

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: CORELITE

Report Number: P701586

Luminaire Tested: **RX-WO-29HB2750-UNV-22\_5000K**

Issue Date: 8/21/2023



**Test Information**

Test Method: LM-79-08  
Report Number: P701586  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P302127)  
Test Lab: INNOVATION CENTER  
Issue Date: 8/21/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: CORELITE  
Catalog Number: RX-WO-29HB2750-UNV-22\_5000K  
Description: 2X2 2900 LUMEN CLASS RX TROFFER WITH BIO UP LEDS AT 5000K CCT AND ROUND LENS

Light Source: -  
Ballast/Driver: -

**Summary**

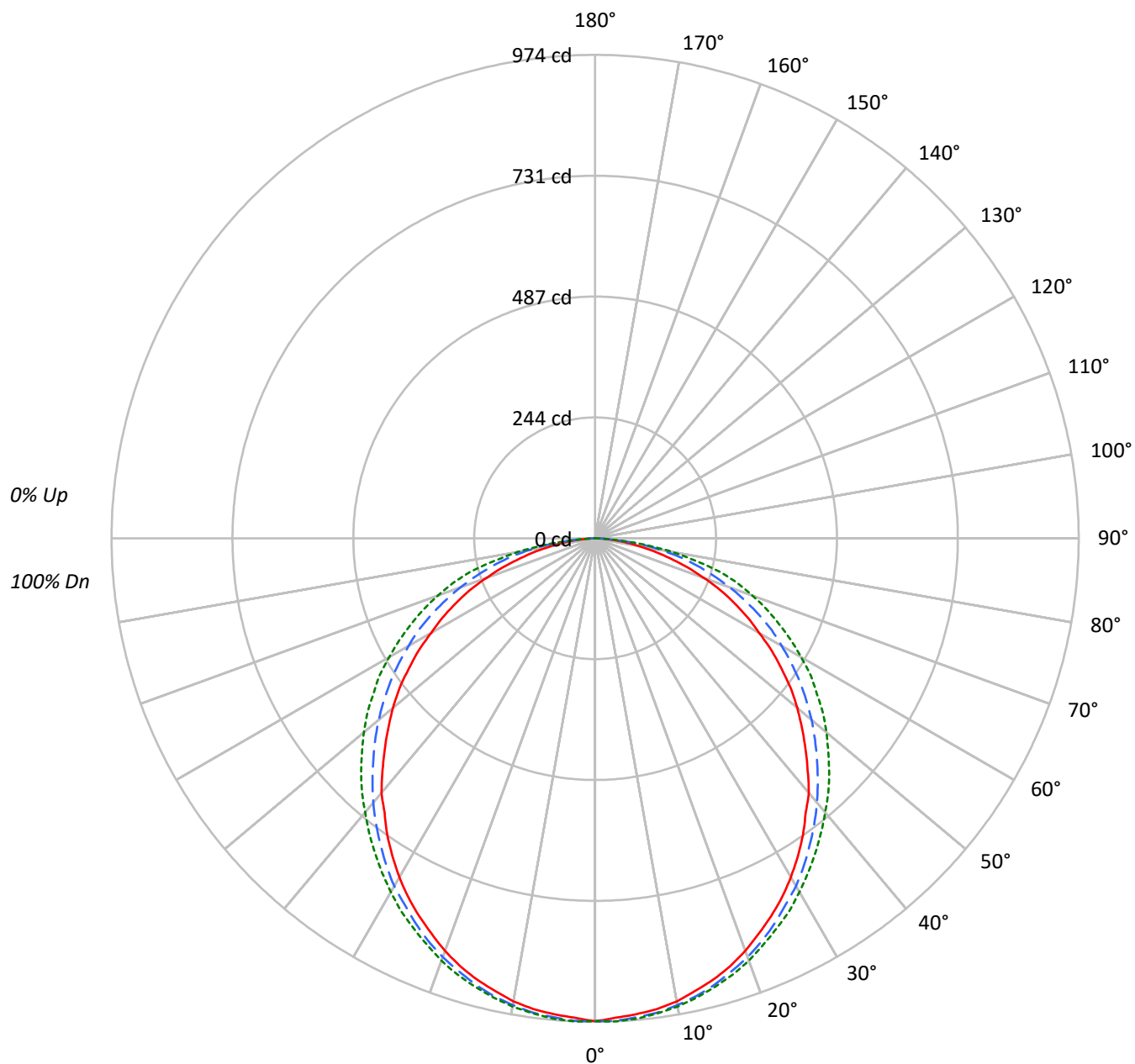
Lumens per Lamp: N/A  
Luminaire Lumens: 2789.0 lumens  
Efficiency: N/A  
Efficacy: 111.6 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.26 / 1.36  
Luminous Opening: Rectangular (W 1.92' x L: 1.98' x H: 0')  
CIE Type: Direct

Input Watts (W): 25  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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: 25 FT

TEST NUMBER: P701586

CATALOG NUMBER: RX-WO-29HB2750-UNV-22\_5000K

### Luminous Intensity Polar Plot





TEST NUMBER: P701586

CATALOG NUMBER: RX-WO-29HB2750-UNV-22\_5000K

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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|
| RF  | 20  |     |     |     | 20  |     |     |     |     | 20  |     |     |     |     | 20  |     |     |     |    | 20 |
| RC  | 80  |     |     |     | 70  |     |     |     |     | 50  |     |     |     |     | 30  |     |     |     |    | 10 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |    |    |
| 1   | 108 | 104 | 99  | 95  | 106 | 101 | 97  | 94  | 97  | 94  | 91  | 93  | 90  | 88  | 89  | 87  | 85  | 83  |    |    |
| 2   | 98  | 90  | 83  | 77  | 96  | 88  | 82  | 76  | 84  | 79  | 74  | 81  | 77  | 73  | 78  | 74  | 71  | 69  |    |    |
| 3   | 90  | 79  | 70  | 64  | 87  | 77  | 69  | 63  | 74  | 68  | 62  | 71  | 66  | 61  | 69  | 64  | 60  | 58  |    |    |
| 4   | 82  | 70  | 61  | 54  | 80  | 68  | 60  | 53  | 66  | 58  | 53  | 63  | 57  | 52  | 61  | 56  | 51  | 49  |    |    |
| 5   | 75  | 62  | 53  | 46  | 73  | 61  | 52  | 46  | 59  | 51  | 45  | 57  | 50  | 45  | 55  | 49  | 44  | 42  |    |    |
| 6   | 69  | 56  | 47  | 40  | 68  | 55  | 46  | 40  | 53  | 45  | 40  | 51  | 45  | 39  | 50  | 44  | 39  | 37  |    |    |
| 7   | 64  | 51  | 42  | 36  | 63  | 50  | 41  | 35  | 48  | 41  | 35  | 47  | 40  | 35  | 45  | 39  | 35  | 33  |    |    |
| 8   | 60  | 46  | 38  | 32  | 58  | 46  | 37  | 32  | 44  | 37  | 31  | 43  | 36  | 31  | 42  | 36  | 31  | 29  |    |    |
| 9   | 56  | 42  | 34  | 29  | 55  | 42  | 34  | 28  | 41  | 33  | 28  | 40  | 33  | 28  | 39  | 32  | 28  | 26  |    |    |
| 10  | 52  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 30  | 26  | 36  | 30  | 25  | 24  |    |    |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2761 | 2761 | 2761 |
| 5°  | 2742 | 2758 | 2767 |
| 10° | 2730 | 2751 | 2760 |
| 15° | 2704 | 2735 | 2748 |
| 20° | 2671 | 2711 | 2734 |
| 25° | 2628 | 2679 | 2713 |
| 30° | 2583 | 2652 | 2696 |
| 35° | 2528 | 2611 | 2679 |
| 40° | 2480 | 2575 | 2670 |
| 45° | 2404 | 2537 | 2675 |
| 50° | 2346 | 2512 | 2684 |
| 55° | 2265 | 2488 | 2696 |
| 60° | 2164 | 2462 | 2718 |
| 65° | 2077 | 2440 | 2742 |
| 70° | 1931 | 2392 | 2790 |
| 75° | 1711 | 2337 | 2847 |
| 80° | 1448 | 2183 | 2575 |
| 85° | 1029 | 1514 | 1465 |



TEST NUMBER: P701586

CATALOG NUMBER: RX-WO-29HB2750-UNV-22\_5000K

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 92.0   | 3.3       |
| 10°-20°   | 262.1  | 9.4       |
| 20°-30°   | 393.9  | 14.1      |
| 30°-40°   | 471.2  | 16.9      |
| 40°-50°   | 488.6  | 17.5      |
| 50°-60°   | 449.4  | 16.1      |
| 60°-70°   | 356.7  | 12.8      |
| 70°-80°   | 220.3  | 7.9       |
| 80°-90°   | 54.7   | 2.0       |
| 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°    | 748.0  | 26.8      |
| 0°-40°    | 1219.2 | 43.7      |
| 0°-60°    | 2157.3 | 77.4      |
| 0°-90°    | 2789.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2789.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 973 | 973   | 973 | 973   | 973 |      |
| 5°  | 962 | 966   | 968 | 972   | 972 | 91   |
| 15° | 920 | 923   | 931 | 935   | 935 | 259  |
| 25° | 839 | 845   | 856 | 865   | 866 | 387  |
| 35° | 730 | 737   | 754 | 769   | 773 | 456  |
| 45° | 599 | 610   | 632 | 658   | 667 | 463  |
| 55° | 458 | 470   | 503 | 538   | 545 | 410  |
| 65° | 309 | 323   | 363 | 398   | 408 | 306  |
| 75° | 156 | 177   | 213 | 246   | 260 | 167  |
| 85° | 32  | 41    | 46  | 46    | 45  | 40   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



TEST NUMBER: P701586

CATALOG NUMBER: RX-WO-29HB2750-UNV-22\_5000K

**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 973.0 | 973.0 | 973.0 | 973.0 | 973.0 |
| 2.5°  | 966.9 | 968.4 | 973.0 | 974.5 | 974.5 |
| 5°    | 962.5 | 965.5 | 968.4 | 971.5 | 971.5 |
| 7.5°  | 956.4 | 959.5 | 964.0 | 965.5 | 965.5 |
| 10°   | 947.5 | 950.5 | 954.9 | 957.9 | 957.9 |
| 12.5° | 933.9 | 938.5 | 944.4 | 947.5 | 947.5 |
| 15°   | 920.4 | 923.4 | 930.9 | 935.4 | 935.4 |
| 17.5° | 904.0 | 906.9 | 914.5 | 920.4 | 921.9 |
| 20°   | 884.4 | 887.4 | 897.9 | 904.0 | 905.5 |
| 22.5° | 861.9 | 866.4 | 878.4 | 884.4 | 885.9 |
| 25°   | 839.4 | 845.3 | 855.8 | 864.9 | 866.4 |
| 27.5° | 815.4 | 821.3 | 831.8 | 843.8 | 846.8 |
| 30°   | 788.3 | 794.4 | 809.3 | 819.8 | 822.8 |
| 32.5° | 759.8 | 767.2 | 782.4 | 795.8 | 798.8 |
| 35°   | 729.8 | 737.3 | 753.8 | 768.7 | 773.3 |
| 37.5° | 696.7 | 707.2 | 725.2 | 741.8 | 747.7 |
| 40°   | 669.6 | 675.7 | 695.2 | 714.8 | 720.7 |
| 42.5° | 633.6 | 642.7 | 663.7 | 686.2 | 695.2 |
| 45°   | 599.1 | 609.6 | 632.1 | 657.6 | 666.7 |
| 47.5° | 564.6 | 575.1 | 600.6 | 627.7 | 636.6 |
| 50°   | 531.5 | 540.6 | 569.0 | 599.1 | 608.1 |
| 52.5° | 497.0 | 506.1 | 536.0 | 569.0 | 578.1 |
| 55°   | 457.9 | 469.9 | 503.0 | 537.6 | 545.0 |
| 57.5° | 421.9 | 433.9 | 468.4 | 501.5 | 515.0 |
| 60°   | 381.3 | 396.4 | 433.9 | 467.0 | 479.0 |
| 62.5° | 346.8 | 358.8 | 400.9 | 433.9 | 444.4 |
| 65°   | 309.3 | 322.8 | 363.4 | 397.9 | 408.4 |
| 67.5° | 273.3 | 286.8 | 325.8 | 360.4 | 373.9 |
| 70°   | 232.7 | 247.7 | 288.3 | 322.8 | 336.3 |
| 72.5° | 195.3 | 213.2 | 249.2 | 285.3 | 300.3 |
| 75°   | 156.1 | 177.2 | 213.2 | 246.2 | 259.7 |
| 77.5° | 121.6 | 139.7 | 174.2 | 196.7 | 204.1 |
| 80°   | 88.6  | 106.7 | 133.6 | 148.6 | 157.6 |
| 82.5° | 60.0  | 70.5  | 91.6  | 102.1 | 102.1 |
| 85°   | 31.6  | 40.6  | 46.5  | 46.5  | 45.0  |
| 87.5° | 10.5  | 12.0  | 9.0   | 4.4   | 3.0   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



Report Generated By 670246072 / DESKTOP-50001EG







— 0°-180°    - - 45°-225°    - - - 90°-270°







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

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

METALUX

Report Number: SP1-2210-795-5

Test Date: 10/06/2022

Luminaire Tested: 9WP217084MDER4AM-5000K-315MA

Data in this report applies to families of products including 9WP217084MDER4AM-5000K.

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2210-795-5  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/06/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: METALUX  
 Catalog Number: **9WP217084MDER4AM-5000K-315MA**  
 Description: METALUX

TUNABLE BOARD, 5000K-315MA, PROGRAMMED @ 6.5Vdc.

### Spectral Parameters

CCT (K): 5031  
 CIE  $u'$ : 0.2182  
 CIE  $v'$ : 0.4734  
 Duv: -0.0101  
 CIE x: 0.3424  
 CIE y: 0.3302  
 CIE z: 0.3273  
 Peak Wavelength (nm): 476  
 Dominant Wavelength (nm): 495  
 Purity: 3.1

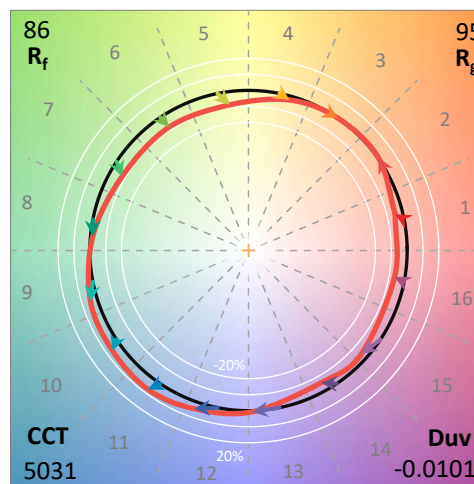
CRI (Ra): 84.5

|     |      |      |      |
|-----|------|------|------|
| R1: | 91.8 | R9:  | 77.5 |
| R2: | 85.4 | R10: | 70.0 |
| R3: | 79.8 | R11: | 87.5 |
| R4: | 86.6 | R12: | 69.3 |
| R5: | 89.4 | R13: | 89.5 |
| R6: | 79.4 | R14: | 89.8 |
| R7: | 81.5 |      |      |
| R8: | 82.5 |      |      |

Rf: 85.9  
 Rg: 94.8

### Test Conditions

Stabilization Time: 58M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.0/38%  
 Sphere Temperature (°C): 24.4

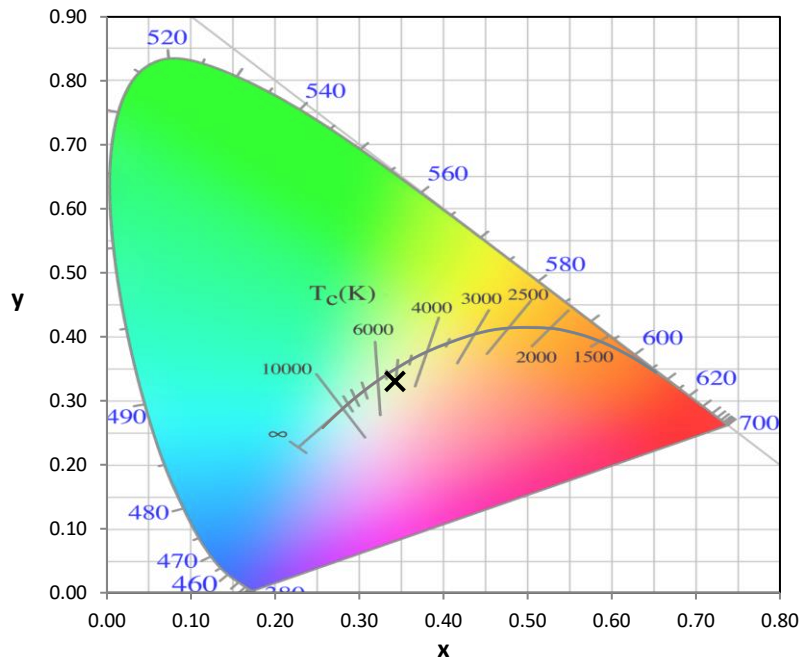


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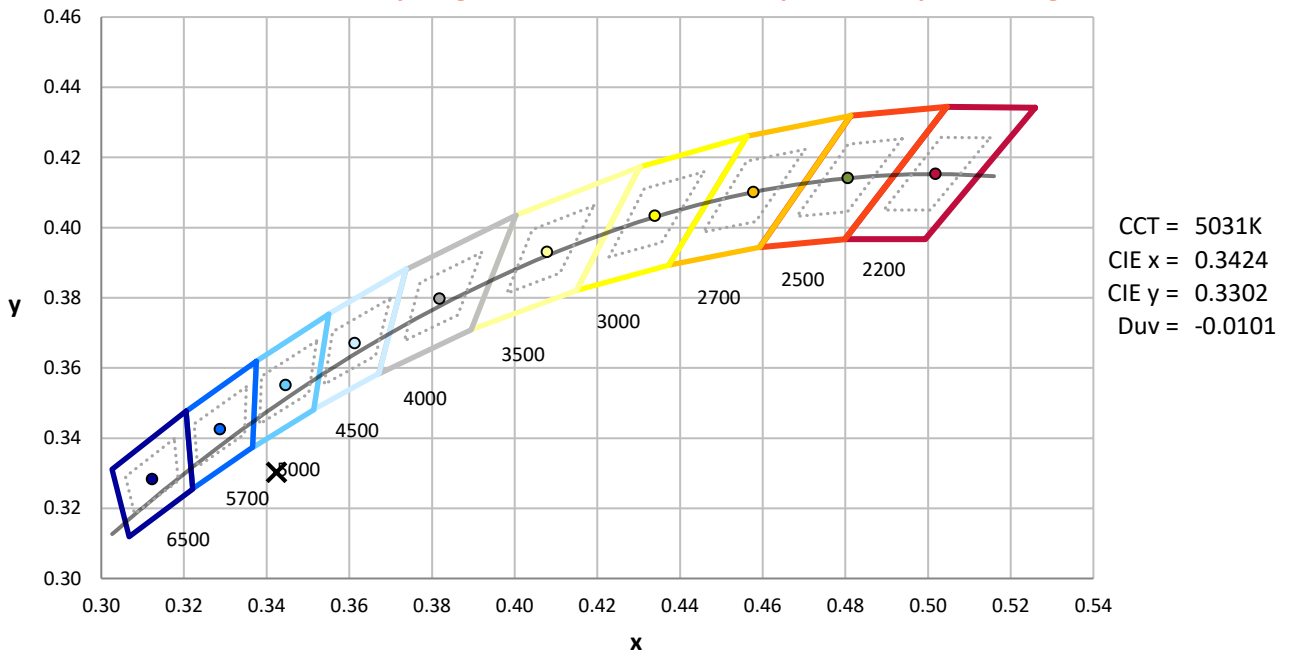
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 76INCH SPHERE IN0058  | 8/8/2022         | 2/8/2023             |
| 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**

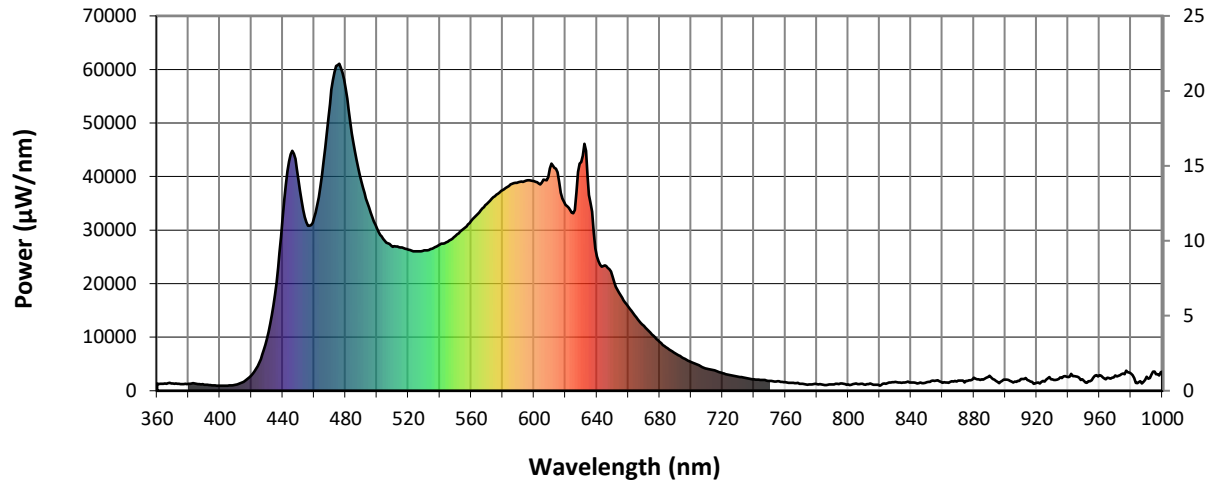


Point lies outside the range



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**Photopic Flux vs. Wavelength**

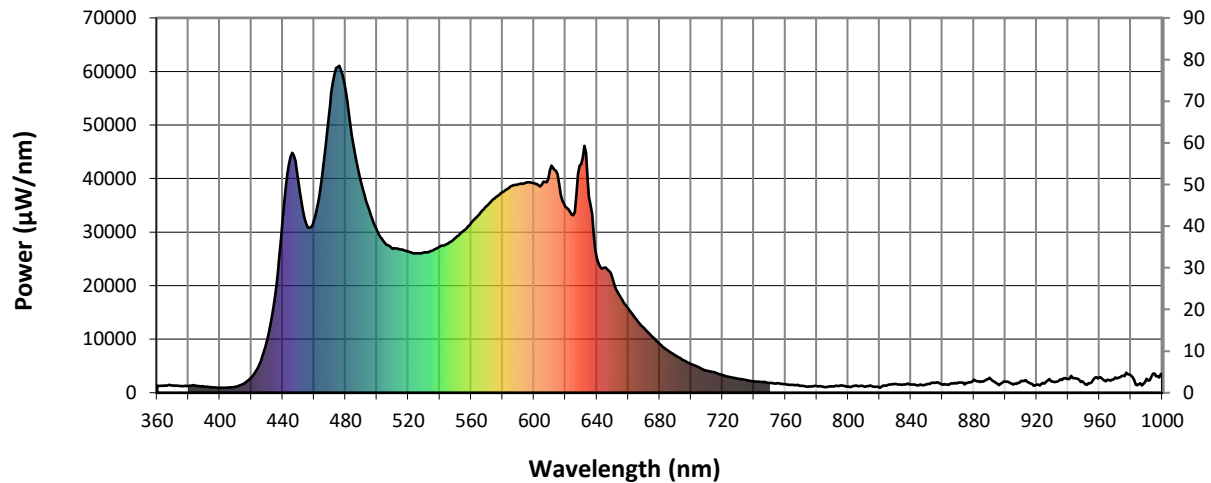


#####

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 1378             | NR               | 490       | 39050            | NR               | 620       | 34698            | NR               | 750       | 1822             | NR               | 880       | 2439             | NR               |
| 365       | 1331             | NR               | 495       | 34202            | NR               | 625       | 33140            | NR               | 755       | 1777             | NR               | 885       | 2149             | NR               |
| 370       | 1335             | NR               | 500       | 30309            | NR               | 630       | 42721            | NR               | 760       | 1599             | NR               | 890       | 2769             | NR               |
| 375       | 1253             | NR               | 505       | 28003            | NR               | 635       | 36567            | NR               | 765       | 1448             | NR               | 895       | 1685             | NR               |
| 380       | 1292             | NR               | 510       | 26874            | NR               | 640       | 25112            | NR               | 770       | 1318             | NR               | 900       | 2065             | NR               |
| 385       | 1298             | NR               | 515       | 26736            | NR               | 645       | 23382            | NR               | 775       | 1208             | NR               | 905       | 1550             | NR               |
| 390       | 1143             | NR               | 520       | 26353            | NR               | 650       | 21346            | NR               | 780       | 1268             | NR               | 910       | 2207             | NR               |
| 395       | 1012             | NR               | 525       | 26016            | NR               | 655       | 17849            | NR               | 785       | 1072             | NR               | 915       | 1905             | NR               |
| 400       | 913              | NR               | 530       | 26219            | NR               | 660       | 15701            | NR               | 790       | 1151             | NR               | 920       | 1492             | NR               |
| 405       | 948              | NR               | 535       | 26516            | NR               | 665       | 13709            | NR               | 795       | 1361             | NR               | 925       | 1709             | NR               |
| 410       | 1112             | NR               | 540       | 27283            | NR               | 670       | 12105            | NR               | 800       | 1152             | NR               | 930       | 2138             | NR               |
| 415       | 1681             | NR               | 545       | 27836            | NR               | 675       | 10522            | NR               | 805       | 1330             | NR               | 935       | 2497             | NR               |
| 420       | 2833             | NR               | 550       | 28917            | NR               | 680       | 9121             | NR               | 810       | 1205             | NR               | 940       | 2581             | NR               |
| 425       | 5230             | NR               | 555       | 30224            | NR               | 685       | 7915             | NR               | 815       | 1233             | NR               | 945       | 2662             | NR               |
| 430       | 9705             | NR               | 560       | 31691            | NR               | 690       | 6967             | NR               | 820       | 960              | NR               | 950       | 1809             | NR               |
| 435       | 17926            | NR               | 565       | 33290            | NR               | 695       | 6106             | NR               | 825       | 1423             | NR               | 955       | 1977             | NR               |
| 440       | 32347            | NR               | 570       | 34911            | NR               | 700       | 5390             | NR               | 830       | 1655             | NR               | 960       | 2906             | NR               |
| 445       | 44160            | NR               | 575       | 36327            | NR               | 705       | 4734             | NR               | 835       | 1541             | NR               | 965       | 2456             | NR               |
| 450       | 39460            | NR               | 580       | 37455            | NR               | 710       | 4108             | NR               | 840       | 1555             | NR               | 970       | 2874             | NR               |
| 455       | 31448            | NR               | 585       | 38519            | NR               | 715       | 3797             | NR               | 845       | 1414             | NR               | 975       | 3194             | NR               |
| 460       | 32233            | NR               | 590       | 38974            | NR               | 720       | 3287             | NR               | 850       | 1598             | NR               | 980       | 3237             | NR               |
| 465       | 40342            | NR               | 595       | 39274            | NR               | 725       | 2926             | NR               | 855       | 1852             | NR               | 985       | 1591             | NR               |
| 470       | 53556            | NR               | 600       | 39138            | NR               | 730       | 2611             | NR               | 860       | 1463             | NR               | 990       | 2611             | NR               |
| 475       | 60829            | NR               | 605       | 38865            | NR               | 735       | 2376             | NR               | 865       | 1656             | NR               | 995       | 3556             | NR               |
| 480       | 56377            | NR               | 610       | 41532            | NR               | 740       | 2107             | NR               | 870       | 1883             | NR               | 1000      | 3556             | NR               |
| 485       | 46320            | NR               | 615       | 40776            | NR               | 745       | 2023             | NR               | 875       | 1818             | NR               |           |                  |                  |

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**Scotopic Flux vs. Wavelength**



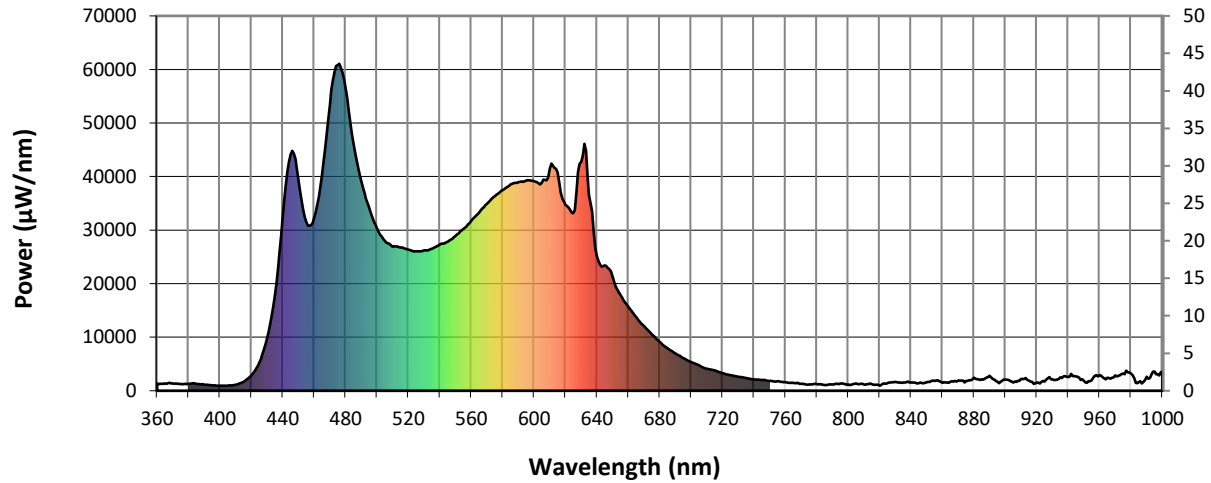
**Scotopic Lumens: 5560**

**S/P: 2.33**

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 1378             | NR               | 490       | 39050            | NR               | 620       | 34698            | NR               | 750       | 1822             | NR               | 880       | 2439             | NR               |
| 365       | 1331             | NR               | 495       | 34202            | NR               | 625       | 33140            | NR               | 755       | 1777             | NR               | 885       | 2149             | NR               |
| 370       | 1335             | NR               | 500       | 30309            | NR               | 630       | 42721            | NR               | 760       | 1599             | NR               | 890       | 2769             | NR               |
| 375       | 1253             | NR               | 505       | 28003            | NR               | 635       | 36567            | NR               | 765       | 1448             | NR               | 895       | 1685             | NR               |
| 380       | 1292             | NR               | 510       | 26874            | NR               | 640       | 25112            | NR               | 770       | 1318             | NR               | 900       | 2065             | NR               |
| 385       | 1298             | NR               | 515       | 26736            | NR               | 645       | 23382            | NR               | 775       | 1208             | NR               | 905       | 1550             | NR               |
| 390       | 1143             | NR               | 520       | 26353            | NR               | 650       | 21346            | NR               | 780       | 1268             | NR               | 910       | 2207             | NR               |
| 395       | 1012             | NR               | 525       | 26016            | NR               | 655       | 17849            | NR               | 785       | 1072             | NR               | 915       | 1905             | NR               |
| 400       | 913              | NR               | 530       | 26219            | NR               | 660       | 15701            | NR               | 790       | 1151             | NR               | 920       | 1492             | NR               |
| 405       | 948              | NR               | 535       | 26516            | NR               | 665       | 13709            | NR               | 795       | 1361             | NR               | 925       | 1709             | NR               |
| 410       | 1112             | NR               | 540       | 27283            | NR               | 670       | 12105            | NR               | 800       | 1152             | NR               | 930       | 2138             | NR               |
| 415       | 1681             | NR               | 545       | 27836            | NR               | 675       | 10522            | NR               | 805       | 1330             | NR               | 935       | 2497             | NR               |
| 420       | 2833             | NR               | 550       | 28917            | NR               | 680       | 9121             | NR               | 810       | 1205             | NR               | 940       | 2581             | NR               |
| 425       | 5230             | NR               | 555       | 30224            | NR               | 685       | 7915             | NR               | 815       | 1233             | NR               | 945       | 2662             | NR               |
| 430       | 9705             | NR               | 560       | 31691            | NR               | 690       | 6967             | NR               | 820       | 960              | NR               | 950       | 1809             | NR               |
| 435       | 17926            | NR               | 565       | 33290            | NR               | 695       | 6106             | NR               | 825       | 1423             | NR               | 955       | 1977             | NR               |
| 440       | 32347            | NR               | 570       | 34911            | NR               | 700       | 5390             | NR               | 830       | 1655             | NR               | 960       | 2906             | NR               |
| 445       | 44160            | NR               | 575       | 36327            | NR               | 705       | 4734             | NR               | 835       | 1541             | NR               | 965       | 2456             | NR               |
| 450       | 39460            | NR               | 580       | 37455            | NR               | 710       | 4108             | NR               | 840       | 1555             | NR               | 970       | 2874             | NR               |
| 455       | 31448            | NR               | 585       | 38519            | NR               | 715       | 3797             | NR               | 845       | 1414             | NR               | 975       | 3194             | NR               |
| 460       | 32233            | NR               | 590       | 38974            | NR               | 720       | 3287             | NR               | 850       | 1598             | NR               | 980       | 3237             | NR               |
| 465       | 40342            | NR               | 595       | 39274            | NR               | 725       | 2926             | NR               | 855       | 1852             | NR               | 985       | 1591             | NR               |
| 470       | 53556            | NR               | 600       | 39138            | NR               | 730       | 2611             | NR               | 860       | 1463             | NR               | 990       | 2611             | NR               |
| 475       | 60829            | NR               | 605       | 38865            | NR               | 735       | 2376             | NR               | 865       | 1656             | NR               | 995       | 3556             | NR               |
| 480       | 56377            | NR               | 610       | 41532            | NR               | 740       | 2107             | NR               | 870       | 1883             | NR               | 1000      | 3556             | NR               |
| 485       | 46320            | NR               | 615       | 40776            | NR               | 745       | 2023             | NR               | 875       | 1818             | NR               |           |                  |                  |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 2561.9 S/P: 1.07**

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 1378             | NR               | 490       | 39050            | NR               | 620       | 34698            | NR               | 750       | 1822             | NR               | 880       | 2439             | NR               |
| 365       | 1331             | NR               | 495       | 34202            | NR               | 625       | 33140            | NR               | 755       | 1777             | NR               | 885       | 2149             | NR               |
| 370       | 1335             | NR               | 500       | 30309            | NR               | 630       | 42721            | NR               | 760       | 1599             | NR               | 890       | 2769             | NR               |
| 375       | 1253             | NR               | 505       | 28003            | NR               | 635       | 36567            | NR               | 765       | 1448             | NR               | 895       | 1685             | NR               |
| 380       | 1292             | NR               | 510       | 26874            | NR               | 640       | 25112            | NR               | 770       | 1318             | NR               | 900       | 2065             | NR               |
| 385       | 1298             | NR               | 515       | 26736            | NR               | 645       | 23382            | NR               | 775       | 1208             | NR               | 905       | 1550             | NR               |
| 390       | 1143             | NR               | 520       | 26353            | NR               | 650       | 21346            | NR               | 780       | 1268             | NR               | 910       | 2207             | NR               |
| 395       | 1012             | NR               | 525       | 26016            | NR               | 655       | 17849            | NR               | 785       | 1072             | NR               | 915       | 1905             | NR               |
| 400       | 913              | NR               | 530       | 26219            | NR               | 660       | 15701            | NR               | 790       | 1151             | NR               | 920       | 1492             | NR               |
| 405       | 948              | NR               | 535       | 26516            | NR               | 665       | 13709            | NR               | 795       | 1361             | NR               | 925       | 1709             | NR               |
| 410       | 1112             | NR               | 540       | 27283            | NR               | 670       | 12105            | NR               | 800       | 1152             | NR               | 930       | 2138             | NR               |
| 415       | 1681             | NR               | 545       | 27836            | NR               | 675       | 10522            | NR               | 805       | 1330             | NR               | 935       | 2497             | NR               |
| 420       | 2833             | NR               | 550       | 28917            | NR               | 680       | 9121             | NR               | 810       | 1205             | NR               | 940       | 2581             | NR               |
| 425       | 5230             | NR               | 555       | 30224            | NR               | 685       | 7915             | NR               | 815       | 1233             | NR               | 945       | 2662             | NR               |
| 430       | 9705             | NR               | 560       | 31691            | NR               | 690       | 6967             | NR               | 820       | 960              | NR               | 950       | 1809             | NR               |
| 435       | 17926            | NR               | 565       | 33290            | NR               | 695       | 6106             | NR               | 825       | 1423             | NR               | 955       | 1977             | NR               |
| 440       | 32347            | NR               | 570       | 34911            | NR               | 700       | 5390             | NR               | 830       | 1655             | NR               | 960       | 2906             | NR               |
| 445       | 44160            | NR               | 575       | 36327            | NR               | 705       | 4734             | NR               | 835       | 1541             | NR               | 965       | 2456             | NR               |
| 450       | 39460            | NR               | 580       | 37455            | NR               | 710       | 4108             | NR               | 840       | 1555             | NR               | 970       | 2874             | NR               |
| 455       | 31448            | NR               | 585       | 38519            | NR               | 715       | 3797             | NR               | 845       | 1414             | NR               | 975       | 3194             | NR               |
| 460       | 32233            | NR               | 590       | 38974            | NR               | 720       | 3287             | NR               | 850       | 1598             | NR               | 980       | 3237             | NR               |
| 465       | 40342            | NR               | 595       | 39274            | NR               | 725       | 2926             | NR               | 855       | 1852             | NR               | 985       | 1591             | NR               |
| 470       | 53556            | NR               | 600       | 39138            | NR               | 730       | 2611             | NR               | 860       | 1463             | NR               | 990       | 2611             | NR               |
| 475       | 60829            | NR               | 605       | 38865            | NR               | 735       | 2376             | NR               | 865       | 1656             | NR               | 995       | 3556             | NR               |
| 480       | 56377            | NR               | 610       | 41532            | NR               | 740       | 2107             | NR               | 870       | 1883             | NR               | 1000      | 3556             | NR               |
| 485       | 46320            | NR               | 615       | 40776            | NR               | 745       | 2023             | NR               | 875       | 1818             | NR               |           |                  |                  |

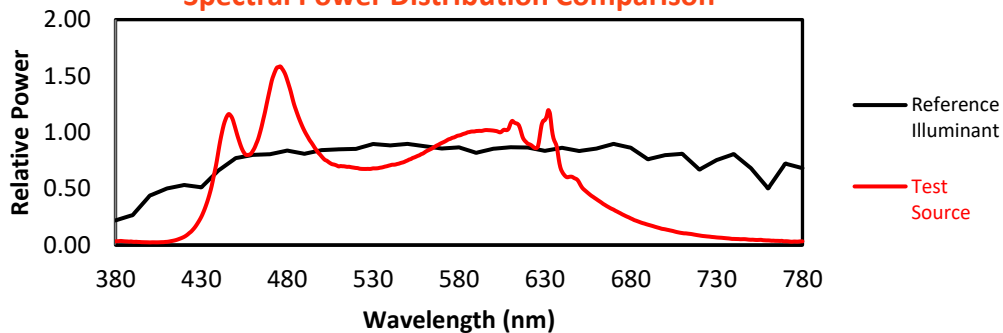
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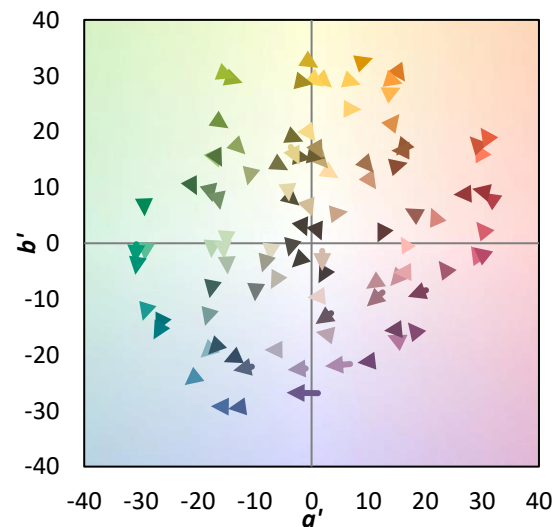
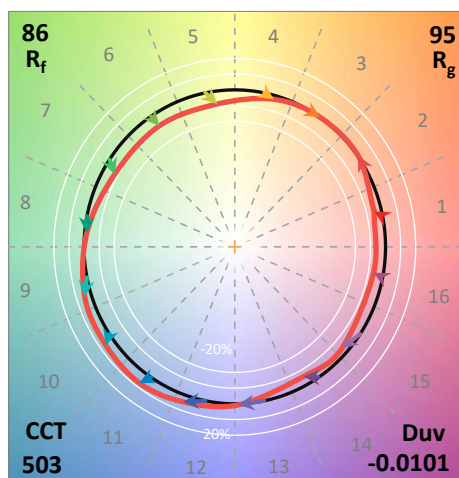
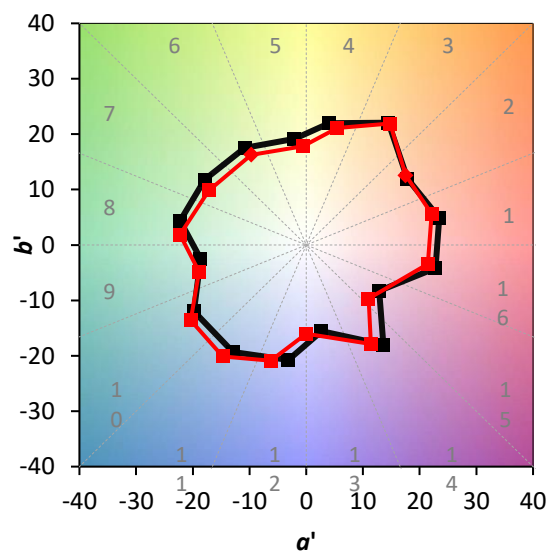
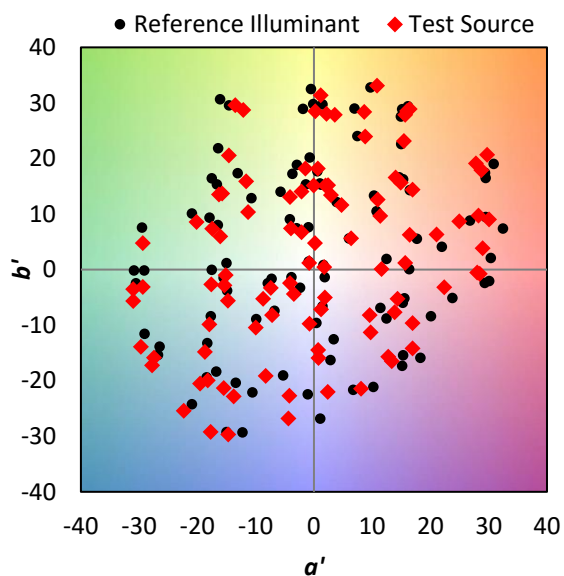
**Summary**

$R_f = 85.9$   
 $R_g = 94.8$   
 CIE  $R_a = 84.5$   
 $R_g = 77.5$

**Spectral Power Distribution Comparison**



**Color Vector Graphics**

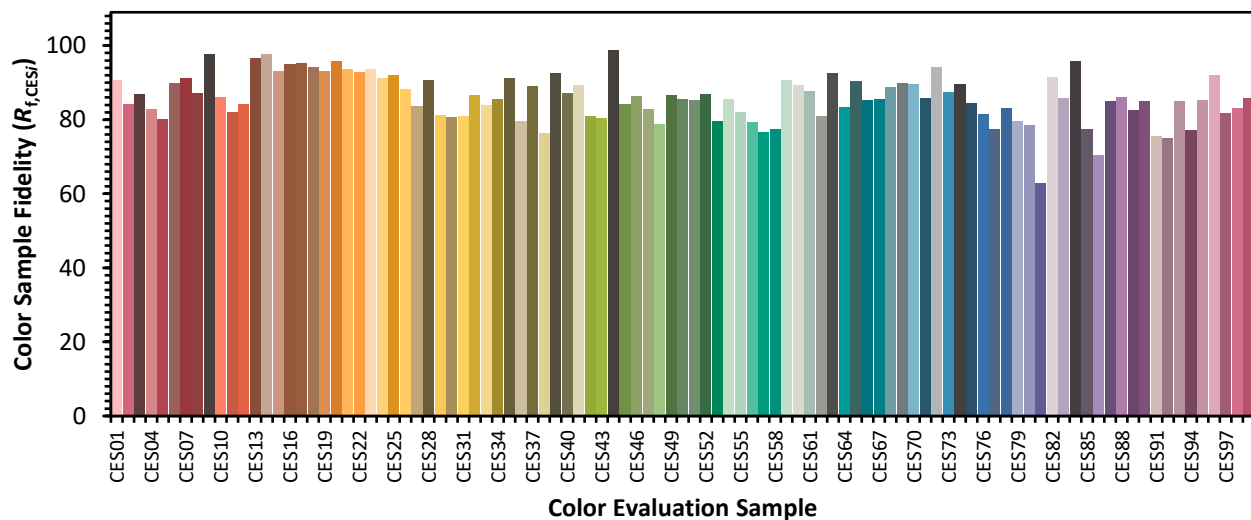


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**Individual Sample Fidelity Index ( $R_{f,i}$ )**

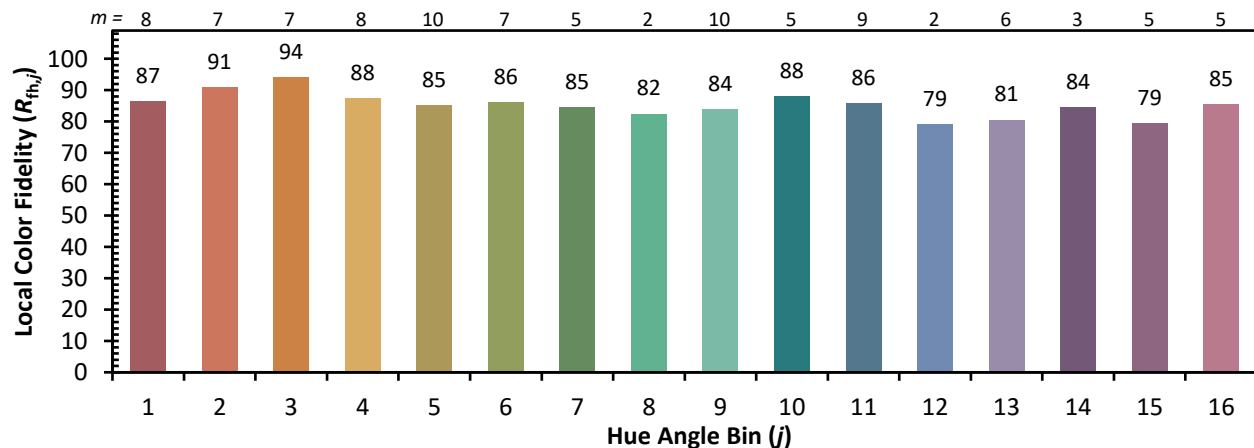
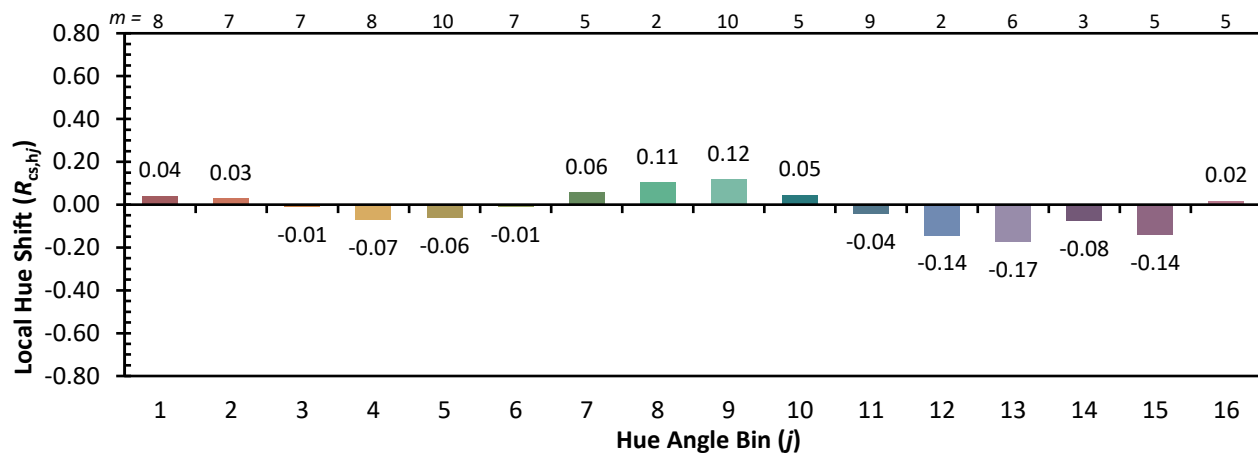
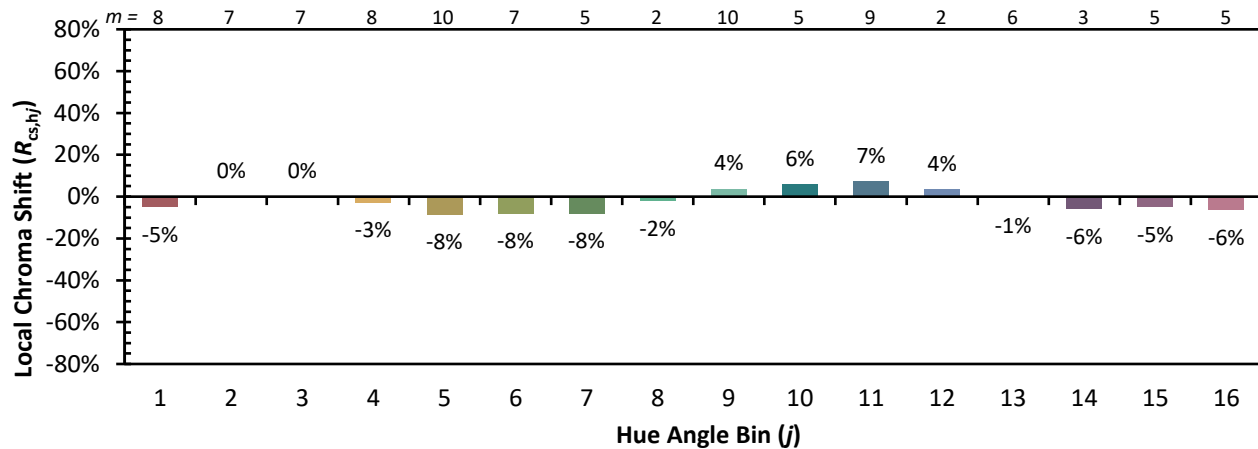
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|------------|------------|------------|------------|
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| CES02 = 61 | CES27 = 83 | CES52 = 87 | CES77 = 77 |
| CES03 = 31 | CES28 = 90 | CES53 = 79 | CES78 = 83 |
| CES04 = 69 | CES29 = 81 | CES54 = 85 | CES79 = 80 |
| CES05 = 48 | CES30 = 81 | CES55 = 82 | CES80 = 78 |
| CES06 = 50 | CES31 = 81 | CES56 = 79 | CES81 = 63 |
| CES07 = 41 | CES32 = 87 | CES57 = 77 | CES82 = 92 |
| CES08 = 40 | CES33 = 84 | CES58 = 77 | CES83 = 86 |
| CES09 = 29 | CES34 = 85 | CES59 = 91 | CES84 = 96 |
| CES10 = 74 | CES35 = 91 | CES60 = 89 | CES85 = 77 |
| CES11 = 57 | CES36 = 80 | CES61 = 87 | CES86 = 70 |
| CES12 = 63 | CES37 = 89 | CES62 = 81 | CES87 = 85 |
| CES13 = 43 | CES38 = 76 | CES63 = 92 | CES88 = 86 |
| CES14 = 74 | CES39 = 93 | CES64 = 83 | CES89 = 82 |
| CES15 = 71 | CES40 = 87 | CES65 = 90 | CES90 = 85 |
| CES16 = 47 | CES41 = 89 | CES66 = 85 | CES91 = 76 |
| CES17 = 49 | CES42 = 81 | CES67 = 86 | CES92 = 75 |
| CES18 = 56 | CES43 = 80 | CES68 = 89 | CES93 = 85 |
| CES19 = 71 | CES44 = 99 | CES69 = 90 | CES94 = 77 |
| CES20 = 66 | CES45 = 84 | CES70 = 89 | CES95 = 85 |
| CES21 = 85 | CES46 = 86 | CES71 = 86 | CES96 = 92 |
| CES22 = 77 | CES47 = 83 | CES72 = 94 | CES97 = 82 |
| CES23 = 91 | CES48 = 79 | CES73 = 87 | CES98 = 83 |
| CES24 = 89 | CES49 = 87 | CES74 = 89 | CES99 = 86 |
| CES25 = 70 | CES50 = 85 | CES75 = 84 |            |



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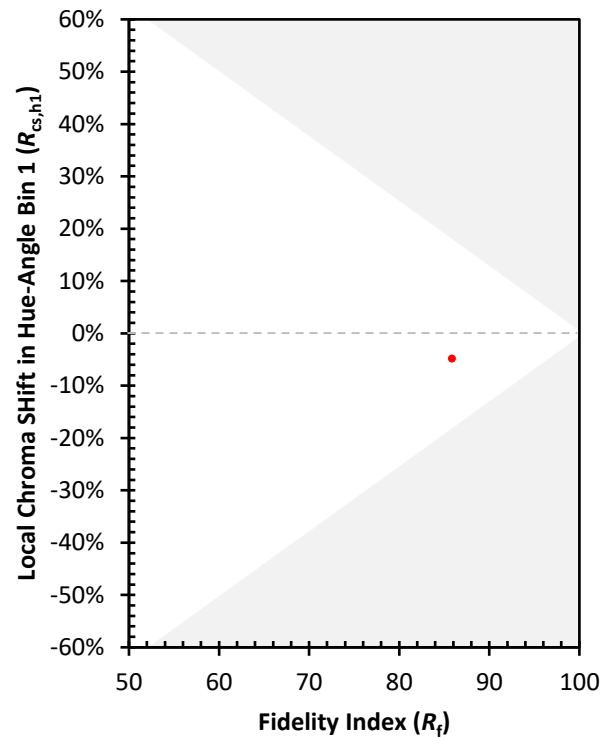
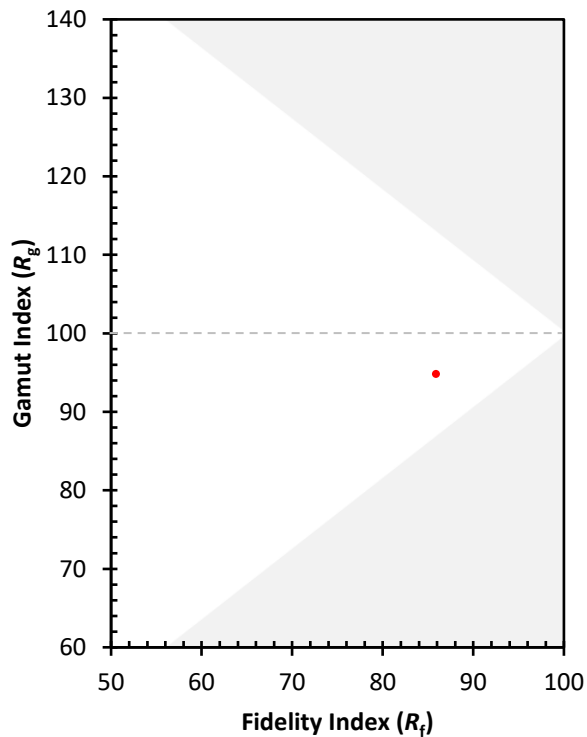
**Color Rendition by Hue-Angle Bin**



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**Measure Comparisons**



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