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

Scaled data based on original data using

LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: INVUE

Report Number: P868703

Luminaire Tested: EMM2-HTN-SA3B-727-U-5MQ

Issue Date: 08/22/2024

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2024 |
| Report Number: | P868703 |
| Test Lab: | INNOVATION CENTER(G3) |
| Issue Date: | 5/19/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | INVUE |
| Catalog Number: | EMM2-HTN-SA3B-727-U-5MQ |
| Description: | EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 150W 70CRI 2700K FIXTURE w/ TYPE V SQUARE MEDIUM DISTRIBUTION OPTIC |
| Light Source: | (30) 2700K CCT, 70 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 18278.8 lumens |
| Efficiency: | N/A |
| Efficacy: | 136.4 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 0.33' x H: 0') |
| IES Classification: | Type V - Short |
| BUG Rating: | B4 - U0 - G2 |

| | |
|---|---|
| Input Watts (W): | 134 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.99 |
| Total Harmonic Distortion (THDi): | 6.70% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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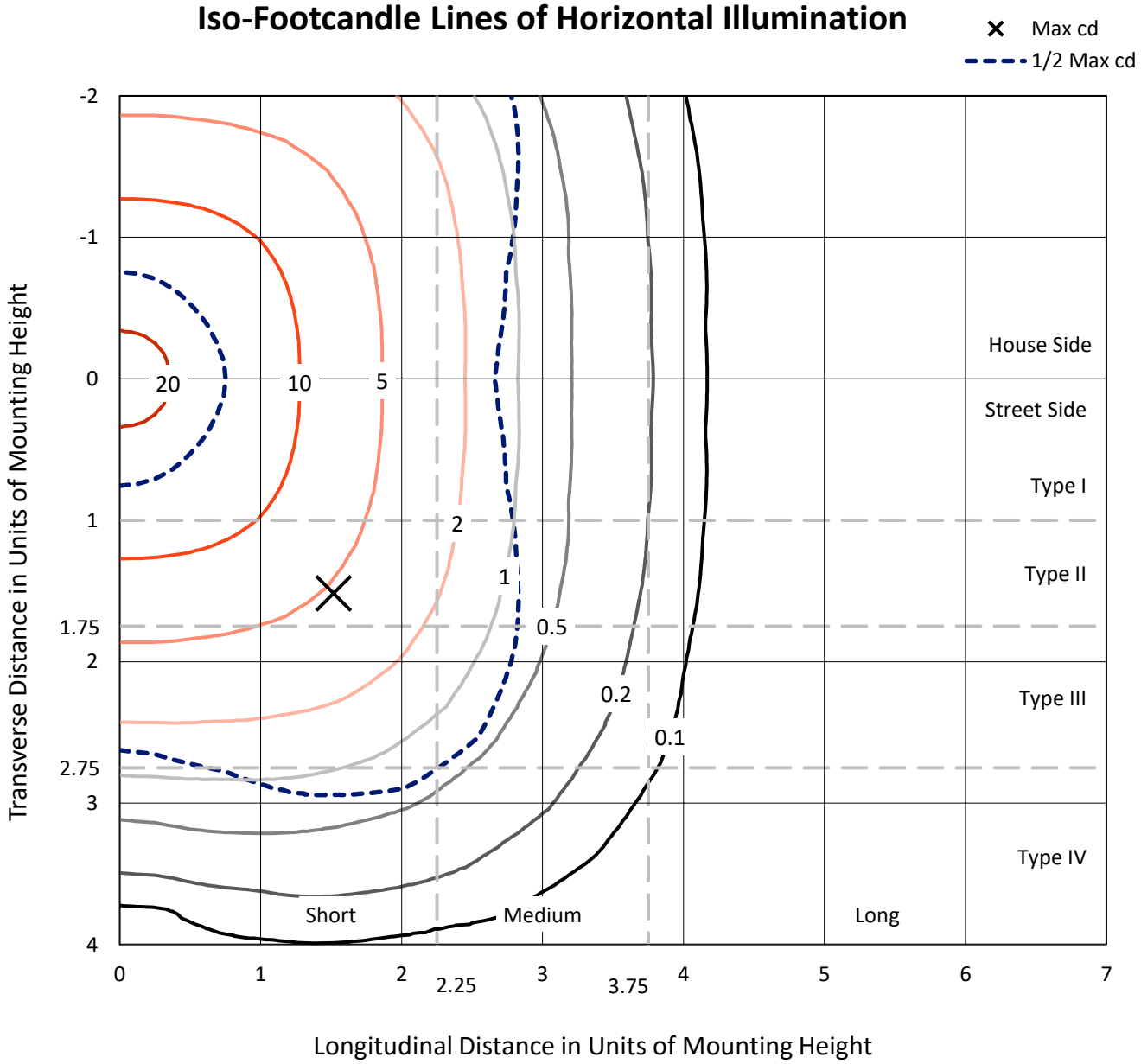
REPORT NUMBER: P868703
CATALOG NUMBER: EMM2-HTN-SA3B-727-U-5MQ

## Iso-Footcandle Lines of Horizontal Illumination




Based on 10 foot mounting height. Maximum calculated value = 22.7 fc
Type V - Short - N/A

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REPORT NUMBER: P868703
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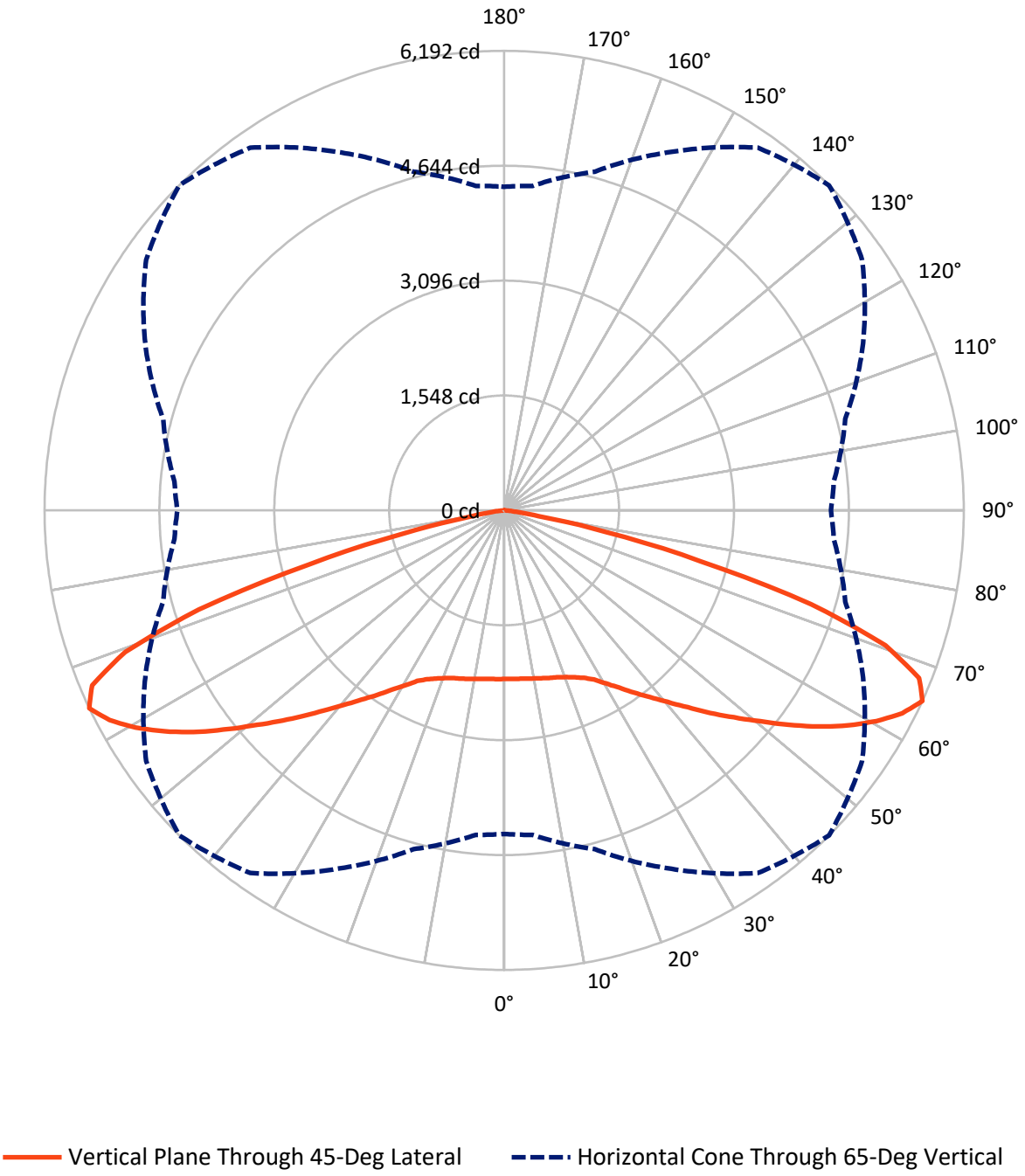
## Luminous Intensity Polar Plot



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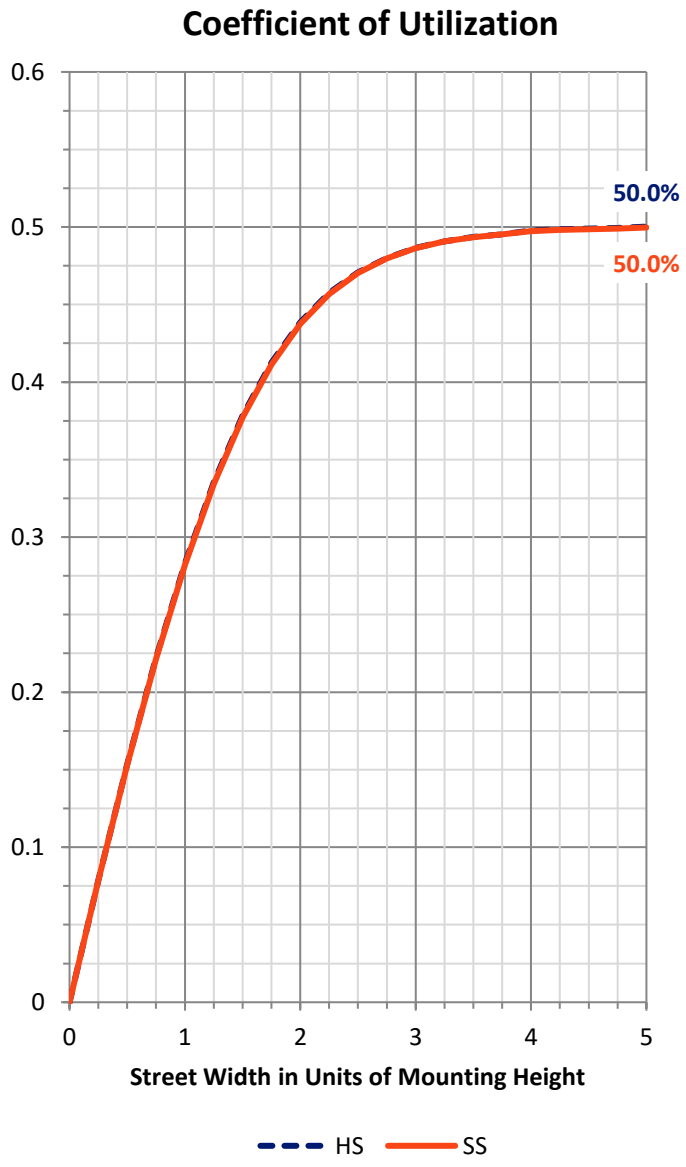
REPORT NUMBER: P868703
CATALOG NUMBER: EMM2-HTN-SA3B-727-U-5MQ

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 9139.4 | 0.0 | 9139.4 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Street Side** | Lumens | 9139.4 | 0.0 | 9139.4 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Total** | Lumens | 18278.8 | 0.0 | 18278.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 218.4 | 1.2 |
| 10°-20° | 664.8 | 3.6 |
| 20°-30° | 1169.3 | 6.4 |
| 30°-40° | 1891.1 | 10.3 |
| 40°-50° | 2945.6 | 16.1 |
| 50°-60° | 4307.2 | 23.6 |
| 60°-70° | 4959.9 | 27.1 |
| 70°-80° | 2025.7 | 11.1 |
| 80°-90° | 96.9 | 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 |
| 0°-90° | 18278.8 | 100.0 |
| 0°-180° | 18278.8 | 100.0 |



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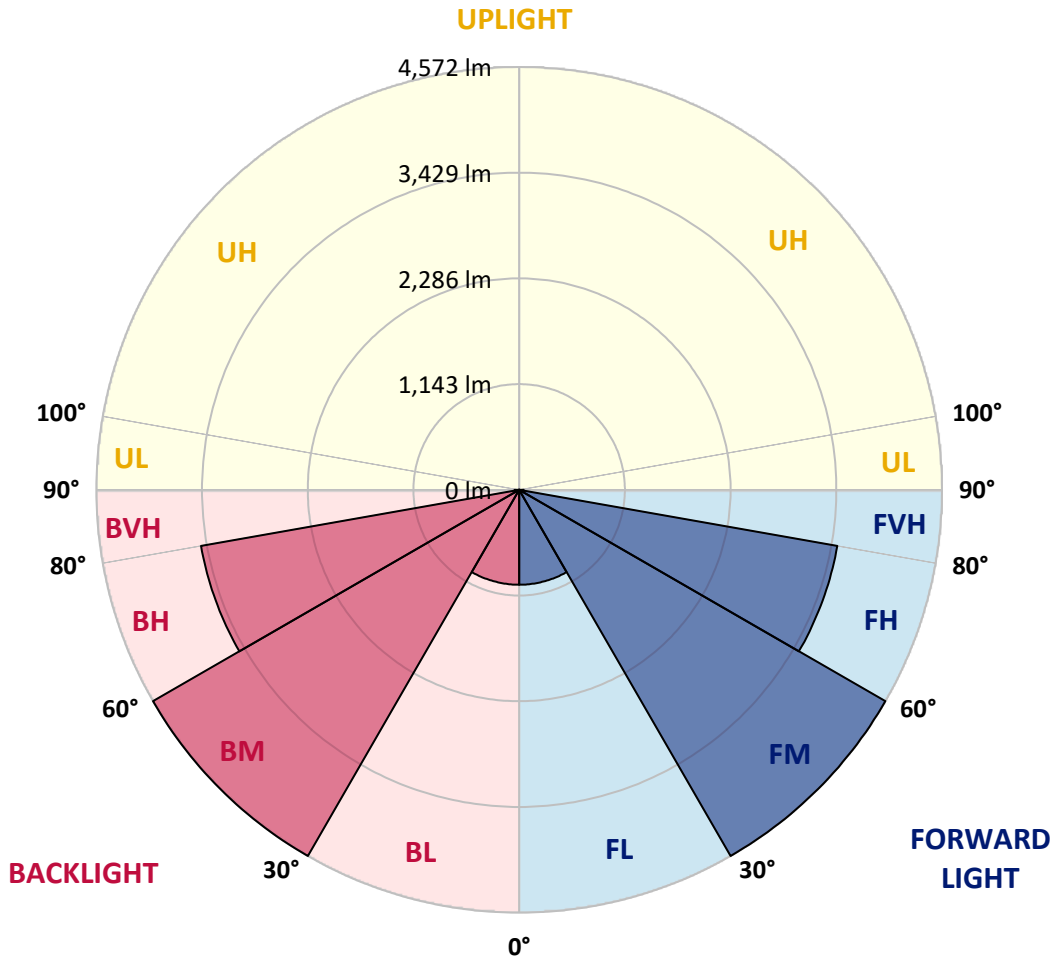
Scaled Data Report

REPORT NUMBER: P868703
CATALOG NUMBER: EMM2-HTN-SA3B-727-U-5MQ

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1026.2 | 5.6 | | | |
| FM | (30°-60°) | 4571.9 | 25.0 | | | |
| FH | (60°-80°) | 3492.8 | 19.1 | | | G2/5000 |
| FVH | (80°-90°) | 48.5 | 0.3 | | | G1/100 |
| BL | (0°-30°) | 1026.2 | 5.6 | B3/2500 | | |
| BM | (30°-60°) | 4571.9 | 25.0 | B3/5000 | | |
| BH | (60°-80°) | 3492.8 | 19.1 | B4/5000 | | G2/5000 |
| BVH | (80°-90°) | 48.5 | 0.3 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B4-U0-G2**
Type V Short



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REPORT NUMBER: P868703
CATALOG NUMBER: EMM2-HTN-SA3B-727-U-5MQ

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 2271.2 | 2271.2 | 2271.2 | 2271.2 | 2271.2 | 2271.2 | 2271.2 | 2271.2 | 2271.2 | 2271.2 | 2271.2 |
| 2.5° | 2278.3 | 2278.3 | 2274.8 | 2274.8 | 2267.7 | 2274.8 | 2271.2 | 2274.8 | 2271.2 | 2271.2 | 2274.8 |
| 5° | 2285.3 | 2285.3 | 2278.3 | 2281.8 | 2274.8 | 2278.3 | 2274.8 | 2281.8 | 2278.3 | 2274.8 | 2281.8 |
| 7.5° | 2295.8 | 2295.8 | 2288.8 | 2292.3 | 2285.3 | 2288.8 | 2285.3 | 2292.3 | 2288.8 | 2288.8 | 2292.3 |
| 10° | 2306.3 | 2309.9 | 2302.8 | 2299.3 | 2299.3 | 2302.8 | 2306.3 | 2309.9 | 2306.3 | 2306.3 | 2313.4 |
| 12.5° | 2323.9 | 2327.4 | 2320.4 | 2316.9 | 2316.9 | 2320.4 | 2323.9 | 2330.9 | 2320.4 | 2320.4 | 2320.4 |
| 15° | 2341.5 | 2341.5 | 2337.9 | 2334.4 | 2337.9 | 2341.5 | 2341.5 | 2348.5 | 2341.5 | 2334.4 | 2334.4 |
| 17.5° | 2348.5 | 2352.0 | 2348.5 | 2355.5 | 2359.0 | 2362.5 | 2366.0 | 2366.0 | 2355.5 | 2352.0 | 2352.0 |
| 20° | 2373.0 | 2376.6 | 2369.5 | 2373.0 | 2383.6 | 2397.6 | 2397.6 | 2397.6 | 2397.6 | 2387.1 | 2387.1 |
| 22.5° | 2415.2 | 2418.7 | 2415.2 | 2415.2 | 2429.2 | 2443.3 | 2443.3 | 2453.8 | 2439.7 | 2432.7 | 2432.7 |
| 25° | 2485.4 | 2485.4 | 2481.9 | 2485.4 | 2492.4 | 2499.4 | 2513.5 | 2520.5 | 2520.5 | 2517.0 | 2520.5 |
| 27.5° | 2569.6 | 2573.1 | 2569.6 | 2569.6 | 2566.1 | 2580.2 | 2601.2 | 2611.8 | 2615.3 | 2618.8 | 2618.8 |
| 30° | 2682.0 | 2689.0 | 2685.5 | 2689.0 | 2696.0 | 2706.5 | 2713.6 | 2717.1 | 2717.1 | 2710.0 | 2710.0 |
| 32.5° | 2804.8 | 2811.8 | 2804.8 | 2822.4 | 2847.0 | 2847.0 | 2839.9 | 2854.0 | 2843.4 | 2836.4 | 2829.4 |
| 35° | 2948.8 | 2948.8 | 2955.8 | 2962.8 | 2997.9 | 3015.5 | 3015.5 | 3008.4 | 2987.4 | 2976.8 | 2983.9 |
| 37.5° | 3113.7 | 3117.3 | 3124.3 | 3127.8 | 3159.4 | 3191.0 | 3187.5 | 3169.9 | 3145.3 | 3117.3 | 3117.3 |
| 40° | 3310.3 | 3303.3 | 3306.8 | 3331.4 | 3356.0 | 3394.6 | 3398.1 | 3373.5 | 3331.4 | 3303.3 | 3303.3 |
| 42.5° | 3489.4 | 3492.9 | 3506.9 | 3538.5 | 3594.7 | 3626.3 | 3608.7 | 3566.6 | 3521.0 | 3485.9 | 3482.3 |
| 45° | 3678.9 | 3675.4 | 3714.0 | 3780.7 | 3854.4 | 3893.1 | 3865.0 | 3805.3 | 3735.1 | 3689.5 | 3689.5 |
| 47.5° | 3872.0 | 3868.5 | 3931.7 | 4040.5 | 4135.3 | 4166.9 | 4138.8 | 4061.6 | 3966.8 | 3900.1 | 3889.5 |
| 50° | 4072.1 | 4086.1 | 4152.8 | 4307.3 | 4430.2 | 4465.3 | 4430.2 | 4328.4 | 4202.0 | 4114.2 | 4100.2 |
| 52.5° | 4300.3 | 4310.8 | 4398.6 | 4567.1 | 4718.0 | 4798.7 | 4746.1 | 4595.1 | 4433.7 | 4328.4 | 4314.3 |
| 55° | 4510.9 | 4517.9 | 4644.3 | 4847.9 | 5033.9 | 5142.8 | 5058.5 | 4865.4 | 4661.8 | 4528.4 | 4514.4 |
| 57.5° | 4658.3 | 4675.9 | 4837.4 | 5100.6 | 5339.4 | 5465.7 | 5339.4 | 5132.2 | 4861.9 | 4696.9 | 4686.4 |
| 60° | 4753.1 | 4781.2 | 4967.3 | 5297.2 | 5627.2 | 5764.1 | 5634.2 | 5346.4 | 5012.9 | 4798.7 | 4788.2 |
| 62.5° | 4704.0 | 4742.6 | 4981.3 | 5413.1 | 5872.9 | 6020.4 | 5851.9 | 5448.2 | 4995.3 | 4725.0 | 4696.9 |
| 65° | 4359.9 | 4388.0 | 4725.0 | 5328.8 | 5964.2 | 6192.4 | 5887.0 | 5335.8 | 4756.6 | 4458.2 | 4402.1 |
| 67.5° | 3647.3 | 3696.5 | 4142.3 | 4921.6 | 5767.6 | 6030.9 | 5644.8 | 4932.1 | 4233.6 | 3868.5 | 3805.3 |
| 70° | 2801.3 | 2889.1 | 3377.0 | 4223.0 | 5153.3 | 5451.7 | 5026.9 | 4163.4 | 3341.9 | 2969.8 | 2854.0 |
| 72.5° | 1618.3 | 1755.2 | 2471.3 | 3296.3 | 4100.2 | 4324.8 | 3728.1 | 2910.1 | 2218.6 | 1955.3 | 1923.7 |
| 75° | 537.1 | 586.2 | 1176.0 | 1899.1 | 2615.3 | 2727.6 | 2330.9 | 1836.0 | 1460.3 | 1249.7 | 1260.2 |
| 77.5° | 263.3 | 263.3 | 354.6 | 695.1 | 1190.0 | 1404.2 | 1274.3 | 888.1 | 638.9 | 484.4 | 470.4 |
| 80° | 210.6 | 210.6 | 245.7 | 340.5 | 400.2 | 470.4 | 400.2 | 291.4 | 238.7 | 217.6 | 228.2 |
| 82.5° | 101.8 | 98.3 | 115.8 | 165.0 | 168.5 | 161.5 | 150.9 | 150.9 | 143.9 | 133.4 | 129.9 |
| 85° | 7.0 | 7.0 | 14.0 | 31.6 | 52.7 | 70.2 | 80.7 | 77.2 | 73.7 | 63.2 | 70.2 |
| 87.5° | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 7.0 | 7.0 | 7.0 | 7.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
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# LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-1-R4

Test Date: 08/20/2019

Luminaire Tested: SA1C-727-U-5WQ

Data in this report applies to products using SA and SB light squares

Report Generated By FNC07603 / LDUCLS01DT446
Version: v6.13

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

## Test Information

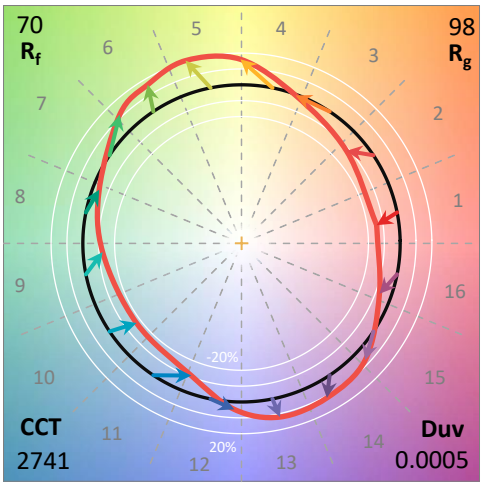
| | |
|---|---|
| Test Method: | LM-79-2008 |
| Report Number: | SP1-1908-441-1-R4 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/28/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | **SA1C-727-U-5WQ** |
| Description: | McGRAW EDISON ROADWAY AND AREA LUMINAIRE |

***THIS IS A REVISION OF SP1-1908-441-1-R3. TO UPDATE THE CATALOG NUMBER.***TESTED IN SITU. (1) 70 CRI, 2700K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 2741 | CRI (Ra): | 71.5 | | |
| CIE u': | 0.2605 | R1: | 69.2 | R9: | -16.1 |
| CIE v': | 0.5272 | R2: | 79.4 | R10: | 51.4 |
| Duv: | 0.0005 | R3: | 87.8 | R11: | 63.1 |
| CIE x: | 0.4573 | R4: | 69.4 | R12: | 42.0 |
| CIE y: | 0.4113 | R5: | 66.4 | R13: | 70.2 |
| CIE z: | 0.1313 | R6: | 69.8 | R14: | 92.4 |
| Peak Wavelength (nm): | 602 | R7: | 79.8 | | |
| Dominant Wavelength (nm): | 583 | R8: | 50.1 | | |
| Purity: | 61.2 | | | | |

| | |
|---|---|
| Rf: | 69.9 |
| Rg: | 98.3 |




## Test Conditions

| | |
|---|---|
| Stabilization Time: | 56M |
| Operation Time: | 12H |
| Room Temperature (°C) / RH%: | 25.3./42% |
| Sphere Temperature (°C): | 25.7 |

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| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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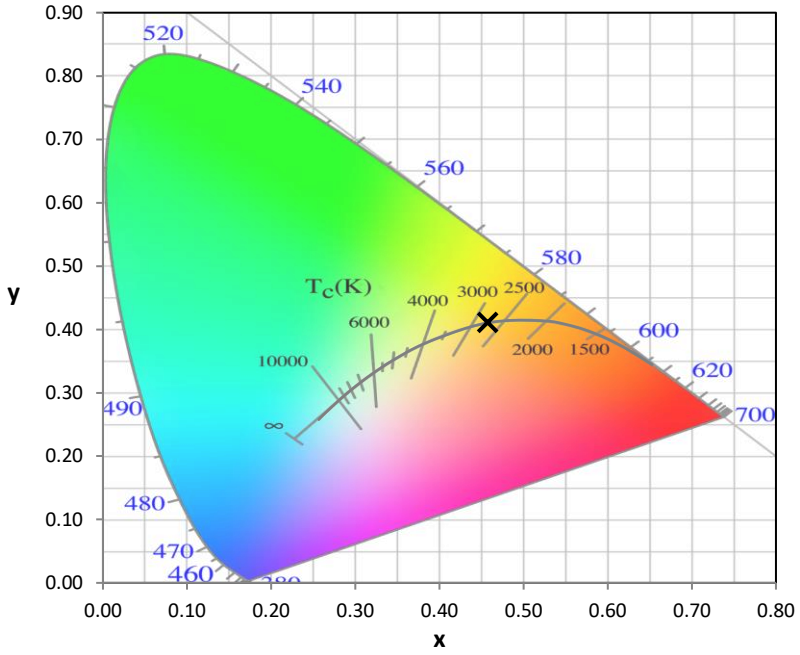
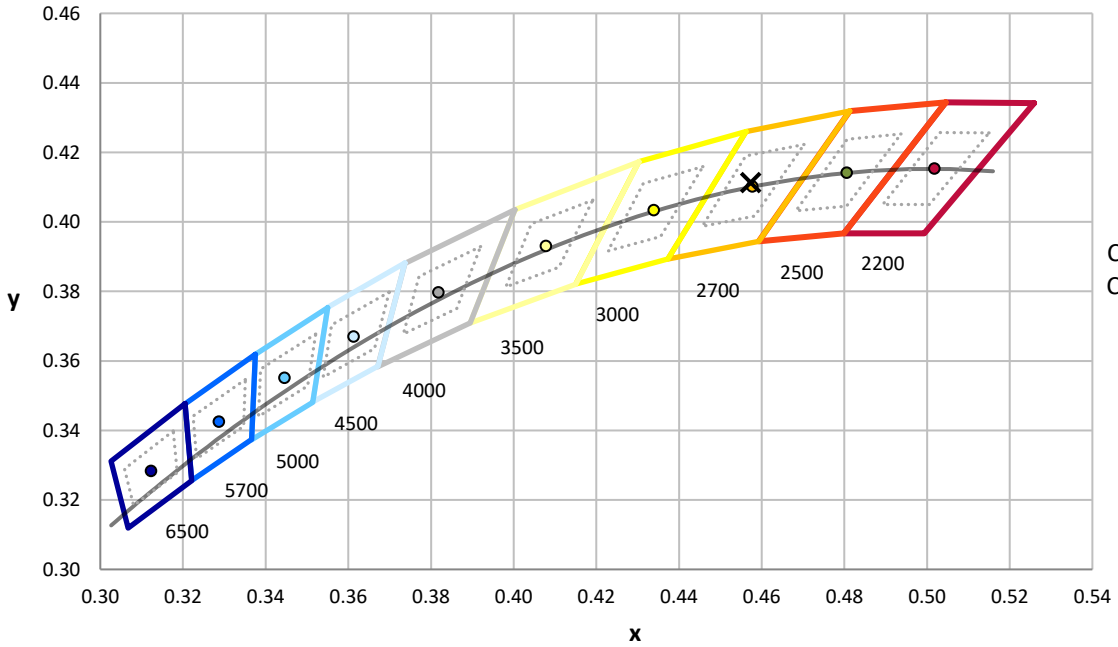
## CIE 1931 Chromaticity Diagram




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




CCT = 2741K
CIE x = 0.4573
CIE y = 0.4113
Duv = 0.0005

Point lies inside the ANSI 2700K 4-step quadrangle

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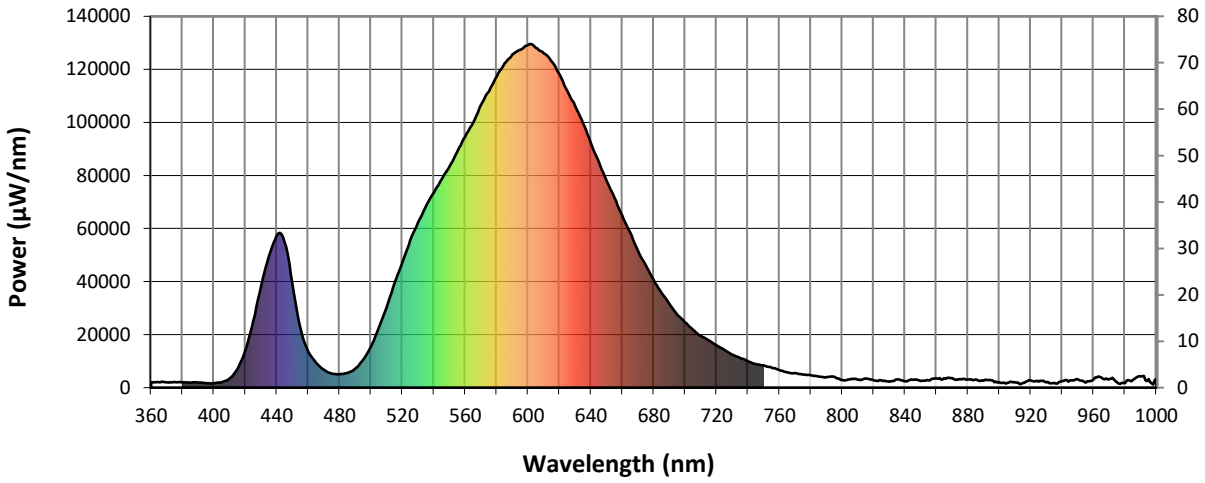
REPORT NUMBER: SP1-1908-441-1-R4

## Photopic Flux vs. Wavelength




######

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2044 | NR | 490 | 7179 | NR | 620 | 118034 | NR | 750 | 8362 | NR | 880 | 3128 | NR |
| 365 | 2016 | NR | 495 | 10476 | NR | 625 | 111884 | NR | 755 | 7635 | NR | 885 | 3110 | NR |
| 370 | 2020 | NR | 500 | 15549 | NR | 630 | 106119 | NR | 760 | 6582 | NR | 890 | 2632 | NR |
| 375 | 2137 | NR | 505 | 22477 | NR | 635 | 99706 | NR | 765 | 5777 | NR | 895 | 2709 | NR |
| 380 | 2046 | NR | 510 | 30417 | NR | 640 | 92142 | NR | 770 | 5474 | NR | 900 | 2016 | NR |
| 385 | 1925 | NR | 515 | 39274 | NR | 645 | 84987 | NR | 775 | 4977 | NR | 905 | 1748 | NR |
| 390 | 1893 | NR | 520 | 47282 | NR | 650 | 78016 | NR | 780 | 4723 | NR | 910 | 2046 | NR |
| 395 | 1695 | NR | 525 | 55413 | NR | 655 | 71541 | NR | 785 | 4219 | NR | 915 | 1844 | NR |
| 400 | 1633 | NR | 530 | 62377 | NR | 660 | 64863 | NR | 790 | 3969 | NR | 920 | 2734 | NR |
| 405 | 2065 | NR | 535 | 68520 | NR | 665 | 58485 | NR | 795 | 4122 | NR | 925 | 2307 | NR |
| 410 | 3449 | NR | 540 | 73435 | NR | 670 | 51641 | NR | 800 | 2864 | NR | 930 | 2039 | NR |
| 415 | 7117 | NR | 545 | 78677 | NR | 675 | 46030 | NR | 805 | 3151 | NR | 935 | 1784 | NR |
| 420 | 13992 | NR | 550 | 83331 | NR | 680 | 40590 | NR | 810 | 3022 | NR | 940 | 2464 | NR |
| 425 | 25176 | NR | 555 | 89120 | NR | 685 | 35691 | NR | 815 | 3471 | NR | 945 | 2794 | NR |
| 430 | 38151 | NR | 560 | 94613 | NR | 690 | 31631 | NR | 820 | 2749 | NR | 950 | 3090 | NR |
| 435 | 49673 | NR | 565 | 99818 | NR | 695 | 27437 | NR | 825 | 2729 | NR | 955 | 1866 | NR |
| 440 | 57273 | NR | 570 | 106526 | NR | 700 | 24589 | NR | 830 | 2282 | NR | 960 | 3110 | NR |
| 445 | 54802 | NR | 575 | 111610 | NR | 705 | 21832 | NR | 835 | 3140 | NR | 965 | 3880 | NR |
| 450 | 39184 | NR | 580 | 117163 | NR | 710 | 19500 | NR | 840 | 2365 | NR | 970 | 3243 | NR |
| 455 | 22506 | NR | 585 | 122201 | NR | 715 | 17870 | NR | 845 | 3024 | NR | 975 | 2014 | NR |
| 460 | 13692 | NR | 590 | 125662 | NR | 720 | 15924 | NR | 850 | 2510 | NR | 980 | 1688 | NR |
| 465 | 9446 | NR | 595 | 127415 | NR | 725 | 14268 | NR | 855 | 2739 | NR | 985 | 2827 | NR |
| 470 | 6698 | NR | 600 | 129155 | NR | 730 | 12438 | NR | 860 | 3515 | NR | 990 | 4172 | NR |
| 475 | 5328 | NR | 605 | 128057 | NR | 735 | 11255 | NR | 865 | 3600 | NR | 995 | 3177 | NR |
| 480 | 5081 | NR | 610 | 126031 | NR | 740 | 9951 | NR | 870 | 3609 | NR | 1000 | 3241 | NR |
| 485 | 5579 | NR | 615 | 123059 | NR | 745 | 8870 | NR | 875 | 3208 | NR | | | |

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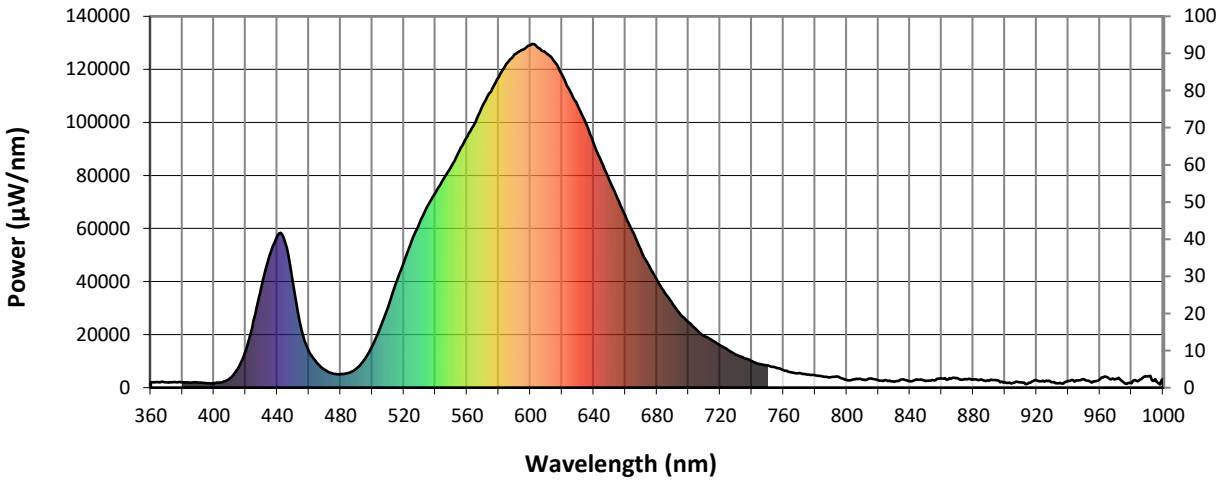
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: 6474.3** **S/P: 1.04**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2044 | NR | 490 | 7179 | NR | 620 | 118034 | NR | 750 | 8362 | NR | 880 | 3128 | NR |
| 365 | 2016 | NR | 495 | 10476 | NR | 625 | 111884 | NR | 755 | 7635 | NR | 885 | 3110 | NR |
| 370 | 2020 | NR | 500 | 15549 | NR | 630 | 106119 | NR | 760 | 6582 | NR | 890 | 2632 | NR |
| 375 | 2137 | NR | 505 | 22477 | NR | 635 | 99706 | NR | 765 | 5777 | NR | 895 | 2709 | NR |
| 380 | 2046 | NR | 510 | 30417 | NR | 640 | 92142 | NR | 770 | 5474 | NR | 900 | 2016 | NR |
| 385 | 1925 | NR | 515 | 39274 | NR | 645 | 84987 | NR | 775 | 4977 | NR | 905 | 1748 | NR |
| 390 | 1893 | NR | 520 | 47282 | NR | 650 | 78016 | NR | 780 | 4723 | NR | 910 | 2046 | NR |
| 395 | 1695 | NR | 525 | 55413 | NR | 655 | 71541 | NR | 785 | 4219 | NR | 915 | 1844 | NR |
| 400 | 1633 | NR | 530 | 62377 | NR | 660 | 64863 | NR | 790 | 3969 | NR | 920 | 2734 | NR |
| 405 | 2065 | NR | 535 | 68520 | NR | 665 | 58485 | NR | 795 | 4122 | NR | 925 | 2307 | NR |
| 410 | 3449 | NR | 540 | 73435 | NR | 670 | 51641 | NR | 800 | 2864 | NR | 930 | 2039 | NR |
| 415 | 7117 | NR | 545 | 78677 | NR | 675 | 46030 | NR | 805 | 3151 | NR | 935 | 1784 | NR |
| 420 | 13992 | NR | 550 | 83331 | NR | 680 | 40590 | NR | 810 | 3022 | NR | 940 | 2464 | NR |
| 425 | 25176 | NR | 555 | 89120 | NR | 685 | 35691 | NR | 815 | 3471 | NR | 945 | 2794 | NR |
| 430 | 38151 | NR | 560 | 94613 | NR | 690 | 31631 | NR | 820 | 2749 | NR | 950 | 3090 | NR |
| 435 | 49673 | NR | 565 | 99818 | NR | 695 | 27437 | NR | 825 | 2729 | NR | 955 | 1866 | NR |
| 440 | 57273 | NR | 570 | 106526 | NR | 700 | 24589 | NR | 830 | 2282 | NR | 960 | 3110 | NR |
| 445 | 54802 | NR | 575 | 111610 | NR | 705 | 21832 | NR | 835 | 3140 | NR | 965 | 3880 | NR |
| 450 | 39184 | NR | 580 | 117163 | NR | 710 | 19500 | NR | 840 | 2365 | NR | 970 | 3243 | NR |
| 455 | 22506 | NR | 585 | 122201 | NR | 715 | 17870 | NR | 845 | 3024 | NR | 975 | 2014 | NR |
| 460 | 13692 | NR | 590 | 125662 | NR | 720 | 15924 | NR | 850 | 2510 | NR | 980 | 1688 | NR |
| 465 | 9446 | NR | 595 | 127415 | NR | 725 | 14268 | NR | 855 | 2739 | NR | 985 | 2827 | NR |
| 470 | 6698 | NR | 600 | 129155 | NR | 730 | 12438 | NR | 860 | 3515 | NR | 990 | 4172 | NR |
| 475 | 5328 | NR | 605 | 128057 | NR | 735 | 11255 | NR | 865 | 3600 | NR | 995 | 3177 | NR |
| 480 | 5081 | NR | 610 | 126031 | NR | 740 | 9951 | NR | 870 | 3609 | NR | 1000 | 3241 | NR |
| 485 | 5579 | NR | 615 | 123059 | NR | 745 | 8870 | NR | 875 | 3208 | NR | | | |

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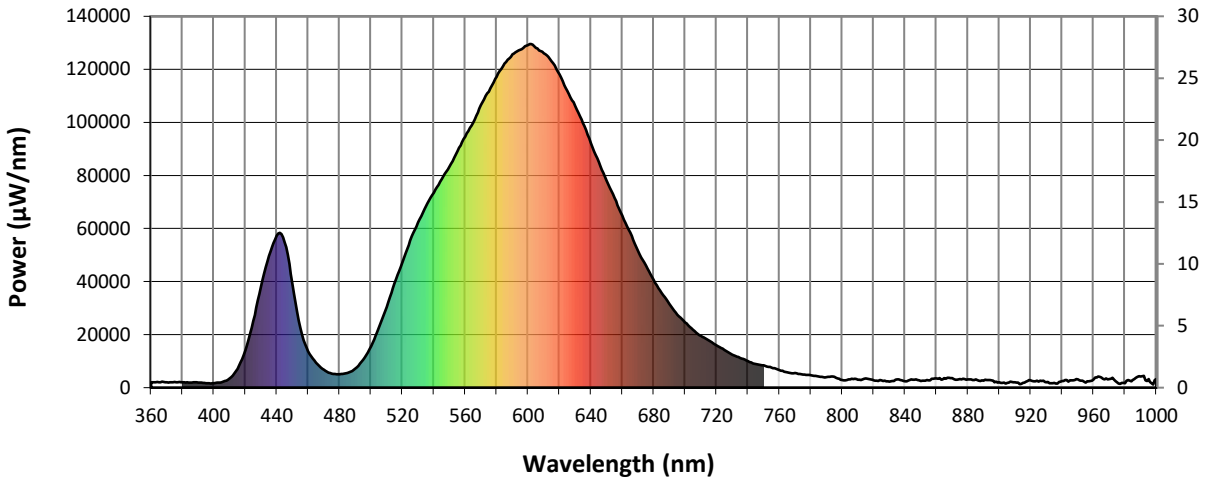
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: 2145.7** **M/P: 0.35**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2044 | NR | 490 | 7179 | NR | 620 | 118034 | NR | 750 | 8362 | NR | 880 | 3128 | NR |
| 365 | 2016 | NR | 495 | 10476 | NR | 625 | 111884 | NR | 755 | 7635 | NR | 885 | 3110 | NR |
| 370 | 2020 | NR | 500 | 15549 | NR | 630 | 106119 | NR | 760 | 6582 | NR | 890 | 2632 | NR |
| 375 | 2137 | NR | 505 | 22477 | NR | 635 | 99706 | NR | 765 | 5777 | NR | 895 | 2709 | NR |
| 380 | 2046 | NR | 510 | 30417 | NR | 640 | 92142 | NR | 770 | 5474 | NR | 900 | 2016 | NR |
| 385 | 1925 | NR | 515 | 39274 | NR | 645 | 84987 | NR | 775 | 4977 | NR | 905 | 1748 | NR |
| 390 | 1893 | NR | 520 | 47282 | NR | 650 | 78016 | NR | 780 | 4723 | NR | 910 | 2046 | NR |
| 395 | 1695 | NR | 525 | 55413 | NR | 655 | 71541 | NR | 785 | 4219 | NR | 915 | 1844 | NR |
| 400 | 1633 | NR | 530 | 62377 | NR | 660 | 64863 | NR | 790 | 3969 | NR | 920 | 2734 | NR |
| 405 | 2065 | NR | 535 | 68520 | NR | 665 | 58485 | NR | 795 | 4122 | NR | 925 | 2307 | NR |
| 410 | 3449 | NR | 540 | 73435 | NR | 670 | 51641 | NR | 800 | 2864 | NR | 930 | 2039 | NR |
| 415 | 7117 | NR | 545 | 78677 | NR | 675 | 46030 | NR | 805 | 3151 | NR | 935 | 1784 | NR |
| 420 | 13992 | NR | 550 | 83331 | NR | 680 | 40590 | NR | 810 | 3022 | NR | 940 | 2464 | NR |
| 425 | 25176 | NR | 555 | 89120 | NR | 685 | 35691 | NR | 815 | 3471 | NR | 945 | 2794 | NR |
| 430 | 38151 | NR | 560 | 94613 | NR | 690 | 31631 | NR | 820 | 2749 | NR | 950 | 3090 | NR |
| 435 | 49673 | NR | 565 | 99818 | NR | 695 | 27437 | NR | 825 | 2729 | NR | 955 | 1866 | NR |
| 440 | 57273 | NR | 570 | 106526 | NR | 700 | 24589 | NR | 830 | 2282 | NR | 960 | 3110 | NR |
| 445 | 54802 | NR | 575 | 111610 | NR | 705 | 21832 | NR | 835 | 3140 | NR | 965 | 3880 | NR |
| 450 | 39184 | NR | 580 | 117163 | NR | 710 | 19500 | NR | 840 | 2365 | NR | 970 | 3243 | NR |
| 455 | 22506 | NR | 585 | 122201 | NR | 715 | 17870 | NR | 845 | 3024 | NR | 975 | 2014 | NR |
| 460 | 13692 | NR | 590 | 125662 | NR | 720 | 15924 | NR | 850 | 2510 | NR | 980 | 1688 | NR |
| 465 | 9446 | NR | 595 | 127415 | NR | 725 | 14268 | NR | 855 | 2739 | NR | 985 | 2827 | NR |
| 470 | 6698 | NR | 600 | 129155 | NR | 730 | 12438 | NR | 860 | 3515 | NR | 990 | 4172 | NR |
| 475 | 5328 | NR | 605 | 128057 | NR | 735 | 11255 | NR | 865 | 3600 | NR | 995 | 3177 | NR |
| 480 | 5081 | NR | 610 | 126031 | NR | 740 | 9951 | NR | 870 | 3609 | NR | 1000 | 3241 | NR |
| 485 | 5579 | NR | 615 | 123059 | NR | 745 | 8870 | NR | 875 | 3208 | NR | | | |

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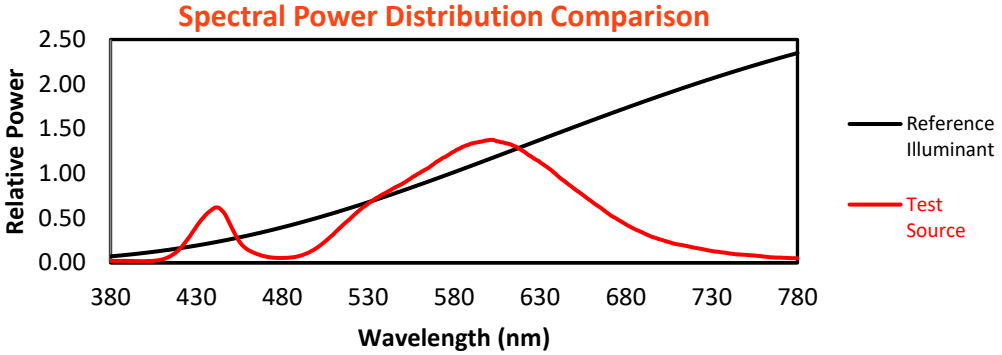
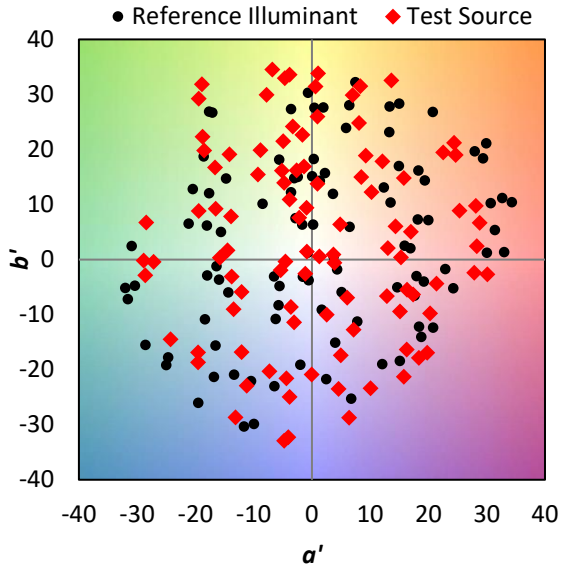
## Summary

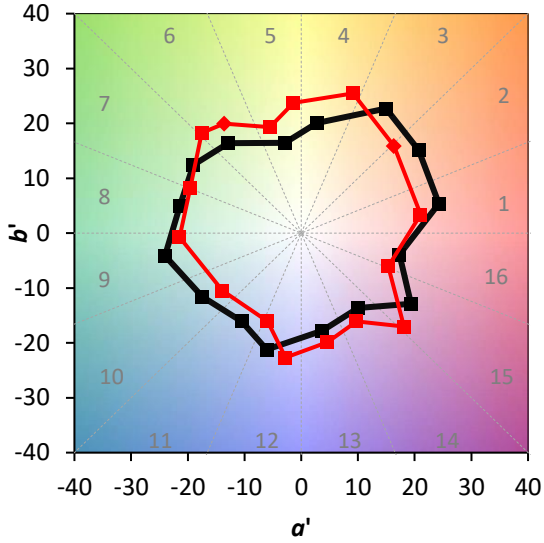
$R_f$ = 69.9
$R_g$ = 98.3
CIE $R_a$ = 71.5
$R_9$ = -16.1

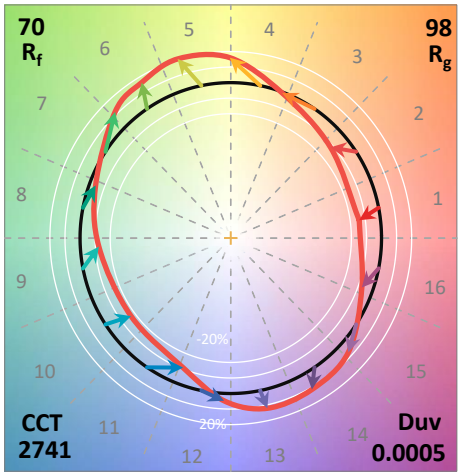
## Spectral Power Distribution Comparison

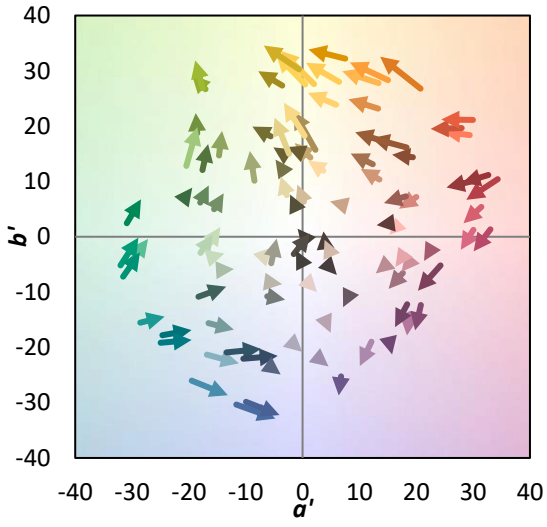



## Color Vector Graphics



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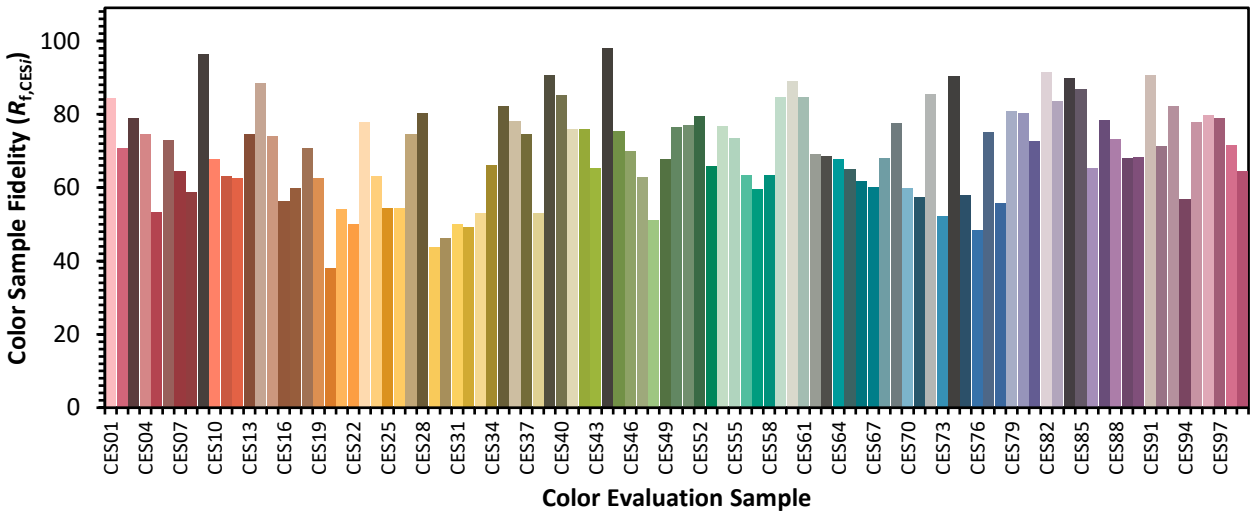
**Individual Sample Fidelity Index ($R_{f,i}$)**

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 54 | CES51 = 77 | CES76 = 48 |
| CES02 = 63 | CES27 = 74 | CES52 = 80 | CES77 = 75 |
| CES03 = 31 | CES28 = 80 | CES53 = 66 | CES78 = 56 |
| CES04 = 71 | CES29 = 44 | CES54 = 77 | CES79 = 81 |
| CES05 = 50 | CES30 = 46 | CES55 = 74 | CES80 = 80 |
| CES06 = 52 | CES31 = 50 | CES56 = 63 | CES81 = 73 |
| CES07 = 42 | CES32 = 49 | CES57 = 60 | CES82 = 91 |
| CES08 = 41 | CES33 = 53 | CES58 = 63 | CES83 = 84 |
| CES09 = 29 | CES34 = 66 | CES59 = 85 | CES84 = 90 |
| CES10 = 77 | CES35 = 82 | CES60 = 89 | CES85 = 87 |
| CES11 = 60 | CES36 = 78 | CES61 = 85 | CES86 = 65 |
| CES12 = 66 | CES37 = 75 | CES62 = 69 | CES87 = 78 |
| CES13 = 43 | CES38 = 53 | CES63 = 68 | CES88 = 73 |
| CES14 = 74 | CES39 = 91 | CES64 = 68 | CES89 = 68 |
| CES15 = 71 | CES40 = 85 | CES65 = 65 | CES90 = 68 |
| CES16 = 48 | CES41 = 76 | CES66 = 62 | CES91 = 91 |
| CES17 = 50 | CES42 = 76 | CES67 = 60 | CES92 = 71 |
| CES18 = 57 | CES43 = 65 | CES68 = 68 | CES93 = 82 |
| CES19 = 73 | CES44 = 98 | CES69 = 77 | CES94 = 57 |
| CES20 = 67 | CES45 = 75 | CES70 = 60 | CES95 = 78 |
| CES21 = 88 | CES46 = 70 | CES71 = 57 | CES96 = 80 |
| CES22 = 80 | CES47 = 63 | CES72 = 86 | CES97 = 79 |
| CES23 = 92 | CES48 = 51 | CES73 = 52 | CES98 = 71 |
| CES24 = 91 | CES49 = 68 | CES74 = 90 | CES99 = 64 |
| CES25 = 73 | CES50 = 77 | CES75 = 58 | |



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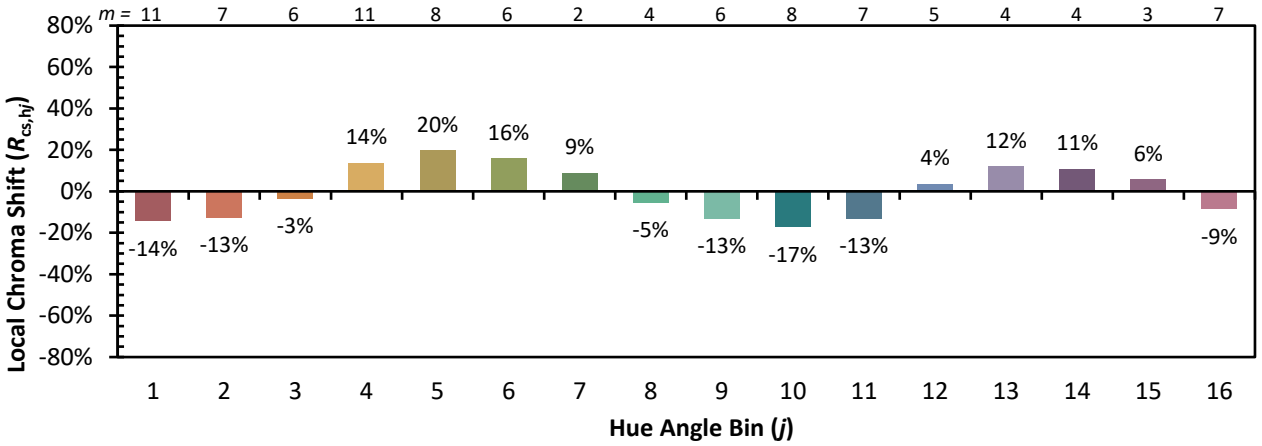
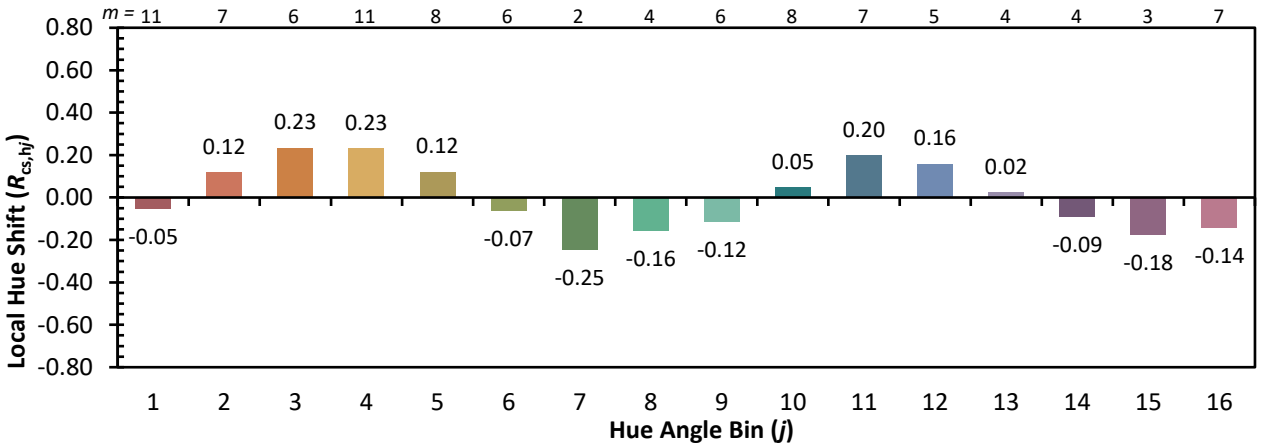
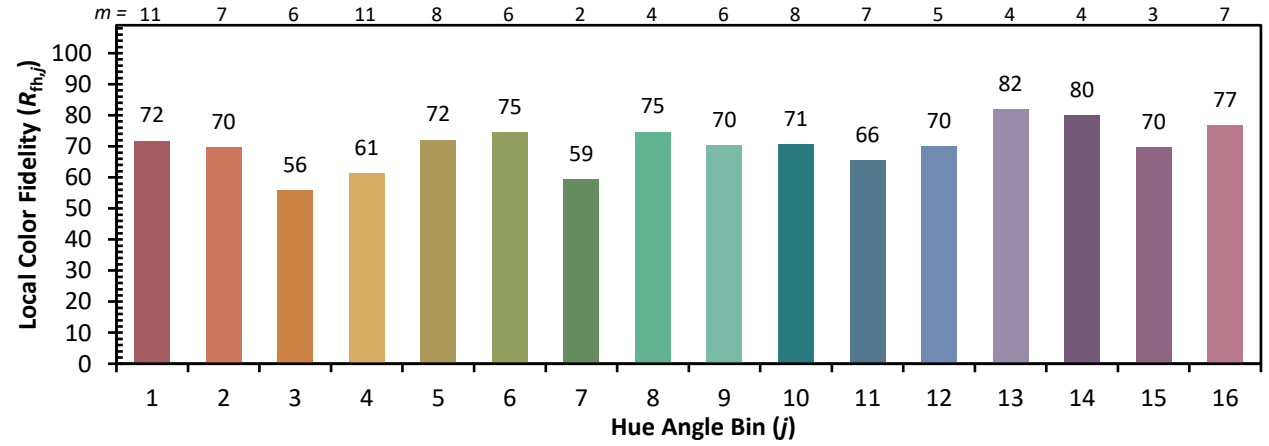
### Color Rendition by Hue-Angle Bin



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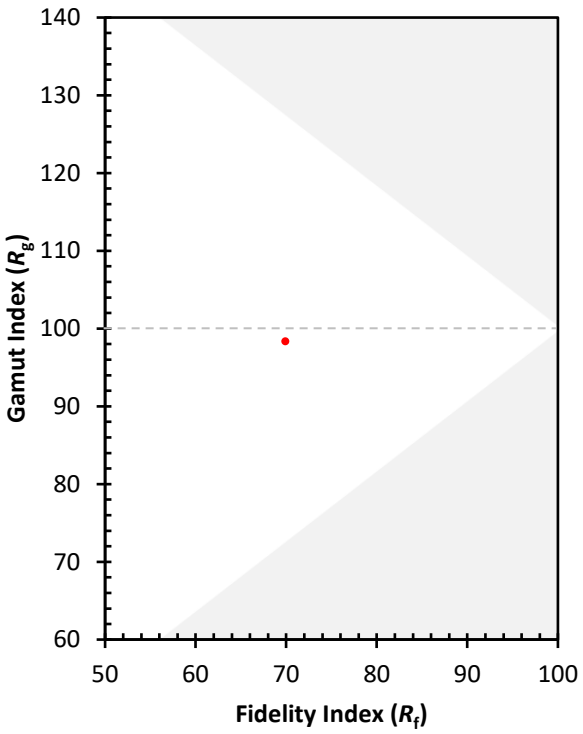
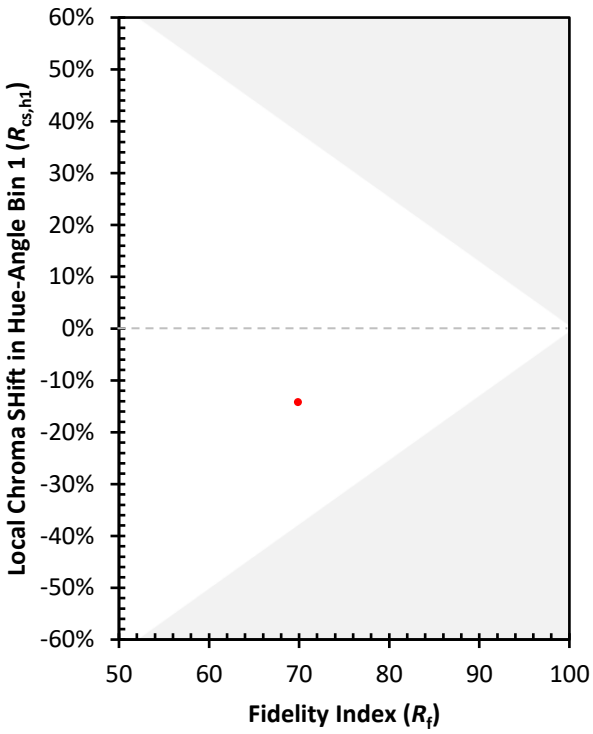
### Measure Comparisons




(END OF REPORT)