

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



Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: PrentaLux

Report Number: P879230

Luminaire Tested: PRLX-210-935-LL4-F-U-S-X-X-WHHR-SR-X

Issue Date: 9/24/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P879230  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2405-094-4)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 9/24/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: Pentalux  
Catalog Number: PRLX-210-935-LL4-F-U-S-X-X-WHHR-SR-X  
Description: Pentalux 200 SERIES 3D PRINTED LUMINAIRE, 210 SHADE, FROSTED LENS.  
Light Source: 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

**Summary**

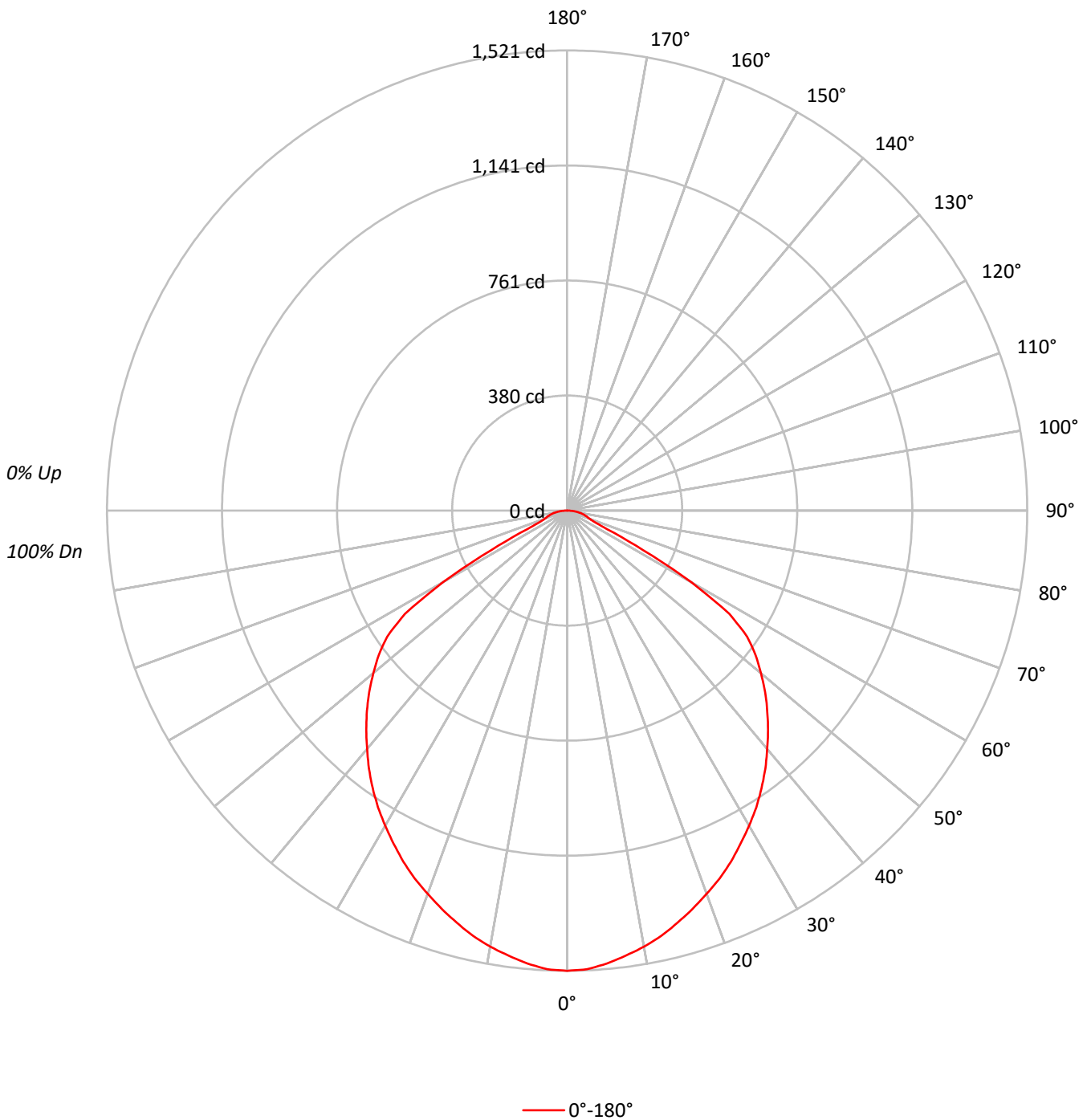
Lumens per Lamp: N/A  
Luminaire Lumens: 3460.6 lumens  
Efficiency: N/A  
Efficacy: 151.1 lumens/watt  
Spacing Criteria (0/90/45): 1.18 / 1.18 / 1.32  
Luminous Opening: Circular (Dia: 1.42' x H: 0')  
CIE Type: Direct

Input Watts (W): 22.9  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: 0.5 HR  
Operation Time: 3 HR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P879230

CATALOG NUMBER: PRLX-210-935-LL4-F-U-S-X-X-WHHR-SR-X

### Luminous Intensity Polar Plot





TEST NUMBER: P879230

CATALOG NUMBER: PRLX-210-935-LL4-F-U-S-X-X-WHHR-SR-X

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20  |     |     |     | 20  |     |     |     | 20  |     |
| RC  | 80  |     |     |     | 70  |     |     |     | 50  |     |     |     | 30  |     |     |     | 10  | 0   |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 0   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1   | 111 | 107 | 103 | 100 | 108 | 104 | 101 | 98  | 100 | 98  | 95  | 96  | 94  | 92  | 93  | 91  | 90  | 88  |
| 2   | 102 | 95  | 89  | 84  | 100 | 93  | 88  | 83  | 90  | 85  | 81  | 86  | 83  | 79  | 84  | 80  | 78  | 76  |
| 3   | 94  | 85  | 77  | 72  | 92  | 83  | 76  | 71  | 80  | 74  | 70  | 78  | 73  | 69  | 75  | 71  | 67  | 65  |
| 4   | 86  | 76  | 68  | 62  | 84  | 74  | 67  | 61  | 72  | 66  | 60  | 70  | 64  | 60  | 68  | 63  | 59  | 57  |
| 5   | 80  | 68  | 60  | 54  | 78  | 67  | 59  | 53  | 65  | 58  | 53  | 63  | 57  | 52  | 61  | 56  | 52  | 50  |
| 6   | 74  | 62  | 53  | 47  | 72  | 61  | 53  | 47  | 59  | 52  | 47  | 57  | 51  | 46  | 56  | 50  | 46  | 44  |
| 7   | 69  | 56  | 48  | 42  | 67  | 55  | 47  | 42  | 54  | 47  | 41  | 52  | 46  | 41  | 51  | 45  | 41  | 39  |
| 8   | 64  | 51  | 43  | 38  | 62  | 50  | 43  | 37  | 49  | 42  | 37  | 48  | 42  | 37  | 47  | 41  | 37  | 35  |
| 9   | 60  | 47  | 39  | 34  | 58  | 46  | 39  | 34  | 45  | 38  | 34  | 44  | 38  | 33  | 43  | 37  | 33  | 32  |
| 10  | 56  | 43  | 36  | 31  | 55  | 43  | 36  | 31  | 42  | 35  | 31  | 41  | 35  | 30  | 40  | 34  | 30  | 29  |

**AVERAGE LUMINANCE (cd/sqm):**

|     |       |
|-----|-------|
|     | 0°    |
| 0°  | 10389 |
| 5°  | 10304 |
| 10° | 10149 |
| 15° | 9970  |
| 20° | 9797  |
| 25° | 9649  |
| 30° | 9484  |
| 35° | 9339  |
| 40° | 9173  |
| 45° | 9035  |
| 50° | 8885  |
| 55° | 8648  |
| 60° | 6456  |
| 65° | 2336  |
| 70° | 1557  |
| 75° | 1599  |
| 80° | 1667  |
| 85° | 1739  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 9035 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 142.2  | 4.1       |
| 10°-20°   | 397.7  | 11.5      |
| 20°-30°   | 589.8  | 17.0      |
| 30°-40°   | 700.7  | 20.2      |
| 40°-50°   | 721.8  | 20.9      |
| 50°-60°   | 625.5  | 18.1      |
| 60°-70°   | 195.3  | 5.6       |
| 70°-80°   | 63.9   | 1.8       |
| 80°-90°   | 23.8   | 0.7       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 1129.7 | 32.6      |
| 0°-40°    | 1830.4 | 52.9      |
| 0°-60°    | 3177.7 | 91.8      |
| 0°-90°    | 3460.6 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3460.6 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | Flux |
|-----|------|------|
| 0°  | 1521 |      |
| 5°  | 1503 | 142  |
| 15° | 1410 | 398  |
| 25° | 1281 | 590  |
| 35° | 1120 | 701  |
| 45° | 936  | 722  |
| 55° | 726  | 626  |
| 65° | 145  | 195  |
| 75° | 61   | 64   |
| 85° | 22   | 24   |
| 90° | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     |
|-------|--------|
| 0°    | 1521.4 |
| 2.5°  | 1517.4 |
| 5°    | 1503.2 |
| 7.5°  | 1483.8 |
| 10°   | 1463.6 |
| 12.5° | 1439.8 |
| 15°   | 1410.3 |
| 17.5° | 1380.0 |
| 20°   | 1348.1 |
| 22.5° | 1316.6 |
| 25°   | 1280.6 |
| 27.5° | 1241.4 |
| 30°   | 1202.7 |
| 32.5° | 1163.5 |
| 35°   | 1120.3 |
| 37.5° | 1075.8 |
| 40°   | 1029.0 |
| 42.5° | 982.9  |
| 45°   | 935.6  |
| 47.5° | 887.2  |
| 50°   | 836.3  |
| 52.5° | 785.3  |
| 55°   | 726.4  |
| 57.5° | 635.5  |
| 60°   | 472.7  |
| 62.5° | 282.8  |
| 65°   | 144.6  |
| 67.5° | 94.1   |
| 70°   | 78.0   |
| 72.5° | 69.5   |
| 75°   | 60.6   |
| 77.5° | 51.7   |
| 80°   | 42.4   |
| 82.5° | 32.7   |
| 85°   | 22.2   |
| 87.5° | 11.3   |
| 90°   | 0.0    |

TEST NUMBER: P879230

CATALOG NUMBER: PRLX-210-935-LL4-F-U-S-X-X-WHHR-SR-X

**CIE UGR TABLE:**

| Reflectances:   |      |                  |       |       |       |       |                |       |       |       |       |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling         |      | 0.7              | 0.7   | 0.5   | 0.5   | 0.3   | 0.7            | 0.7   | 0.5   | 0.5   | 0.3   |
| Wall            |      | 0.5              | 0.3   | 0.5   | 0.3   | 0.3   | 0.5            | 0.3   | 0.5   | 0.3   | 0.3   |
| Reference plane |      | 0.2              | 0.2   | 0.2   | 0.2   | 0.2   | 0.2            | 0.2   | 0.2   | 0.2   | 0.2   |
| Room dimensions |      | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X=2H            | Y=2H | 19.87            | 21.38 | 20.23 | 21.69 | 22.01 | 19.87          | 21.38 | 20.23 | 21.69 | 22.01 |
|                 | 3H   | 19.88            | 21.22 | 20.26 | 21.55 | 21.91 | 19.88          | 21.22 | 20.26 | 21.55 | 21.91 |
|                 | 4H   | 19.89            | 21.14 | 20.29 | 21.49 | 21.87 | 19.89          | 21.14 | 20.29 | 21.49 | 21.87 |
|                 | 6H   | 19.91            | 21.06 | 20.32 | 21.43 | 21.82 | 19.91          | 21.06 | 20.32 | 21.43 | 21.82 |
|                 | 8H   | 19.92            | 21.01 | 20.34 | 21.40 | 21.80 | 19.92          | 21.01 | 20.34 | 21.40 | 21.80 |
|                 | 12H  | 19.92            | 20.96 | 20.35 | 21.35 | 21.78 | 19.92          | 20.96 | 20.35 | 21.35 | 21.78 |
| 4H              | 2H   | 19.79            | 21.04 | 20.19 | 21.39 | 21.77 | 19.79          | 21.04 | 20.19 | 21.39 | 21.77 |
|                 | 3H   | 19.86            | 20.88 | 20.27 | 21.28 | 21.68 | 19.86          | 20.88 | 20.27 | 21.28 | 21.68 |
|                 | 4H   | 19.90            | 20.82 | 20.34 | 21.23 | 21.67 | 19.90          | 20.82 | 20.34 | 21.23 | 21.67 |
|                 | 6H   | 19.98            | 20.77 | 20.44 | 21.21 | 21.67 | 19.98          | 20.77 | 20.44 | 21.21 | 21.67 |
|                 | 8H   | 20.00            | 20.74 | 20.47 | 21.19 | 21.65 | 20.00          | 20.74 | 20.47 | 21.19 | 21.65 |
|                 | 12H  | 20.03            | 20.69 | 20.51 | 21.17 | 21.64 | 20.03          | 20.69 | 20.51 | 21.17 | 21.64 |
| 8H              | 4H   | 19.86            | 20.60 | 20.32 | 21.04 | 21.51 | 19.86          | 20.60 | 20.32 | 21.04 | 21.51 |
|                 | 6H   | 19.96            | 20.57 | 20.46 | 21.07 | 21.54 | 19.96          | 20.57 | 20.46 | 21.07 | 21.54 |
|                 | 8H   | 20.01            | 20.57 | 20.53 | 21.08 | 21.57 | 20.01          | 20.57 | 20.53 | 21.08 | 21.57 |
|                 | 12H  | 20.07            | 20.57 | 20.58 | 21.06 | 21.63 | 20.07          | 20.57 | 20.58 | 21.06 | 21.63 |
| 12H             | 4H   | 19.83            | 20.49 | 20.32 | 20.97 | 21.44 | 19.83          | 20.49 | 20.32 | 20.97 | 21.44 |
|                 | 6H   | 19.93            | 20.49 | 20.45 | 21.00 | 21.49 | 19.93          | 20.49 | 20.45 | 21.00 | 21.49 |
|                 | 8H   | 20.02            | 20.51 | 20.53 | 21.01 | 21.57 | 20.02          | 20.51 | 20.53 | 21.01 | 21.57 |

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269





**Test Information**

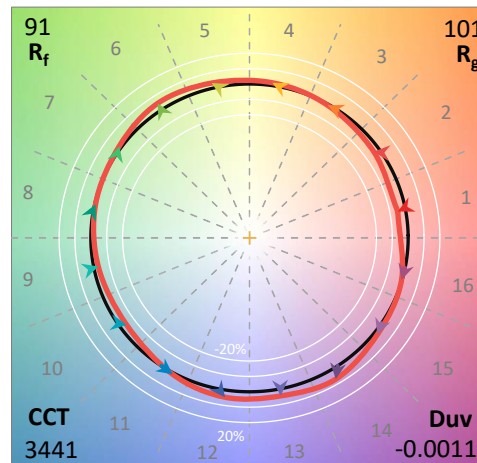
Test Method: LM-79-2019  
 Report Number: SP1-2203-582-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 05/26/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: SHAPER  
 Catalog Number: **225-90-35K-27L-UNV-STD-X-X-WHHR-SR-X**  
 Description: Shaper 3D PRINTED 200 Series Pendants

**Spectral Parameters**

CCT (K): 3441  
 CIE u': 0.2377  
 CIE v': 0.5110  
 Duv: -0.0011  
 CIE x: 0.4074  
 CIE y: 0.3893  
 CIE z: 0.2033  
 Peak Wavelength (nm): 614  
 Dominant Wavelength (nm): 581  
 Purity: 39.3  
 Rf: 90.6  
 Rg: 101.2

|           |      |      |      |
|-----------|------|------|------|
| CRI (Ra): | 91.6 |      |      |
| R1:       | 92.1 | R9:  | 60.2 |
| R2:       | 94.0 | R10: | 85.4 |
| R3:       | 94.6 | R11: | 92.9 |
| R4:       | 92.3 | R12: | 79.3 |
| R5:       | 91.7 | R13: | 92.4 |
| R6:       | 91.8 | R14: | 96.6 |
| R7:       | 92.7 |      |      |
| R8:       | 83.9 |      |      |

**Test Conditions**  
 Stabilization Time: 76M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.7/43%  
 Sphere Temperature (°C): 24.9

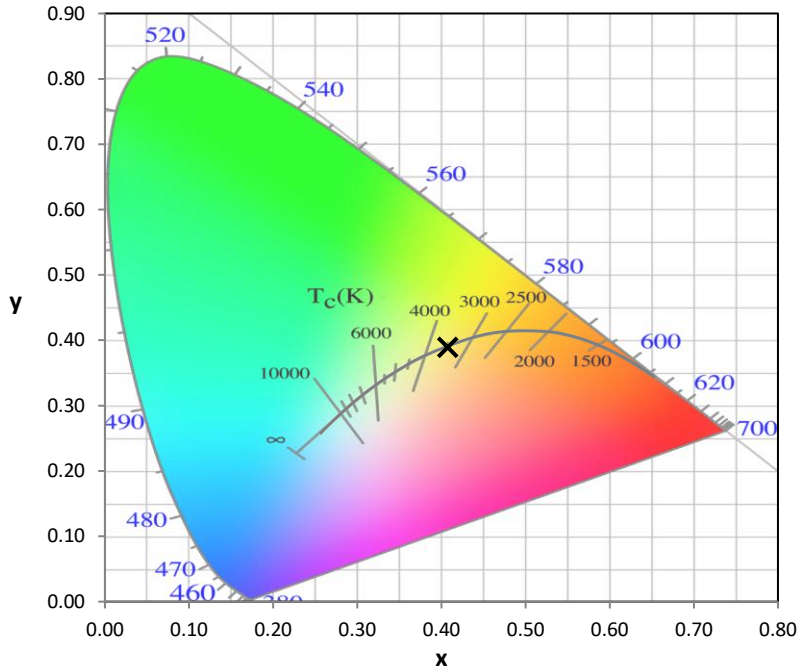


REPORT NUMBER: SP1-2203-582-3

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 76INCH SPHERE IN0058  | 2/7/2022         | 8/7/2022             |
| Power Meter                    | XITRON 2801 IN0071    | 11/29/2021       | 11/29/2022           |
| AC Power Source                | CHROMA 61603 IN0063   | 11/29/2021       | 11/29/2022           |
| DC Power Source                | AGILENT E3634A IN0208 | 11/29/2021       | 11/29/2022           |
| Sphere Thermometer             | ONSET IN0085          | 11/29/2021       | 11/29/2022           |
| Room Thermometer               | ONSET IN0046          | 11/29/2021       | 11/29/2022           |

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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 3500K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 1176          | NR            | 490    | 18251         | NR            | 620    | 50949         | NR            | 750    | 4448          | NR            | 880    | 1078          | NR            |
| 365    | 1035          | NR            | 495    | 21761         | NR            | 625    | 50494         | NR            | 755    | 4035          | NR            | 885    | 1366          | NR            |
| 370    | 979           | NR            | 500    | 24951         | NR            | 630    | 49793         | NR            | 760    | 3463          | NR            | 890    | 1088          | NR            |
| 375    | 1099          | NR            | 505    | 27426         | NR            | 635    | 48171         | NR            | 765    | 3084          | NR            | 895    | 1436          | NR            |
| 380    | 1040          | NR            | 510    | 29083         | NR            | 640    | 46242         | NR            | 770    | 2868          | NR            | 900    | 1170          | NR            |
| 385    | 1047          | NR            | 515    | 30682         | NR            | 645    | 44312         | NR            | 775    | 2487          | NR            | 905    | 763           | NR            |
| 390    | 930           | NR            | 520    | 31915         | NR            | 650    | 41773         | NR            | 780    | 2185          | NR            | 910    | 1136          | NR            |
| 395    | 841           | NR            | 525    | 32739         | NR            | 655    | 39696         | NR            | 785    | 2145          | NR            | 915    | 1061          | NR            |
| 400    | 711           | NR            | 530    | 33844         | NR            | 660    | 36682         | NR            | 790    | 1894          | NR            | 920    | 778           | NR            |
| 405    | 753           | NR            | 535    | 35227         | NR            | 665    | 33648         | NR            | 795    | 1582          | NR            | 925    | 763           | NR            |
| 410    | 958           | NR            | 540    | 36463         | NR            | 670    | 30552         | NR            | 800    | 1644          | NR            | 930    | 1492          | NR            |
| 415    | 1535          | NR            | 545    | 37427         | NR            | 675    | 27713         | NR            | 805    | 1561          | NR            | 935    | 1449          | NR            |
| 420    | 2990          | NR            | 550    | 38864         | NR            | 680    | 24916         | NR            | 810    | 1432          | NR            | 940    | 1460          | NR            |
| 425    | 5552          | NR            | 555    | 39820         | NR            | 685    | 22289         | NR            | 815    | 1467          | NR            | 945    | 1266          | NR            |
| 430    | 9299          | NR            | 560    | 40626         | NR            | 690    | 19853         | NR            | 820    | 1380          | NR            | 950    | 1747          | NR            |
| 435    | 14864         | NR            | 565    | 41572         | NR            | 695    | 17633         | NR            | 825    | 1382          | NR            | 955    | 1663          | NR            |
| 440    | 24581         | NR            | 570    | 42645         | NR            | 700    | 15562         | NR            | 830    | 868           | NR            | 960    | 1251          | NR            |
| 445    | 38254         | NR            | 575    | 43293         | NR            | 705    | 13701         | NR            | 835    | 998           | NR            | 965    | 1292          | NR            |
| 450    | 40396         | NR            | 580    | 44263         | NR            | 710    | 11971         | NR            | 840    | 1172          | NR            | 970    | 1912          | NR            |
| 455    | 29196         | NR            | 585    | 45373         | NR            | 715    | 10811         | NR            | 845    | 1237          | NR            | 975    | 1791          | NR            |
| 460    | 21421         | NR            | 590    | 46704         | NR            | 720    | 9569          | NR            | 850    | 1336          | NR            | 980    | 1745          | NR            |
| 465    | 17013         | NR            | 595    | 47749         | NR            | 725    | 8370          | NR            | 855    | 1467          | NR            | 985    | 1464          | NR            |
| 470    | 13285         | NR            | 600    | 48894         | NR            | 730    | 7260          | NR            | 860    | 1322          | NR            | 990    | 2377          | NR            |
| 475    | 12108         | NR            | 605    | 49792         | NR            | 735    | 6455          | NR            | 865    | 1078          | NR            | 995    | 2042          | NR            |
| 480    | 13038         | NR            | 610    | 50661         | NR            | 740    | 5711          | NR            | 870    | 924           | NR            | 1000   | 1316          | NR            |
| 485    | 15186         | NR            | 615    | 51053         | NR            | 745    | 5054          | NR            | 875    | 1193          | NR            |        |               |               |

REPORT NUMBER: SP1-2203-582-3

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 4480.2**

**S/P: 1.57**

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 1176          | NR            | 490    | 18251         | NR            | 620    | 50949         | NR            | 750    | 4448          | NR            | 880    | 1078          | NR            |
| 365    | 1035          | NR            | 495    | 21761         | NR            | 625    | 50494         | NR            | 755    | 4035          | NR            | 885    | 1366          | NR            |
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| 385    | 1047          | NR            | 515    | 30682         | NR            | 645    | 44312         | NR            | 775    | 2487          | NR            | 905    | 763           | NR            |
| 390    | 930           | NR            | 520    | 31915         | NR            | 650    | 41773         | NR            | 780    | 2185          | NR            | 910    | 1136          | NR            |
| 395    | 841           | NR            | 525    | 32739         | NR            | 655    | 39696         | NR            | 785    | 2145          | NR            | 915    | 1061          | NR            |
| 400    | 711           | NR            | 530    | 33844         | NR            | 660    | 36682         | NR            | 790    | 1894          | NR            | 920    | 778           | NR            |
| 405    | 753           | NR            | 535    | 35227         | NR            | 665    | 33648         | NR            | 795    | 1582          | NR            | 925    | 763           | NR            |
| 410    | 958           | NR            | 540    | 36463         | NR            | 670    | 30552         | NR            | 800    | 1644          | NR            | 930    | 1492          | NR            |
| 415    | 1535          | NR            | 545    | 37427         | NR            | 675    | 27713         | NR            | 805    | 1561          | NR            | 935    | 1449          | NR            |
| 420    | 2990          | NR            | 550    | 38864         | NR            | 680    | 24916         | NR            | 810    | 1432          | NR            | 940    | 1460          | NR            |
| 425    | 5552          | NR            | 555    | 39820         | NR            | 685    | 22289         | NR            | 815    | 1467          | NR            | 945    | 1266          | NR            |
| 430    | 9299          | NR            | 560    | 40626         | NR            | 690    | 19853         | NR            | 820    | 1380          | NR            | 950    | 1747          | NR            |
| 435    | 14864         | NR            | 565    | 41572         | NR            | 695    | 17633         | NR            | 825    | 1382          | NR            | 955    | 1663          | NR            |
| 440    | 24581         | NR            | 570    | 42645         | NR            | 700    | 15562         | NR            | 830    | 868           | NR            | 960    | 1251          | NR            |
| 445    | 38254         | NR            | 575    | 43293         | NR            | 705    | 13701         | NR            | 835    | 998           | NR            | 965    | 1292          | NR            |
| 450    | 40396         | NR            | 580    | 44263         | NR            | 710    | 11971         | NR            | 840    | 1172          | NR            | 970    | 1912          | NR            |
| 455    | 29196         | NR            | 585    | 45373         | NR            | 715    | 10811         | NR            | 845    | 1237          | NR            | 975    | 1791          | NR            |
| 460    | 21421         | NR            | 590    | 46704         | NR            | 720    | 9569          | NR            | 850    | 1336          | NR            | 980    | 1745          | NR            |
| 465    | 17013         | NR            | 595    | 47749         | NR            | 725    | 8370          | NR            | 855    | 1467          | NR            | 985    | 1464          | NR            |
| 470    | 13285         | NR            | 600    | 48894         | NR            | 730    | 7260          | NR            | 860    | 1322          | NR            | 990    | 2377          | NR            |
| 475    | 12108         | NR            | 605    | 49792         | NR            | 735    | 6455          | NR            | 865    | 1078          | NR            | 995    | 2042          | NR            |
| 480    | 13038         | NR            | 610    | 50661         | NR            | 740    | 5711          | NR            | 870    | 924           | NR            | 1000   | 1316          | NR            |
| 485    | 15186         | NR            | 615    | 51053         | NR            | 745    | 5054          | NR            | 875    | 1193          | NR            |        |               |               |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 1763.9 S/P: 0.62**

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 1176          | NR            | 490    | 18251         | NR            | 620    | 50949         | NR            | 750    | 4448          | NR            | 880    | 1078          | NR            |
| 365    | 1035          | NR            | 495    | 21761         | NR            | 625    | 50494         | NR            | 755    | 4035          | NR            | 885    | 1366          | NR            |
| 370    | 979           | NR            | 500    | 24951         | NR            | 630    | 49793         | NR            | 760    | 3463          | NR            | 890    | 1088          | NR            |
| 375    | 1099          | NR            | 505    | 27426         | NR            | 635    | 48171         | NR            | 765    | 3084          | NR            | 895    | 1436          | NR            |
| 380    | 1040          | NR            | 510    | 29083         | NR            | 640    | 46242         | NR            | 770    | 2868          | NR            | 900    | 1170          | NR            |
| 385    | 1047          | NR            | 515    | 30682         | NR            | 645    | 44312         | NR            | 775    | 2487          | NR            | 905    | 763           | NR            |
| 390    | 930           | NR            | 520    | 31915         | NR            | 650    | 41773         | NR            | 780    | 2185          | NR            | 910    | 1136          | NR            |
| 395    | 841           | NR            | 525    | 32739         | NR            | 655    | 39696         | NR            | 785    | 2145          | NR            | 915    | 1061          | NR            |
| 400    | 711           | NR            | 530    | 33844         | NR            | 660    | 36682         | NR            | 790    | 1894          | NR            | 920    | 778           | NR            |
| 405    | 753           | NR            | 535    | 35227         | NR            | 665    | 33648         | NR            | 795    | 1582          | NR            | 925    | 763           | NR            |
| 410    | 958           | NR            | 540    | 36463         | NR            | 670    | 30552         | NR            | 800    | 1644          | NR            | 930    | 1492          | NR            |
| 415    | 1535          | NR            | 545    | 37427         | NR            | 675    | 27713         | NR            | 805    | 1561          | NR            | 935    | 1449          | NR            |
| 420    | 2990          | NR            | 550    | 38864         | NR            | 680    | 24916         | NR            | 810    | 1432          | NR            | 940    | 1460          | NR            |
| 425    | 5552          | NR            | 555    | 39820         | NR            | 685    | 22289         | NR            | 815    | 1467          | NR            | 945    | 1266          | NR            |
| 430    | 9299          | NR            | 560    | 40626         | NR            | 690    | 19853         | NR            | 820    | 1380          | NR            | 950    | 1747          | NR            |
| 435    | 14864         | NR            | 565    | 41572         | NR            | 695    | 17633         | NR            | 825    | 1382          | NR            | 955    | 1663          | NR            |
| 440    | 24581         | NR            | 570    | 42645         | NR            | 700    | 15562         | NR            | 830    | 868           | NR            | 960    | 1251          | NR            |
| 445    | 38254         | NR            | 575    | 43293         | NR            | 705    | 13701         | NR            | 835    | 998           | NR            | 965    | 1292          | NR            |
| 450    | 40396         | NR            | 580    | 44263         | NR            | 710    | 11971         | NR            | 840    | 1172          | NR            | 970    | 1912          | NR            |
| 455    | 29196         | NR            | 585    | 45373         | NR            | 715    | 10811         | NR            | 845    | 1237          | NR            | 975    | 1791          | NR            |
| 460    | 21421         | NR            | 590    | 46704         | NR            | 720    | 9569          | NR            | 850    | 1336          | NR            | 980    | 1745          | NR            |
| 465    | 17013         | NR            | 595    | 47749         | NR            | 725    | 8370          | NR            | 855    | 1467          | NR            | 985    | 1464          | NR            |
| 470    | 13285         | NR            | 600    | 48894         | NR            | 730    | 7260          | NR            | 860    | 1322          | NR            | 990    | 2377          | NR            |
| 475    | 12108         | NR            | 605    | 49792         | NR            | 735    | 6455          | NR            | 865    | 1078          | NR            | 995    | 2042          | NR            |
| 480    | 13038         | NR            | 610    | 50661         | NR            | 740    | 5711          | NR            | 870    | 924           | NR            | 1000   | 1316          | NR            |
| 485    | 15186         | NR            | 615    | 51053         | NR            | 745    | 5054          | NR            | 875    | 1193          | NR            |        |               |               |

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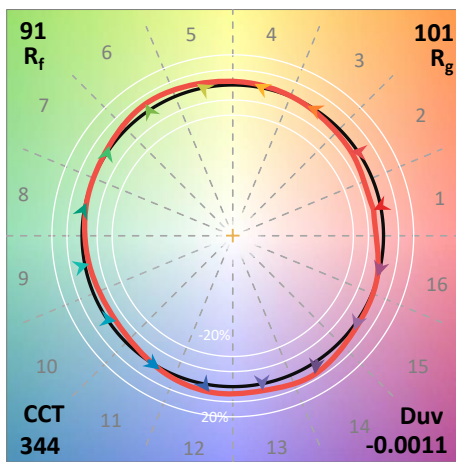
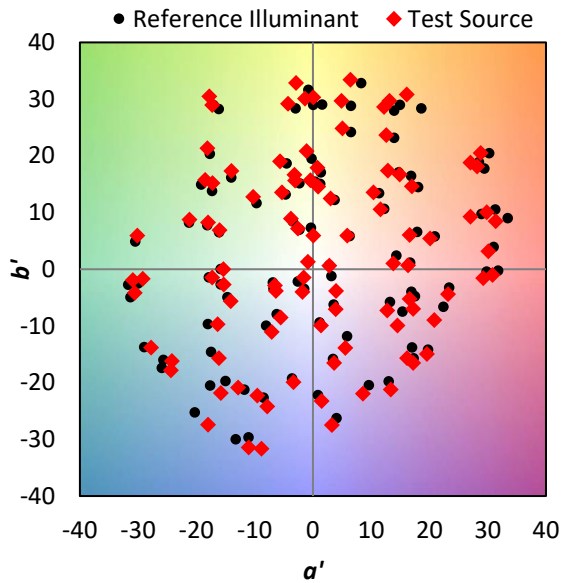
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**Summary**

$R_f = 90.6$   
 $R_g = 101.2$   
 CIE  $R_a = 91.6$   
 $R_9 = 60.2$



**Color Vector Graphics**



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 87 | CES51 = 97 | CES76 = 82 |
| CES02 = 62 | CES27 = 96 | CES52 = 96 | CES77 = 88 |
| CES03 = 31 | CES28 = 94 | CES53 = 92 | CES78 = 80 |
| CES04 = 70 | CES29 = 86 | CES54 = 97 | CES79 = 95 |
| CES05 = 50 | CES30 = 93 | CES55 = 96 | CES80 = 92 |
| CES06 = 51 | CES31 = 88 | CES56 = 92 | CES81 = 89 |
| CES07 = 42 | CES32 = 84 | CES57 = 92 | CES82 = 96 |
| CES08 = 41 | CES33 = 89 | CES58 = 92 | CES83 = 95 |
| CES09 = 29 | CES34 = 89 | CES59 = 97 | CES84 = 94 |
| CES10 = 75 | CES35 = 94 | CES60 = 96 | CES85 = 86 |
| CES11 = 58 | CES36 = 91 | CES61 = 94 | CES86 = 87 |
| CES12 = 64 | CES37 = 92 | CES62 = 96 | CES87 = 90 |
| CES13 = 43 | CES38 = 98 | CES63 = 92 | CES88 = 94 |
| CES14 = 74 | CES39 = 97 | CES64 = 92 | CES89 = 86 |
| CES15 = 71 | CES40 = 95 | CES65 = 89 | CES90 = 95 |
| CES16 = 48 | CES41 = 96 | CES66 = 90 | CES91 = 82 |
| CES17 = 49 | CES42 = 91 | CES67 = 88 | CES92 = 82 |
| CES18 = 56 | CES43 = 88 | CES68 = 88 | CES93 = 90 |
| CES19 = 71 | CES44 = 99 | CES69 = 90 | CES94 = 80 |
| CES20 = 66 | CES45 = 93 | CES70 = 85 | CES95 = 85 |
| CES21 = 86 | CES46 = 92 | CES71 = 83 | CES96 = 91 |
| CES22 = 78 | CES47 = 91 | CES72 = 94 | CES97 = 92 |
| CES23 = 91 | CES48 = 93 | CES73 = 79 | CES98 = 92 |
| CES24 = 90 | CES49 = 91 | CES74 = 96 | CES99 = 91 |
| CES25 = 71 | CES50 = 97 | CES75 = 83 |            |

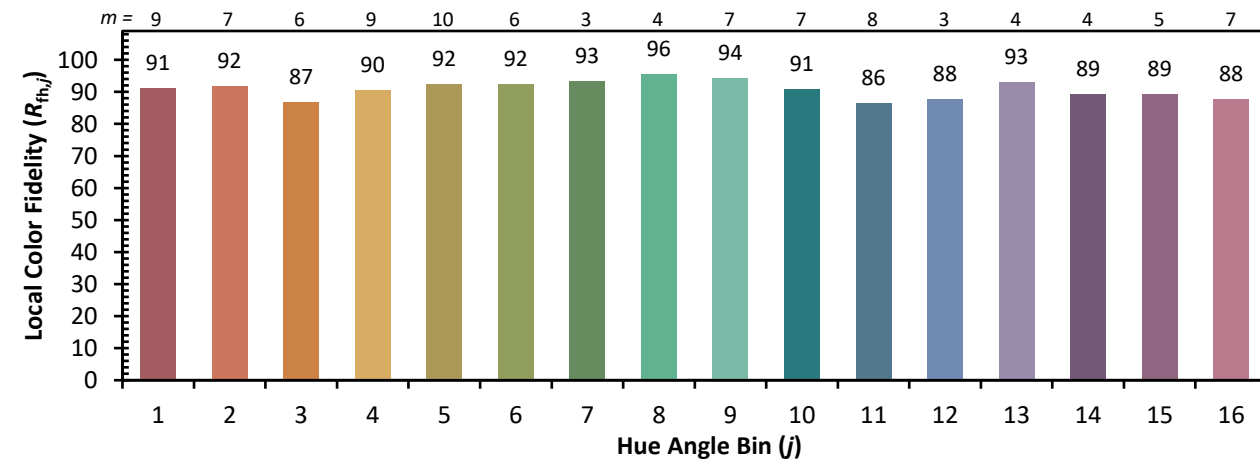
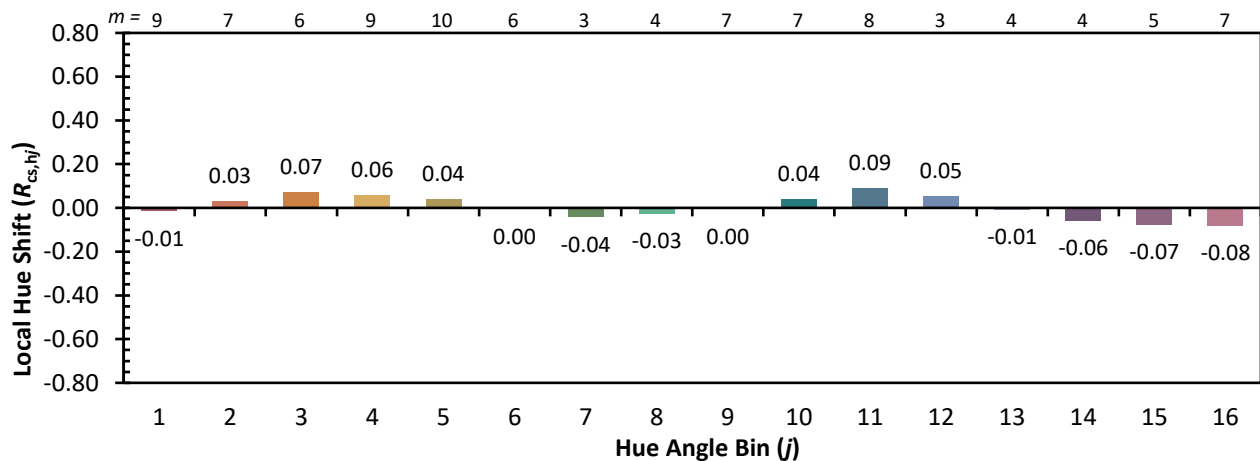




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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)