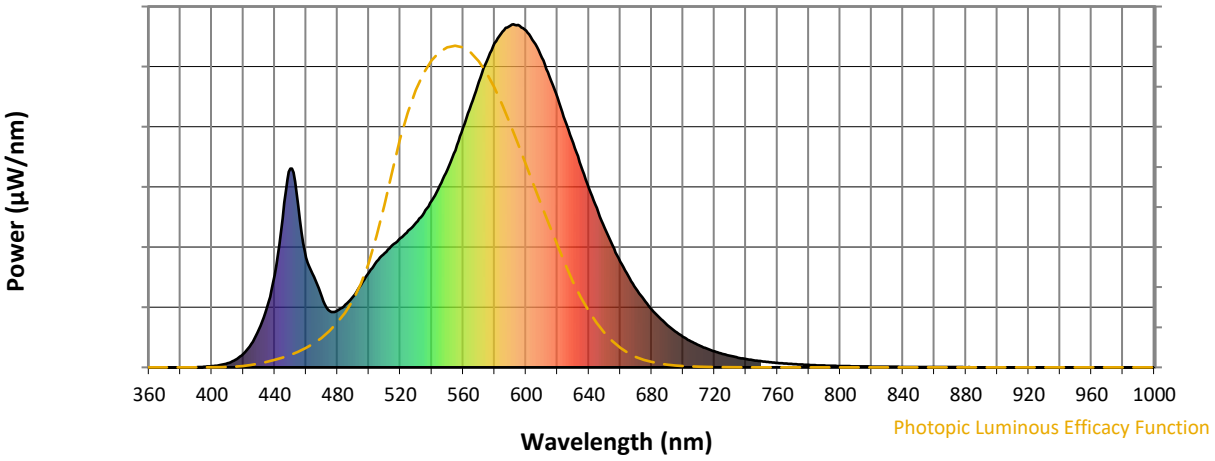



CCT = 3061K
CIE x = 0.4312
CIE y = 0.3995
Duv = -0.0011

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2501-332-4

## Photopic Flux vs. Wavelength

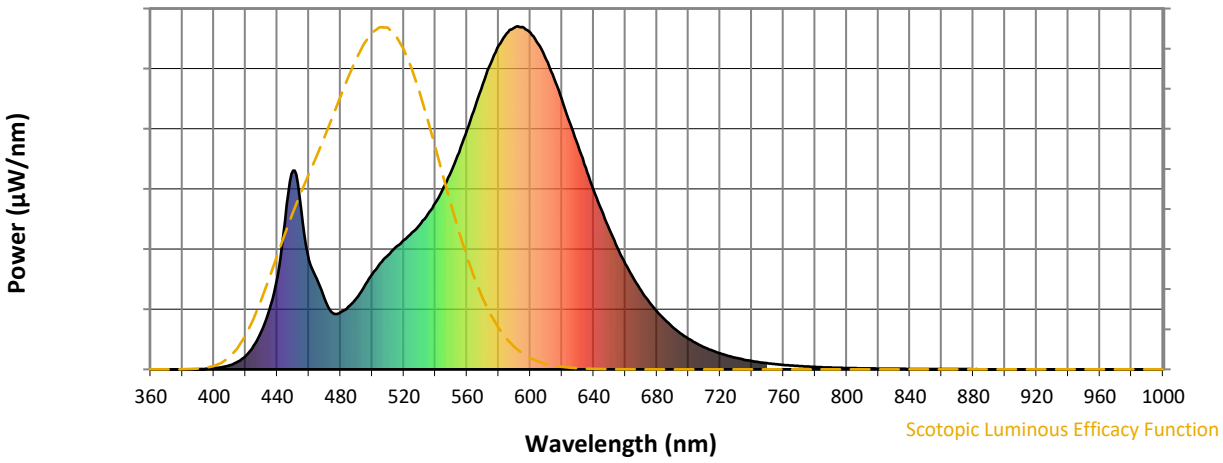



## Photopic Lumens: NR

| 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 | 207 | NR | 620 | 786 | NR | 750 | 18 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 241 | NR | 625 | 718 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 277 | NR | 630 | 654 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 309 | NR | 635 | 588 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 333 | NR | 640 | 523 | NR | 770 | 10 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 356 | NR | 645 | 465 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 376 | NR | 650 | 407 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 398 | NR | 655 | 356 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 422 | NR | 660 | 308 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 450 | NR | 665 | 267 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 486 | NR | 670 | 229 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 22 | NR | 545 | 530 | NR | 675 | 197 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 39 | NR | 550 | 577 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 68 | NR | 555 | 633 | NR | 685 | 145 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 111 | NR | 560 | 700 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 175 | NR | 565 | 766 | NR | 695 | 105 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 269 | NR | 570 | 832 | NR | 700 | 89 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 434 | NR | 575 | 893 | NR | 705 | 76 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 579 | NR | 580 | 945 | NR | 710 | 64 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 468 | NR | 585 | 979 | NR | 715 | 55 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 320 | NR | 590 | 996 | NR | 720 | 47 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 264 | NR | 595 | 998 | NR | 725 | 40 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 204 | NR | 600 | 981 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 164 | NR | 605 | 949 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 166 | NR | 610 | 903 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 183 | NR | 615 | 847 | NR | 745 | 21 | NR | 875 | 1 | NR | | | |

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## Scotopic Flux vs. Wavelength

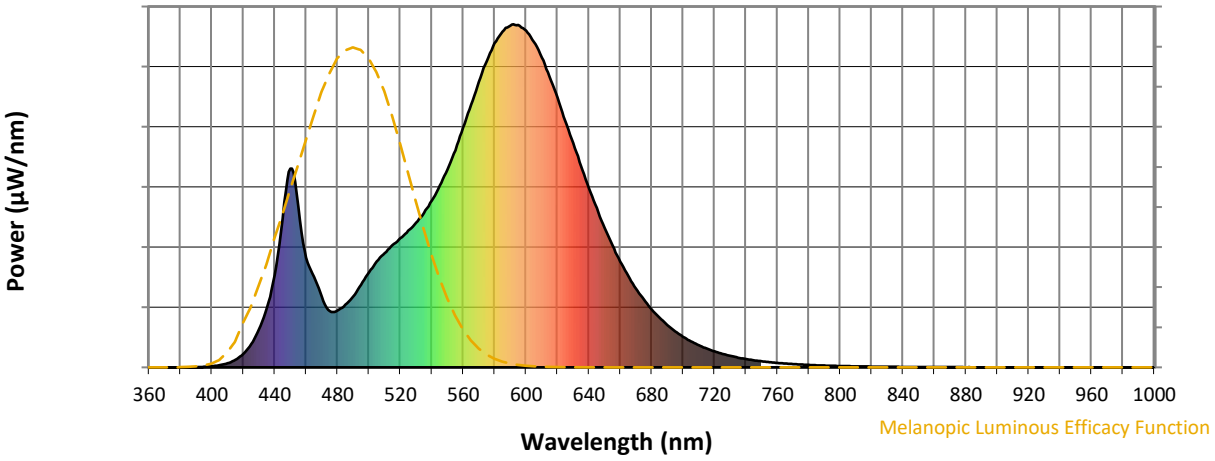



**Scotopic Lumens: NR** **S/P: 1.29**

| 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 | 207 | NR | 620 | 786 | NR | 750 | 18 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 241 | NR | 625 | 718 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 277 | NR | 630 | 654 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 309 | NR | 635 | 588 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 333 | NR | 640 | 523 | NR | 770 | 10 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 356 | NR | 645 | 465 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 376 | NR | 650 | 407 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 398 | NR | 655 | 356 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 422 | NR | 660 | 308 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 450 | NR | 665 | 267 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 486 | NR | 670 | 229 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 22 | NR | 545 | 530 | NR | 675 | 197 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 39 | NR | 550 | 577 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 68 | NR | 555 | 633 | NR | 685 | 145 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 111 | NR | 560 | 700 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 175 | NR | 565 | 766 | NR | 695 | 105 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 269 | NR | 570 | 832 | NR | 700 | 89 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 434 | NR | 575 | 893 | NR | 705 | 76 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 579 | NR | 580 | 945 | NR | 710 | 64 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 468 | NR | 585 | 979 | NR | 715 | 55 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 320 | NR | 590 | 996 | NR | 720 | 47 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 264 | NR | 595 | 998 | NR | 725 | 40 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 204 | NR | 600 | 981 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 164 | NR | 605 | 949 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 166 | NR | 610 | 903 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 183 | NR | 615 | 847 | NR | 745 | 21 | NR | 875 | 1 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.47**

| 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 | 207 | NR | 620 | 786 | NR | 750 | 18 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 241 | NR | 625 | 718 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 277 | NR | 630 | 654 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 309 | NR | 635 | 588 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 333 | NR | 640 | 523 | NR | 770 | 10 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 356 | NR | 645 | 465 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 376 | NR | 650 | 407 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 398 | NR | 655 | 356 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 422 | NR | 660 | 308 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 450 | NR | 665 | 267 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 486 | NR | 670 | 229 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 22 | NR | 545 | 530 | NR | 675 | 197 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 39 | NR | 550 | 577 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 68 | NR | 555 | 633 | NR | 685 | 145 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 111 | NR | 560 | 700 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 175 | NR | 565 | 766 | NR | 695 | 105 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 269 | NR | 570 | 832 | NR | 700 | 89 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 434 | NR | 575 | 893 | NR | 705 | 76 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 579 | NR | 580 | 945 | NR | 710 | 64 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 468 | NR | 585 | 979 | NR | 715 | 55 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 320 | NR | 590 | 996 | NR | 720 | 47 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 264 | NR | 595 | 998 | NR | 725 | 40 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 204 | NR | 600 | 981 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 164 | NR | 605 | 949 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 166 | NR | 610 | 903 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 183 | NR | 615 | 847 | NR | 745 | 21 | NR | 875 | 1 | NR | | | |

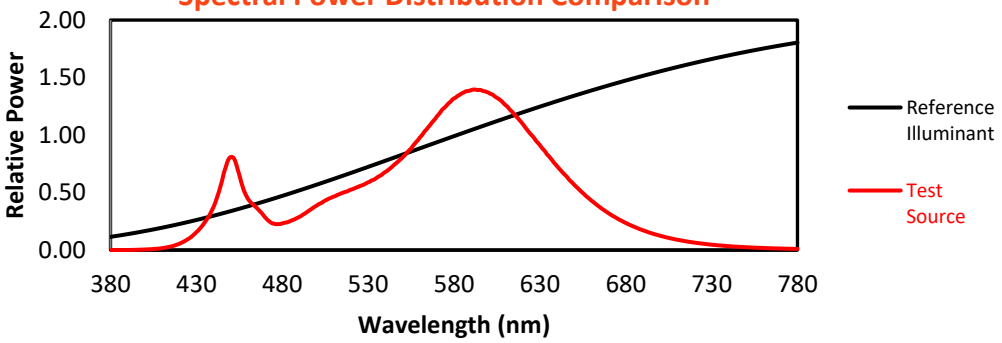
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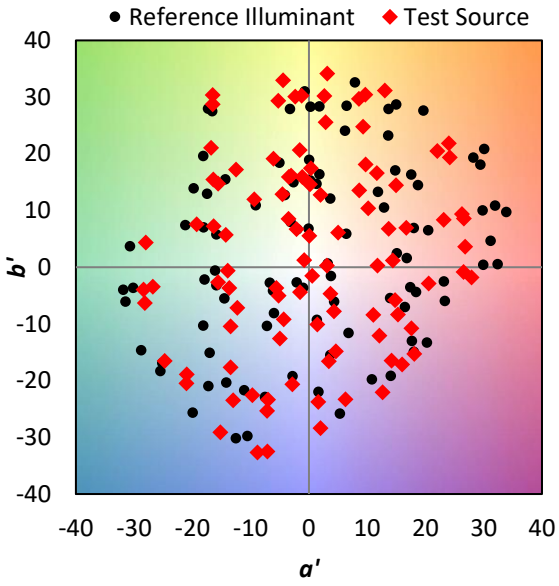
## Summary

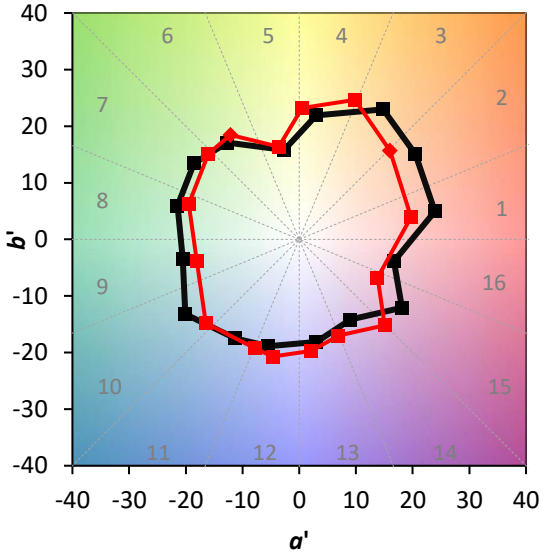
$R_f$ = 76.8
$R_g$ = 92.2
CIE $R_a$ = 71.7
$R_9$ = -40.3

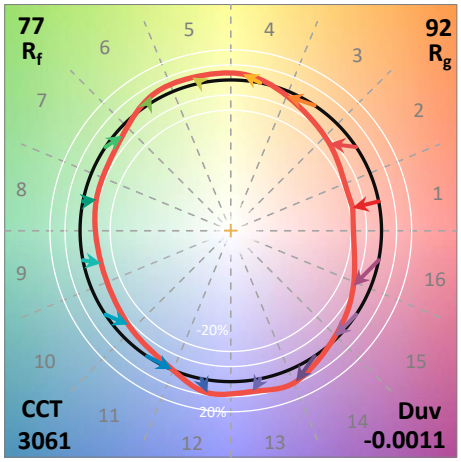
## Spectral Power Distribution Comparison

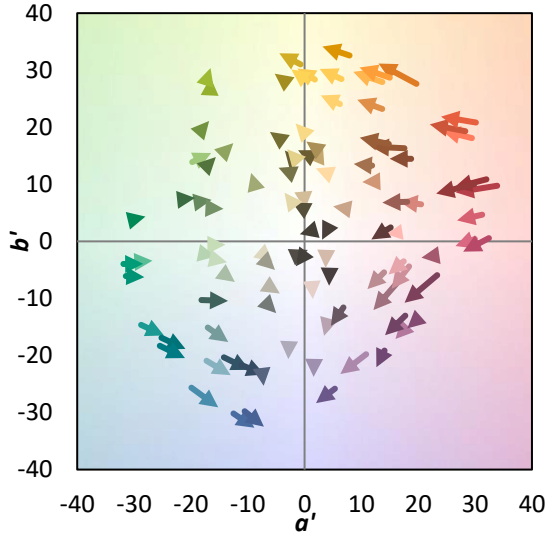



## Color Vector Graphics



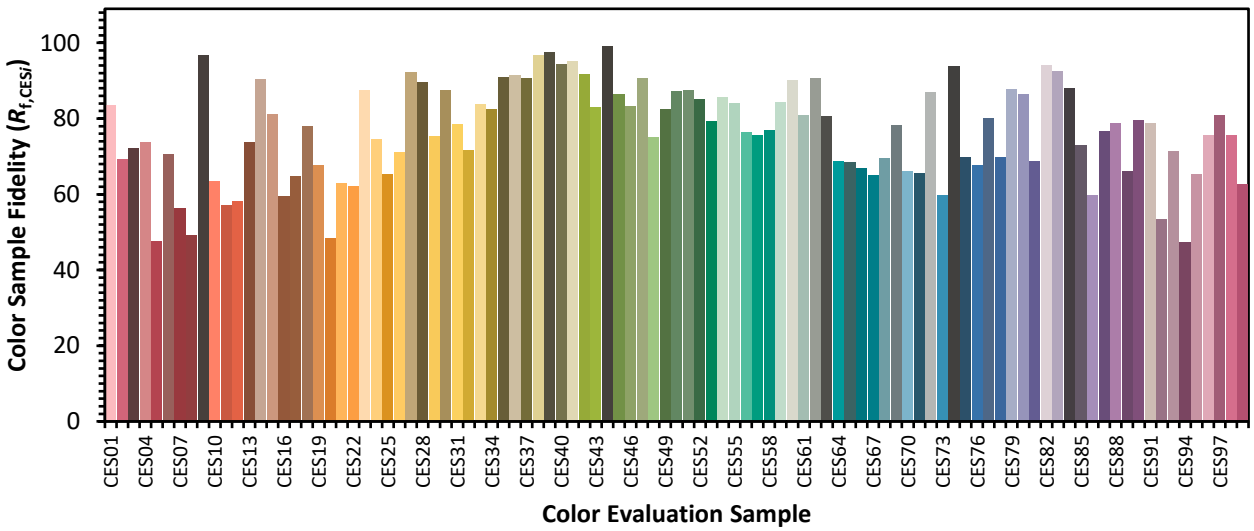



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**Individual Sample Fidelity Index ($R_{f,i}$)**

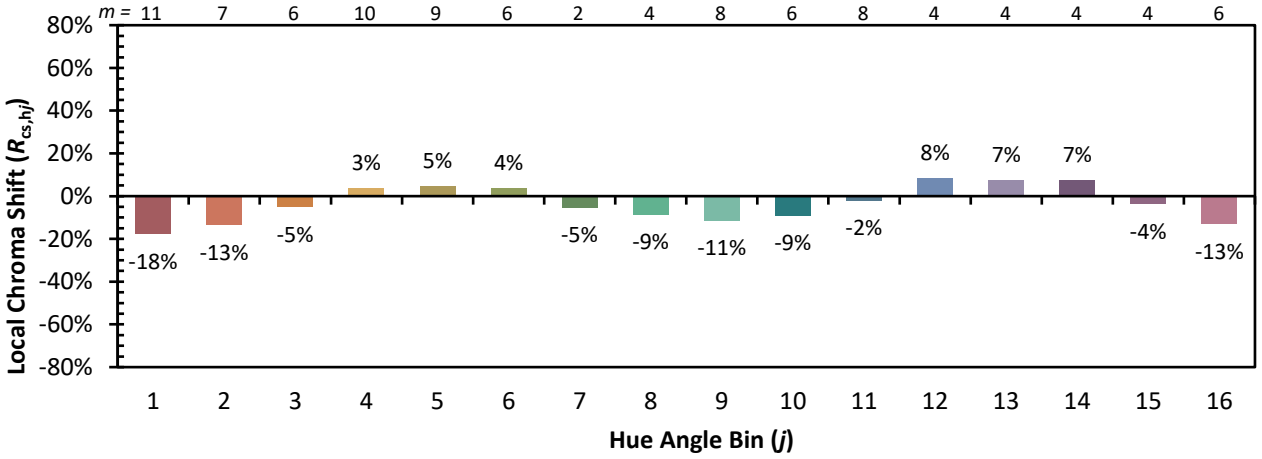
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 71 | CES51 = 88 | CES76 = 68 |
| CES02 = 62 | CES27 = 92 | CES52 = 85 | CES77 = 80 |
| CES03 = 31 | CES28 = 90 | CES53 = 79 | CES78 = 70 |
| CES04 = 71 | CES29 = 75 | CES54 = 86 | CES79 = 88 |
| CES05 = 49 | CES30 = 87 | CES55 = 84 | CES80 = 87 |
| CES06 = 51 | CES31 = 79 | CES56 = 76 | CES81 = 69 |
| CES07 = 41 | CES32 = 72 | CES57 = 76 | CES82 = 94 |
| CES08 = 40 | CES33 = 84 | CES58 = 77 | CES83 = 92 |
| CES09 = 29 | CES34 = 83 | CES59 = 84 | CES84 = 88 |
| CES10 = 76 | CES35 = 91 | CES60 = 90 | CES85 = 73 |
| CES11 = 59 | CES36 = 92 | CES61 = 81 | CES86 = 60 |
| CES12 = 65 | CES37 = 91 | CES62 = 91 | CES87 = 77 |
| CES13 = 43 | CES38 = 97 | CES63 = 81 | CES88 = 79 |
| CES14 = 74 | CES39 = 98 | CES64 = 69 | CES89 = 66 |
| CES15 = 71 | CES40 = 94 | CES65 = 69 | CES90 = 80 |
| CES16 = 47 | CES41 = 95 | CES66 = 67 | CES91 = 79 |
| CES17 = 50 | CES42 = 92 | CES67 = 65 | CES92 = 53 |
| CES18 = 56 | CES43 = 83 | CES68 = 70 | CES93 = 71 |
| CES19 = 73 | CES44 = 99 | CES69 = 78 | CES94 = 47 |
| CES20 = 66 | CES45 = 87 | CES70 = 66 | CES95 = 65 |
| CES21 = 87 | CES46 = 83 | CES71 = 66 | CES96 = 76 |
| CES22 = 79 | CES47 = 91 | CES72 = 87 | CES97 = 81 |
| CES23 = 92 | CES48 = 75 | CES73 = 60 | CES98 = 76 |
| CES24 = 91 | CES49 = 83 | CES74 = 94 | CES99 = 63 |
| CES25 = 73 | CES50 = 87 | CES75 = 70 | |

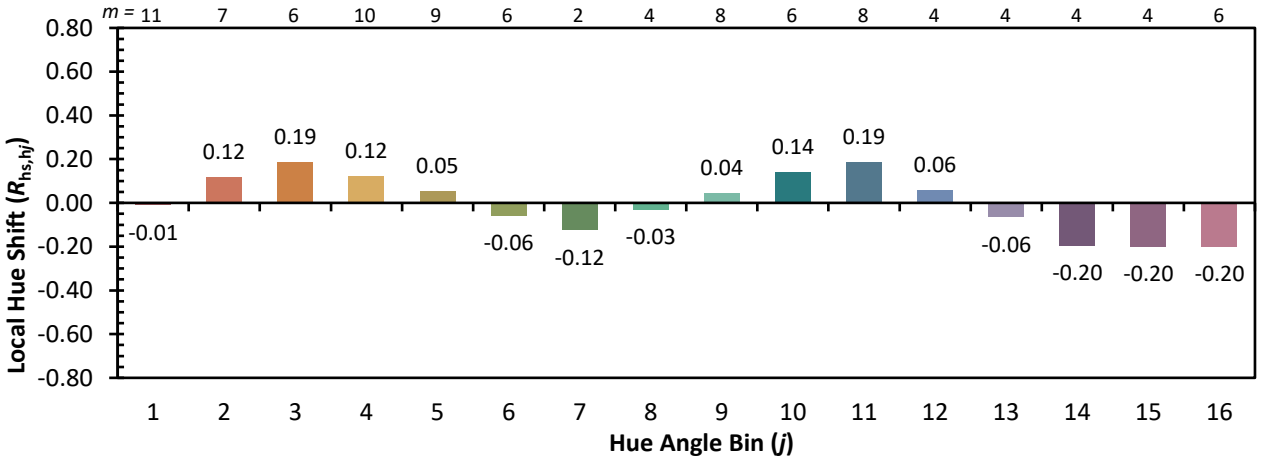


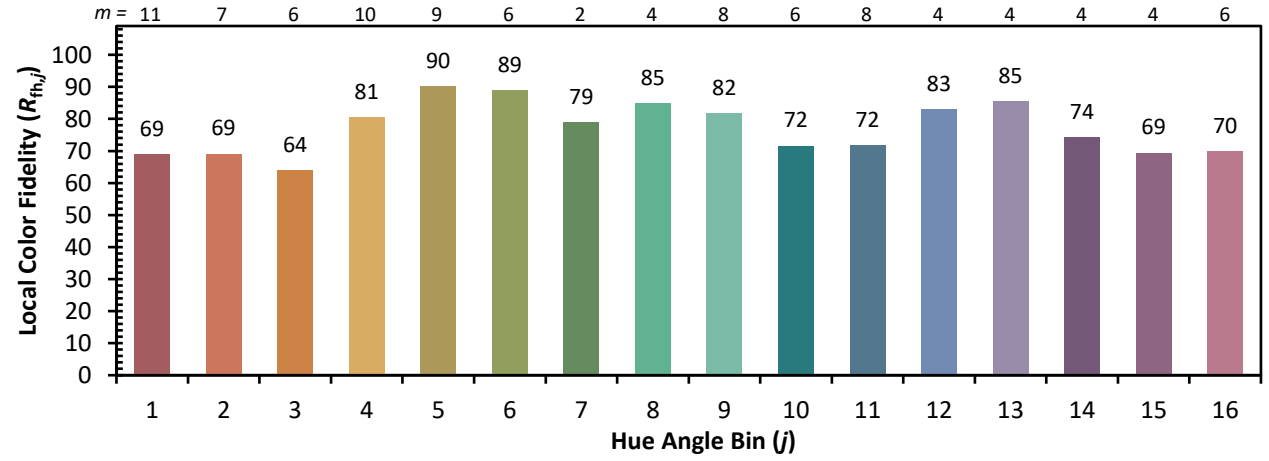
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## Color Rendition by Hue-Angle Bin



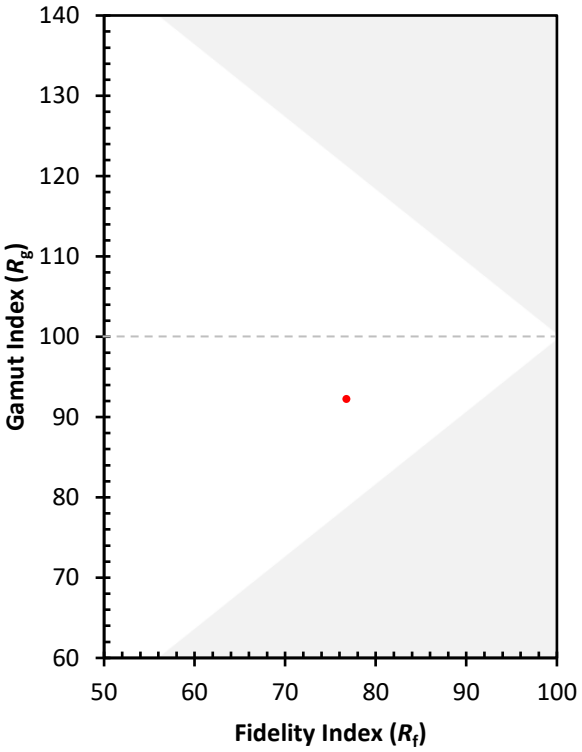



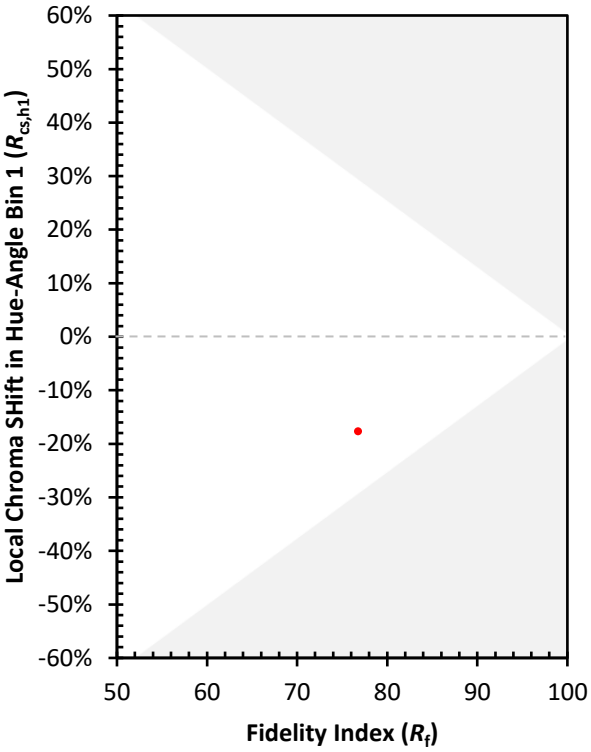



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## Measure Comparisons




(END OF REPORT)