

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: CORELITE

Report Number: P1215435

Luminaire Tested: 22-ID2-25-SWR-L840-U

Issue Date: 12/4/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1215435  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-18)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-25-SWR-L840-U  
Description: 2X2 IN DEPTH TROFFER WITH SWEEP REGRESSED  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

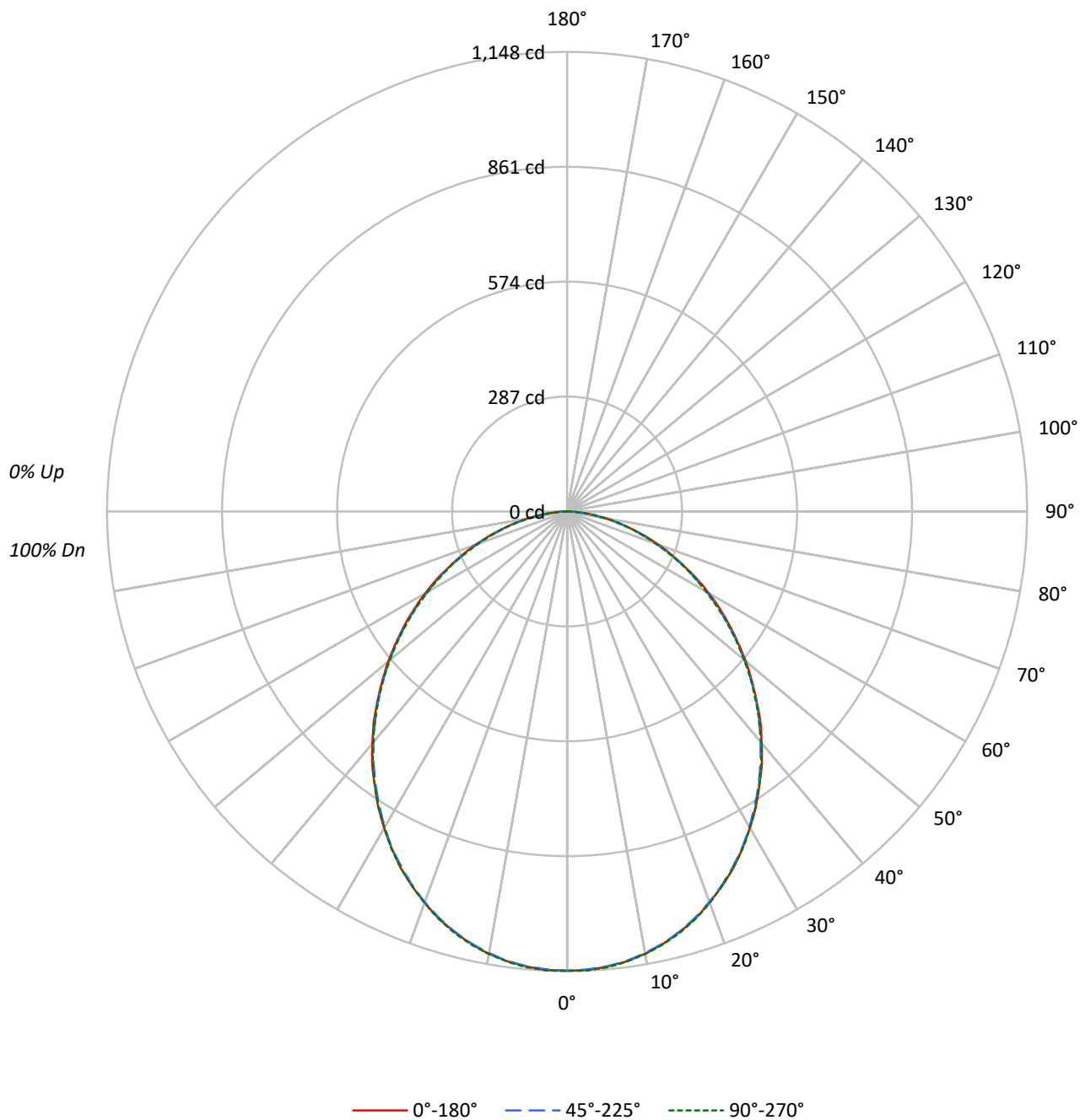
Lumens per Lamp: N/A  
Luminaire Lumens: 2877.2 lumens  
Efficiency: N/A  
Efficacy: 132.0 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.19 / 1.29  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct

Input Watts (W): 21.8  
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: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot



TEST NUMBER: P1215435

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

|     |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|-----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20  |     |     |  | 20  |     |     |  | 20  |
| RC  | 80  |     |     |     | 70  |     |     |     | 50  |     |     |  | 30  |     |     |  | 0   |
| RW  | 70  | 50  | 30  | 10  | 70  | 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 |  | 100 |
| 1   | 109 | 105 | 101 | 97  | 107 | 102 | 99  | 95  | 98  | 95  | 92  |  | 94  | 92  | 89  |  | 85  |
| 2   | 100 | 92  | 85  | 80  | 97  | 90  | 84  | 79  | 86  | 81  | 77  |  | 83  | 79  | 75  |  | 71  |
| 3   | 91  | 81  | 73  | 67  | 89  | 79  | 72  | 66  | 76  | 70  | 65  |  | 74  | 68  | 64  |  | 61  |
| 4   | 84  | 72  | 63  | 57  | 81  | 71  | 63  | 56  | 68  | 61  | 56  |  | 66  | 60  | 55  |  | 52  |
| 5   | 77  | 65  | 56  | 49  | 75  | 63  | 55  | 49  | 61  | 54  | 48  |  | 59  | 53  | 48  |  | 45  |
| 6   | 71  | 58  | 50  | 43  | 69  | 57  | 49  | 43  | 56  | 48  | 43  |  | 54  | 47  | 42  |  | 40  |
| 7   | 66  | 53  | 44  | 38  | 65  | 52  | 44  | 38  | 51  | 43  | 38  |  | 49  | 43  | 38  |  | 35  |
| 8   | 62  | 48  | 40  | 34  | 60  | 48  | 40  | 34  | 46  | 39  | 34  |  | 45  | 39  | 34  |  | 32  |
| 9   | 58  | 45  | 36  | 31  | 56  | 44  | 36  | 31  | 43  | 36  | 31  |  | 42  | 35  | 31  |  | 29  |
| 10  | 54  | 41  | 33  | 28  | 53  | 41  | 33  | 28  | 40  | 33  | 28  |  | 39  | 32  | 28  |  | 26  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3087 | 3087 | 3087 |
| 5°  | 3083 | 3081 | 3088 |
| 10° | 3066 | 3060 | 3067 |
| 15° | 3028 | 3026 | 3034 |
| 20° | 2977 | 2972 | 2980 |
| 25° | 2917 | 2907 | 2914 |
| 30° | 2837 | 2828 | 2834 |
| 35° | 2748 | 2737 | 2746 |
| 40° | 2654 | 2639 | 2646 |
| 45° | 2545 | 2538 | 2532 |
| 50° | 2437 | 2419 | 2416 |
| 55° | 2321 | 2301 | 2293 |
| 60° | 2199 | 2174 | 2158 |
| 65° | 2052 | 2038 | 2022 |
| 70° | 1917 | 1877 | 1860 |
| 75° | 1719 | 1684 | 1696 |
| 80° | 1509 | 1443 | 1458 |
| 85° | 1164 | 1108 | 1130 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 22.5°

Vertical Angle: 45°

Luminance: 2549 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 108.3  | 3.8       |
| 10°-20°   | 306.2  | 10.6      |
| 20°-30°   | 451.2  | 15.7      |
| 30°-40°   | 522.1  | 18.1      |
| 40°-50°   | 514.5  | 17.9      |
| 50°-60°   | 439.5  | 15.3      |
| 60°-70°   | 317.5  | 11.0      |
| 70°-80°   | 173.9  | 6.0       |
| 80°-90°   | 43.9   | 1.5       |
| 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°    | 865.8  | 30.1      |
| 0°-40°    | 1387.9 | 48.2      |
| 0°-60°    | 2341.9 | 81.4      |
| 0°-90°    | 2877.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2877.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1147 | 1147  | 1147 | 1147  | 1147 |      |
| 5°  | 1142 | 1141  | 1140 | 1142  | 1143 | 108  |
| 15° | 1087 | 1087  | 1086 | 1088  | 1089 | 306  |
| 25° | 982  | 980   | 979  | 980   | 981  | 452  |
| 35° | 836  | 836   | 833  | 835   | 836  | 524  |
| 45° | 669  | 670   | 667  | 665   | 665  | 516  |
| 55° | 495  | 492   | 490  | 489   | 489  | 443  |
| 65° | 322  | 322   | 320  | 319   | 318  | 321  |
| 75° | 165  | 165   | 162  | 162   | 163  | 177  |
| 85° | 38   | 37    | 36   | 36    | 37   | 45   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1147.3 | 1147.3 | 1147.3 | 1147.3 | 1147.3 |
| 2.5°  | 1146.6 | 1145.8 | 1145.1 | 1146.6 | 1147.6 |
| 5°    | 1141.5 | 1140.8 | 1140.4 | 1141.5 | 1143.0 |
| 7.5°  | 1133.6 | 1132.9 | 1132.5 | 1133.3 | 1134.7 |
| 10°   | 1122.1 | 1121.0 | 1120.0 | 1121.8 | 1122.5 |
| 12.5° | 1106.3 | 1105.6 | 1104.9 | 1106.0 | 1107.8 |
| 15°   | 1086.9 | 1086.6 | 1086.2 | 1088.0 | 1089.1 |
| 17.5° | 1066.1 | 1064.6 | 1063.9 | 1064.3 | 1066.8 |
| 20°   | 1039.5 | 1039.5 | 1038.0 | 1039.5 | 1040.6 |
| 22.5° | 1012.2 | 1011.5 | 1010.0 | 1011.1 | 1011.8 |
| 25°   | 982.4  | 980.2  | 979.1  | 980.2  | 981.3  |
| 27.5° | 948.2  | 947.5  | 946.4  | 947.1  | 949.3  |
| 30°   | 913.0  | 912.3  | 910.1  | 911.6  | 911.9  |
| 32.5° | 876.4  | 876.7  | 871.7  | 873.8  | 875.6  |
| 35°   | 836.5  | 836.1  | 833.2  | 834.7  | 835.8  |
| 37.5° | 798.7  | 795.9  | 792.6  | 794.1  | 795.9  |
| 40°   | 755.6  | 753.8  | 751.3  | 751.7  | 753.1  |
| 42.5° | 714.3  | 711.1  | 709.3  | 710.0  | 709.6  |
| 45°   | 668.7  | 669.8  | 666.9  | 665.1  | 665.4  |
| 47.5° | 625.2  | 625.2  | 622.7  | 622.0  | 622.0  |
| 50°   | 582.1  | 582.1  | 577.8  | 576.7  | 577.1  |
| 52.5° | 537.5  | 539.0  | 533.9  | 534.3  | 532.9  |
| 55°   | 494.8  | 491.5  | 490.5  | 489.4  | 488.7  |
| 57.5° | 452.0  | 450.2  | 447.0  | 445.9  | 445.2  |
| 60°   | 408.5  | 407.1  | 403.9  | 403.1  | 401.0  |
| 62.5° | 366.5  | 364.7  | 360.7  | 360.4  | 358.9  |
| 65°   | 322.3  | 322.3  | 320.1  | 319.4  | 317.6  |
| 67.5° | 281.7  | 281.0  | 278.1  | 278.1  | 275.9  |
| 70°   | 243.6  | 242.5  | 238.6  | 237.5  | 236.4  |
| 72.5° | 203.4  | 202.3  | 199.4  | 200.9  | 198.3  |
| 75°   | 165.3  | 164.9  | 162.0  | 161.7  | 163.1  |
| 77.5° | 131.9  | 129.4  | 127.2  | 127.6  | 126.8  |
| 80°   | 97.4   | 95.6   | 93.1   | 93.8   | 94.1   |
| 82.5° | 64.7   | 65.4   | 63.6   | 63.6   | 64.3   |
| 85°   | 37.7   | 36.6   | 35.9   | 36.3   | 36.6   |
| 87.5° | 13.3   | 14.0   | 12.9   | 13.7   | 12.9   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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**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 | 14.86            | 16.45 | 15.22 | 16.77 | 17.08 | 14.79          | 16.38 | 15.15 | 16.69 | 17.01 |
|                 | 3H   | 16.52            | 17.96 | 16.90 | 18.29 | 18.65 | 16.42          | 17.86 | 16.80 | 18.19 | 18.55 |
|                 | 4H   | 17.12            | 18.47 | 17.52 | 18.82 | 19.20 | 17.02          | 18.37 | 17.42 | 18.72 | 19.10 |
|                 | 6H   | 17.55            | 18.80 | 17.96 | 19.17 | 19.56 | 17.43          | 18.69 | 17.85 | 19.05 | 19.44 |
|                 | 8H   | 17.68            | 18.87 | 18.10 | 19.26 | 19.66 | 17.56          | 18.75 | 17.98 | 19.14 | 19.54 |
|                 | 12H  | 17.75            | 18.89 | 18.18 | 19.28 | 19.70 | 17.63          | 18.78 | 18.06 | 19.16 | 19.59 |
| 4H              | 2H   | 15.43            | 16.79 | 15.83 | 17.13 | 17.51 | 15.37          | 16.73 | 15.77 | 17.07 | 17.45 |
|                 | 3H   | 17.31            | 18.44 | 17.72 | 18.84 | 19.24 | 17.23          | 18.36 | 17.64 | 18.75 | 19.16 |
|                 | 4H   | 18.03            | 19.05 | 18.46 | 19.47 | 19.90 | 17.94          | 18.96 | 18.37 | 19.38 | 19.81 |
|                 | 6H   | 18.58            | 19.47 | 19.04 | 19.92 | 20.37 | 18.48          | 19.37 | 18.93 | 19.81 | 20.27 |
|                 | 8H   | 18.75            | 19.58 | 19.21 | 20.03 | 20.49 | 18.64          | 19.47 | 19.10 | 19.92 | 20.38 |
|                 | 12H  | 18.86            | 19.61 | 19.34 | 20.08 | 20.55 | 18.75          | 19.50 | 19.23 | 19.97 | 20.44 |
| 8H              | 4H   | 18.30            | 19.13 | 18.76 | 19.57 | 20.04 | 18.22          | 19.05 | 18.68 | 19.49 | 19.96 |
|                 | 6H   | 18.95            | 19.64 | 19.45 | 20.13 | 20.61 | 18.86          | 19.55 | 19.35 | 20.04 | 20.51 |
|                 | 8H   | 19.18            | 19.80 | 19.69 | 20.31 | 20.80 | 19.08          | 19.70 | 19.59 | 20.21 | 20.70 |
|                 | 12H  | 19.35            | 19.90 | 19.86 | 20.39 | 20.95 | 19.25          | 19.80 | 19.76 | 20.29 | 20.85 |
| 12H             | 4H   | 18.32            | 19.07 | 18.80 | 19.54 | 20.01 | 18.24          | 18.99 | 18.72 | 19.46 | 19.93 |
|                 | 6H   | 18.99            | 19.61 | 19.50 | 20.12 | 20.61 | 18.90          | 19.52 | 19.41 | 20.03 | 20.51 |
|                 | 8H   | 19.27            | 19.82 | 19.78 | 20.31 | 20.87 | 19.18          | 19.72 | 19.68 | 20.21 | 20.78 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-5

Test Date: 08/26/2025

Luminaire Tested: 22ID2-55-CFR1-L840-U

Data in this report applies to families of products including 22ID2-55-CFR1-L840-U



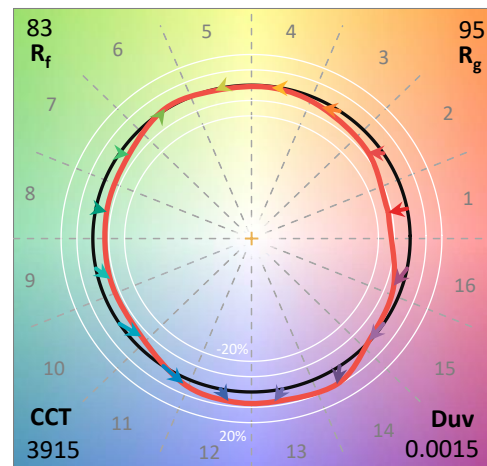
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-5  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 08/27/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Corelite  
 Catalog Number: **22ID2-55-CFR1-L840-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 4000K 80CRI

### Spectral Parameters

CCT (K): 3915  
 CIE  $u'$ : 0.2259  
 CIE  $v'$ : 0.5051  
 Duv: 0.0015  
 CIE x: 0.3854  
 CIE y: 0.3830  
 CIE z: 0.2316  
 Peak Wavelength (nm): 453  
 Dominant Wavelength (nm): 578  
 Purity: 30.6207  
 R<sub>f</sub>: 83.2  
 R<sub>g</sub>: 94.6

CRI (Ra): 82.3  
 R1: 80.6  
 R2: 88.9  
 R3: 94.6  
 R4: 80.5  
 R5: 80.0  
 R6: 84.0  
 R7: 86.1  
 R8: 64.0  
 R9: 7.6  
 R10: 72.9  
 R11: 78.7  
 R12: 57.3  
 R13: 82.7  
 R14: 97.1  
 R15: 74.3



### Test Conditions

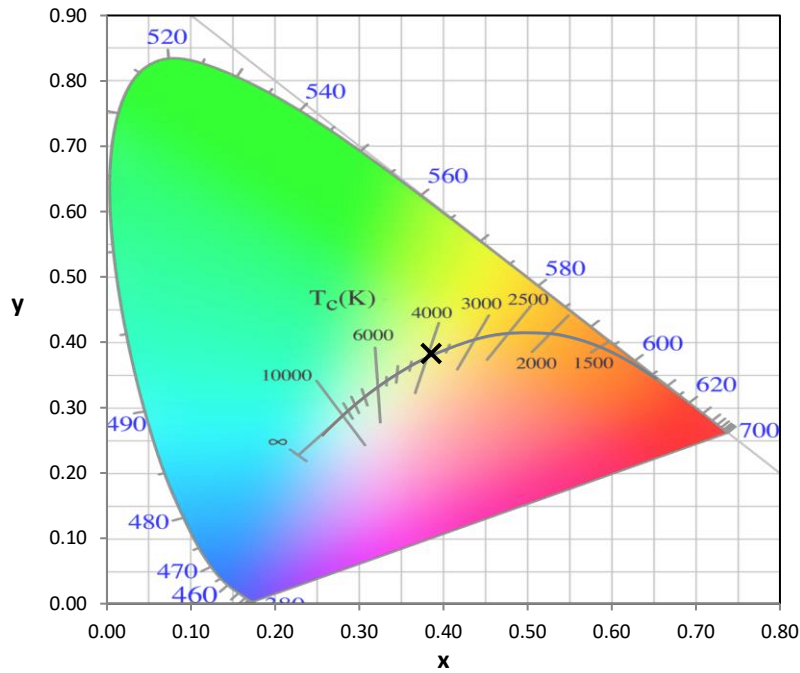
Stabilization Time: 34M  
 Operation Time: 1H 34M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2506-458-5

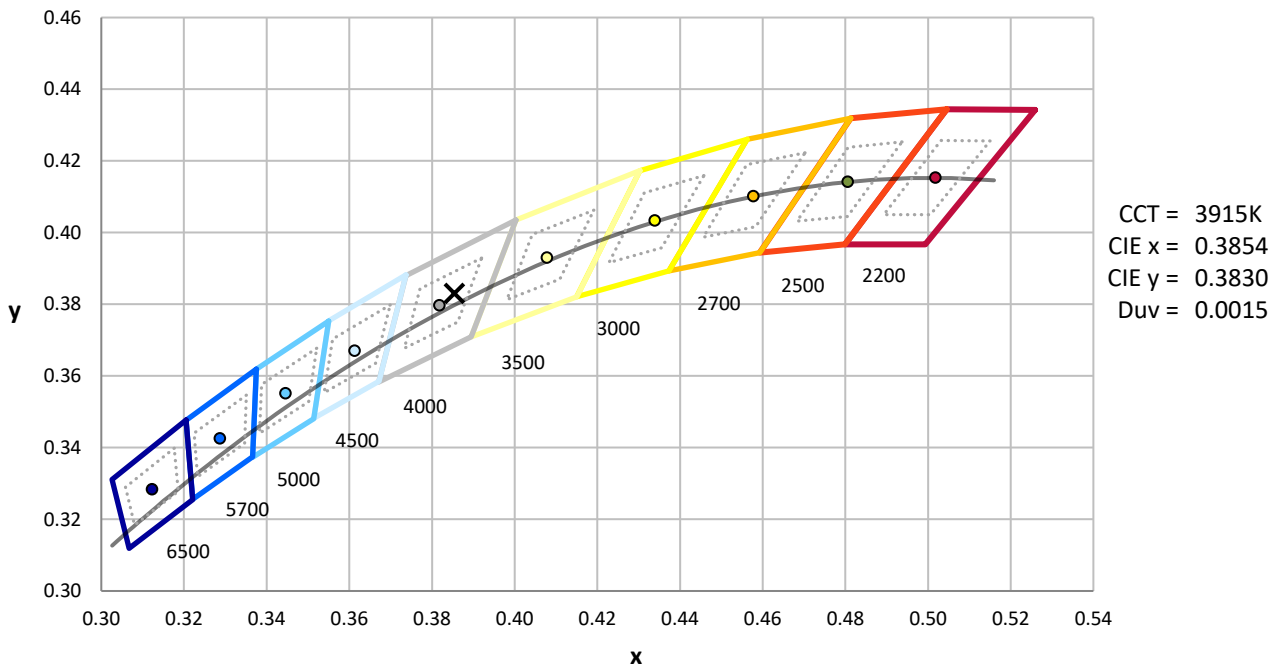
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 76INCH SPHERE IN0058  | 6/16/2025        | 12/16/2025           |
| Power Meter                    | XITRON INXT2011004    | 1/21/2025        | 1/21/2026            |
| AC Power Source                | CHROMA 61603 IN0063   | 10/22/2024       | 10/22/2025           |
| DC Power Source                | AGILENT E3634A IN0208 | 10/22/2024       | 10/22/2025           |
| Sphere Thermometer             | ONSET IN0085          | 10/22/2024       | 10/22/2025           |
| Room Thermometer               | ONSET IN0046          | 10/22/2024       | 10/22/2025           |

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**CIE 1931 Chromaticity Diagram**



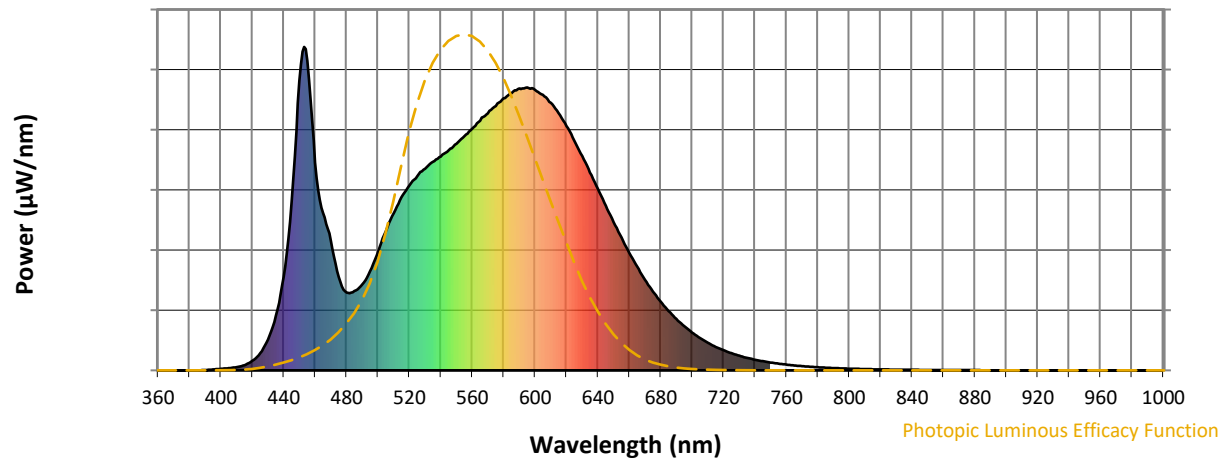
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2506-458-5

### Photopic Flux vs. Wavelength

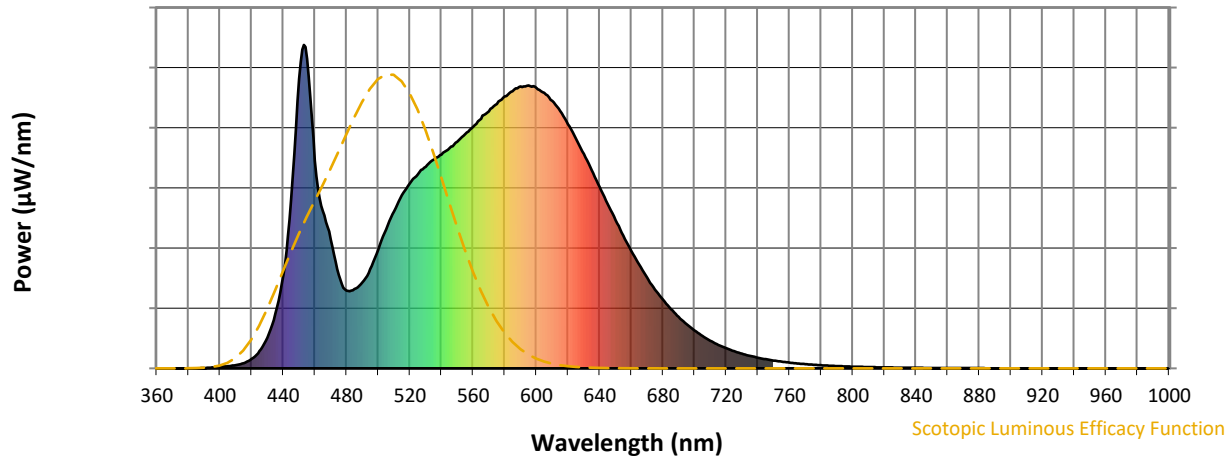


### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 266                         | NR               | 620       | 755                         | NR               | 750       | 24                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 307                         | NR               | 625       | 710                         | NR               | 755       | 21                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 366                         | NR               | 630       | 663                         | NR               | 760       | 18                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 430                         | NR               | 635       | 612                         | NR               | 765       | 15                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 486                         | NR               | 640       | 561                         | NR               | 770       | 13                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 536                         | NR               | 645       | 509                         | NR               | 775       | 11                          | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 571                         | NR               | 650       | 458                         | NR               | 780       | 10                          | NR               | 910       | 0                           | NR               |
| 395       | 3                           | NR               | 525       | 600                         | NR               | 655       | 410                         | NR               | 785       | 8                           | NR               | 915       | 0                           | NR               |
| 400       | 5                           | NR               | 530       | 624                         | NR               | 660       | 363                         | NR               | 790       | 7                           | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 645                         | NR               | 665       | 321                         | NR               | 795       | 6                           | NR               | 925       | 0                           | NR               |
| 410       | 10                          | NR               | 540       | 661                         | NR               | 670       | 280                         | NR               | 800       | 5                           | NR               | 930       | 0                           | NR               |
| 415       | 16                          | NR               | 545       | 681                         | NR               | 675       | 244                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 30                          | NR               | 550       | 701                         | NR               | 680       | 213                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 53                          | NR               | 555       | 724                         | NR               | 685       | 183                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 95                          | NR               | 560       | 747                         | NR               | 690       | 159                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 170                         | NR               | 565       | 772                         | NR               | 695       | 136                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 289                         | NR               | 570       | 795                         | NR               | 700       | 117                         | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 522                         | NR               | 575       | 817                         | NR               | 705       | 100                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 895                         | NR               | 580       | 841                         | NR               | 710       | 85                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 957                         | NR               | 585       | 857                         | NR               | 715       | 72                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 642                         | NR               | 590       | 871                         | NR               | 720       | 62                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 487                         | NR               | 595       | 875                         | NR               | 725       | 53                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 397                         | NR               | 600       | 866                         | NR               | 730       | 45                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 289                         | NR               | 605       | 852                         | NR               | 735       | 39                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 241                         | NR               | 610       | 827                         | NR               | 740       | 33                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 245                         | NR               | 615       | 796                         | NR               | 745       | 28                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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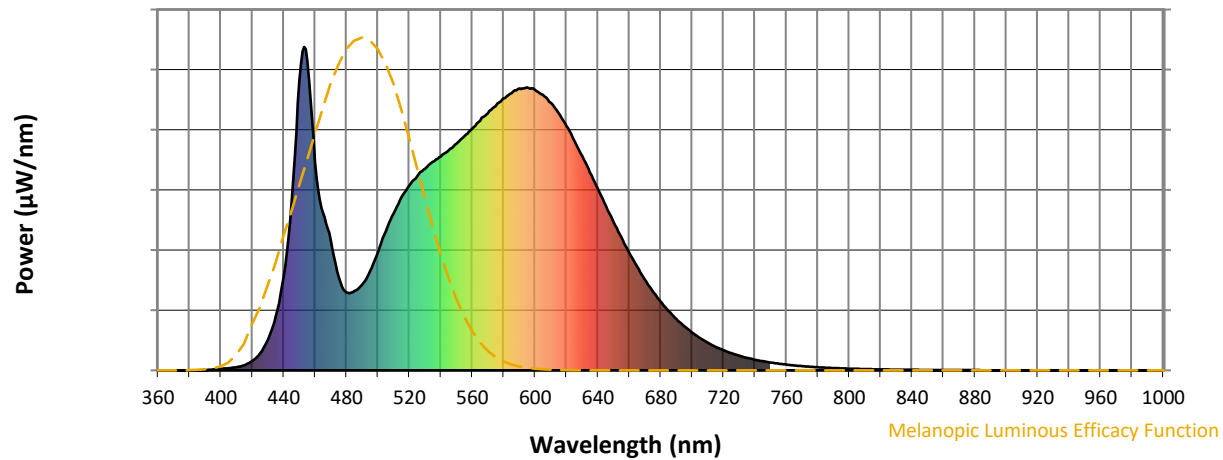
### Scotopic Flux vs. Wavelength


**Scotopic Lumens: NR**
**S/P: 1.65**

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 266                                  | NR                             | 620               | 755                                  | NR                             | 750               | 24                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 307                                  | NR                             | 625               | 710                                  | NR                             | 755               | 21                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 366                                  | NR                             | 630               | 663                                  | NR                             | 760               | 18                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 430                                  | NR                             | 635               | 612                                  | NR                             | 765               | 15                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 486                                  | NR                             | 640               | 561                                  | NR                             | 770               | 13                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 536                                  | NR                             | 645               | 509                                  | NR                             | 775               | 11                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 571                                  | NR                             | 650               | 458                                  | NR                             | 780               | 10                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 3                                    | NR                             | 525               | 600                                  | NR                             | 655               | 410                                  | NR                             | 785               | 8                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 5                                    | NR                             | 530               | 624                                  | NR                             | 660               | 363                                  | NR                             | 790               | 7                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 7                                    | NR                             | 535               | 645                                  | NR                             | 665               | 321                                  | NR                             | 795               | 6                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 10                                   | NR                             | 540               | 661                                  | NR                             | 670               | 280                                  | NR                             | 800               | 5                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 16                                   | NR                             | 545               | 681                                  | NR                             | 675               | 244                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 30                                   | NR                             | 550               | 701                                  | NR                             | 680               | 213                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 53                                   | NR                             | 555               | 724                                  | NR                             | 685               | 183                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 95                                   | NR                             | 560               | 747                                  | NR                             | 690               | 159                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 170                                  | NR                             | 565               | 772                                  | NR                             | 695               | 136                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 289                                  | NR                             | 570               | 795                                  | NR                             | 700               | 117                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 522                                  | NR                             | 575               | 817                                  | NR                             | 705               | 100                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 895                                  | NR                             | 580               | 841                                  | NR                             | 710               | 85                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 957                                  | NR                             | 585               | 857                                  | NR                             | 715               | 72                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 642                                  | NR                             | 590               | 871                                  | NR                             | 720               | 62                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 487                                  | NR                             | 595               | 875                                  | NR                             | 725               | 53                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 397                                  | NR                             | 600               | 866                                  | NR                             | 730               | 45                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 289                                  | NR                             | 605               | 852                                  | NR                             | 735               | 39                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 241                                  | NR                             | 610               | 827                                  | NR                             | 740               | 33                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 245                                  | NR                             | 615               | 796                                  | NR                             | 745               | 28                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.36

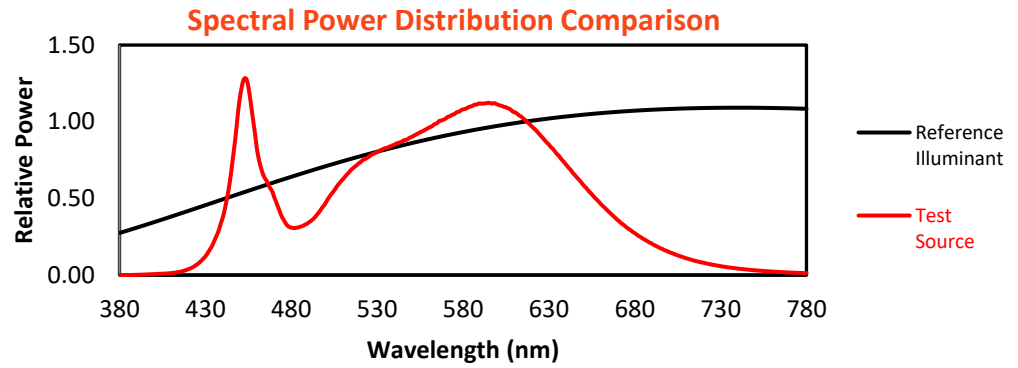
| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 266                         | NR               | 620       | 755                         | NR               | 750       | 24                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 307                         | NR               | 625       | 710                         | NR               | 755       | 21                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 366                         | NR               | 630       | 663                         | NR               | 760       | 18                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 430                         | NR               | 635       | 612                         | NR               | 765       | 15                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 486                         | NR               | 640       | 561                         | NR               | 770       | 13                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 536                         | NR               | 645       | 509                         | NR               | 775       | 11                          | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 571                         | NR               | 650       | 458                         | NR               | 780       | 10                          | NR               | 910       | 0                           | NR               |
| 395       | 3                           | NR               | 525       | 600                         | NR               | 655       | 410                         | NR               | 785       | 8                           | NR               | 915       | 0                           | NR               |
| 400       | 5                           | NR               | 530       | 624                         | NR               | 660       | 363                         | NR               | 790       | 7                           | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 645                         | NR               | 665       | 321                         | NR               | 795       | 6                           | NR               | 925       | 0                           | NR               |
| 410       | 10                          | NR               | 540       | 661                         | NR               | 670       | 280                         | NR               | 800       | 5                           | NR               | 930       | 0                           | NR               |
| 415       | 16                          | NR               | 545       | 681                         | NR               | 675       | 244                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 30                          | NR               | 550       | 701                         | NR               | 680       | 213                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 53                          | NR               | 555       | 724                         | NR               | 685       | 183                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 95                          | NR               | 560       | 747                         | NR               | 690       | 159                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 170                         | NR               | 565       | 772                         | NR               | 695       | 136                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 289                         | NR               | 570       | 795                         | NR               | 700       | 117                         | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 522                         | NR               | 575       | 817                         | NR               | 705       | 100                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 895                         | NR               | 580       | 841                         | NR               | 710       | 85                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 957                         | NR               | 585       | 857                         | NR               | 715       | 72                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 642                         | NR               | 590       | 871                         | NR               | 720       | 62                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 487                         | NR               | 595       | 875                         | NR               | 725       | 53                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 397                         | NR               | 600       | 866                         | NR               | 730       | 45                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 289                         | NR               | 605       | 852                         | NR               | 735       | 39                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 241                         | NR               | 610       | 827                         | NR               | 740       | 33                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 245                         | NR               | 615       | 796                         | NR               | 745       | 28                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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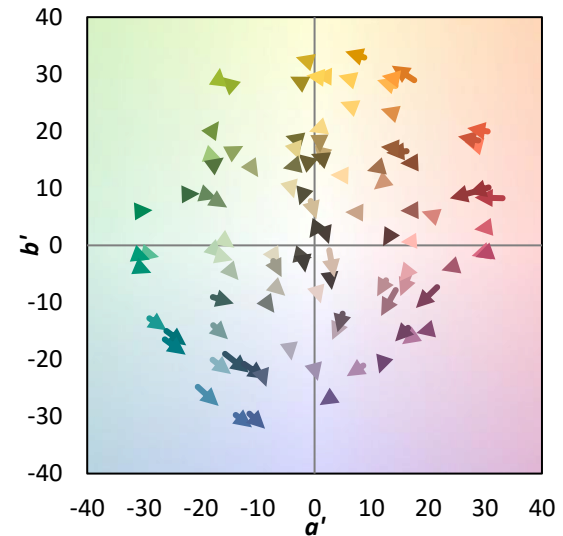
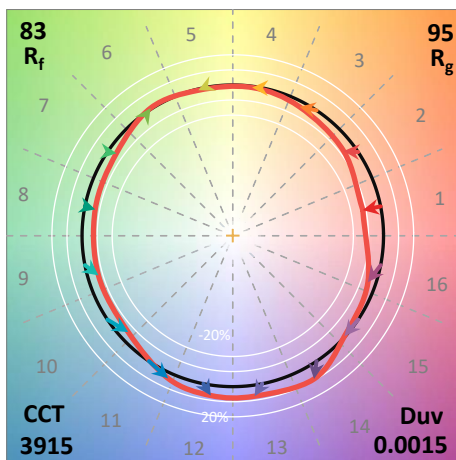
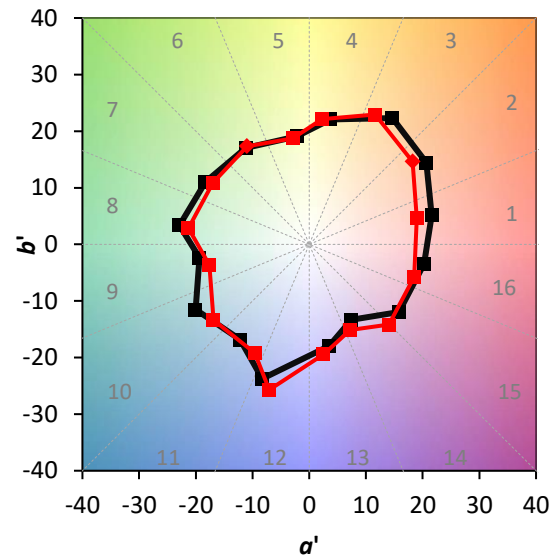
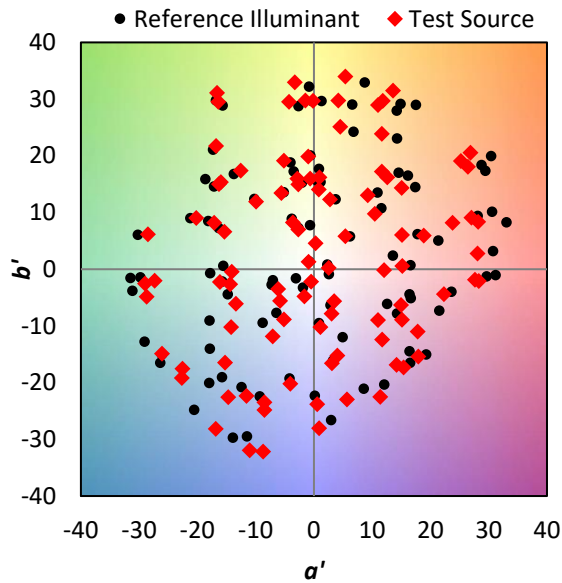
TM-30-18

### Summary

$R_f = 83.2$   
 $R_g = 94.6$   
 $CIE R_a = 82.3$   
 $R_9 = 7.6$

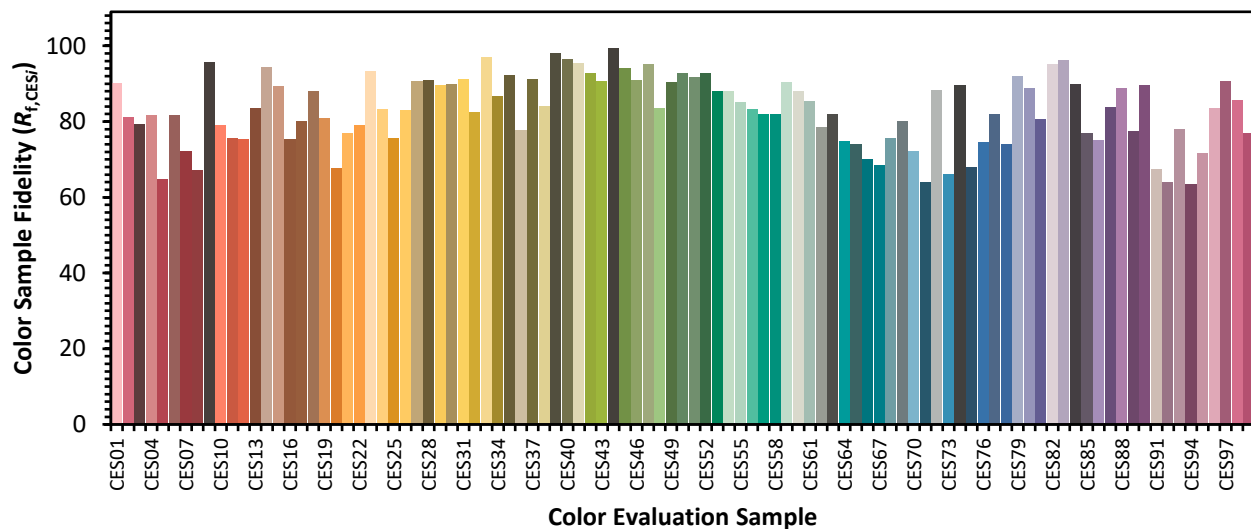


### Color Vector Graphics



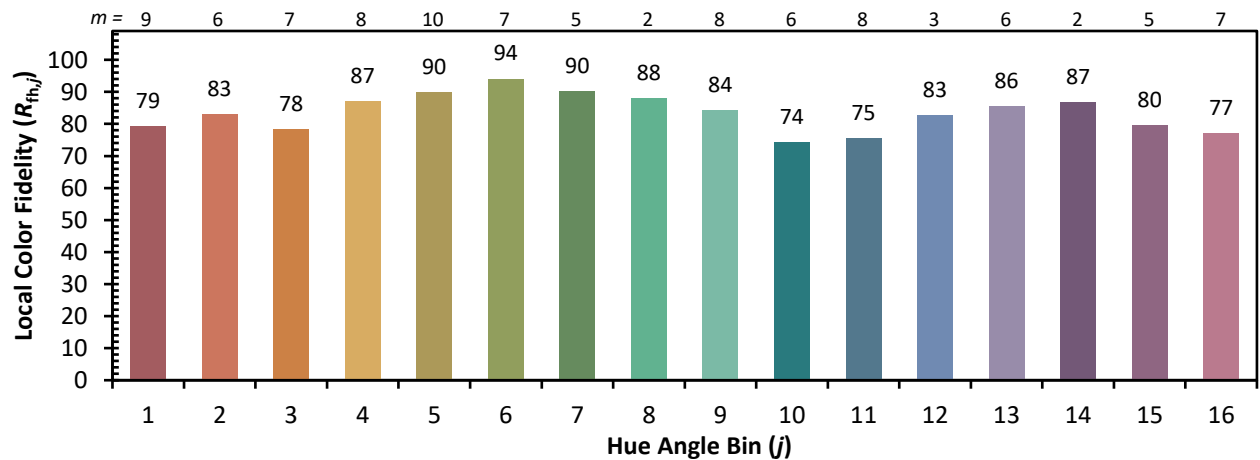
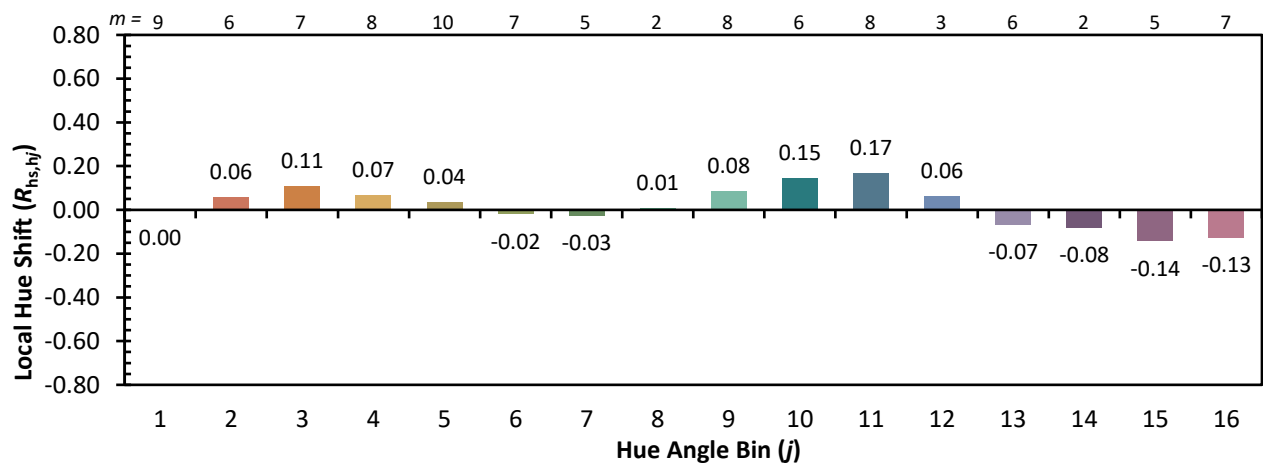
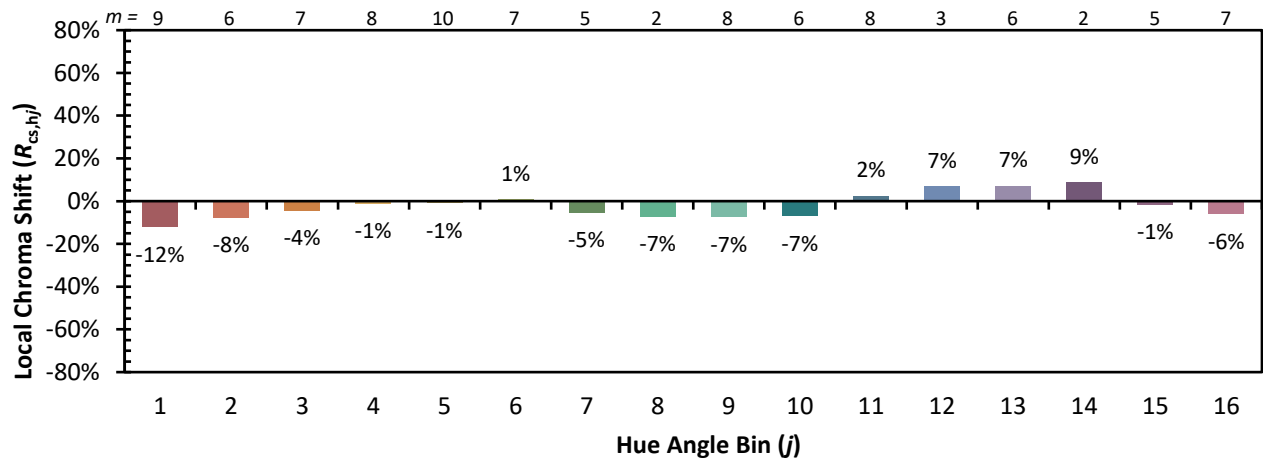
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 83 | CES51 = 92 | CES76 = 75 |
| CES02 = 61 | CES27 = 91 | CES52 = 93 | CES77 = 82 |
| CES03 = 31 | CES28 = 91 | CES53 = 88 | CES78 = 74 |
| CES04 = 70 | CES29 = 90 | CES54 = 88 | CES79 = 92 |
| CES05 = 48 | CES30 = 90 | CES55 = 85 | CES80 = 89 |
| CES06 = 50 | CES31 = 91 | CES56 = 83 | CES81 = 81 |
| CES07 = 41 | CES32 = 83 | CES57 = 82 | CES82 = 95 |
| CES08 = 40 | CES33 = 97 | CES58 = 82 | CES83 = 96 |
| CES09 = 29 | CES34 = 87 | CES59 = 90 | CES84 = 90 |
| CES10 = 74 | CES35 = 92 | CES60 = 88 | CES85 = 77 |
| CES11 = 57 | CES36 = 78 | CES61 = 85 | CES86 = 75 |
| CES12 = 63 | CES37 = 91 | CES62 = 79 | CES87 = 84 |
| CES13 = 42 | CES38 = 84 | CES63 = 82 | CES88 = 89 |
| CES14 = 74 | CES39 = 98 | CES64 = 75 | CES89 = 77 |
| CES15 = 71 | CES40 = 96 | CES65 = 74 | CES90 = 90 |
| CES16 = 47 | CES41 = 95 | CES66 = 70 | CES91 = 67 |
| CES17 = 49 | CES42 = 93 | CES67 = 69 | CES92 = 64 |
| CES18 = 56 | CES43 = 91 | CES68 = 76 | CES93 = 78 |
| CES19 = 71 | CES44 = 99 | CES69 = 80 | CES94 = 63 |
| CES20 = 65 | CES45 = 94 | CES70 = 72 | CES95 = 72 |
| CES21 = 86 | CES46 = 91 | CES71 = 64 | CES96 = 84 |
| CES22 = 78 | CES47 = 95 | CES72 = 88 | CES97 = 91 |
| CES23 = 91 | CES48 = 83 | CES73 = 66 | CES98 = 86 |
| CES24 = 90 | CES49 = 90 | CES74 = 90 | CES99 = 77 |
| CES25 = 71 | CES50 = 93 | CES75 = 68 |            |

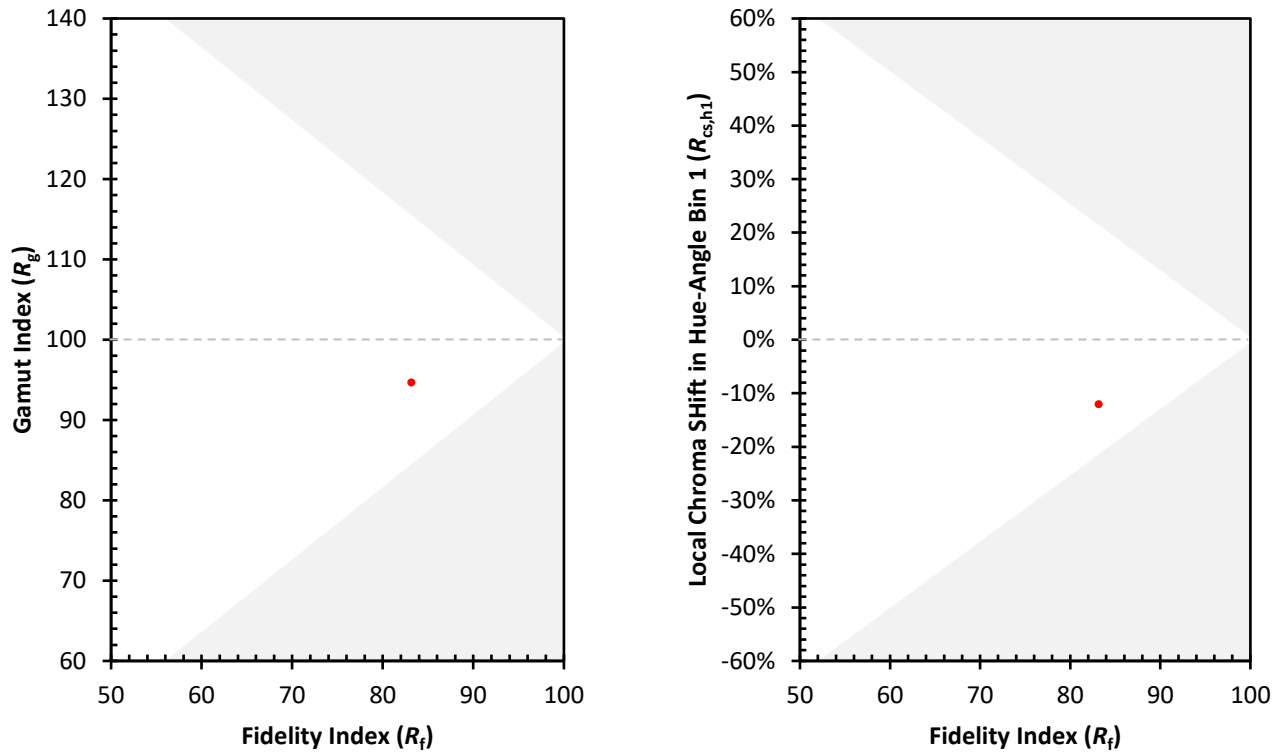




Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)