

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: FAIL-SAFE

Report Number: P735584

Luminaire Tested: **4APN6-24-B2750-W2D-3000K**

Issue Date: 1/5/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P735584  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P709119)  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 1/5/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN6-24-B2750-W2D-3000K  
Description: 4FT 2400 AMBIENT LUMEN OUTPUT APN WITH BIO UP LEDS AT 3000K CCT

Light Source: -  
Ballast/Driver: -

**Summary**

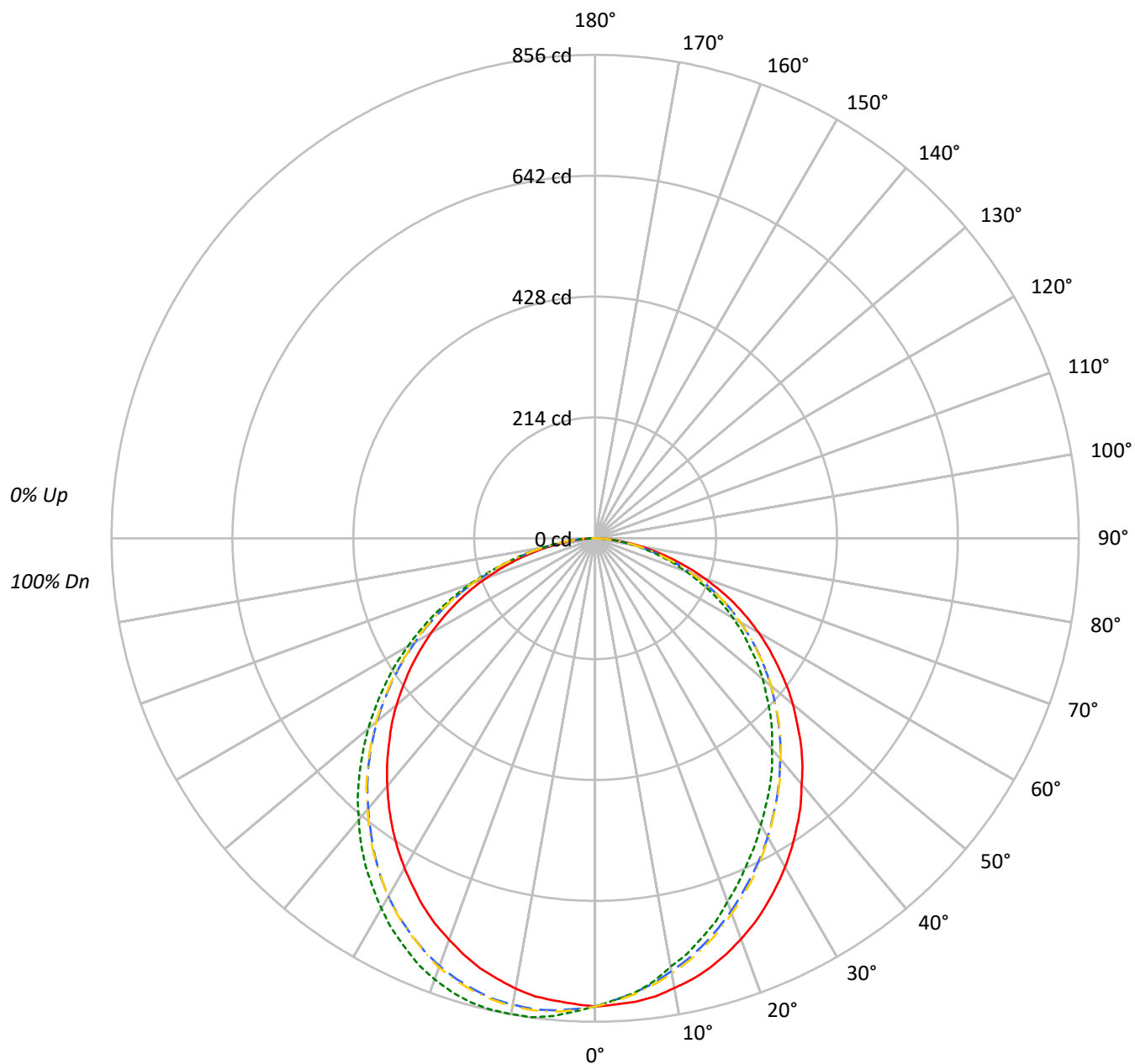
Lumens per Lamp: N/A  
Luminaire Lumens: 2224.0 lumens  
Efficiency: N/A  
Efficacy: 93.4 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.33  
Luminous Opening: Rectangular (W 0.29' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 23.8  
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: 25 FT

TEST NUMBER: P735584

CATALOG NUMBER: 4APN6-24-B2750-W2D-3000K

### Luminous Intensity Polar Plot





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**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   | 109 | 104 | 100 | 96  | 106 | 102 | 98  | 95  | 98  | 94  | 92  | 94  | 91  | 89  | 90  | 88  | 86  | 84  |    |    |
| 2   | 99  | 91  | 84  | 78  | 96  | 89  | 83  | 77  | 85  | 80  | 76  | 82  | 78  | 74  | 79  | 76  | 72  | 70  |    |    |
| 3   | 90  | 80  | 72  | 65  | 88  | 78  | 71  | 65  | 75  | 69  | 64  | 73  | 67  | 62  | 70  | 65  | 61  | 59  |    |    |
| 4   | 83  | 71  | 62  | 55  | 81  | 70  | 61  | 55  | 67  | 60  | 54  | 65  | 59  | 54  | 63  | 57  | 53  | 51  |    |    |
| 5   | 76  | 63  | 54  | 48  | 74  | 62  | 54  | 48  | 60  | 53  | 47  | 58  | 52  | 47  | 56  | 51  | 46  | 44  |    |    |
| 6   | 70  | 57  | 48  | 42  | 68  | 56  | 48  | 42  | 54  | 47  | 41  | 53  | 46  | 41  | 51  | 45  | 41  | 38  |    |    |
| 7   | 65  | 52  | 43  | 37  | 64  | 51  | 43  | 37  | 49  | 42  | 37  | 48  | 41  | 36  | 47  | 41  | 36  | 34  |    |    |
| 8   | 61  | 47  | 39  | 33  | 59  | 47  | 39  | 33  | 45  | 38  | 33  | 44  | 37  | 33  | 43  | 37  | 32  | 30  |    |    |
| 9   | 57  | 43  | 35  | 30  | 55  | 43  | 35  | 30  | 42  | 35  | 30  | 41  | 34  | 29  | 40  | 34  | 29  | 27  |    |    |
| 10  | 53  | 40  | 32  | 27  | 52  | 40  | 32  | 27  | 39  | 32  | 27  | 38  | 31  | 27  | 37  | 31  | 27  | 25  |    |    |

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

|     | 0°   | 90°  | 180° | 270° |
|-----|------|------|------|------|
| 0°  | 7650 | 7650 | 7650 | 7650 |
| 5°  | 7628 | 7480 | 7610 | 7863 |
| 10° | 7575 | 7216 | 7585 | 8015 |
| 15° | 7517 | 6989 | 7527 | 8127 |
| 20° | 7415 | 6724 | 7424 | 8160 |
| 25° | 7296 | 6474 | 7323 | 8127 |
| 30° | 7164 | 6246 | 7185 | 8065 |
| 35° | 7015 | 6064 | 7046 | 7978 |
| 40° | 6847 | 5863 | 6893 | 7841 |
| 45° | 6720 | 5716 | 6733 | 7698 |
| 50° | 6558 | 5561 | 6584 | 7525 |
| 55° | 6352 | 5356 | 6397 | 7319 |
| 60° | 6161 | 5193 | 6180 | 7062 |
| 65° | 5916 | 4975 | 5916 | 6759 |
| 70° | 5517 | 4607 | 5492 | 6299 |
| 75° | 5016 | 4181 | 4948 | 5654 |
| 80° | 4336 | 3592 | 4187 | 4835 |
| 85° | 3377 | 2689 | 3176 | 3970 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 78.4   | 3.5       |
| 10°-20°   | 222.4  | 10.0      |
| 20°-30°   | 330.6  | 14.9      |
| 30°-40°   | 389.6  | 17.5      |
| 40°-50°   | 396.7  | 17.8      |
| 50°-60°   | 353.4  | 15.9      |
| 60°-70°   | 266.3  | 12.0      |
| 70°-80°   | 148.1  | 6.7       |
| 80°-90°   | 38.5   | 1.7       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 631.3  | 28.4      |
| 0°-40°    | 1021.0 | 45.9      |
| 0°-60°    | 1771.2 | 79.6      |
| 0°-90°    | 2224.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2224.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 90° | 180° | 270° | 360° | Flux |
|-----|-----|-----|------|------|------|------|
| 0°  | 829 | 829 | 829  | 829  | 829  |      |
| 5°  | 824 | 808 | 822  | 849  | 824  | 78   |
| 15° | 787 | 732 | 788  | 851  | 787  | 222  |
| 25° | 717 | 636 | 719  | 798  | 717  | 330  |
| 35° | 623 | 538 | 626  | 708  | 623  | 390  |
| 45° | 515 | 438 | 516  | 590  | 515  | 397  |
| 55° | 395 | 333 | 398  | 455  | 395  | 354  |
| 65° | 271 | 228 | 271  | 310  | 271  | 268  |
| 75° | 141 | 117 | 139  | 159  | 141  | 150  |
| 85° | 32  | 25  | 30   | 38   | 32   | 38   |
| 90° | 0   | 0   | 0    | 0    | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 10°   | 20°   | 30°   | 40°   | 50°   | 60°   | 70°   | 80°   | 90°   | 100°  |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 |
| 2.5°  | 826.4 | 826.4 | 827.3 | 823.6 | 819.0 | 817.1 | 816.2 | 815.2 | 817.1 | 818.0 | 817.1 |
| 5°    | 823.6 | 821.7 | 819.8 | 815.2 | 809.6 | 805.8 | 803.9 | 803.0 | 804.9 | 807.7 | 804.9 |
| 7.5°  | 818.0 | 814.3 | 810.5 | 803.9 | 797.4 | 791.7 | 788.9 | 787.0 | 788.9 | 791.7 | 789.8 |
| 10°   | 808.6 | 803.9 | 798.3 | 790.8 | 781.4 | 774.8 | 772.0 | 769.3 | 770.2 | 770.2 | 770.2 |
| 12.5° | 799.2 | 792.7 | 786.1 | 776.7 | 766.4 | 758.9 | 754.2 | 750.5 | 752.3 | 753.3 | 753.3 |
| 15°   | 787.0 | 778.6 | 769.3 | 758.9 | 748.6 | 740.1 | 734.5 | 730.7 | 731.7 | 731.7 | 732.6 |
| 17.5° | 772.0 | 762.7 | 753.3 | 741.1 | 728.8 | 719.4 | 713.0 | 708.3 | 710.1 | 711.1 | 712.0 |
| 20°   | 755.2 | 744.8 | 734.5 | 721.3 | 708.3 | 697.9 | 691.3 | 685.7 | 684.8 | 684.8 | 685.7 |
| 22.5° | 737.3 | 726.0 | 713.9 | 699.8 | 685.7 | 674.4 | 667.9 | 662.3 | 661.4 | 661.4 | 662.3 |
| 25°   | 716.7 | 704.5 | 692.3 | 678.2 | 663.2 | 652.0 | 643.5 | 637.9 | 636.9 | 636.0 | 637.9 |
| 27.5° | 695.1 | 682.9 | 670.8 | 656.7 | 640.7 | 629.4 | 620.9 | 615.4 | 613.5 | 612.6 | 614.5 |
| 30°   | 672.5 | 658.5 | 645.4 | 630.3 | 616.3 | 605.1 | 596.6 | 590.0 | 588.2 | 586.3 | 588.2 |
| 32.5° | 648.2 | 634.1 | 620.1 | 605.1 | 591.0 | 579.7 | 571.2 | 564.8 | 562.9 | 561.9 | 563.8 |
| 35°   | 622.8 | 608.8 | 595.7 | 580.6 | 566.6 | 555.4 | 546.9 | 541.3 | 539.4 | 538.4 | 539.4 |
| 37.5° | 597.5 | 583.5 | 570.4 | 555.4 | 541.3 | 530.0 | 521.5 | 516.0 | 515.0 | 514.1 | 515.0 |
| 40°   | 568.5 | 556.3 | 543.1 | 529.0 | 515.0 | 503.8 | 497.2 | 490.6 | 488.7 | 486.8 | 489.7 |
| 42.5° | 543.1 | 530.9 | 517.9 | 504.7 | 490.6 | 479.3 | 471.9 | 466.3 | 464.4 | 463.4 | 464.4 |
| 45°   | 515.0 | 501.9 | 488.7 | 476.5 | 463.4 | 453.1 | 445.6 | 439.9 | 439.0 | 438.1 | 439.0 |
| 47.5° | 485.0 | 473.7 | 462.5 | 450.3 | 437.1 | 426.8 | 420.3 | 414.7 | 412.8 | 410.9 | 412.8 |
| 50°   | 456.9 | 445.6 | 434.3 | 423.0 | 410.9 | 401.5 | 394.9 | 389.3 | 388.3 | 387.4 | 388.3 |
| 52.5° | 426.8 | 415.6 | 405.3 | 394.0 | 383.6 | 374.2 | 367.8 | 363.1 | 362.1 | 361.2 | 362.1 |
| 55°   | 394.9 | 385.5 | 376.1 | 366.8 | 356.5 | 348.0 | 342.4 | 336.7 | 334.9 | 333.0 | 334.9 |
| 57.5° | 364.9 | 356.5 | 347.1 | 337.7 | 328.3 | 320.9 | 315.2 | 310.5 | 309.6 | 308.6 | 309.6 |
| 60°   | 333.9 | 326.4 | 318.0 | 309.6 | 300.2 | 292.7 | 288.0 | 284.2 | 282.3 | 281.4 | 282.3 |
| 62.5° | 303.0 | 295.5 | 288.9 | 280.4 | 272.1 | 266.4 | 261.7 | 258.0 | 256.1 | 255.2 | 256.1 |
| 65°   | 271.0 | 264.6 | 258.0 | 250.5 | 243.9 | 238.2 | 233.5 | 229.8 | 228.8 | 227.9 | 227.9 |
| 67.5° | 238.2 | 232.6 | 227.0 | 220.5 | 213.0 | 207.3 | 202.6 | 199.8 | 198.9 | 197.9 | 198.9 |
| 70°   | 204.5 | 199.8 | 194.2 | 188.5 | 182.9 | 178.2 | 175.5 | 172.7 | 171.7 | 170.8 | 170.8 |
| 72.5° | 172.7 | 168.9 | 164.2 | 159.5 | 154.8 | 150.1 | 147.3 | 145.4 | 144.5 | 143.5 | 143.5 |
| 75°   | 140.7 | 136.9 | 134.1 | 130.4 | 125.8 | 122.8 | 120.1 | 118.2 | 117.3 | 117.3 | 117.3 |
| 77.5° | 110.7 | 107.9 | 105.1 | 101.3 | 98.5  | 95.7  | 93.8  | 92.9  | 91.9  | 91.9  | 91.9  |
| 80°   | 81.6  | 79.7  | 77.8  | 75.9  | 73.2  | 70.4  | 69.5  | 68.5  | 67.6  | 67.6  | 67.6  |
| 82.5° | 55.4  | 54.4  | 52.5  | 50.7  | 48.8  | 47.8  | 46.9  | 46.0  | 46.0  | 46.0  | 46.0  |
| 85°   | 31.9  | 30.9  | 30.0  | 29.0  | 28.1  | 28.1  | 27.3  | 26.2  | 25.4  | 25.4  | 25.4  |
| 87.5° | 13.2  | 13.2  | 13.2  | 12.2  | 11.3  | 11.3  | 11.3  | 11.3  | 11.3  | 11.3  | 11.3  |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



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**CANDELA DISTRIBUTION (continued):**

|       | 110°  | 120°  | 130°  | 140°  | 150°  | 160°  | 170°  | 180°  | 190°  | 200°  | 210°  |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 |
| 2.5°  | 815.2 | 817.1 | 819.0 | 821.7 | 824.5 | 827.3 | 826.4 | 825.5 | 829.2 | 833.9 | 834.9 |
| 5°    | 803.0 | 804.9 | 807.7 | 812.4 | 817.1 | 820.9 | 821.7 | 821.7 | 829.2 | 835.8 | 837.7 |
| 7.5°  | 788.0 | 790.8 | 794.5 | 799.2 | 805.8 | 811.5 | 814.3 | 818.0 | 825.5 | 833.9 | 837.7 |
| 10°   | 769.3 | 773.9 | 779.5 | 786.1 | 792.7 | 799.2 | 804.9 | 809.6 | 819.0 | 828.3 | 833.9 |
| 12.5° | 752.3 | 757.0 | 762.7 | 770.2 | 778.6 | 787.0 | 792.7 | 799.2 | 810.5 | 821.7 | 828.3 |
| 15°   | 733.5 | 738.2 | 744.8 | 752.3 | 761.7 | 771.0 | 779.5 | 788.0 | 799.2 | 811.5 | 819.0 |
| 17.5° | 713.0 | 717.7 | 724.1 | 733.5 | 743.9 | 754.2 | 763.6 | 772.9 | 786.1 | 799.2 | 807.7 |
| 20°   | 687.6 | 694.2 | 702.6 | 712.0 | 724.1 | 736.4 | 745.8 | 756.1 | 770.2 | 784.2 | 793.6 |
| 22.5° | 663.2 | 669.7 | 679.1 | 690.4 | 703.6 | 716.7 | 727.9 | 739.2 | 754.2 | 768.3 | 778.6 |
| 25°   | 639.7 | 647.3 | 656.7 | 667.9 | 680.1 | 693.2 | 706.4 | 719.4 | 734.5 | 749.5 | 759.9 |
| 27.5° | 616.3 | 622.8 | 632.2 | 643.5 | 657.6 | 670.8 | 683.8 | 697.0 | 713.0 | 728.8 | 740.1 |
| 30°   | 590.0 | 597.5 | 606.0 | 617.3 | 632.2 | 647.3 | 660.4 | 674.4 | 690.4 | 706.4 | 717.7 |
| 32.5° | 565.7 | 572.3 | 580.6 | 591.9 | 606.9 | 622.0 | 636.0 | 651.0 | 666.1 | 681.9 | 693.2 |
| 35°   | 541.3 | 547.8 | 556.3 | 567.6 | 582.5 | 597.5 | 611.6 | 625.6 | 640.7 | 655.7 | 667.0 |
| 37.5° | 516.9 | 523.4 | 531.9 | 543.1 | 557.2 | 572.3 | 585.3 | 599.4 | 614.5 | 629.4 | 639.7 |
| 40°   | 491.5 | 498.1 | 504.7 | 516.0 | 530.0 | 545.0 | 558.2 | 572.3 | 587.2 | 602.2 | 612.6 |
| 42.5° | 466.3 | 472.7 | 481.2 | 492.5 | 505.6 | 518.8 | 531.9 | 545.0 | 559.1 | 573.1 | 583.5 |
| 45°   | 440.9 | 446.5 | 455.0 | 465.3 | 478.4 | 490.6 | 503.8 | 516.0 | 530.0 | 543.1 | 553.5 |
| 47.5° | 414.7 | 420.3 | 426.8 | 437.1 | 450.3 | 463.4 | 476.5 | 488.7 | 500.9 | 514.1 | 523.4 |
| 50°   | 389.3 | 394.9 | 402.4 | 411.8 | 424.1 | 436.2 | 447.5 | 458.7 | 471.0 | 483.1 | 491.5 |
| 52.5° | 363.1 | 368.7 | 375.2 | 384.6 | 394.9 | 406.2 | 416.5 | 427.7 | 439.0 | 450.3 | 458.7 |
| 55°   | 336.7 | 340.5 | 346.1 | 354.6 | 365.9 | 377.1 | 387.4 | 397.7 | 408.1 | 417.5 | 425.8 |
| 57.5° | 310.5 | 315.2 | 321.8 | 329.2 | 338.6 | 348.0 | 357.4 | 366.8 | 376.1 | 385.5 | 393.0 |
| 60°   | 284.2 | 288.0 | 292.7 | 299.2 | 308.6 | 317.1 | 326.4 | 334.9 | 343.3 | 351.8 | 358.4 |
| 62.5° | 257.0 | 260.8 | 265.5 | 272.1 | 279.5 | 287.0 | 295.5 | 303.0 | 310.5 | 318.0 | 324.5 |
| 65°   | 228.8 | 232.6 | 237.3 | 242.9 | 249.5 | 256.1 | 263.6 | 271.0 | 276.7 | 282.3 | 288.9 |
| 67.5° | 199.8 | 203.6 | 208.3 | 213.0 | 218.6 | 225.1 | 231.7 | 238.2 | 243.9 | 249.5 | 254.2 |
| 70°   | 171.7 | 174.4 | 179.1 | 182.9 | 187.6 | 192.3 | 197.9 | 203.6 | 207.3 | 212.0 | 217.7 |
| 72.5° | 144.5 | 147.3 | 151.0 | 154.8 | 157.6 | 161.4 | 167.0 | 171.7 | 176.3 | 182.0 | 184.8 |
| 75°   | 118.2 | 120.1 | 122.8 | 125.8 | 128.5 | 131.3 | 135.1 | 138.8 | 142.6 | 145.4 | 149.2 |
| 77.5° | 91.9  | 93.8  | 96.6  | 98.5  | 100.4 | 102.3 | 105.1 | 107.9 | 110.7 | 112.6 | 116.4 |
| 80°   | 67.6  | 69.5  | 71.3  | 73.2  | 75.0  | 76.9  | 77.8  | 78.8  | 82.5  | 85.3  | 87.2  |
| 82.5° | 46.0  | 46.9  | 47.8  | 49.7  | 50.7  | 51.6  | 52.5  | 52.5  | 54.4  | 56.3  | 59.1  |
| 85°   | 26.2  | 27.3  | 28.1  | 28.1  | 28.1  | 28.1  | 29.0  | 30.0  | 30.9  | 32.8  | 34.7  |
| 87.5° | 10.3  | 10.3  | 11.3  | 11.3  | 11.3  | 11.3  | 11.3  | 11.3  | 12.2  | 14.1  | 15.0  |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



TEST NUMBER: P735584

CATALOG NUMBER: 4APN6-24-B2750-W2D-3000K

**CANDELA DISTRIBUTION (continued):**

|       | 220°  | 230°  | 240°  | 250°  | 260°  | 270°  | 280°  | 290°  | 300°  | 310°  | 320°  |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 | 829.2 |
| 2.5°  | 833.9 | 834.9 | 836.7 | 837.7 | 838.6 | 838.6 | 839.6 | 840.5 | 838.6 | 836.7 | 835.8 |
| 5°    | 838.6 | 839.6 | 842.4 | 845.2 | 847.1 | 849.0 | 848.0 | 847.1 | 845.2 | 842.4 | 840.5 |
| 7.5°  | 839.6 | 842.4 | 845.2 | 849.0 | 851.8 | 855.5 | 853.7 | 851.8 | 848.0 | 844.3 | 841.4 |
| 10°   | 836.7 | 840.5 | 845.2 | 849.9 | 852.7 | 855.5 | 853.7 | 851.8 | 848.0 | 843.3 | 839.6 |
| 12.5° | 833.0 | 837.7 | 843.3 | 848.0 | 850.8 | 854.6 | 851.8 | 849.0 | 844.3 | 839.6 | 834.9 |
| 15°   | 824.5 | 830.2 | 836.7 | 842.4 | 847.1 | 850.8 | 848.0 | 846.1 | 840.5 | 833.9 | 827.3 |
| 17.5° | 814.3 | 821.7 | 828.3 | 834.9 | 838.6 | 842.4 | 840.5 | 838.6 | 832.0 | 824.5 | 817.1 |
| 20°   | 802.1 | 809.6 | 816.2 | 822.6 | 827.3 | 831.1 | 828.3 | 825.5 | 819.0 | 812.4 | 804.9 |
| 22.5° | 787.0 | 794.5 | 802.1 | 808.6 | 813.3 | 817.1 | 813.3 | 808.6 | 802.1 | 795.5 | 788.0 |
| 25°   | 768.3 | 776.7 | 785.1 | 791.7 | 794.5 | 798.3 | 794.5 | 790.8 | 784.2 | 777.6 | 769.3 |
| 27.5° | 749.5 | 758.0 | 766.4 | 772.9 | 775.7 | 779.5 | 775.7 | 772.0 | 765.5 | 758.9 | 750.5 |
| 30°   | 727.9 | 736.4 | 744.8 | 751.4 | 754.2 | 757.0 | 753.3 | 749.5 | 743.9 | 737.3 | 728.8 |
| 32.5° | 703.6 | 712.0 | 718.6 | 725.1 | 728.8 | 732.6 | 728.8 | 726.0 | 719.4 | 711.1 | 702.6 |
| 35°   | 677.2 | 685.7 | 694.2 | 700.7 | 704.5 | 708.3 | 703.6 | 698.9 | 693.2 | 686.6 | 679.1 |
| 37.5° | 648.2 | 657.6 | 667.0 | 674.4 | 677.2 | 681.0 | 677.2 | 672.5 | 667.0 | 660.4 | 652.0 |
| 40°   | 620.9 | 629.4 | 637.9 | 645.4 | 648.2 | 651.0 | 647.3 | 643.5 | 636.9 | 630.3 | 622.0 |
| 42.5° | 592.9 | 601.3 | 608.8 | 615.4 | 618.2 | 622.0 | 618.2 | 613.5 | 608.8 | 603.2 | 595.7 |
| 45°   | 562.9 | 571.2 | 577.8 | 584.4 | 587.2 | 590.0 | 586.3 | 581.6 | 576.9 | 572.3 | 564.8 |
| 47.5° | 531.9 | 539.4 | 546.0 | 552.5 | 554.4 | 557.2 | 553.5 | 550.7 | 546.0 | 541.3 | 534.7 |
| 50°   | 500.0 | 507.5 | 514.1 | 519.7 | 521.5 | 524.3 | 520.7 | 516.9 | 513.2 | 509.4 | 503.8 |
| 52.5° | 467.2 | 473.7 | 480.3 | 485.9 | 487.8 | 489.7 | 485.9 | 482.1 | 478.4 | 474.6 | 469.1 |
| 55°   | 433.4 | 439.9 | 446.5 | 451.2 | 453.1 | 455.0 | 451.2 | 448.4 | 444.6 | 441.8 | 436.2 |
| 57.5° | 399.6 | 406.2 | 411.8 | 416.5 | 418.4 | 420.3 | 416.5 | 412.8 | 410.0 | 407.1 | 402.4 |
| 60°   | 364.9 | 371.5 | 376.1 | 379.9 | 381.8 | 382.7 | 378.9 | 376.1 | 374.2 | 372.5 | 367.8 |
| 62.5° | 331.1 | 335.8 | 340.5 | 343.3 | 345.2 | 346.1 | 343.3 | 341.4 | 339.6 | 337.7 | 333.9 |
| 65°   | 295.5 | 301.1 | 304.9 | 307.7 | 308.6 | 309.6 | 306.8 | 304.9 | 303.0 | 301.1 | 298.3 |
| 67.5° | 259.9 | 264.6 | 267.4 | 270.2 | 271.0 | 271.0 | 271.0 | 270.2 | 268.3 | 265.5 | 262.7 |
| 70°   | 224.1 | 227.9 | 230.7 | 232.6 | 233.5 | 233.5 | 231.7 | 229.8 | 229.8 | 228.8 | 227.0 |
| 72.5° | 187.6 | 190.4 | 192.3 | 194.2 | 194.2 | 194.2 | 194.2 | 195.1 | 194.2 | 192.3 | 189.5 |
| 75°   | 152.9 | 155.7 | 157.6 | 158.6 | 158.6 | 158.6 | 158.6 | 159.5 | 158.6 | 157.6 | 155.7 |
| 77.5° | 120.1 | 122.0 | 122.8 | 123.9 | 123.9 | 123.9 | 124.7 | 125.8 | 124.7 | 123.9 | 122.8 |
| 80°   | 89.1  | 90.0  | 91.0  | 91.9  | 91.0  | 91.0  | 91.9  | 93.8  | 92.9  | 91.9  | 91.0  |
| 82.5° | 61.0  | 61.9  | 62.9  | 62.9  | 63.8  | 64.8  | 64.8  | 64.8  | 64.8  | 63.8  | 62.9  |
| 85°   | 36.6  | 37.5  | 37.5  | 37.5  | 37.5  | 37.5  | 38.4  | 39.4  | 39.4  | 38.4  | 38.4  |
| 87.5° | 16.9  | 17.9  | 16.9  | 16.0  | 15.0  | 15.0  | 16.9  | 18.8  | 18.8  | 17.9  | 17.9  |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



TEST NUMBER: P735584

CATALOG NUMBER: 4APN6-24-B2750-W2D-3000K

**CANDELA DISTRIBUTION (continued):**

|       | 330°  | 340°  | 350°  | 360°  |
|-------|-------|-------|-------|-------|
| 0°    | 829.2 | 829.2 | 829.2 | 829.2 |
| 2.5°  | 836.7 | 835.8 | 831.1 | 826.4 |
| 5°    | 839.6 | 836.7 | 830.2 | 823.6 |
| 7.5°  | 839.6 | 835.8 | 826.4 | 818.0 |
| 10°   | 834.9 | 829.2 | 819.0 | 808.6 |
| 12.5° | 829.2 | 822.6 | 810.5 | 799.2 |
| 15°   | 820.9 | 813.3 | 800.2 | 787.0 |
| 17.5° | 808.6 | 799.2 | 786.1 | 772.0 |
| 20°   | 796.4 | 786.1 | 770.2 | 755.2 |
| 22.5° | 779.5 | 770.2 | 753.3 | 737.3 |
| 25°   | 760.8 | 750.5 | 733.5 | 716.7 |
| 27.5° | 741.1 | 728.8 | 712.0 | 695.1 |
| 30°   | 718.6 | 706.4 | 689.5 | 672.5 |
| 32.5° | 694.2 | 682.9 | 666.1 | 648.2 |
| 35°   | 669.7 | 657.6 | 640.7 | 622.8 |
| 37.5° | 642.6 | 631.3 | 614.5 | 597.5 |
| 40°   | 613.5 | 602.2 | 585.3 | 568.5 |
| 42.5° | 586.3 | 575.9 | 559.1 | 543.1 |
| 45°   | 556.3 | 546.0 | 530.0 | 515.0 |
| 47.5° | 525.3 | 515.0 | 500.0 | 485.0 |
| 50°   | 495.3 | 485.0 | 471.0 | 456.9 |
| 52.5° | 461.6 | 453.1 | 439.9 | 426.8 |
| 55°   | 428.7 | 420.3 | 407.1 | 394.9 |
| 57.5° | 395.9 | 388.3 | 376.1 | 364.9 |
| 60°   | 361.2 | 353.7 | 344.3 | 333.9 |
| 62.5° | 328.3 | 321.8 | 312.4 | 303.0 |
| 65°   | 293.6 | 288.0 | 279.5 | 271.0 |
| 67.5° | 258.0 | 253.3 | 245.8 | 238.2 |
| 70°   | 222.4 | 216.7 | 211.1 | 204.5 |
| 72.5° | 186.7 | 183.8 | 178.2 | 172.7 |
| 75°   | 152.9 | 150.1 | 145.4 | 140.7 |
| 77.5° | 121.1 | 118.2 | 114.5 | 110.7 |
| 80°   | 89.1  | 87.2  | 84.4  | 81.6  |
| 82.5° | 61.9  | 60.1  | 58.2  | 55.4  |
| 85°   | 37.5  | 35.6  | 33.7  | 31.9  |
| 87.5° | 16.9  | 16.0  | 14.1  | 13.2  |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   |



Report Generated By 670246072 / DESKTOP-50001EG





— 0°-180°    - - 45°-225°    - - - - 90°-270°    - · - 135°-315°













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: SP1-2210-795-2

Test Date: 10/06/2022

Luminaire Tested: 9WP217084MDER4AM-3000K-315MA

Data in this report applies to families of products including 9WP217084MDER4AM-3000K.

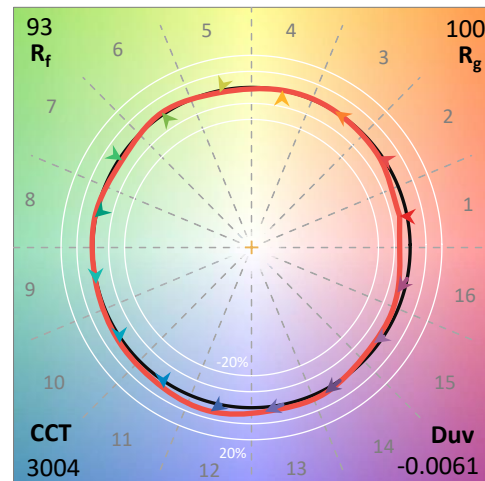
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2210-795-2  
 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-3000K-315MA**  
 Description: METALUX

TUNABLE BOARD, 3000K-315MA, PROGRAMMED @ 2.6Vdc.

### Spectral Parameters

|                           |         |           |      |      |      |
|---------------------------|---------|-----------|------|------|------|
| CCT (K):                  | 3004    | CRI (Ra): | 93.2 |      |      |
| CIE u':                   | 0.2526  | R1:       | 98.5 | R9:  | 67.1 |
| CIE v':                   | 0.5127  | R2:       | 96.3 | R10: | 94.0 |
| Duv:                      | -0.0061 | R3:       | 94.1 | R11: | 97.7 |
| CIE x:                    | 0.4279  | R4:       | 96.5 | R12: | 86.0 |
| CIE y:                    | 0.3860  | R5:       | 98.5 | R13: | 98.4 |
| CIE z:                    | 0.1861  | R6:       | 90.3 | R14: | 98.1 |
| Peak Wavelength (nm):     | 632     | R7:       | 88.3 |      |      |
| Dominant Wavelength (nm): | 585     | R8:       | 83.1 |      |      |
| Purity:                   | 44.5    |           |      |      |      |
| Rf:                       | 92.5    |           |      |      |      |
| Rg:                       | 99.9    |           |      |      |      |



### Test Conditions

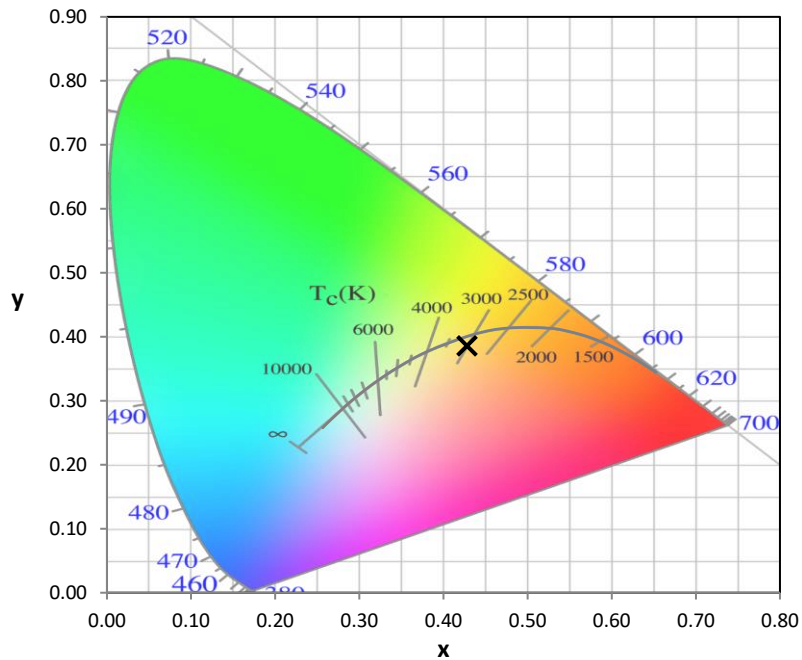
Stabilization Time: 53M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.0/38%  
 Sphere Temperature (°C): 24.4

REPORT NUMBER: SP1-2210-795-2

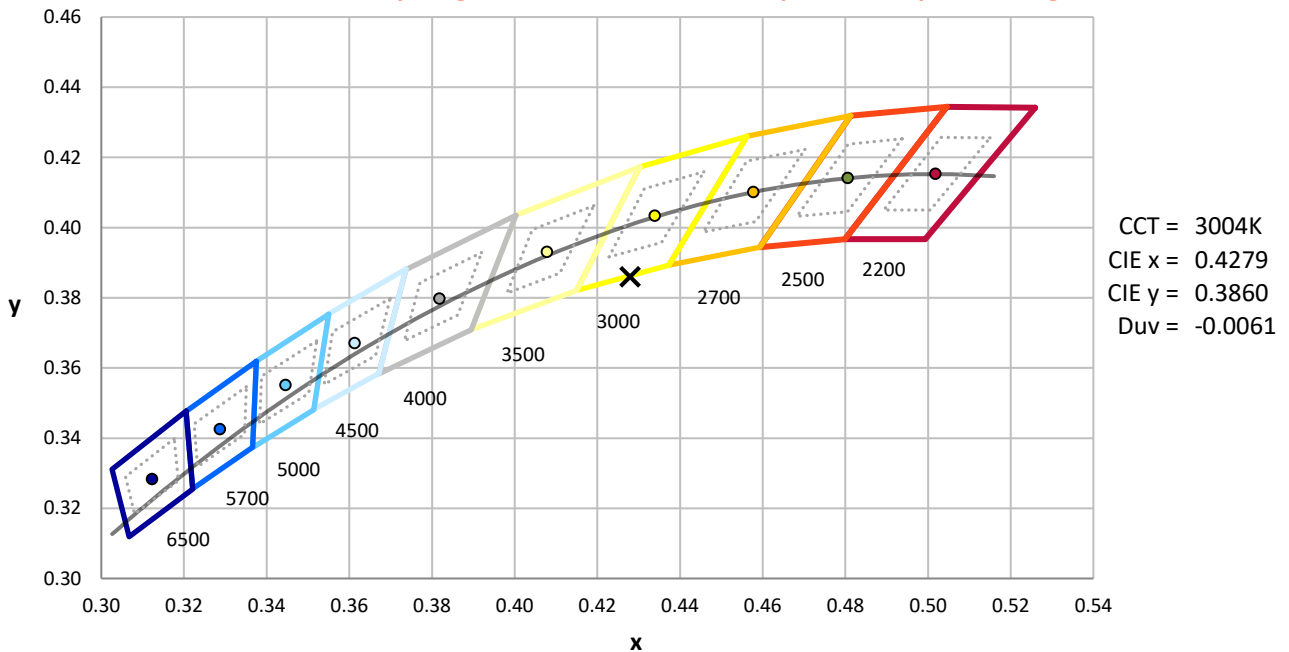
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

REPORT NUMBER: SP1-2210-795-2

**CIE 1931 Chromaticity Diagram**



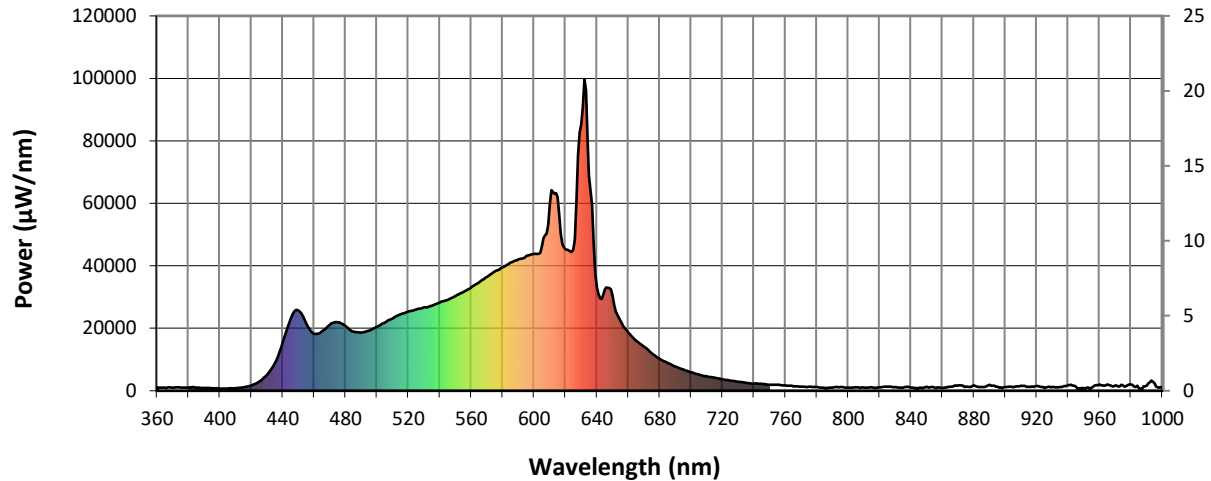
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies outside the range

REPORT NUMBER: SP1-2210-795-2

**Photopic Flux vs. Wavelength**

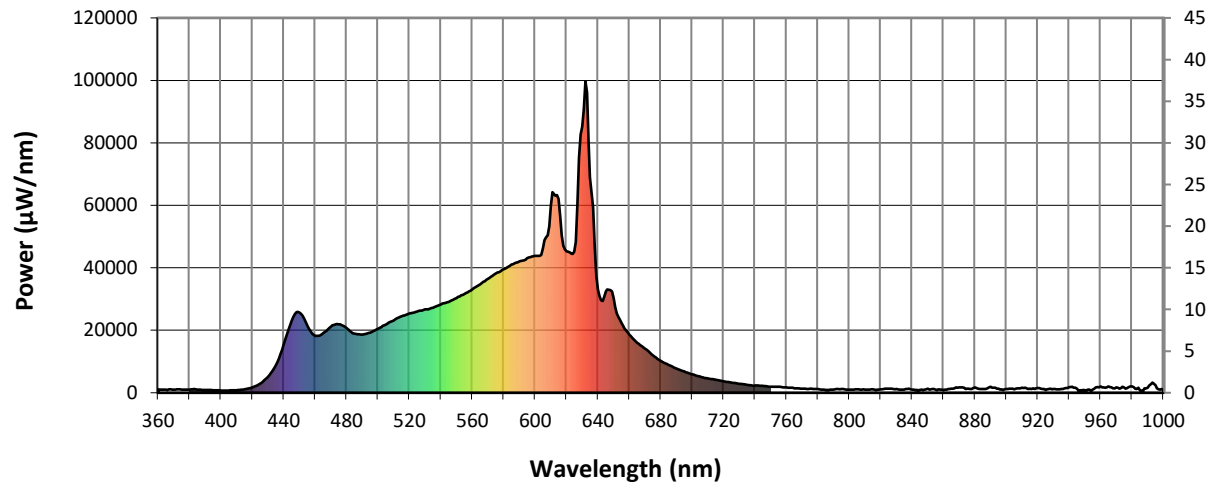


#####

| 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       | 1141             | NR               | 490       | 18648            | NR               | 620       | 45240            | NR               | 750       | 1949             | NR               | 880       | 1696             | NR               |
| 365       | 981              | NR               | 495       | 19266            | NR               | 625       | 45103            | NR               | 755       | 1928             | NR               | 885       | 1176             | NR               |
| 370       | 993              | NR               | 500       | 20501            | NR               | 630       | 85243            | NR               | 760       | 1686             | NR               | 890       | 1892             | NR               |
| 375       | 1026             | NR               | 505       | 21835            | NR               | 635       | 68928            | NR               | 765       | 1435             | NR               | 895       | 1303             | NR               |
| 380       | 1011             | NR               | 510       | 23128            | NR               | 640       | 33096            | NR               | 770       | 1270             | NR               | 900       | 1197             | NR               |
| 385       | 1002             | NR               | 515       | 24473            | NR               | 645       | 32437            | NR               | 775       | 1334             | NR               | 905       | 1148             | NR               |
| 390       | 868              | NR               | 520       | 25336            | NR               | 650       | 30398            | NR               | 780       | 1218             | NR               | 910       | 1595             | NR               |
| 395       | 834              | NR               | 525       | 26013            | NR               | 655       | 22347            | NR               | 785       | 928              | NR               | 915       | 1266             | NR               |
| 400       | 731              | NR               | 530       | 26667            | NR               | 660       | 18602            | NR               | 790       | 989              | NR               | 920       | 1495             | NR               |
| 405       | 725              | NR               | 535       | 27195            | NR               | 665       | 15938            | NR               | 795       | 1224             | NR               | 925       | 855              | NR               |
| 410       | 825              | NR               | 540       | 28268            | NR               | 670       | 14142            | NR               | 800       | 1005             | NR               | 930       | 1185             | NR               |
| 415       | 1102             | NR               | 545       | 29091            | NR               | 675       | 11970            | NR               | 805       | 1076             | NR               | 935       | 1186             | NR               |
| 420       | 1695             | NR               | 550       | 30262            | NR               | 680       | 10212            | NR               | 810       | 1018             | NR               | 940       | 1843             | NR               |
| 425       | 2899             | NR               | 555       | 31582            | NR               | 685       | 8911             | NR               | 815       | 1059             | NR               | 945       | 1344             | NR               |
| 430       | 5092             | NR               | 560       | 33069            | NR               | 690       | 7775             | NR               | 820       | 1047             | NR               | 950       | 827              | NR               |
| 435       | 8866             | NR               | 565       | 34747            | NR               | 695       | 6796             | NR               | 825       | 1259             | NR               | 955       | 984              | NR               |
| 440       | 15398            | NR               | 570       | 36451            | NR               | 700       | 5894             | NR               | 830       | 1151             | NR               | 960       | 1985             | NR               |
| 445       | 23004            | NR               | 575       | 38145            | NR               | 705       | 5150             | NR               | 835       | 1045             | NR               | 965       | 2009             | NR               |
| 450       | 25734            | NR               | 580       | 39543            | NR               | 710       | 4545             | NR               | 840       | 1037             | NR               | 970       | 1686             | NR               |
| 455       | 21534            | NR               | 585       | 41063            | NR               | 715       | 4197             | NR               | 845       | 888              | NR               | 975       | 1733             | NR               |
| 460       | 18246            | NR               | 590       | 42070            | NR               | 720       | 3650             | NR               | 850       | 1271             | NR               | 980       | 2039             | NR               |
| 465       | 18978            | NR               | 595       | 43067            | NR               | 725       | 3265             | NR               | 855       | 1028             | NR               | 985       | 919              | NR               |
| 470       | 21128            | NR               | 600       | 43863            | NR               | 730       | 2885             | NR               | 860       | 867              | NR               | 990       | 1621             | NR               |
| 475       | 21866            | NR               | 605       | 46127            | NR               | 735       | 2521             | NR               | 865       | 1316             | NR               | 995       | 2360             | NR               |
| 480       | 20628            | NR               | 610       | 59905            | NR               | 740       | 2317             | NR               | 870       | 1674             | NR               | 1000      | 905              | NR               |
| 485       | 18888            | NR               | 615       | 62018            | NR               | 745       | 2212             | NR               | 875       | 1299             | NR               |           |                  |                  |

REPORT NUMBER: SP1-2210-795-2

Scotopic Flux vs. Wavelength



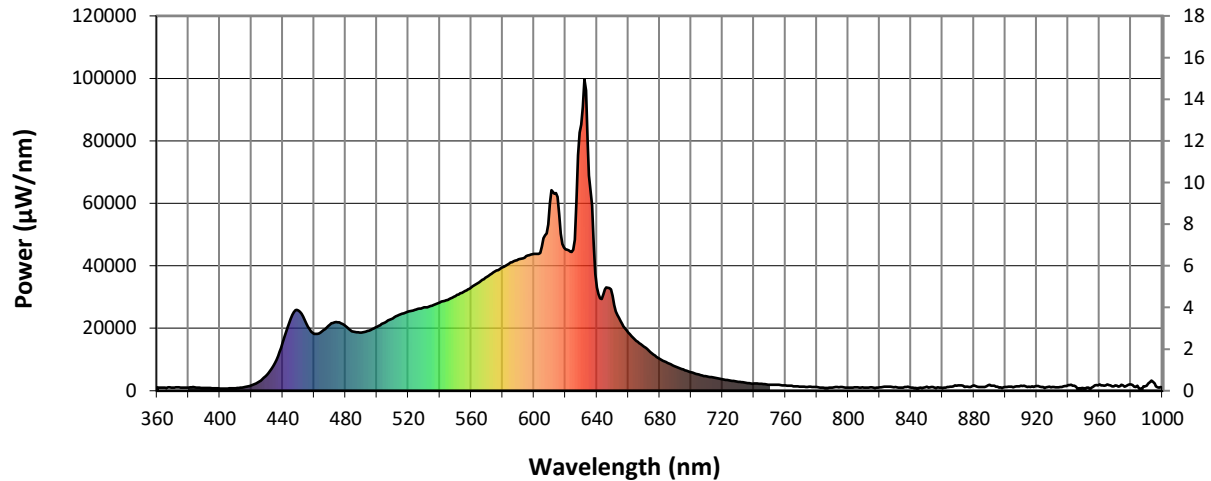
Scotopic Lumens: 3849.1

S/P: 1.53

| 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       | 1141             | NR               | 490       | 18648            | NR               | 620       | 45240            | NR               | 750       | 1949             | NR               | 880       | 1696             | NR               |
| 365       | 981              | NR               | 495       | 19266            | NR               | 625       | 45103            | NR               | 755       | 1928             | NR               | 885       | 1176             | NR               |
| 370       | 993              | NR               | 500       | 20501            | NR               | 630       | 85243            | NR               | 760       | 1686             | NR               | 890       | 1892             | NR               |
| 375       | 1026             | NR               | 505       | 21835            | NR               | 635       | 68928            | NR               | 765       | 1435             | NR               | 895       | 1303             | NR               |
| 380       | 1011             | NR               | 510       | 23128            | NR               | 640       | 33096            | NR               | 770       | 1270             | NR               | 900       | 1197             | NR               |
| 385       | 1002             | NR               | 515       | 24473            | NR               | 645       | 32437            | NR               | 775       | 1334             | NR               | 905       | 1148             | NR               |
| 390       | 868              | NR               | 520       | 25336            | NR               | 650       | 30398            | NR               | 780       | 1218             | NR               | 910       | 1595             | NR               |
| 395       | 834              | NR               | 525       | 26013            | NR               | 655       | 22347            | NR               | 785       | 928              | NR               | 915       | 1266             | NR               |
| 400       | 731              | NR               | 530       | 26667            | NR               | 660       | 18602            | NR               | 790       | 989              | NR               | 920       | 1495             | NR               |
| 405       | 725              | NR               | 535       | 27195            | NR               | 665       | 15938            | NR               | 795       | 1224             | NR               | 925       | 855              | NR               |
| 410       | 825              | NR               | 540       | 28268            | NR               | 670       | 14142            | NR               | 800       | 1005             | NR               | 930       | 1185             | NR               |
| 415       | 1102             | NR               | 545       | 29091            | NR               | 675       | 11970            | NR               | 805       | 1076             | NR               | 935       | 1186             | NR               |
| 420       | 1695             | NR               | 550       | 30262            | NR               | 680       | 10212            | NR               | 810       | 1018             | NR               | 940       | 1843             | NR               |
| 425       | 2899             | NR               | 555       | 31582            | NR               | 685       | 8911             | NR               | 815       | 1059             | NR               | 945       | 1344             | NR               |
| 430       | 5092             | NR               | 560       | 33069            | NR               | 690       | 7775             | NR               | 820       | 1047             | NR               | 950       | 827              | NR               |
| 435       | 8866             | NR               | 565       | 34747            | NR               | 695       | 6796             | NR               | 825       | 1259             | NR               | 955       | 984              | NR               |
| 440       | 15398            | NR               | 570       | 36451            | NR               | 700       | 5894             | NR               | 830       | 1151             | NR               | 960       | 1985             | NR               |
| 445       | 23004            | NR               | 575       | 38145            | NR               | 705       | 5150             | NR               | 835       | 1045             | NR               | 965       | 2009             | NR               |
| 450       | 25734            | NR               | 580       | 39543            | NR               | 710       | 4545             | NR               | 840       | 1037             | NR               | 970       | 1686             | NR               |
| 455       | 21534            | NR               | 585       | 41063            | NR               | 715       | 4197             | NR               | 845       | 888              | NR               | 975       | 1733             | NR               |
| 460       | 18246            | NR               | 590       | 42070            | NR               | 720       | 3650             | NR               | 850       | 1271             | NR               | 980       | 2039             | NR               |
| 465       | 18978            | NR               | 595       | 43067            | NR               | 725       | 3265             | NR               | 855       | 1028             | NR               | 985       | 919              | NR               |
| 470       | 21128            | NR               | 600       | 43863            | NR               | 730       | 2885             | NR               | 860       | 867              | NR               | 990       | 1621             | NR               |
| 475       | 21866            | NR               | 605       | 46127            | NR               | 735       | 2521             | NR               | 865       | 1316             | NR               | 995       | 2360             | NR               |
| 480       | 20628            | NR               | 610       | 59905            | NR               | 740       | 2317             | NR               | 870       | 1674             | NR               | 1000      | 905              | NR               |
| 485       | 18888            | NR               | 615       | 62018            | NR               | 745       | 2212             | NR               | 875       | 1299             | NR               |           |                  |                  |

REPORT NUMBER: SP1-2210-795-2

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 1558.5**

**S/P: 0.62**

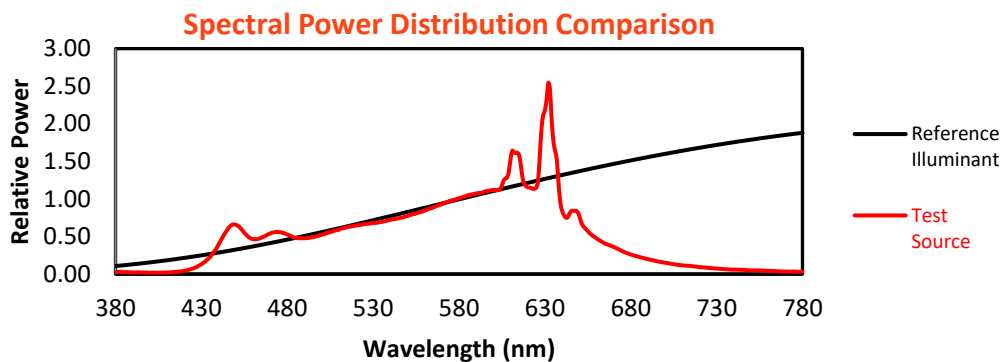
| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 1141             | NR               | 490       | 18648            | NR               | 620       | 45240            | NR               | 750       | 1949             | NR               | 880       | 1696             | NR               |
| 365       | 981              | NR               | 495       | 19266            | NR               | 625       | 45103            | NR               | 755       | 1928             | NR               | 885       | 1176             | NR               |
| 370       | 993              | NR               | 500       | 20501            | NR               | 630       | 85243            | NR               | 760       | 1686             | NR               | 890       | 1892             | NR               |
| 375       | 1026             | NR               | 505       | 21835            | NR               | 635       | 68928            | NR               | 765       | 1435             | NR               | 895       | 1303             | NR               |
| 380       | 1011             | NR               | 510       | 23128            | NR               | 640       | 33096            | NR               | 770       | 1270             | NR               | 900       | 1197             | NR               |
| 385       | 1002             | NR               | 515       | 24473            | NR               | 645       | 32437            | NR               | 775       | 1334             | NR               | 905       | 1148             | NR               |
| 390       | 868              | NR               | 520       | 25336            | NR               | 650       | 30398            | NR               | 780       | 1218             | NR               | 910       | 1595             | NR               |
| 395       | 834              | NR               | 525       | 26013            | NR               | 655       | 22347            | NR               | 785       | 928              | NR               | 915       | 1266             | NR               |
| 400       | 731              | NR               | 530       | 26667            | NR               | 660       | 18602            | NR               | 790       | 989              | NR               | 920       | 1495             | NR               |
| 405       | 725              | NR               | 535       | 27195            | NR               | 665       | 15938            | NR               | 795       | 1224             | NR               | 925       | 855              | NR               |
| 410       | 825              | NR               | 540       | 28268            | NR               | 670       | 14142            | NR               | 800       | 1005             | NR               | 930       | 1185             | NR               |
| 415       | 1102             | NR               | 545       | 29091            | NR               | 675       | 11970            | NR               | 805       | 1076             | NR               | 935       | 1186             | NR               |
| 420       | 1695             | NR               | 550       | 30262            | NR               | 680       | 10212            | NR               | 810       | 1018             | NR               | 940       | 1843             | NR               |
| 425       | 2899             | NR               | 555       | 31582            | NR               | 685       | 8911             | NR               | 815       | 1059             | NR               | 945       | 1344             | NR               |
| 430       | 5092             | NR               | 560       | 33069            | NR               | 690       | 7775             | NR               | 820       | 1047             | NR               | 950       | 827              | NR               |
| 435       | 8866             | NR               | 565       | 34747            | NR               | 695       | 6796             | NR               | 825       | 1259             | NR               | 955       | 984              | NR               |
| 440       | 15398            | NR               | 570       | 36451            | NR               | 700       | 5894             | NR               | 830       | 1151             | NR               | 960       | 1985             | NR               |
| 445       | 23004            | NR               | 575       | 38145            | NR               | 705       | 5150             | NR               | 835       | 1045             | NR               | 965       | 2009             | NR               |
| 450       | 25734            | NR               | 580       | 39543            | NR               | 710       | 4545             | NR               | 840       | 1037             | NR               | 970       | 1686             | NR               |
| 455       | 21534            | NR               | 585       | 41063            | NR               | 715       | 4197             | NR               | 845       | 888              | NR               | 975       | 1733             | NR               |
| 460       | 18246            | NR               | 590       | 42070            | NR               | 720       | 3650             | NR               | 850       | 1271             | NR               | 980       | 2039             | NR               |
| 465       | 18978            | NR               | 595       | 43067            | NR               | 725       | 3265             | NR               | 855       | 1028             | NR               | 985       | 919              | NR               |
| 470       | 21128            | NR               | 600       | 43863            | NR               | 730       | 2885             | NR               | 860       | 867              | NR               | 990       | 1621             | NR               |
| 475       | 21866            | NR               | 605       | 46127            | NR               | 735       | 2521             | NR               | 865       | 1316             | NR               | 995       | 2360             | NR               |
| 480       | 20628            | NR               | 610       | 59905            | NR               | 740       | 2317             | NR               | 870       | 1674             | NR               | 1000      | 905              | NR               |
| 485       | 18888            | NR               | 615       | 62018            | NR               | 745       | 2212             | NR               | 875       | 1299             | NR               |           |                  |                  |

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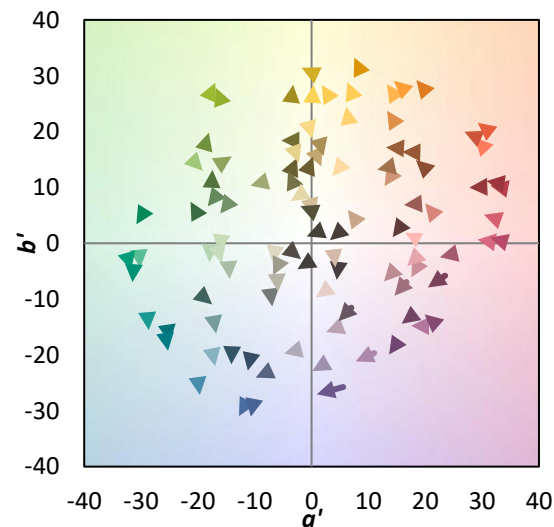
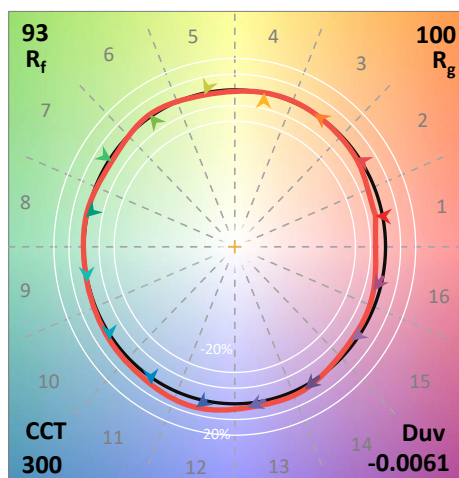
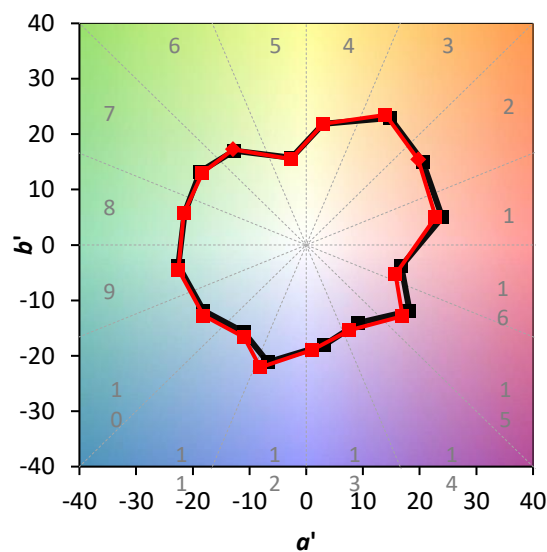
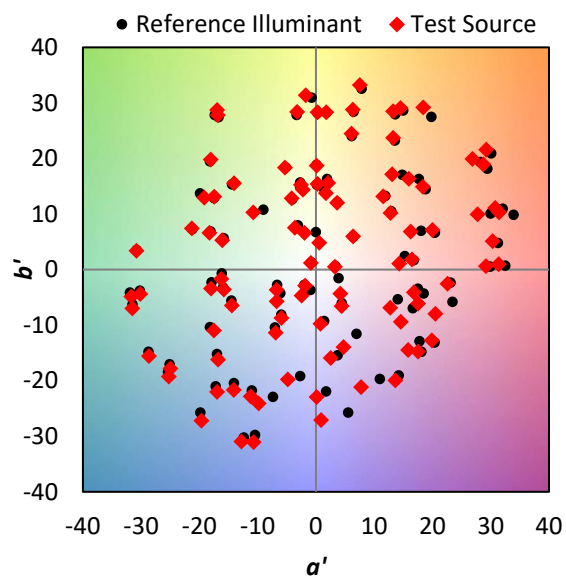
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**Summary**

$R_f = 92.5$   
 $R_g = 99.9$   
 CIE  $R_a = 93.2$   
 $R_g = 67.1$



**Color Vector Graphics**

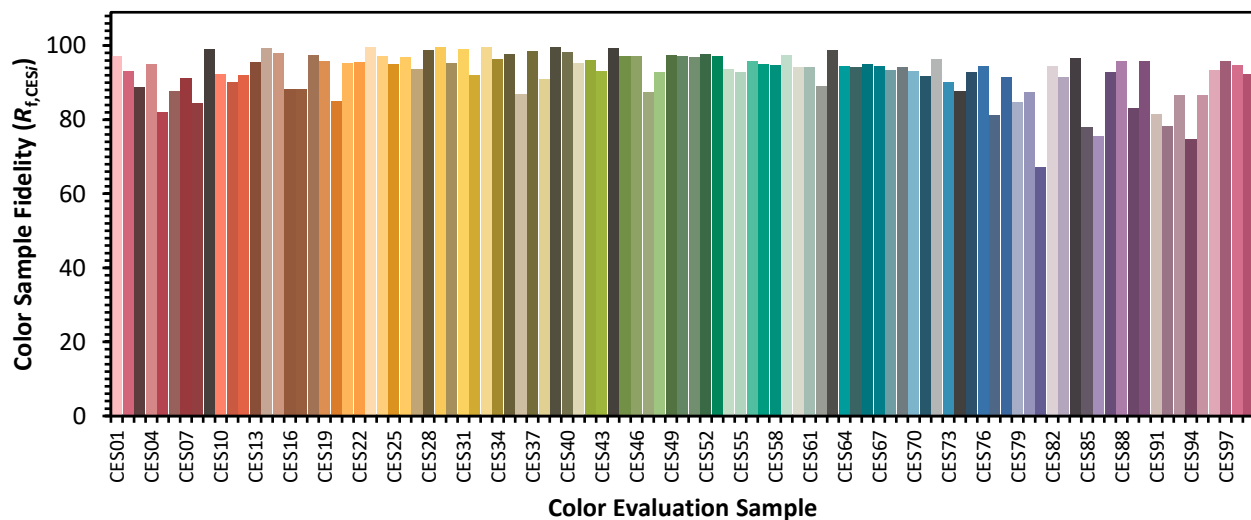


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**Individual Sample Fidelity Index ( $R_{f,i}$ )**

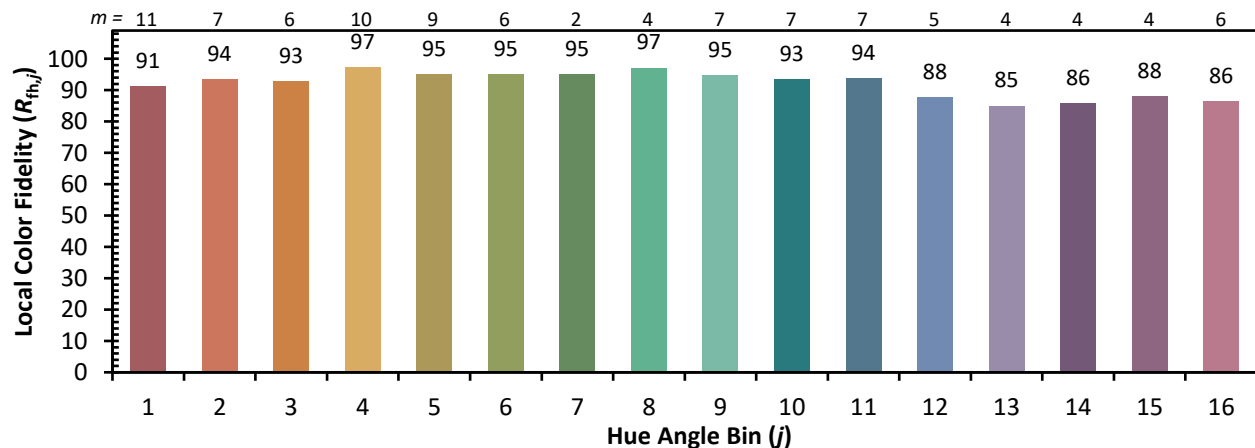
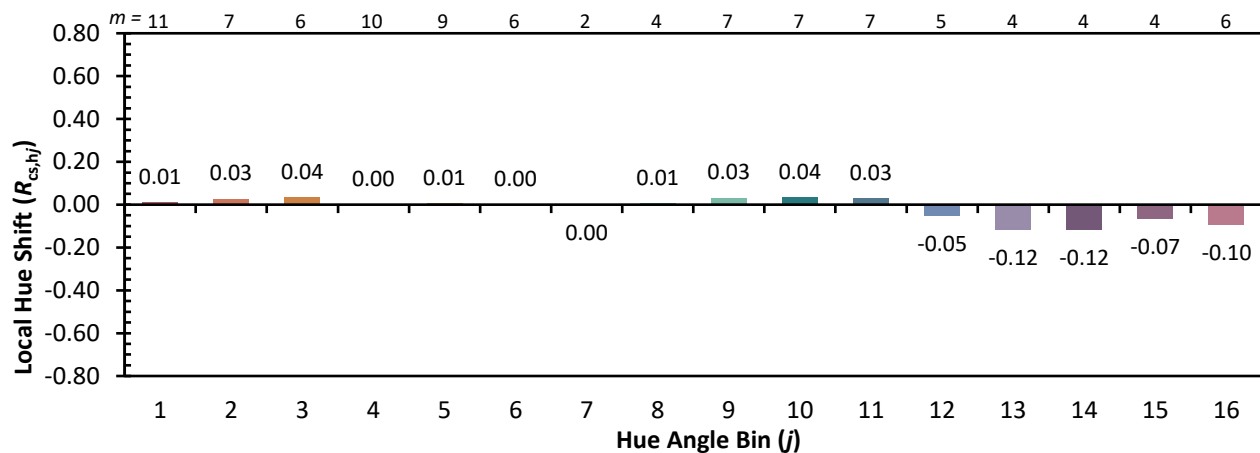
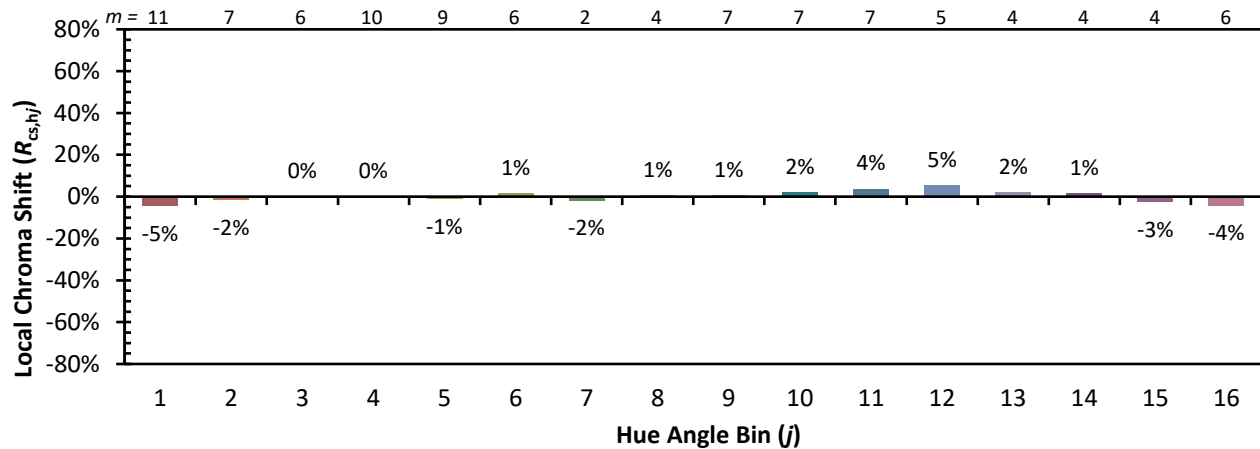
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|------------|-------------|------------|------------|
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| CES02 = 63 | CES27 = 93  | CES52 = 98 | CES77 = 81 |
| CES03 = 32 | CES28 = 99  | CES53 = 97 | CES78 = 91 |
| CES04 = 70 | CES29 = 99  | CES54 = 93 | CES79 = 85 |
| CES05 = 51 | CES30 = 95  | CES55 = 93 | CES80 = 87 |
| CES06 = 51 | CES31 = 99  | CES56 = 96 | CES81 = 67 |
| CES07 = 44 | CES32 = 92  | CES57 = 95 | CES82 = 94 |
| CES08 = 42 | CES33 = 99  | CES58 = 95 | CES83 = 91 |
| CES09 = 29 | CES34 = 96  | CES59 = 97 | CES84 = 97 |
| CES10 = 76 | CES35 = 98  | CES60 = 94 | CES85 = 78 |
| CES11 = 59 | CES36 = 87  | CES61 = 94 | CES86 = 76 |
| CES12 = 65 | CES37 = 98  | CES62 = 89 | CES87 = 93 |
| CES13 = 44 | CES38 = 91  | CES63 = 99 | CES88 = 96 |
| CES14 = 74 | CES39 = 100 | CES64 = 94 | CES89 = 83 |
| CES15 = 72 | CES40 = 98  | CES65 = 94 | CES90 = 96 |
| CES16 = 48 | CES41 = 95  | CES66 = 95 | CES91 = 81 |
| CES17 = 50 | CES42 = 96  | CES67 = 94 | CES92 = 78 |
| CES18 = 57 | CES43 = 93  | CES68 = 93 | CES93 = 86 |
| CES19 = 72 | CES44 = 99  | CES69 = 94 | CES94 = 75 |
| CES20 = 67 | CES45 = 97  | CES70 = 93 | CES95 = 86 |
| CES21 = 86 | CES46 = 97  | CES71 = 92 | CES96 = 93 |
| CES22 = 79 | CES47 = 87  | CES72 = 96 | CES97 = 96 |
| CES23 = 92 | CES48 = 93  | CES73 = 90 | CES98 = 95 |
| CES24 = 90 | CES49 = 97  | CES74 = 88 | CES99 = 92 |
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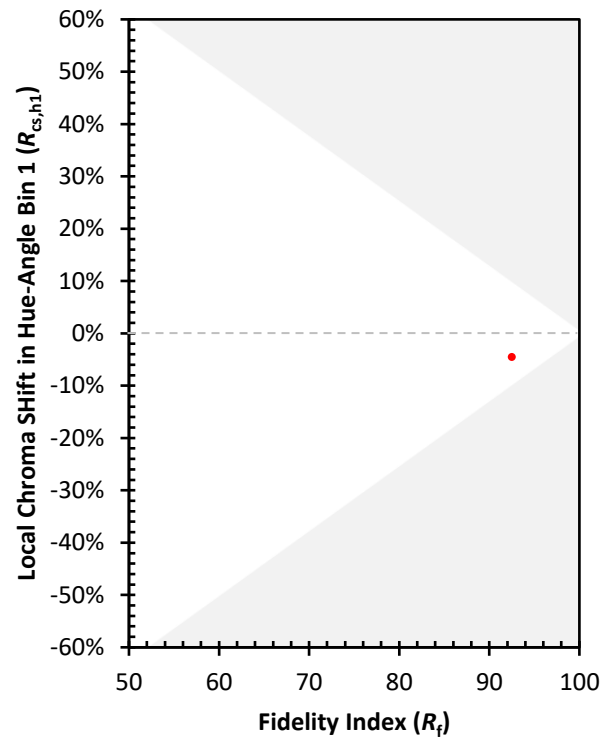
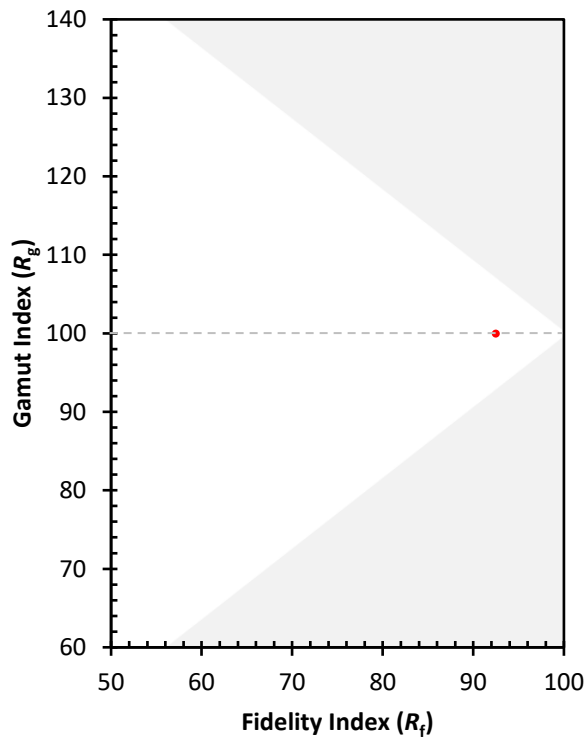
Color Rendition by Hue-Angle Bin



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**Measure Comparisons**



(END OF REPORT)