

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: IRiS

Report Number: P1254596

Luminaire Tested: P3A13R159035DE010 E3PHLD1MW

Issue Date: 1/29/2026

**Test Information**

Test Method: LM-79-2019  
Report Number: P1254596  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2509-551-9)  
Test Lab: INNOVATION CENTER  
Issue Date: 1/29/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: IRiS  
Catalog Number: P3A13R159035DE010 E3PHLD1MW  
Description: 3in Adjustable LED luminaire with, R15 optic, 3500K CCT AND, 90CRI , E3PHLD1MW TRIM  
Light Source: -  
Ballast/Driver: -

**Summary**

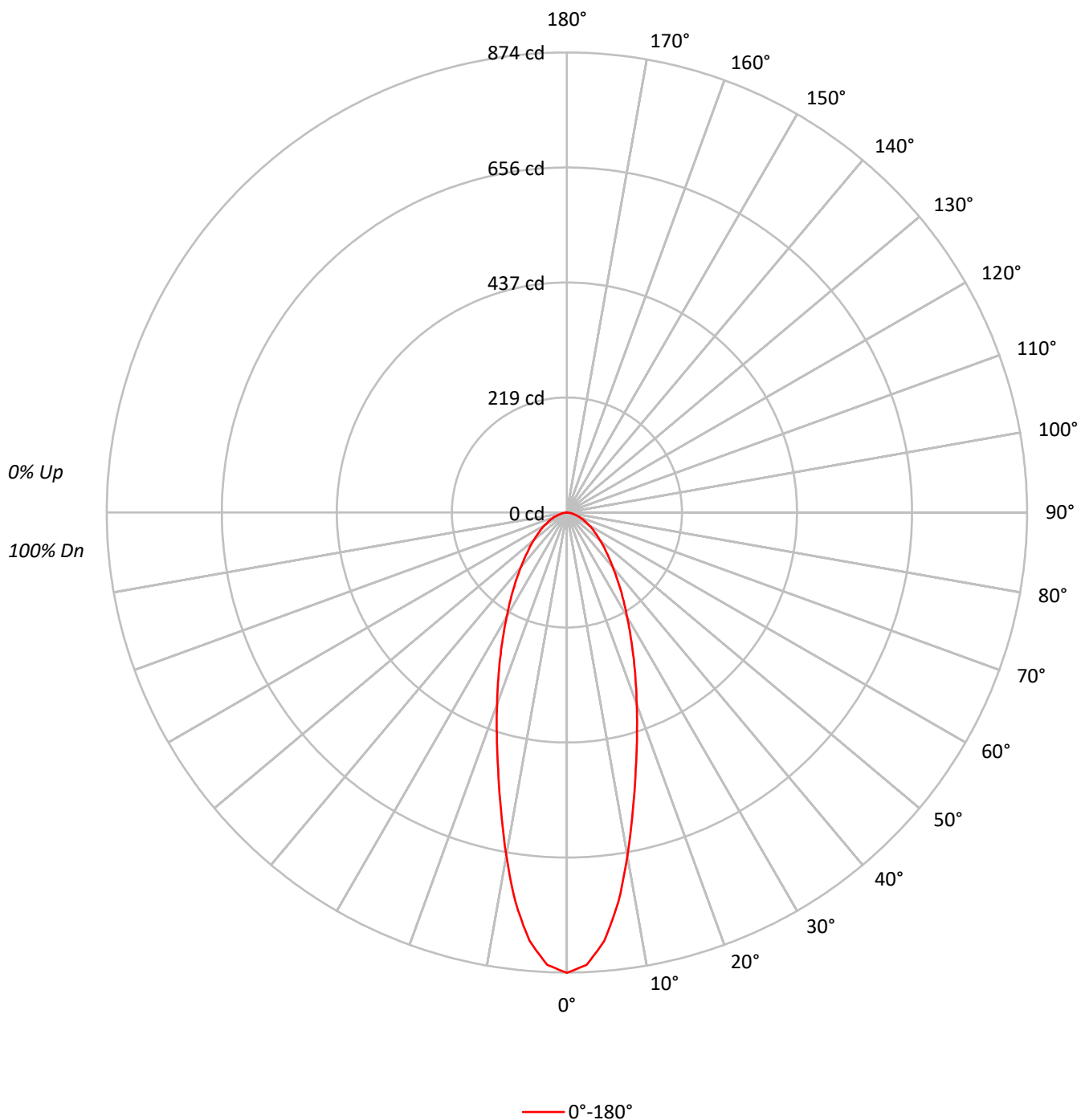
Lumens per Lamp: N/A  
Luminaire Lumens: 659.0 lumens  
Efficiency: N/A  
Efficacy: 45.1 lumens/watt  
Spacing Criteria (0/90/45): 0.56 / 0.56 / 0.67  
Luminous Opening: Circular (Dia: 0.25' x H: 0')  
CIE Type: Direct

Input Watts (W): 14.6  
Input Voltage (V): NR  
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

TEST NUMBER: P1254596

CATALOG NUMBER: P3A13R159035DE010 E3PHLD1MW

### Luminous Intensity Polar Plot



TEST NUMBER: P1254596

CATALOG NUMBER: P3A13R159035DE010 E3PHLD1MW

**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  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 102 |
| 1   | 112 | 108 | 105 | 102 | 109 | 106 | 103 | 101 | 102 | 100 | 97  |  | 98  | 96  | 95  |  | 95  |
| 2   | 104 | 98  | 93  | 89  | 102 | 97  | 92  | 88  | 93  | 89  | 86  |  | 90  | 87  | 84  |  | 87  |
| 3   | 98  | 90  | 84  | 79  | 96  | 88  | 83  | 78  | 85  | 81  | 77  |  | 83  | 79  | 75  |  | 81  |
| 4   | 92  | 82  | 76  | 70  | 90  | 81  | 75  | 70  | 79  | 73  | 69  |  | 77  | 72  | 68  |  | 75  |
| 5   | 86  | 76  | 69  | 64  | 84  | 75  | 68  | 63  | 73  | 67  | 63  |  | 71  | 66  | 62  |  | 70  |
| 6   | 81  | 71  | 63  | 58  | 79  | 70  | 63  | 58  | 68  | 62  | 58  |  | 67  | 61  | 57  |  | 65  |
| 7   | 77  | 66  | 59  | 54  | 75  | 65  | 58  | 54  | 64  | 58  | 53  |  | 62  | 57  | 53  |  | 61  |
| 8   | 72  | 61  | 55  | 50  | 71  | 61  | 54  | 50  | 60  | 54  | 49  |  | 59  | 53  | 49  |  | 58  |
| 9   | 69  | 58  | 51  | 47  | 68  | 57  | 51  | 46  | 56  | 50  | 46  |  | 55  | 50  | 46  |  | 54  |
| 10  | 65  | 54  | 48  | 44  | 64  | 54  | 48  | 44  | 53  | 47  | 43  |  | 52  | 47  | 43  |  | 52  |

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

|     |        |
|-----|--------|
|     | 0°     |
| 0°  | 191761 |
| 5°  | 179771 |
| 10° | 147425 |
| 15° | 114530 |
| 20° | 90401  |
| 25° | 72053  |
| 30° | 57832  |
| 35° | 47221  |
| 40° | 38901  |
| 45° | 32717  |
| 50° | 28110  |
| 55° | 24315  |
| 60° | 21533  |
| 65° | 18731  |
| 70° | 16669  |
| 75° | 13471  |
| 80° | 10986  |
| 85° | 7296   |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 32717 cd/sqm

TEST NUMBER: P1254596

CATALOG NUMBER: P3A13R159035DE010 E3PHLD1MW

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 72.9   | 11.1      |
| 10°-20°   | 141.3  | 21.4      |
| 20°-30°   | 137.4  | 20.8      |
| 30°-40°   | 111.0  | 16.8      |
| 40°-50°   | 82.4   | 12.5      |
| 50°-60°   | 57.6   | 8.7       |
| 60°-70°   | 36.1   | 5.5       |
| 70°-80°   | 17.1   | 2.6       |
| 80°-90°   | 3.1    | 0.5       |
| 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       |
| <hr/>     |        |           |
| 0°-30°    | 351.6  | 53.4      |
| 0°-40°    | 462.6  | 70.2      |
| 0°-60°    | 602.7  | 91.4      |
| 0°-90°    | 659.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 659.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | Flux |
|-----|-----|------|
| 0°  | 874 |      |
| 5°  | 817 | 73   |
| 15° | 504 | 141  |
| 25° | 298 | 137  |
| 35° | 176 | 111  |
| 45° | 106 | 82   |
| 55° | 64  | 58   |
| 65° | 36  | 36   |
| 75° | 16  | 17   |
| 85° | 3   | 3    |
| 90° | 0   |      |

TEST NUMBER: P1254596

CATALOG NUMBER: P3A13R159035DE010 E3PHLD1MW

**CANDELA DISTRIBUTION (FULL):**

| 0°    |       |
|-------|-------|
| 0°    | 874.5 |
| 2.5°  | 860.1 |
| 5°    | 816.7 |
| 7.5°  | 747.3 |
| 10°   | 662.1 |
| 12.5° | 578.2 |
| 15°   | 504.5 |
| 17.5° | 442.3 |
| 20°   | 387.4 |
| 22.5° | 339.7 |
| 25°   | 297.8 |
| 27.5° | 260.2 |
| 30°   | 228.4 |
| 32.5° | 200.9 |
| 35°   | 176.4 |
| 37.5° | 154.7 |
| 40°   | 135.9 |
| 42.5° | 120.0 |
| 45°   | 105.5 |
| 47.5° | 94.0  |
| 50°   | 82.4  |
| 52.5° | 72.3  |
| 55°   | 63.6  |
| 57.5° | 56.4  |
| 60°   | 49.1  |
| 62.5° | 41.9  |
| 65°   | 36.1  |
| 67.5° | 30.4  |
| 70°   | 26.0  |
| 72.5° | 20.2  |
| 75°   | 15.9  |
| 77.5° | 11.6  |
| 80°   | 8.7   |
| 82.5° | 4.3   |
| 85°   | 2.9   |
| 87.5° | 0.0   |
| 90°   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

IRiS

Report Number: SP1-2504-409-24

Test Date: 05/15/2025

Luminaire Tested: LD3A17R159035D010 E3D1WH

Data in this report applies to families of products including LD3A

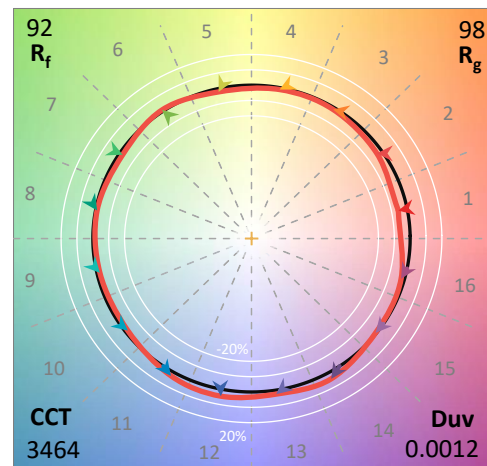
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2504-409-24  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 09/15/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: IRIS  
 Catalog Number: **LD3A17R159035D010 E3D1WH**  
 Description: 3in Adjustable LED luminaire with, R15 optic, 3500K CCT AND, 90CRI LEDS, E3D1WH TRIM

### Spectral Parameters

CCT (K): 3464  
 CIE  $u'$ : 0.2361  
 CIE  $v'$ : 0.5136  
 Duv: 0.0012  
 CIE x: 0.4086  
 CIE y: 0.3951  
 CIE z: 0.1963  
 Peak Wavelength (nm): 614  
 Dominant Wavelength (nm): 580  
 Purity: 41.2143  
 Rf: 91.8  
 Rg: 98.4

CRI (Ra): 92.8  
 R1: 93.1  
 R2: 95.9  
 R3: 98.0  
 R4: 94.1  
 R5: 92.9  
 R6: 95.0  
 R7: 92.5  
 R8: 81.1  
 R9: 53.9  
 R10: 89.9  
 R11: 95.7  
 R12: 78.6  
 R13: 94.0  
 R14: 98.5  
 R15: 88.0



### Test Conditions

Stabilization Time: 62M  
 Operation Time: 2H 2M  
 Sphere Temperature (°C): 25.0

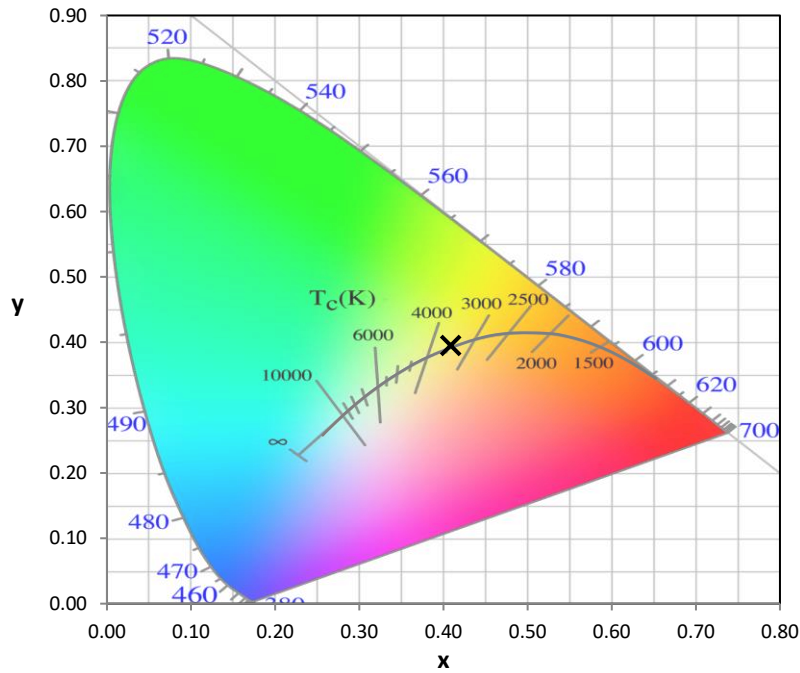


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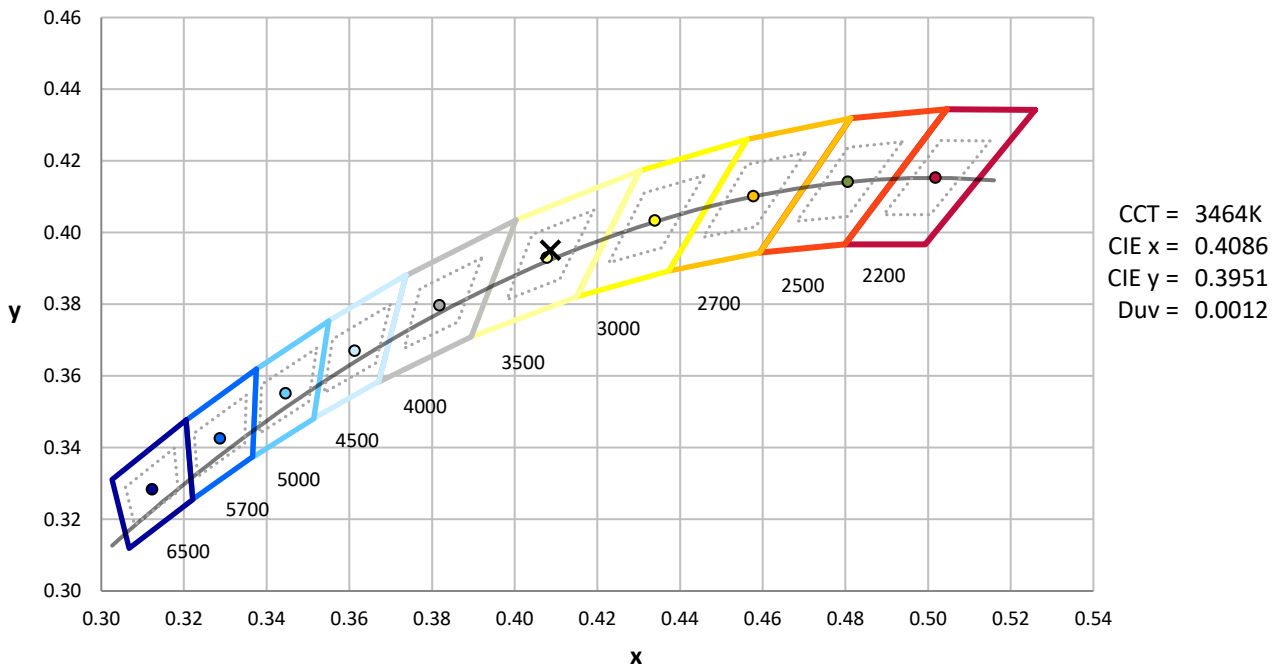
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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**



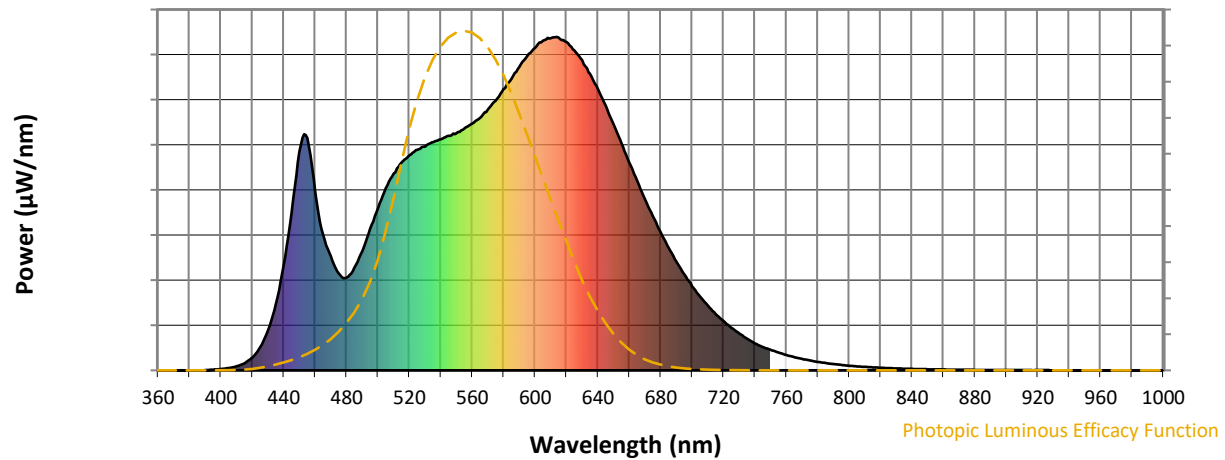
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3500K 4-step quadrangle

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### Photopic Flux vs. Wavelength

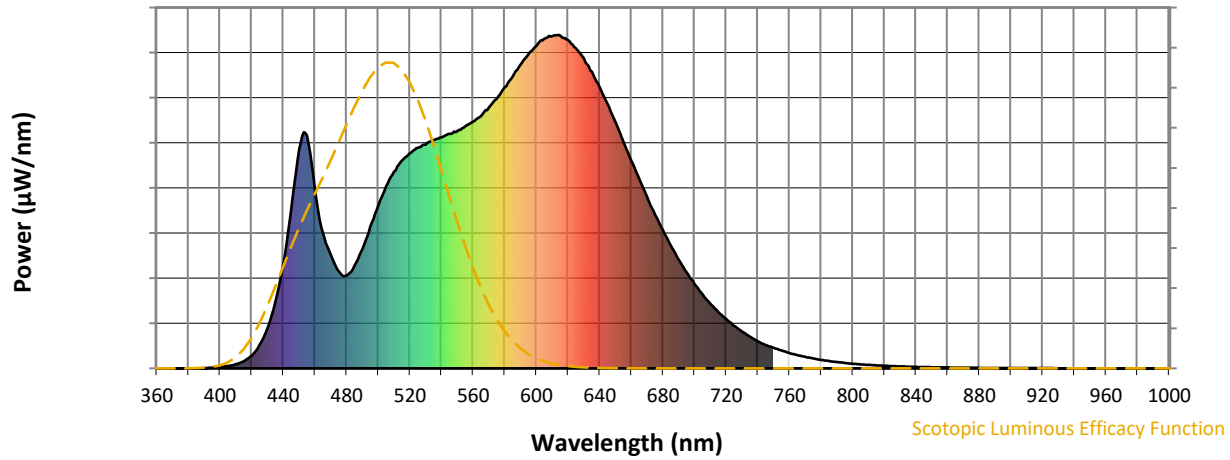


### Photopic Lumens: NR

| $\lambda$<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               | 358                                  | NR                             | 620               | 985                                  | NR                             | 750               | 62                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 424                                  | NR                             | 625               | 960                                  | NR                             | 755               | 53                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 486                                  | NR                             | 630               | 930                                  | NR                             | 760               | 46                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 547                                  | NR                             | 635               | 889                                  | NR                             | 765               | 40                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 590                                  | NR                             | 640               | 844                                  | NR                             | 770               | 34                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 623                                  | NR                             | 645               | 792                                  | NR                             | 775               | 30                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 645                                  | NR                             | 650               | 738                                  | NR                             | 780               | 25                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 662                                  | NR                             | 655               | 681                                  | NR                             | 785               | 22                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 671                                  | NR                             | 660               | 623                                  | NR                             | 790               | 19                                   | NR                             | 920               | 1                                    | NR                             |
| 405               | 7                                    | NR                             | 535               | 685                                  | NR                             | 665               | 568                                  | NR                             | 795               | 16                                   | NR                             | 925               | 1                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 693                                  | NR                             | 670               | 513                                  | NR                             | 800               | 14                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 22                                   | NR                             | 545               | 704                                  | NR                             | 675               | 461                                  | NR                             | 805               | 12                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 39                                   | NR                             | 550               | 712                                  | NR                             | 680               | 414                                  | NR                             | 810               | 10                                   | NR                             | 940               | 0                                    | NR                             |
| 425               | 70                                   | NR                             | 555               | 726                                  | NR                             | 685               | 368                                  | NR                             | 815               | 9                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 120                                  | NR                             | 560               | 740                                  | NR                             | 690               | 326                                  | NR                             | 820               | 8                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 200                                  | NR                             | 565               | 757                                  | NR                             | 695               | 288                                  | NR                             | 825               | 7                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 315                                  | NR                             | 570               | 782                                  | NR                             | 700               | 253                                  | NR                             | 830               | 6                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 475                                  | NR                             | 575               | 809                                  | NR                             | 705               | 222                                  | NR                             | 835               | 5                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 656                                  | NR                             | 580               | 844                                  | NR                             | 710               | 194                                  | NR                             | 840               | 4                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 697                                  | NR                             | 585               | 874                                  | NR                             | 715               | 169                                  | NR                             | 845               | 4                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 539                                  | NR                             | 590               | 911                                  | NR                             | 720               | 148                                  | NR                             | 850               | 3                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 408                                  | NR                             | 595               | 943                                  | NR                             | 725               | 128                                  | NR                             | 855               | 3                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 341                                  | NR                             | 600               | 968                                  | NR                             | 730               | 111                                  | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 291                                  | NR                             | 605               | 988                                  | NR                             | 735               | 95                                   | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 278                                  | NR                             | 610               | 996                                  | NR                             | 740               | 81                                   | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 308                                  | NR                             | 615               | 998                                  | NR                             | 745               | 70                                   | NR                             | 875               | 2                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



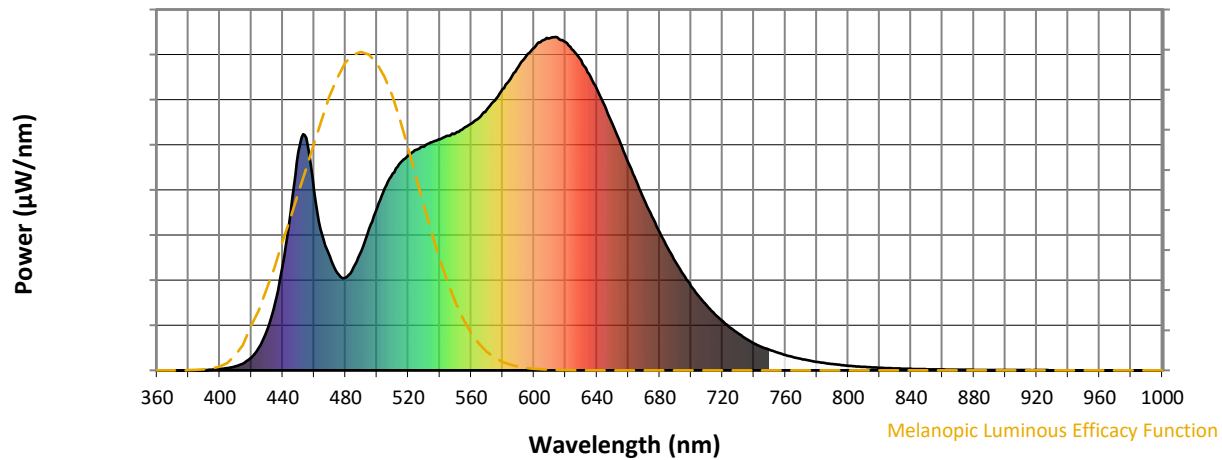
Scotopic Lumens: NR

S/P: 1.6

| 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       | 358                         | NR               | 620       | 985                         | NR               | 750       | 62                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 424                         | NR               | 625       | 960                         | NR               | 755       | 53                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 486                         | NR               | 630       | 930                         | NR               | 760       | 46                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 547                         | NR               | 635       | 889                         | NR               | 765       | 40                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 590                         | NR               | 640       | 844                         | NR               | 770       | 34                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 623                         | NR               | 645       | 792                         | NR               | 775       | 30                          | NR               | 905       | 1                           | NR               |
| 390       | 1                           | NR               | 520       | 645                         | NR               | 650       | 738                         | NR               | 780       | 25                          | NR               | 910       | 1                           | NR               |
| 395       | 2                           | NR               | 525       | 662                         | NR               | 655       | 681                         | NR               | 785       | 22                          | NR               | 915       | 1                           | NR               |
| 400       | 4                           | NR               | 530       | 671                         | NR               | 660       | 623                         | NR               | 790       | 19                          | NR               | 920       | 1                           | NR               |
| 405       | 7                           | NR               | 535       | 685                         | NR               | 665       | 568                         | NR               | 795       | 16                          | NR               | 925       | 1                           | NR               |
| 410       | 12                          | NR               | 540       | 693                         | NR               | 670       | 513                         | NR               | 800       | 14                          | NR               | 930       | 0                           | NR               |
| 415       | 22                          | NR               | 545       | 704                         | NR               | 675       | 461                         | NR               | 805       | 12                          | NR               | 935       | 0                           | NR               |
| 420       | 39                          | NR               | 550       | 712                         | NR               | 680       | 414                         | NR               | 810       | 10                          | NR               | 940       | 0                           | NR               |
| 425       | 70                          | NR               | 555       | 726                         | NR               | 685       | 368                         | NR               | 815       | 9                           | NR               | 945       | 0                           | NR               |
| 430       | 120                         | NR               | 560       | 740                         | NR               | 690       | 326                         | NR               | 820       | 8                           | NR               | 950       | 0                           | NR               |
| 435       | 200                         | NR               | 565       | 757                         | NR               | 695       | 288                         | NR               | 825       | 7                           | NR               | 955       | 0                           | NR               |
| 440       | 315                         | NR               | 570       | 782                         | NR               | 700       | 253                         | NR               | 830       | 6                           | NR               | 960       | 0                           | NR               |
| 445       | 475                         | NR               | 575       | 809                         | NR               | 705       | 222                         | NR               | 835       | 5                           | NR               | 965       | 0                           | NR               |
| 450       | 656                         | NR               | 580       | 844                         | NR               | 710       | 194                         | NR               | 840       | 4                           | NR               | 970       | 0                           | NR               |
| 455       | 697                         | NR               | 585       | 874                         | NR               | 715       | 169                         | NR               | 845       | 4                           | NR               | 975       | 0                           | NR               |
| 460       | 539                         | NR               | 590       | 911                         | NR               | 720       | 148                         | NR               | 850       | 3                           | NR               | 980       | 0                           | NR               |
| 465       | 408                         | NR               | 595       | 943                         | NR               | 725       | 128                         | NR               | 855       | 3                           | NR               | 985       | 0                           | NR               |
| 470       | 341                         | NR               | 600       | 968                         | NR               | 730       | 111                         | NR               | 860       | 2                           | NR               | 990       | 0                           | NR               |
| 475       | 291                         | NR               | 605       | 988                         | NR               | 735       | 95                          | NR               | 865       | 2                           | NR               | 995       | 0                           | NR               |
| 480       | 278                         | NR               | 610       | 996                         | NR               | 740       | 81                          | NR               | 870       | 2                           | NR               | 1000      | 0                           | NR               |
| 485       | 308                         | NR               | 615       | 998                         | NR               | 745       | 70                          | NR               | 875       | 2                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.22

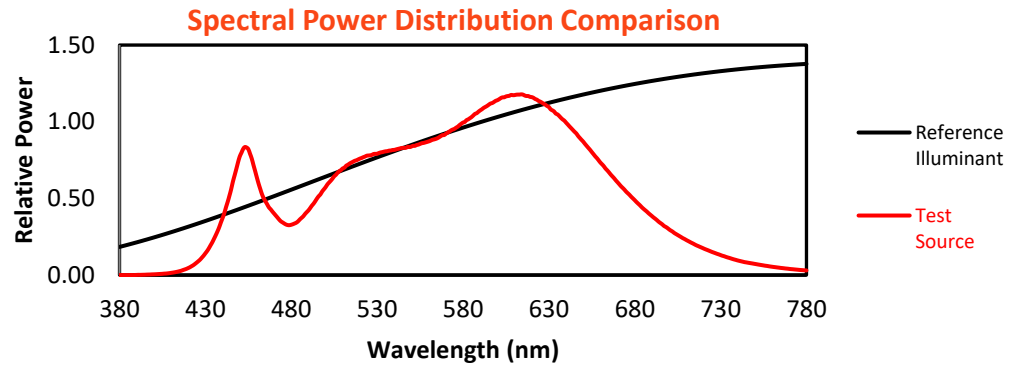
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | 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               | 358                                    | NR                             | 620               | 985                                    | NR                             | 750               | 62                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 424                                    | NR                             | 625               | 960                                    | NR                             | 755               | 53                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 486                                    | NR                             | 630               | 930                                    | NR                             | 760               | 46                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 547                                    | NR                             | 635               | 889                                    | NR                             | 765               | 40                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 590                                    | NR                             | 640               | 844                                    | NR                             | 770               | 34                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 623                                    | NR                             | 645               | 792                                    | NR                             | 775               | 30                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 1                                      | NR                             | 520               | 645                                    | NR                             | 650               | 738                                    | NR                             | 780               | 25                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 2                                      | NR                             | 525               | 662                                    | NR                             | 655               | 681                                    | NR                             | 785               | 22                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 4                                      | NR                             | 530               | 671                                    | NR                             | 660               | 623                                    | NR                             | 790               | 19                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 7                                      | NR                             | 535               | 685                                    | NR                             | 665               | 568                                    | NR                             | 795               | 16                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 12                                     | NR                             | 540               | 693                                    | NR                             | 670               | 513                                    | NR                             | 800               | 14                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 22                                     | NR                             | 545               | 704                                    | NR                             | 675               | 461                                    | NR                             | 805               | 12                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 39                                     | NR                             | 550               | 712                                    | NR                             | 680               | 414                                    | NR                             | 810               | 10                                     | NR                             | 940               | 0                                      | NR                             |
| 425               | 70                                     | NR                             | 555               | 726                                    | NR                             | 685               | 368                                    | NR                             | 815               | 9                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 120                                    | NR                             | 560               | 740                                    | NR                             | 690               | 326                                    | NR                             | 820               | 8                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 200                                    | NR                             | 565               | 757                                    | NR                             | 695               | 288                                    | NR                             | 825               | 7                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 315                                    | NR                             | 570               | 782                                    | NR                             | 700               | 253                                    | NR                             | 830               | 6                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 475                                    | NR                             | 575               | 809                                    | NR                             | 705               | 222                                    | NR                             | 835               | 5                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 656                                    | NR                             | 580               | 844                                    | NR                             | 710               | 194                                    | NR                             | 840               | 4                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 697                                    | NR                             | 585               | 874                                    | NR                             | 715               | 169                                    | NR                             | 845               | 4                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 539                                    | NR                             | 590               | 911                                    | NR                             | 720               | 148                                    | NR                             | 850               | 3                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 408                                    | NR                             | 595               | 943                                    | NR                             | 725               | 128                                    | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 341                                    | NR                             | 600               | 968                                    | NR                             | 730               | 111                                    | NR                             | 860               | 2                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 291                                    | NR                             | 605               | 988                                    | NR                             | 735               | 95                                     | NR                             | 865               | 2                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 278                                    | NR                             | 610               | 996                                    | NR                             | 740               | 81                                     | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 308                                    | NR                             | 615               | 998                                    | NR                             | 745               | 70                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

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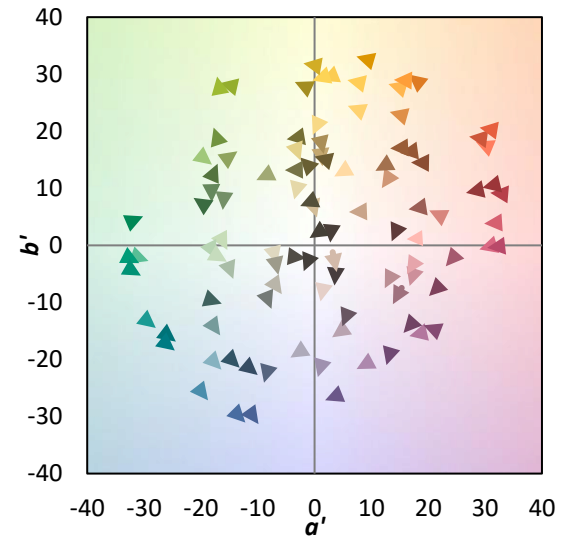
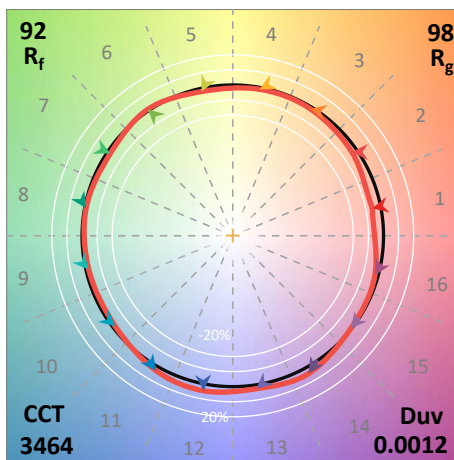
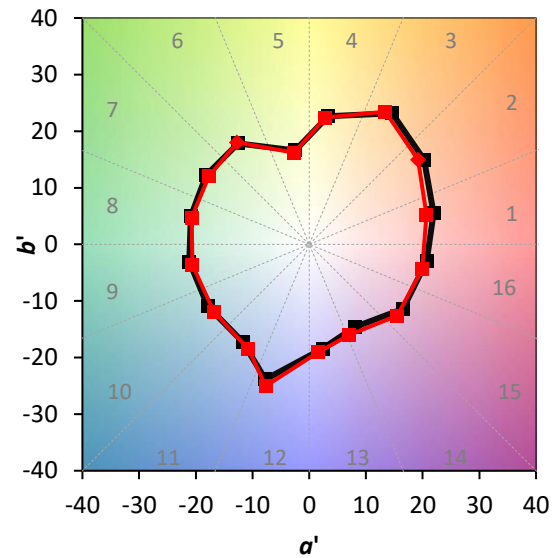
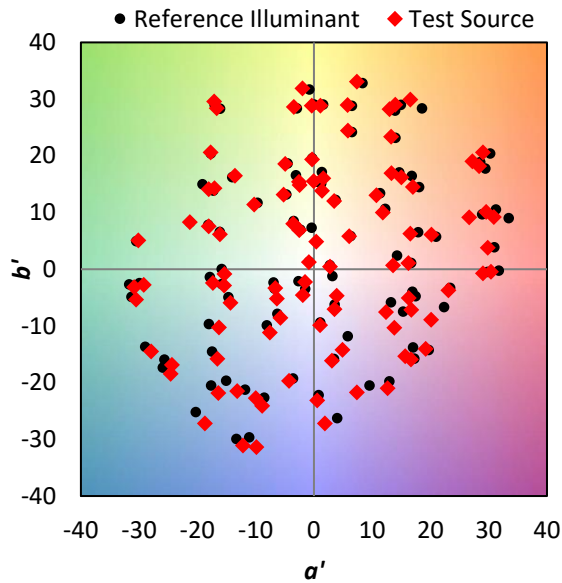
TM-30-18

### Summary

$R_f = 91.8$   
 $R_g = 98.4$   
 $CIE\ R_a = 92.8$   
 $R_9 = 53.9$

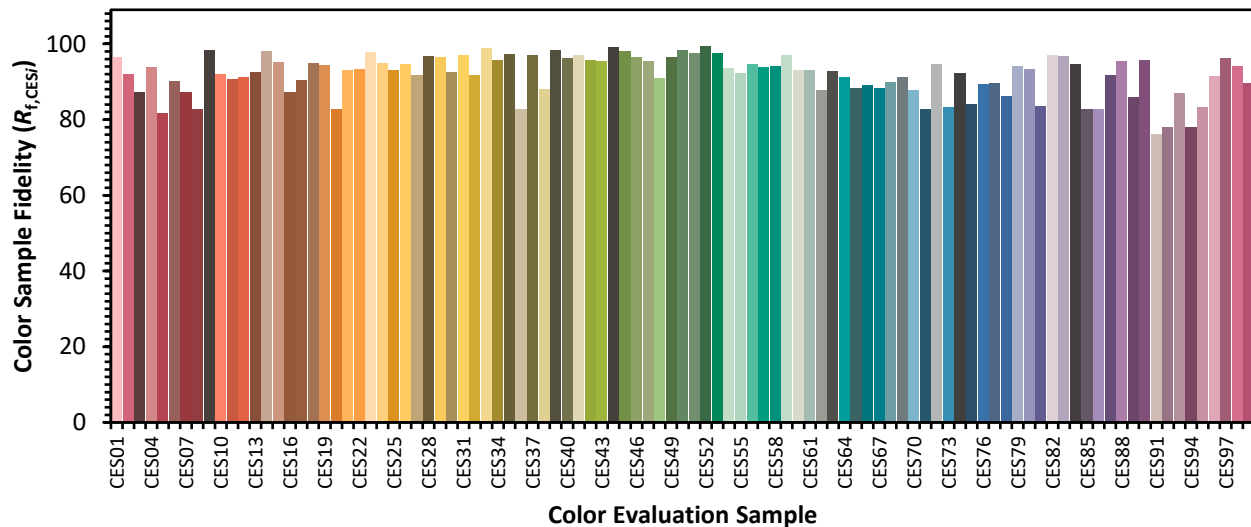


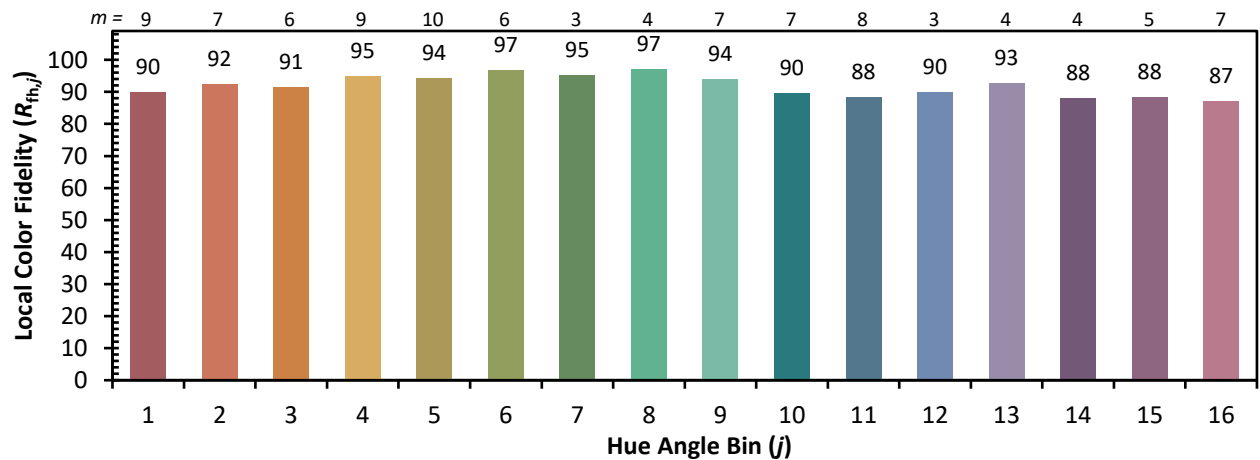
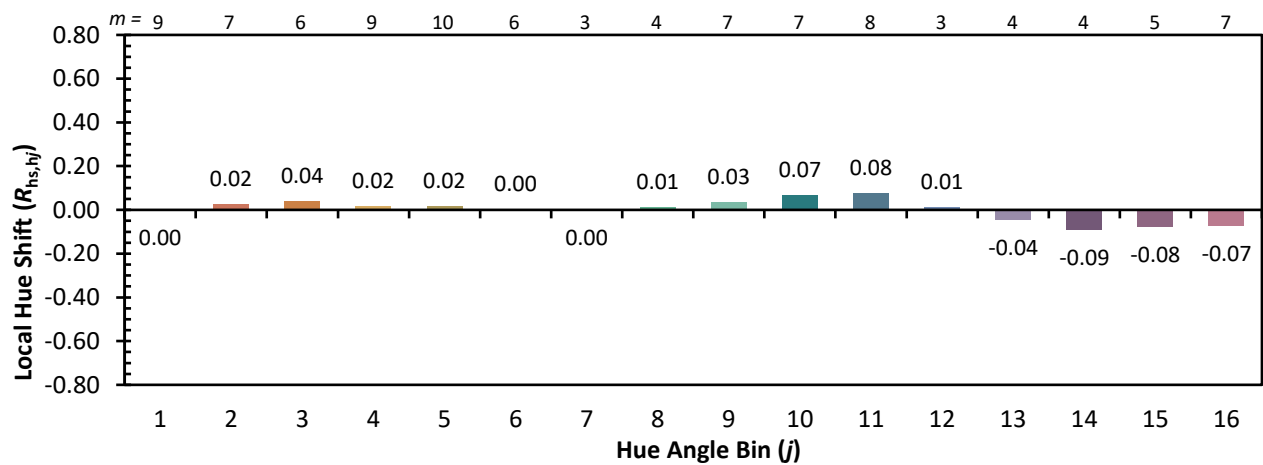
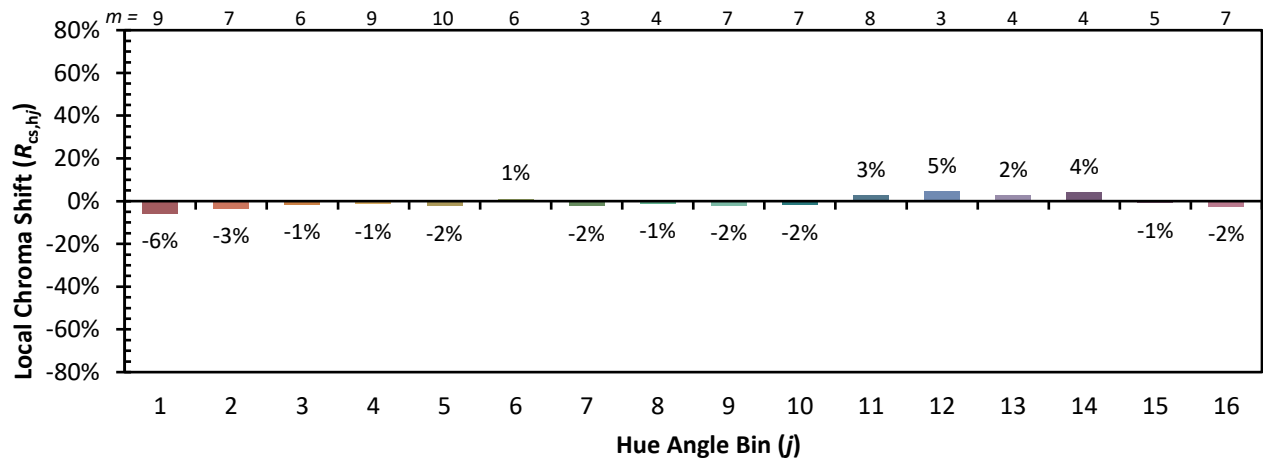
### Color Vector Graphics



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

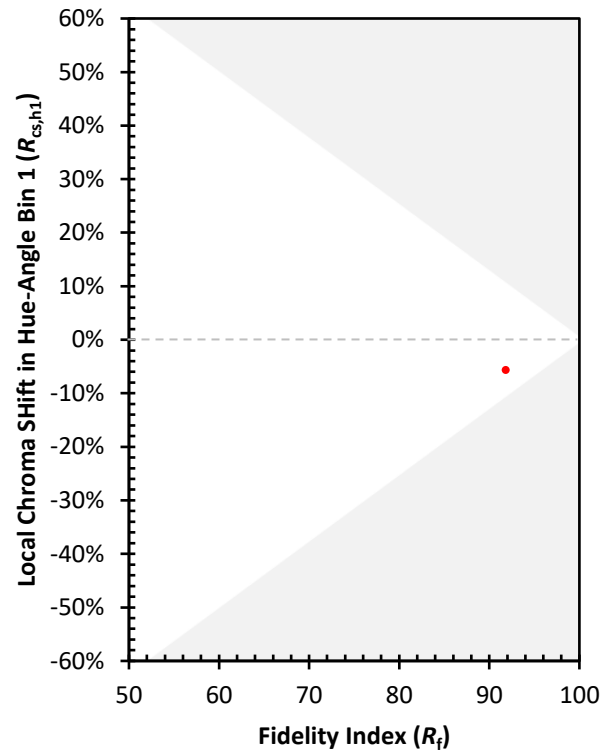
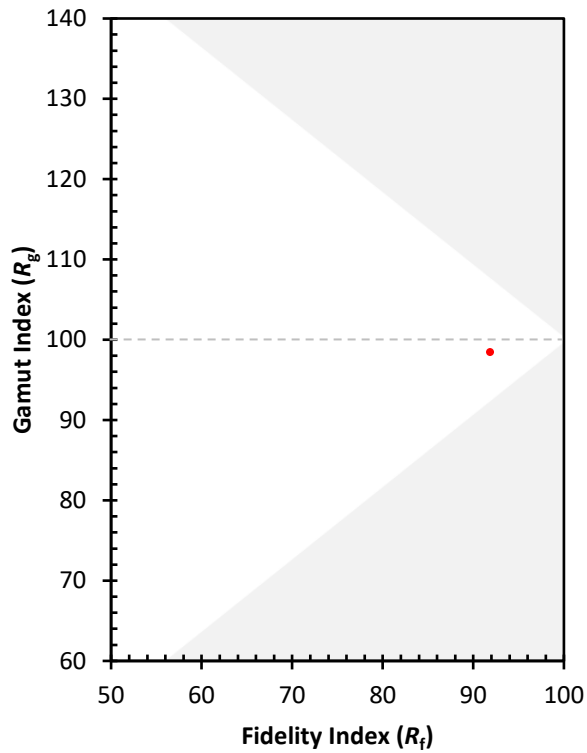
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 95 | CES51 = 98 | CES76 = 89 |
| CES02 = 62 | CES27 = 92 | CES52 = 99 | CES77 = 90 |
| CES03 = 31 | CES28 = 97 | CES53 = 98 | CES78 = 86 |
| CES04 = 70 | CES29 = 97 | CES54 = 93 | CES79 = 94 |
| CES05 = 49 | CES30 = 93 | CES55 = 92 | CES80 = 93 |
| CES06 = 51 | CES31 = 97 | CES56 = 95 | CES81 = 84 |
| CES07 = 42 | CES32 = 92 | CES57 = 94 | CES82 = 97 |
| CES08 = 41 | CES33 = 99 | CES58 = 94 | CES83 = 97 |
| CES09 = 29 | CES34 = 96 | CES59 = 97 | CES84 = 95 |
| CES10 = 75 | CES35 = 97 | CES60 = 93 | CES85 = 83 |
| CES11 = 58 | CES36 = 83 | CES61 = 93 | CES86 = 83 |
| CES12 = 64 | CES37 = 97 | CES62 = 88 | CES87 = 92 |
| CES13 = 43 | CES38 = 88 | CES63 = 93 | CES88 = 96 |
| CES14 = 74 | CES39 = 98 | CES64 = 91 | CES89 = 86 |
| CES15 = 71 | CES40 = 96 | CES65 = 88 | CES90 = 96 |
| CES16 = 47 | CES41 = 97 | CES66 = 89 | CES91 = 76 |
| CES17 = 49 | CES42 = 96 | CES67 = 88 | CES92 = 78 |
| CES18 = 56 | CES43 = 96 | CES68 = 90 | CES93 = 87 |
| CES19 = 71 | CES44 = 99 | CES69 = 91 | CES94 = 78 |
| CES20 = 66 | CES45 = 98 | CES70 = 88 | CES95 = 83 |
| CES21 = 86 | CES46 = 97 | CES71 = 83 | CES96 = 91 |
| CES22 = 78 | CES47 = 95 | CES72 = 95 | CES97 = 96 |
| CES23 = 91 | CES48 = 91 | CES73 = 83 | CES98 = 94 |
| CES24 = 90 | CES49 = 96 | CES74 = 92 | CES99 = 90 |
| CES25 = 71 | CES50 = 98 | CES75 = 84 |            |



**Color Rendition by Hue-Angle Bin**




**Measure Comparisons**



(END OF REPORT)