

Signify Classified - Internal
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: P856378

Luminaire Tested: **FFX-CLB-30-722-U-VM9**

Issue Date: 07/16/2024



Test Information

Test Method: LM-79-08
Report Number: P856378
Test Lab: INNOVATION CENTER(G3)
Issue Date: 07/16/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: FFX-CLB-30-722-U-VM9
Description: FAIRFAX POST TOP FIXTURE w/ ULA ACORN 9 INCH NECK
Light Source: (6) 2200K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

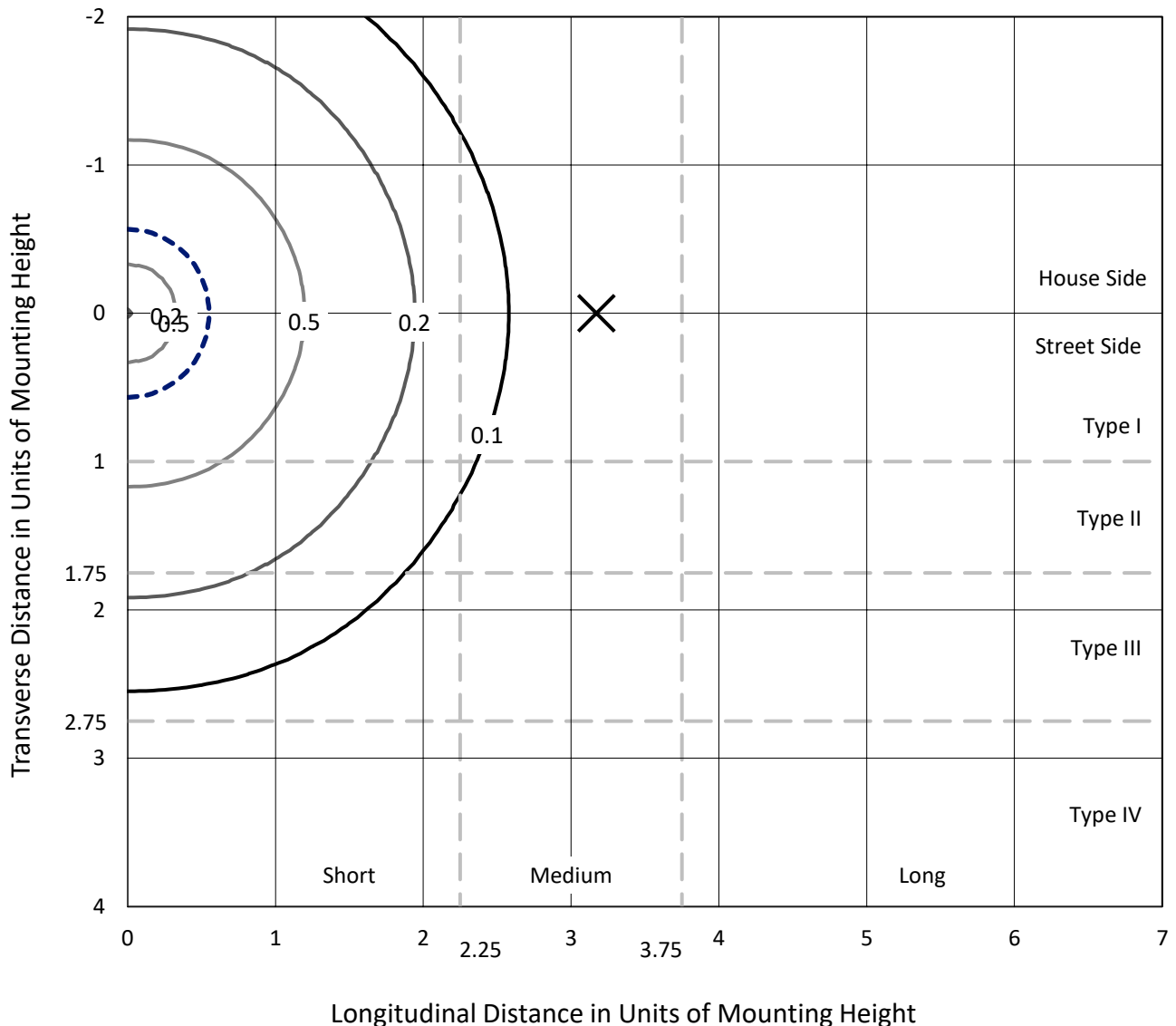
Lumens per Lamp: N/A
Luminaire Lumens: 4212.7 lumens
Efficiency: N/A
Efficacy: 138.1 lumens/watt
Luminous Opening: Vertical Cylinder (Dia: 1.33' x H: 2.08')
IES Classification: Type V - Short
BUG Rating: B1 - U5 - G3

Input Watts (W): 30.5
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 10.6%%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Iso-Footcandle Lines of Horizontal Illumination

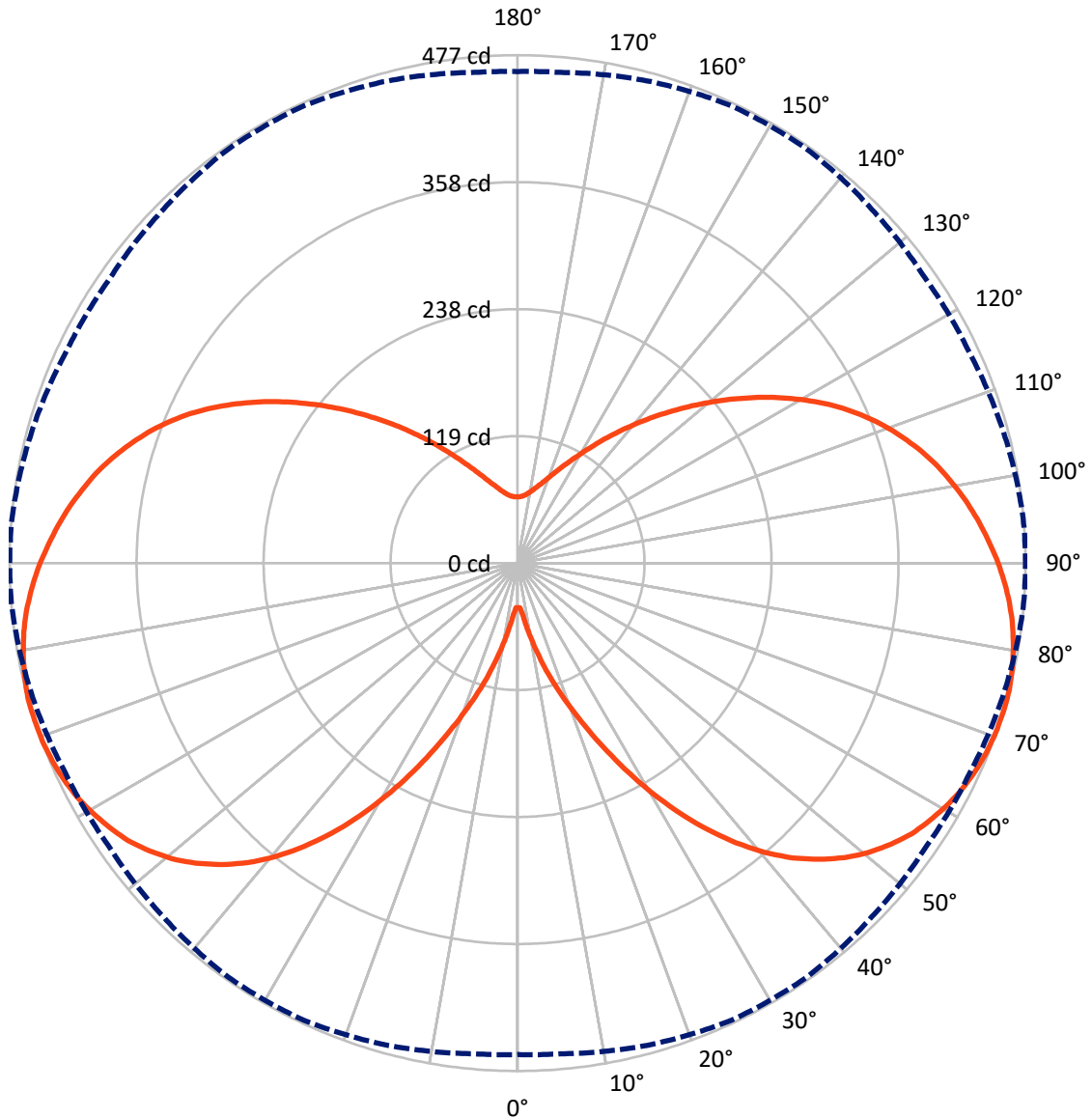
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 0.7 fc
 Type V - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 90-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

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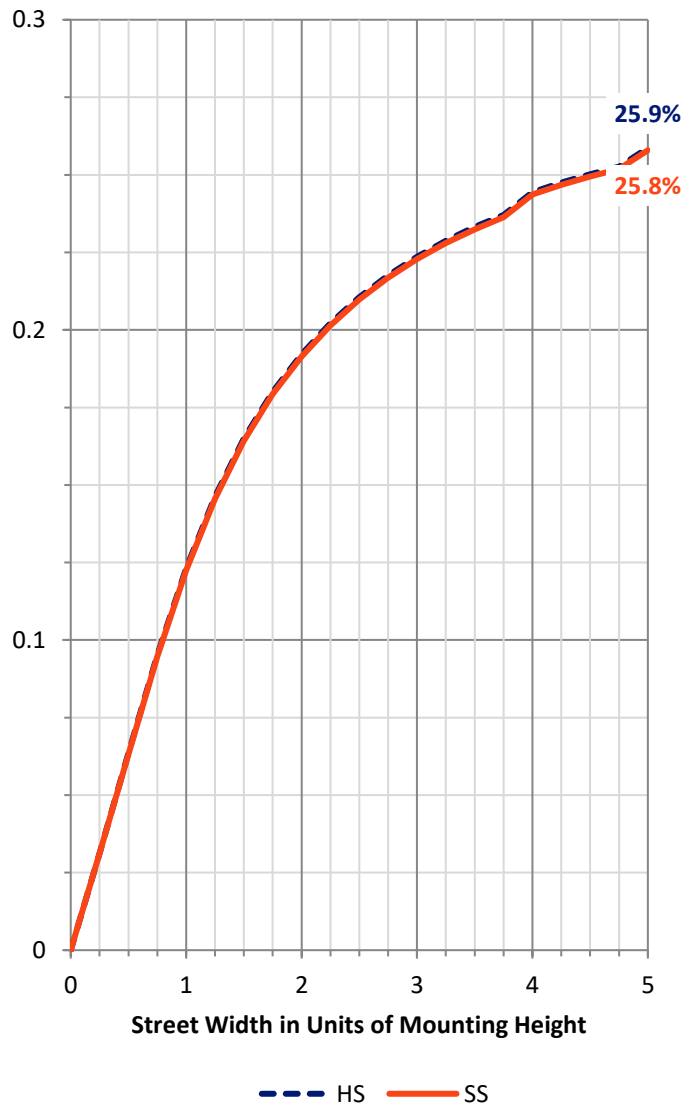
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1233.9 | 872.5 | 2106.4 |
| | % Fixture | 29.3 | 20.7 | 50.0 |
| Street Side | Lumens | 1233.9 | 872.5 | 2106.4 |
| | % Fixture | 29.3 | 20.7 | 50.0 |
| Total | Lumens | 2467.7 | 1745.0 | 4212.7 |
| | % Fixture | 58.6 | 41.4 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 5.4 | 0.1 |
| 10°-20° | 31.6 | 0.8 |
| 20°-30° | 91.3 | 2.2 |
| 30°-40° | 189.9 | 4.5 |
| 40°-50° | 301.4 | 7.2 |
| 50°-60° | 395.7 | 9.4 |
| 60°-70° | 461.4 | 11.0 |
| 70°-80° | 495.6 | 11.8 |
| 80°-90° | 495.4 | 11.8 |
| 90°-100° | 463.7 | 11.0 |
| 100°-110° | 406.8 | 9.7 |
| 110°-120° | 327.2 | 7.8 |
| 120°-130° | 235.0 | 5.6 |
| 130°-140° | 151.0 | 3.6 |
| 140°-150° | 87.6 | 2.1 |
| 150°-160° | 46.0 | 1.1 |
| 160°-170° | 21.4 | 0.5 |
| 170°-180° | 6.2 | 0.1 |
| 0°-90° | 2467.7 | 58.6 |
| 0°-180° | 4212.7 | 100.0 |



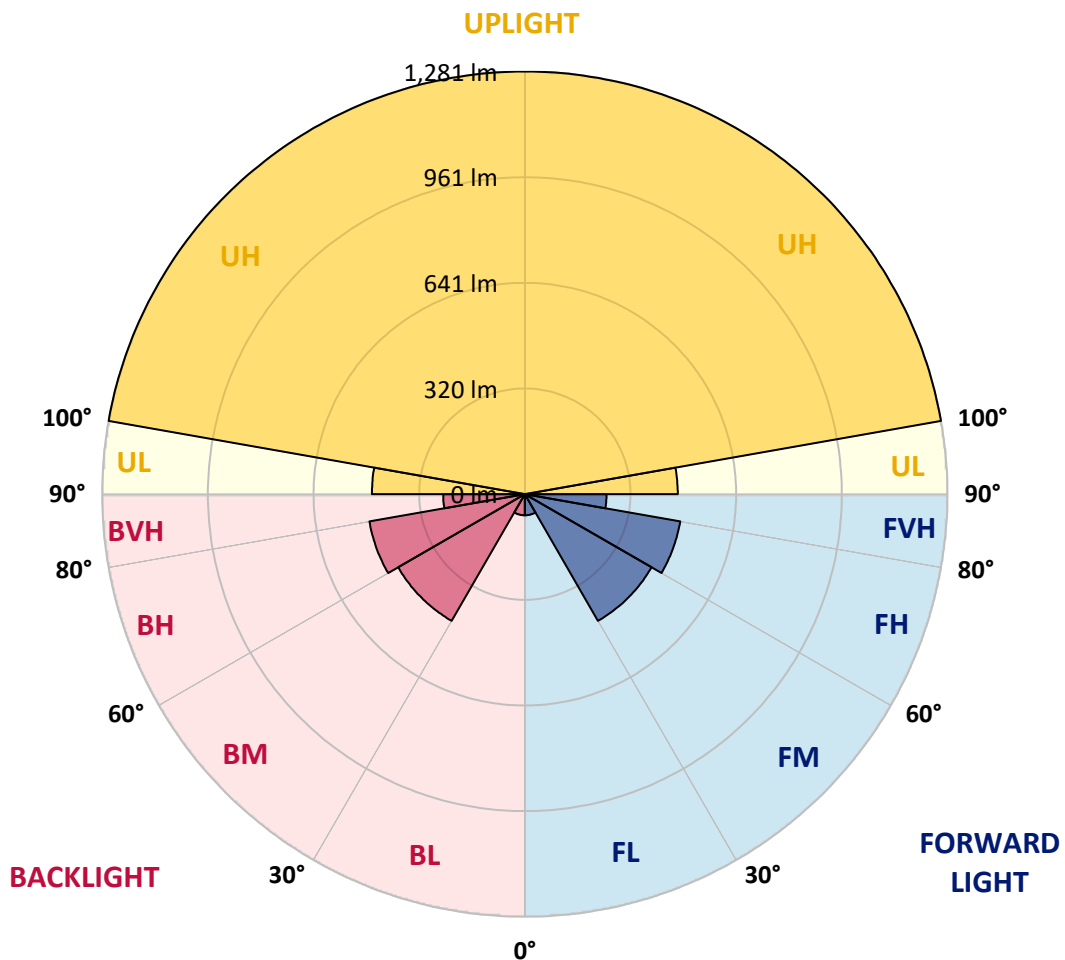
REPORT NUMBER: P856378
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|--------|--------|
| | | | B | U | G |
| FL (0°-30°) | 64.2 | 1.5 | | | |
| FM (30°-60°) | 443.5 | 10.5 | | | |
| FH (60°-80°) | 478.5 | 11.4 | | | G0/660 |
| FVH (80°-90°) | 247.7 | 5.9 | | | G3/500 |
| BL (0°-30°) | 64.2 | 1.5 | B0/110 | | |
| BM (30°-60°) | 443.5 | 10.5 | B1/1000 | | |
| BH (60°-80°) | 478.5 | 11.4 | B1/500 | | G0/660 |
| BVH (80°-90°) | 247.7 | 5.9 | | | G3/500 |
| UL (90°-100°) | 463.7 | 11.0 | | U3/500 | |
| UH (100°-180°) | 1281.3 | 30.4 | | U5 | |

BUG Rating: B1-U5-G3

Type V Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 41.8 | 41.8 | 41.8 | 41.8 | 41.8 | 41.8 | 41.8 | 41.8 | 41.8 | 41.8 | 41.8 |
| 2.5° | 43.4 | 43.4 | 43.1 | 43.1 | 42.8 | 42.6 | 42.6 | 42.3 | 42.0 | 42.0 | 42.0 |
| 5° | 48.3 | 48.0 | 48.0 | 48.0 | 48.0 | 47.7 | 48.0 | 47.7 | 47.7 | 47.7 | 48.0 |
| 7.5° | 58.8 | 58.6 | 58.6 | 58.6 | 58.8 | 58.8 | 59.1 | 59.4 | 59.7 | 59.7 | 59.7 |
| 10° | 72.7 | 72.4 | 72.4 | 72.1 | 72.7 | 72.7 | 72.9 | 72.4 | 73.2 | 73.2 | 73.5 |
| 12.5° | 88.9 | 88.7 | 88.7 | 88.4 | 88.9 | 88.7 | 89.2 | 88.7 | 90.0 | 89.5 | 89.5 |
| 15° | 106.6 | 106.6 | 106.3 | 106.0 | 106.8 | 106.8 | 107.4 | 107.4 | 108.2 | 107.7 | 107.9 |
| 17.5° | 125.3 | 125.0 | 125.0 | 124.7 | 125.5 | 125.5 | 125.5 | 126.1 | 127.2 | 126.1 | 126.9 |
| 20° | 145.3 | 145.1 | 145.1 | 144.8 | 145.6 | 145.6 | 146.2 | 146.4 | 147.5 | 146.7 | 147.2 |
| 22.5° | 167.0 | 166.8 | 166.8 | 166.8 | 167.9 | 168.1 | 168.1 | 168.9 | 170.3 | 168.9 | 170.0 |
| 25° | 191.2 | 190.9 | 190.9 | 191.7 | 192.5 | 192.8 | 193.3 | 194.4 | 195.8 | 194.4 | 195.8 |
| 27.5° | 216.9 | 216.7 | 217.2 | 218.3 | 219.1 | 219.6 | 220.5 | 220.7 | 222.6 | 221.3 | 223.2 |
| 30° | 243.5 | 243.2 | 243.8 | 245.1 | 246.2 | 247.8 | 247.8 | 248.7 | 251.4 | 249.5 | 251.4 |
| 32.5° | 269.8 | 269.5 | 270.4 | 272.0 | 273.6 | 275.2 | 275.5 | 276.6 | 279.3 | 277.9 | 279.8 |
| 35° | 295.8 | 295.6 | 296.7 | 298.8 | 300.5 | 302.1 | 302.6 | 303.7 | 306.7 | 305.3 | 307.2 |
| 37.5° | 320.5 | 320.5 | 321.6 | 324.0 | 325.9 | 328.1 | 327.8 | 329.2 | 331.9 | 331.1 | 333.0 |
| 40° | 343.6 | 343.6 | 344.9 | 347.9 | 350.1 | 351.4 | 351.2 | 352.5 | 355.5 | 355.2 | 356.9 |
| 42.5° | 364.4 | 364.4 | 366.3 | 369.3 | 371.5 | 372.3 | 372.3 | 373.7 | 376.9 | 376.6 | 378.3 |
| 45° | 382.1 | 382.9 | 385.1 | 388.3 | 390.2 | 391.0 | 390.5 | 391.8 | 395.4 | 395.4 | 396.7 |
| 47.5° | 398.3 | 399.4 | 401.6 | 404.9 | 406.2 | 407.0 | 406.5 | 407.6 | 411.1 | 411.6 | 413.0 |
| 50° | 412.4 | 413.3 | 416.0 | 419.5 | 420.8 | 420.8 | 420.0 | 421.1 | 424.9 | 426.0 | 427.1 |
| 52.5° | 424.6 | 425.5 | 428.4 | 432.2 | 433.1 | 432.8 | 431.7 | 432.8 | 436.6 | 437.7 | 438.5 |
| 55° | 434.4 | 435.2 | 438.7 | 442.5 | 443.4 | 442.5 | 440.9 | 442.3 | 445.8 | 447.4 | 448.8 |
| 57.5° | 442.3 | 443.1 | 447.2 | 450.9 | 451.8 | 450.1 | 448.2 | 449.6 | 453.7 | 455.6 | 456.1 |
| 60° | 448.8 | 449.6 | 453.9 | 458.0 | 458.5 | 456.6 | 454.5 | 455.8 | 459.9 | 462.1 | 462.6 |
| 62.5° | 453.9 | 454.7 | 459.4 | 464.0 | 464.2 | 461.8 | 459.4 | 460.7 | 464.8 | 467.2 | 468.0 |
| 65° | 457.5 | 458.3 | 463.4 | 468.0 | 468.6 | 465.6 | 463.2 | 464.5 | 468.3 | 471.3 | 471.8 |
| 67.5° | 459.9 | 460.7 | 466.4 | 471.3 | 471.6 | 468.3 | 465.6 | 466.7 | 471.0 | 474.0 | 474.5 |
| 70° | 461.0 | 461.8 | 467.8 | 472.9 | 473.2 | 469.7 | 466.4 | 467.8 | 472.1 | 475.6 | 476.2 |
| 72.5° | 461.3 | 462.3 | 468.6 | 473.7 | 474.0 | 469.9 | 466.7 | 467.8 | 472.4 | 476.4 | 476.7 |
| 75° | 460.2 | 461.5 | 468.0 | 473.5 | 473.5 | 468.8 | 465.3 | 466.4 | 471.6 | 475.9 | 476.7 |
| 77.5° | 458.8 | 459.6 | 466.4 | 471.8 | 471.6 | 466.7 | 462.6 | 464.2 | 469.4 | 474.3 | 474.8 |
| 80° | 455.8 | 456.9 | 463.7 | 468.8 | 468.3 | 462.9 | 459.1 | 460.7 | 466.1 | 471.3 | 471.8 |
| 82.5° | 452.0 | 453.1 | 459.9 | 464.5 | 464.0 | 458.3 | 454.5 | 456.4 | 462.1 | 467.5 | 468.0 |
| 85° | 447.4 | 448.5 | 455.0 | 459.4 | 458.5 | 452.8 | 449.1 | 450.7 | 456.9 | 462.3 | 462.9 |
| 87.5° | 441.5 | 442.5 | 449.1 | 452.8 | 452.0 | 446.1 | 442.8 | 445.0 | 450.7 | 456.4 | 456.6 |
| 90° | 434.7 | 436.0 | 441.7 | 445.3 | 444.2 | 438.7 | 435.8 | 437.9 | 443.6 | 449.1 | 449.6 |
| 92.5° | 427.9 | 428.4 | 433.9 | 436.8 | 436.0 | 431.2 | 428.4 | 430.9 | 436.0 | 441.5 | 441.5 |
| 95° | 419.8 | 420.6 | 425.5 | 427.9 | 427.1 | 423.0 | 420.6 | 423.3 | 427.9 | 433.1 | 433.3 |
| 97.5° | 411.1 | 411.9 | 416.0 | 418.4 | 417.6 | 414.1 | 412.4 | 415.2 | 419.2 | 424.1 | 424.4 |
| 100° | 401.9 | 402.4 | 405.9 | 408.1 | 407.3 | 404.6 | 403.5 | 406.2 | 410.0 | 414.6 | 414.6 |
| 102.5° | 391.6 | 392.1 | 394.8 | 396.2 | 395.9 | 393.7 | 393.7 | 396.7 | 399.7 | 404.0 | 404.6 |
| 105° | 380.7 | 381.3 | 383.2 | 384.0 | 383.7 | 382.9 | 383.4 | 386.4 | 388.9 | 392.6 | 393.2 |
| 107.5° | 368.5 | 369.1 | 370.1 | 370.4 | 370.4 | 370.4 | 372.3 | 375.0 | 377.7 | 380.4 | 380.7 |
| 110° | 355.5 | 355.8 | 356.6 | 356.3 | 356.3 | 356.9 | 359.6 | 362.5 | 364.7 | 367.4 | 367.7 |



REPORT NUMBER: P856378
 CATALOG NUMBER: FFX-CLB-30-722-U-VM9

CANDELA DISTRIBUTION (continued):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 112.5° | 341.4 | 341.7 | 342.2 | 341.1 | 341.4 | 342.5 | 346.0 | 349.3 | 350.6 | 353.3 | 353.3 |
| 115° | 326.5 | 326.2 | 326.8 | 325.4 | 325.1 | 327.0 | 330.8 | 334.6 | 335.7 | 337.6 | 337.9 |
| 117.5° | 310.2 | 310.5 | 310.2 | 308.6 | 308.3 | 311.0 | 314.6 | 318.1 | 319.4 | 321.6 | 321.1 |
| 120° | 293.4 | 293.1 | 293.4 | 291.5 | 291.2 | 294.2 | 297.7 | 301.3 | 302.1 | 304.0 | 303.4 |
| 122.5° | 276.3 | 276.0 | 275.8 | 273.9 | 273.9 | 276.3 | 280.7 | 284.2 | 283.6 | 285.8 | 285.5 |
| 125° | 258.7 | 258.7 | 258.2 | 256.3 | 256.3 | 259.2 | 262.8 | 266.0 | 265.5 | 267.9 | 267.1 |
| 127.5° | 241.3 | 241.3 | 240.8 | 239.2 | 239.2 | 241.9 | 245.1 | 248.4 | 247.6 | 249.7 | 248.9 |
| 130° | 224.3 | 224.3 | 223.7 | 222.1 | 222.1 | 224.3 | 227.8 | 230.5 | 229.4 | 231.3 | 231.0 |
| 132.5° | 208.0 | 207.7 | 207.4 | 205.8 | 206.1 | 208.3 | 211.0 | 213.4 | 212.3 | 214.5 | 213.7 |
| 135° | 192.3 | 192.0 | 191.7 | 190.1 | 190.4 | 192.5 | 195.0 | 196.9 | 196.1 | 197.4 | 197.1 |
| 137.5° | 177.3 | 177.1 | 176.8 | 175.4 | 175.7 | 177.3 | 179.8 | 181.4 | 180.3 | 182.2 | 181.4 |
| 140° | 163.2 | 163.0 | 162.4 | 161.6 | 161.9 | 163.5 | 164.9 | 166.8 | 165.7 | 167.3 | 166.5 |
| 142.5° | 149.7 | 149.7 | 149.1 | 148.3 | 148.6 | 150.2 | 151.3 | 152.7 | 151.6 | 152.9 | 152.4 |
| 145° | 137.2 | 137.2 | 136.7 | 136.1 | 136.1 | 137.5 | 138.3 | 139.7 | 138.6 | 139.9 | 139.4 |
| 147.5° | 125.8 | 125.8 | 125.3 | 124.7 | 124.7 | 126.1 | 126.6 | 127.7 | 126.6 | 127.7 | 127.2 |
| 150° | 115.2 | 115.2 | 115.0 | 114.4 | 114.7 | 115.2 | 115.8 | 116.6 | 115.8 | 116.6 | 116.3 |
| 152.5° | 106.0 | 106.0 | 105.8 | 105.5 | 105.2 | 106.0 | 106.3 | 107.1 | 106.3 | 107.1 | 106.6 |
| 155° | 97.9 | 97.6 | 97.6 | 97.1 | 97.1 | 97.6 | 97.9 | 98.4 | 97.6 | 98.4 | 98.2 |
| 157.5° | 90.6 | 90.6 | 90.3 | 90.0 | 90.0 | 90.3 | 90.6 | 90.8 | 90.3 | 91.1 | 90.6 |
| 160° | 84.3 | 84.3 | 84.1 | 83.8 | 83.8 | 84.1 | 84.1 | 84.3 | 83.8 | 84.3 | 84.1 |
| 162.5° | 78.9 | 78.9 | 78.6 | 78.6 | 78.4 | 78.6 | 78.9 | 78.9 | 78.6 | 78.9 | 78.6 |
| 165° | 74.6 | 74.6 | 74.3 | 74.0 | 74.0 | 74.3 | 74.3 | 74.6 | 74.0 | 74.3 | 74.3 |
| 167.5° | 70.5 | 70.5 | 70.5 | 70.2 | 70.0 | 70.2 | 70.2 | 70.2 | 70.0 | 70.2 | 70.2 |
| 170° | 67.5 | 67.5 | 67.5 | 67.2 | 67.0 | 67.2 | 67.2 | 67.2 | 67.0 | 67.2 | 67.2 |
| 172.5° | 65.1 | 65.1 | 65.1 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 |
| 175° | 63.5 | 63.5 | 63.5 | 63.5 | 63.2 | 63.5 | 63.5 | 63.5 | 63.5 | 63.5 | 63.2 |
| 177.5° | 62.6 | 62.4 | 62.4 | 62.4 | 62.4 | 62.4 | 62.4 | 62.4 | 62.4 | 62.4 | 62.4 |
| 180° | 62.1 | 62.1 | 62.1 | 62.1 | 62.1 | 62.1 | 62.1 | 62.1 | 62.1 | 62.1 | 62.1 |

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: SP1-2406-133-2

Test Date: 07/11/2024

Luminaire Tested: FFX-CLB-100-722-U-FR-T5

Data in this report applies to families of products including FFX-CLB-100-722-U-FR-T5.

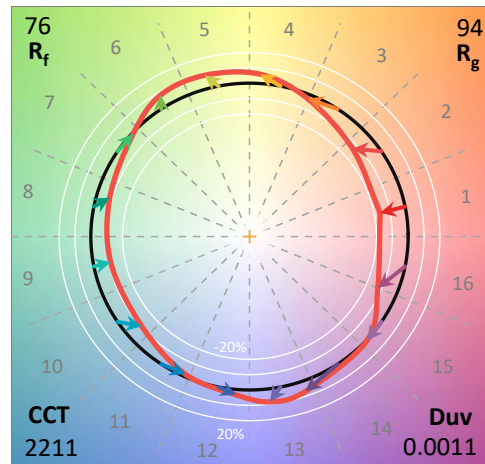
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2406-133-2
 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-100-722-U-FR-T5**
 Description: FAIRFAX ACORN W/ FAIRFAX REFRACTOR 100W T5

Spectral Parameters

CCT (K): 2211
 CIE u': 0.2892
 CIE v': 0.5376
 Duv: 0.0011
 CIE x: 0.5069
 CIE y: 0.4188
 CIE z: 0.0743
 Peak Wavelength (nm): 606
 Dominant Wavelength (nm): 586
 Purity: 77.8805
 Rf: 76.1
 Rg: 94.3

CRI (Ra): 71.4
 R1: 68.2
 R2: 85.0
 R3: 94.0
 R4: 65.1
 R5: 66.6
 R6: 81.8
 R7: 73.4
 R8: 37.3
 R9: -29.2
 R10: 67.8
 R11: 60.7
 R12: 59.0
 R13: 71.3
 R14: 97.6
 R15: 58.9



Test Conditions

Stabilization Time: 0.813563M
 Operation Time: 1H
 Sphere Temperature (°C): 24.7

REPORT NUMBER: SP1-2406-133-2

| 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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CIE 1931 Chromaticity Diagram



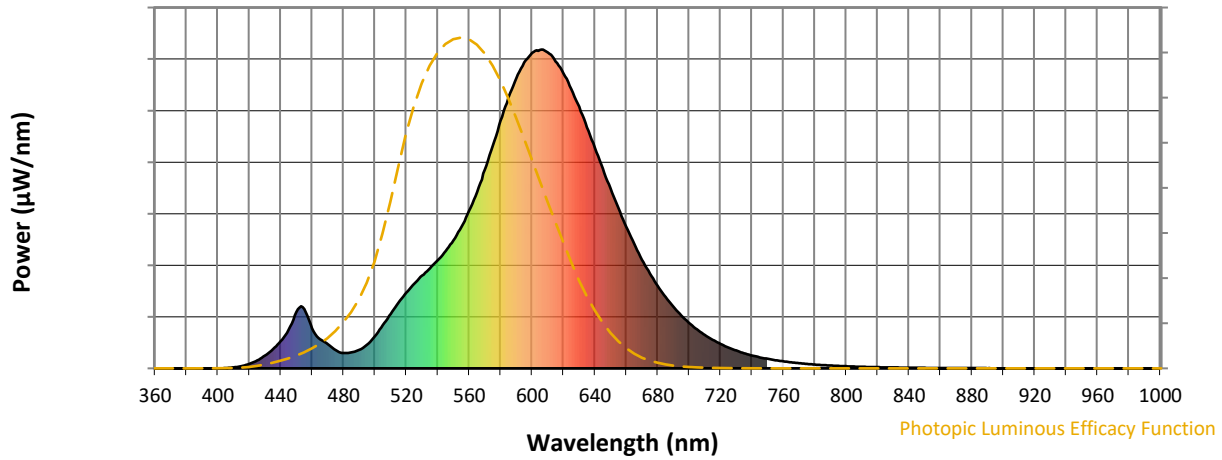
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2200K 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 | 58 | NR | 620 | 925 | NR | 750 | 30 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 75 | NR | 625 | 877 | NR | 755 | 26 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 101 | NR | 630 | 821 | NR | 760 | 22 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 135 | NR | 635 | 756 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 171 | NR | 640 | 692 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 206 | NR | 645 | 626 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 238 | NR | 650 | 564 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 265 | NR | 655 | 502 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 291 | NR | 660 | 444 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 1 | NR | 535 | 314 | NR | 665 | 390 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 3 | NR | 540 | 339 | NR | 670 | 341 | NR | 800 | 7 | NR | 930 | 0 | NR |
| 415 | 7 | NR | 545 | 368 | NR | 675 | 298 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 14 | NR | 550 | 401 | NR | 680 | 259 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 25 | NR | 555 | 444 | NR | 685 | 224 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 40 | NR | 560 | 495 | NR | 690 | 194 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 60 | NR | 565 | 553 | NR | 695 | 166 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 85 | NR | 570 | 623 | NR | 700 | 142 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 121 | NR | 575 | 699 | NR | 705 | 122 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 177 | NR | 580 | 777 | NR | 710 | 105 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 186 | NR | 585 | 850 | NR | 715 | 90 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 126 | NR | 590 | 912 | NR | 720 | 77 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 92 | NR | 595 | 960 | NR | 725 | 65 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 76 | NR | 600 | 990 | NR | 730 | 56 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 57 | NR | 605 | 998 | NR | 735 | 48 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 48 | NR | 610 | 991 | NR | 740 | 40 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 50 | NR | 615 | 963 | NR | 745 | 35 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2406-133-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 0.87

| 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 | 58 | NR | 620 | 925 | NR | 750 | 30 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 75 | NR | 625 | 877 | NR | 755 | 26 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 101 | NR | 630 | 821 | NR | 760 | 22 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 135 | NR | 635 | 756 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 171 | NR | 640 | 692 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 206 | NR | 645 | 626 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 238 | NR | 650 | 564 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 265 | NR | 655 | 502 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 291 | NR | 660 | 444 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 1 | NR | 535 | 314 | NR | 665 | 390 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 3 | NR | 540 | 339 | NR | 670 | 341 | NR | 800 | 7 | NR | 930 | 0 | NR |
| 415 | 7 | NR | 545 | 368 | NR | 675 | 298 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 14 | NR | 550 | 401 | NR | 680 | 259 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 25 | NR | 555 | 444 | NR | 685 | 224 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 40 | NR | 560 | 495 | NR | 690 | 194 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 60 | NR | 565 | 553 | NR | 695 | 166 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 85 | NR | 570 | 623 | NR | 700 | 142 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 121 | NR | 575 | 699 | NR | 705 | 122 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 177 | NR | 580 | 777 | NR | 710 | 105 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 186 | NR | 585 | 850 | NR | 715 | 90 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 126 | NR | 590 | 912 | NR | 720 | 77 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 92 | NR | 595 | 960 | NR | 725 | 65 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 76 | NR | 600 | 990 | NR | 730 | 56 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 57 | NR | 605 | 998 | NR | 735 | 48 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 48 | NR | 610 | 991 | NR | 740 | 40 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 50 | NR | 615 | 963 | NR | 745 | 35 | NR | 875 | 1 | NR | | | |

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 1.42

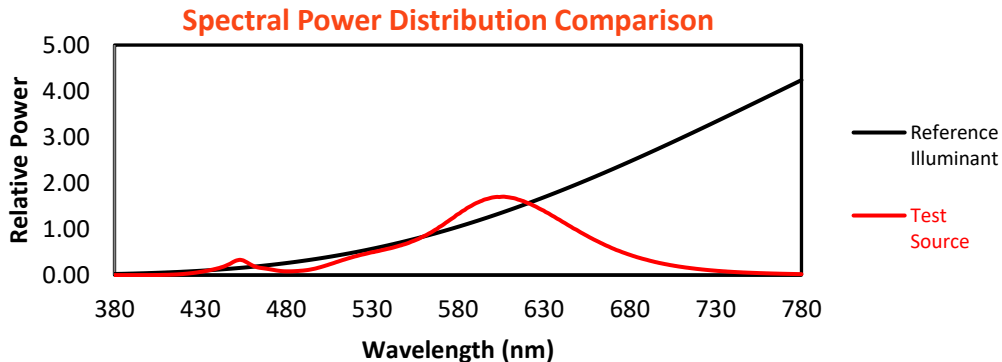
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 58 | NR | 620 | 925 | NR | 750 | 30 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 75 | NR | 625 | 877 | NR | 755 | 26 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 101 | NR | 630 | 821 | NR | 760 | 22 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 135 | NR | 635 | 756 | NR | 765 | 19 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 171 | NR | 640 | 692 | NR | 770 | 16 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 206 | NR | 645 | 626 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 238 | NR | 650 | 564 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 265 | NR | 655 | 502 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 291 | NR | 660 | 444 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 1 | NR | 535 | 314 | NR | 665 | 390 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 3 | NR | 540 | 339 | NR | 670 | 341 | NR | 800 | 7 | NR | 930 | 0 | NR |
| 415 | 7 | NR | 545 | 368 | NR | 675 | 298 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 14 | NR | 550 | 401 | NR | 680 | 259 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 25 | NR | 555 | 444 | NR | 685 | 224 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 40 | NR | 560 | 495 | NR | 690 | 194 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 60 | NR | 565 | 553 | NR | 695 | 166 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 85 | NR | 570 | 623 | NR | 700 | 142 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 121 | NR | 575 | 699 | NR | 705 | 122 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 177 | NR | 580 | 777 | NR | 710 | 105 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 186 | NR | 585 | 850 | NR | 715 | 90 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 126 | NR | 590 | 912 | NR | 720 | 77 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 92 | NR | 595 | 960 | NR | 725 | 65 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 76 | NR | 600 | 990 | NR | 730 | 56 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 57 | NR | 605 | 998 | NR | 735 | 48 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 48 | NR | 610 | 991 | NR | 740 | 40 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 50 | NR | 615 | 963 | NR | 745 | 35 | NR | 875 | 1 | NR | | | |

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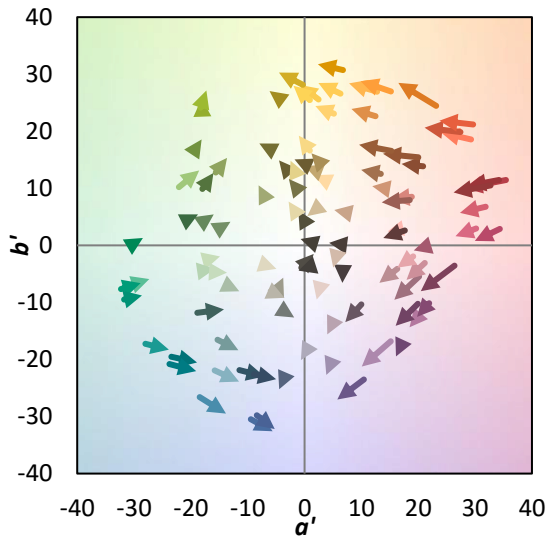
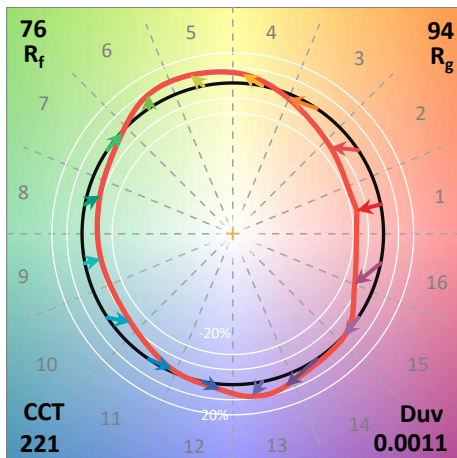
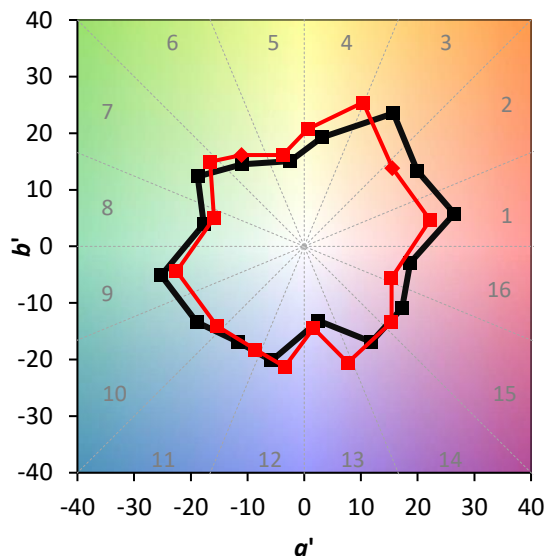
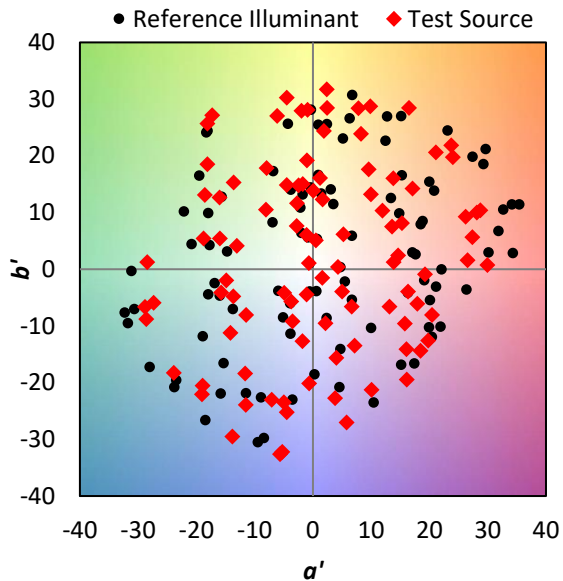
TM-30-18

Summary

$R_f = 76.1$
 $R_g = 94.3$
 CIE $R_a = 71.4$
 $R_9 = -29.2$



Color Vector Graphics

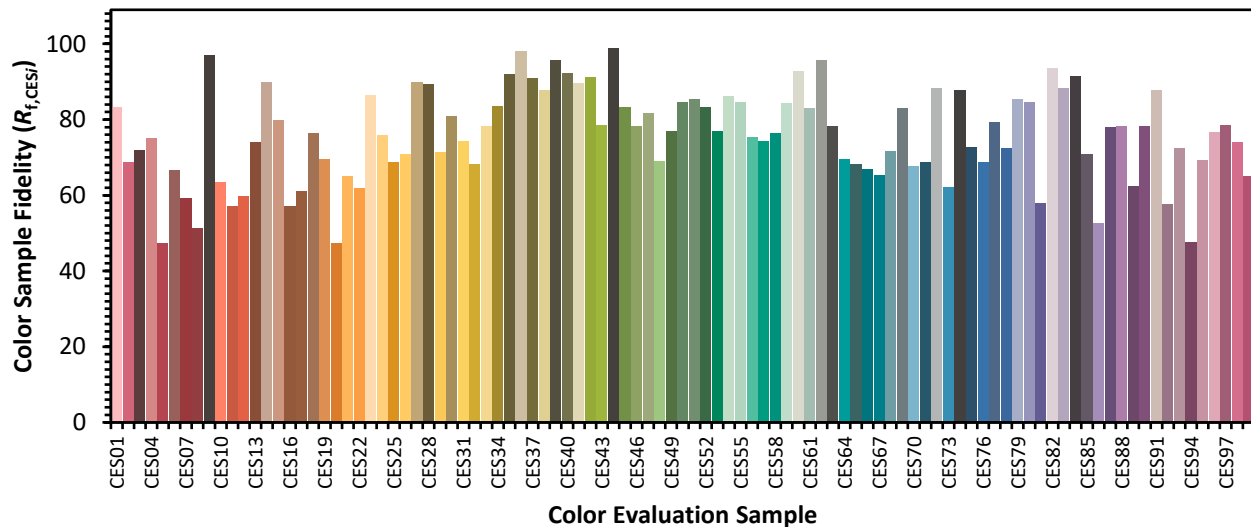


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Individual Sample Fidelity Index ($R_{f,i}$)

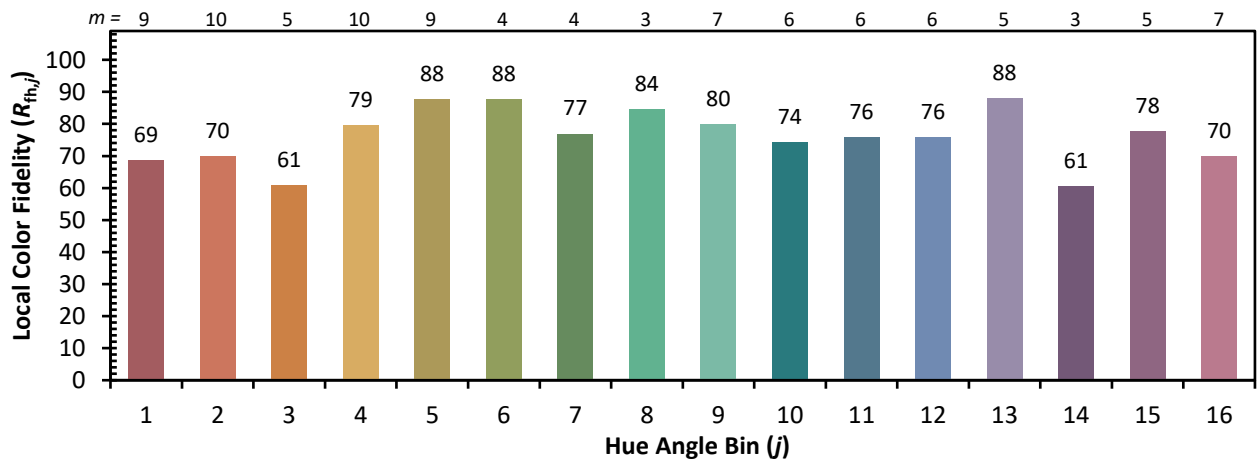
| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 71 | CES51 = 85 | CES76 = 69 |
| CES02 = 65 | CES27 = 90 | CES52 = 83 | CES77 = 79 |
| CES03 = 32 | CES28 = 89 | CES53 = 77 | CES78 = 72 |
| CES04 = 72 | CES29 = 71 | CES54 = 86 | CES79 = 86 |
| CES05 = 52 | CES30 = 81 | CES55 = 85 | CES80 = 85 |
| CES06 = 52 | CES31 = 74 | CES56 = 75 | CES81 = 58 |
| CES07 = 44 | CES32 = 68 | CES57 = 74 | CES82 = 93 |
| CES08 = 42 | CES33 = 78 | CES58 = 76 | CES83 = 88 |
| CES09 = 29 | CES34 = 84 | CES59 = 84 | CES84 = 92 |
| CES10 = 79 | CES35 = 92 | CES60 = 93 | CES85 = 71 |
| CES11 = 62 | CES36 = 98 | CES61 = 83 | CES86 = 53 |
| CES12 = 68 | CES37 = 91 | CES62 = 96 | CES87 = 78 |
| CES13 = 45 | CES38 = 88 | CES63 = 78 | CES88 = 78 |
| CES14 = 75 | CES39 = 96 | CES64 = 69 | CES89 = 63 |
| CES15 = 72 | CES40 = 92 | CES65 = 68 | CES90 = 78 |
| CES16 = 49 | CES41 = 90 | CES66 = 67 | CES91 = 88 |
| CES17 = 51 | CES42 = 91 | CES67 = 65 | CES92 = 58 |
| CES18 = 57 | CES43 = 79 | CES68 = 72 | CES93 = 72 |
| CES19 = 74 | CES44 = 99 | CES69 = 83 | CES94 = 48 |
| CES20 = 68 | CES45 = 83 | CES70 = 68 | CES95 = 69 |
| CES21 = 88 | CES46 = 78 | CES71 = 69 | CES96 = 77 |
| CES22 = 81 | CES47 = 82 | CES72 = 88 | CES97 = 79 |
| CES23 = 92 | CES48 = 69 | CES73 = 62 | CES98 = 74 |
| CES24 = 92 | CES49 = 77 | CES74 = 88 | CES99 = 65 |
| CES25 = 74 | CES50 = 85 | CES75 = 73 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)