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: STREETWORKS

Report Number: P879556

Luminaire Tested: **MEM2-HTN-VA-180-727-U-MQ**

Issue Date: 10/01/2024

Report Generated By 670245763

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-08 |
| Report Number: | P879556 |
| Test Lab: | INNOVATION CENTER(G3) |
| Issue Date: | 10/01/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | STREETWORKS |
| Catalog Number: | MEM2-HTN-VA-180-727-U-MQ |
| Description: | EPIC MODERN TALL HOUSING 180W 70CRI 2700K VISUAL COMFORT FIXTURE w/ TYPE V MEDIUM DISTRIBUTION OPTIC |
| Light Source: | (1) 2700K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 16696.5 lumens |
| Efficiency: | N/A |
| Efficacy: | 98.2 lumens/watt |
| Luminous Opening: | Circular (Dia: 1.12' x H: 0') |
| IES Classification: | Type V - Short |
| BUG Rating: | B4 - U0 - G3 |

| | |
|---|---|
| Input Watts (W): | 170 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.995 |
| Total Harmonic Distortion (THDi): | 5.9% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 24 FT |

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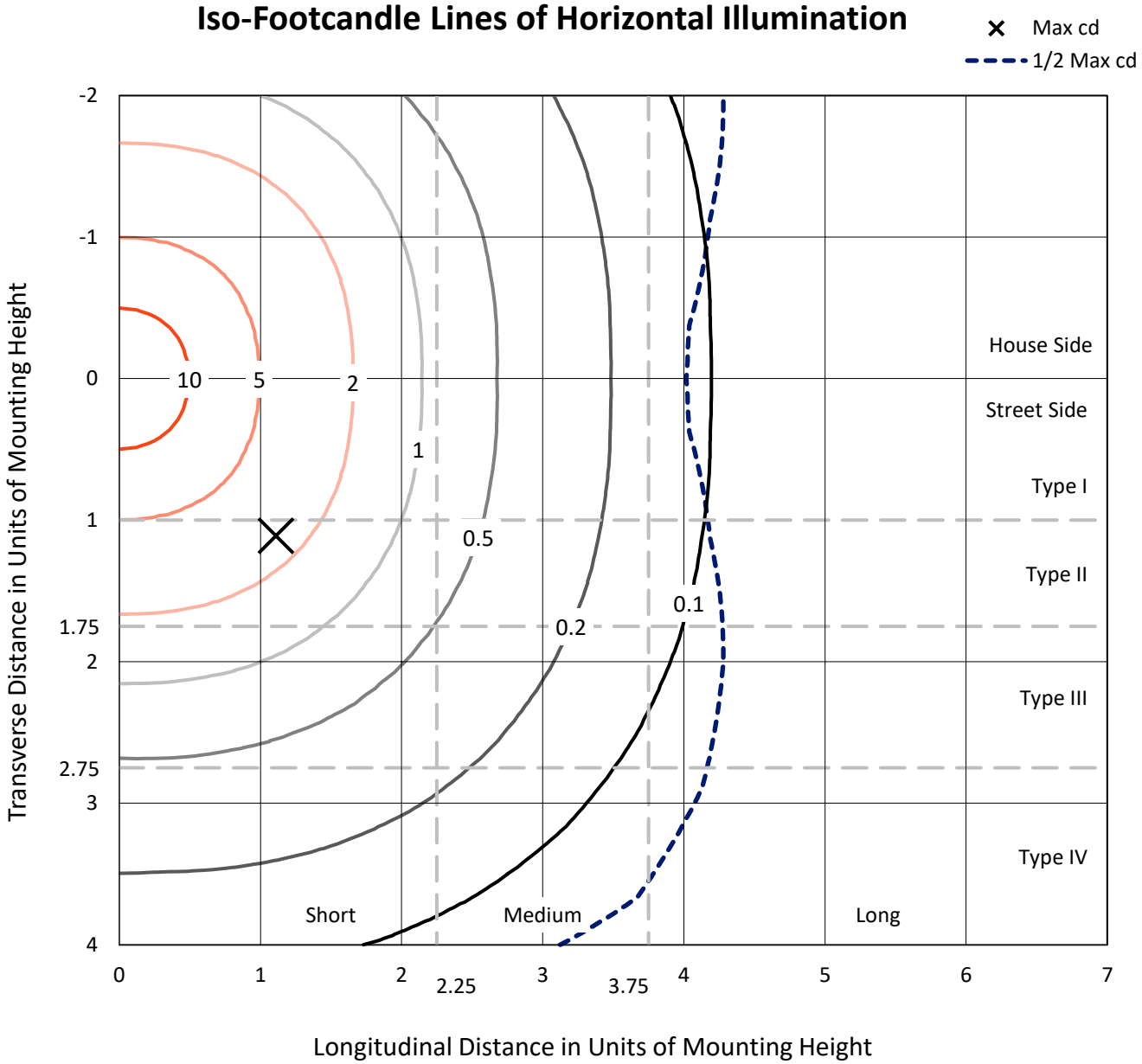
Scaled Data Report

REPORT NUMBER: P879556
CATALOG NUMBER: MEM2-HTN-VA-180-727-U-MQ

## Iso-Footcandle Lines of Horizontal Illumination




Based on 15 foot mounting height. Maximum calculated value = 15 fc
Type V - Short - N/A

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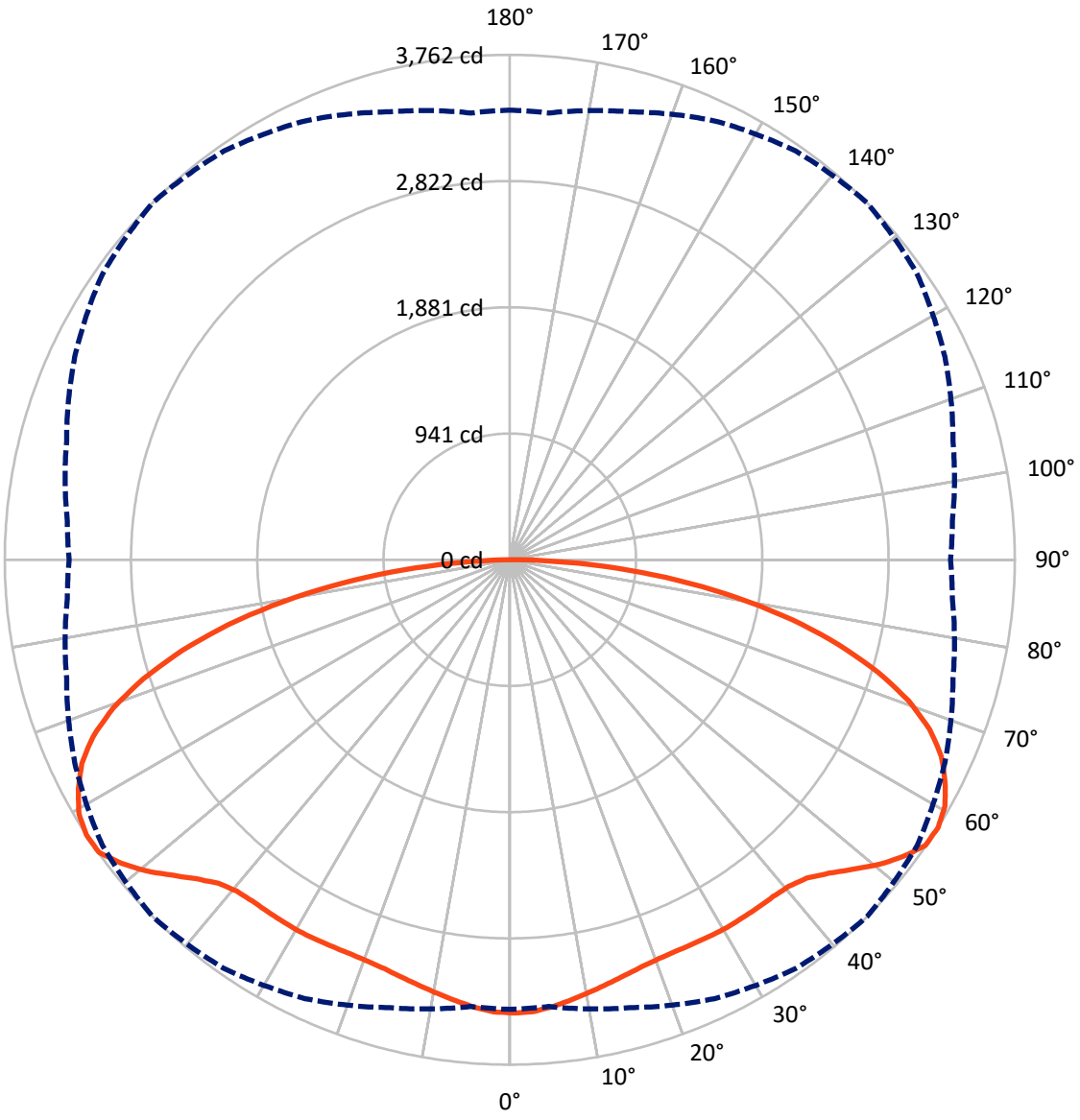
## Luminous Intensity Polar Plot



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Scaled Data Report

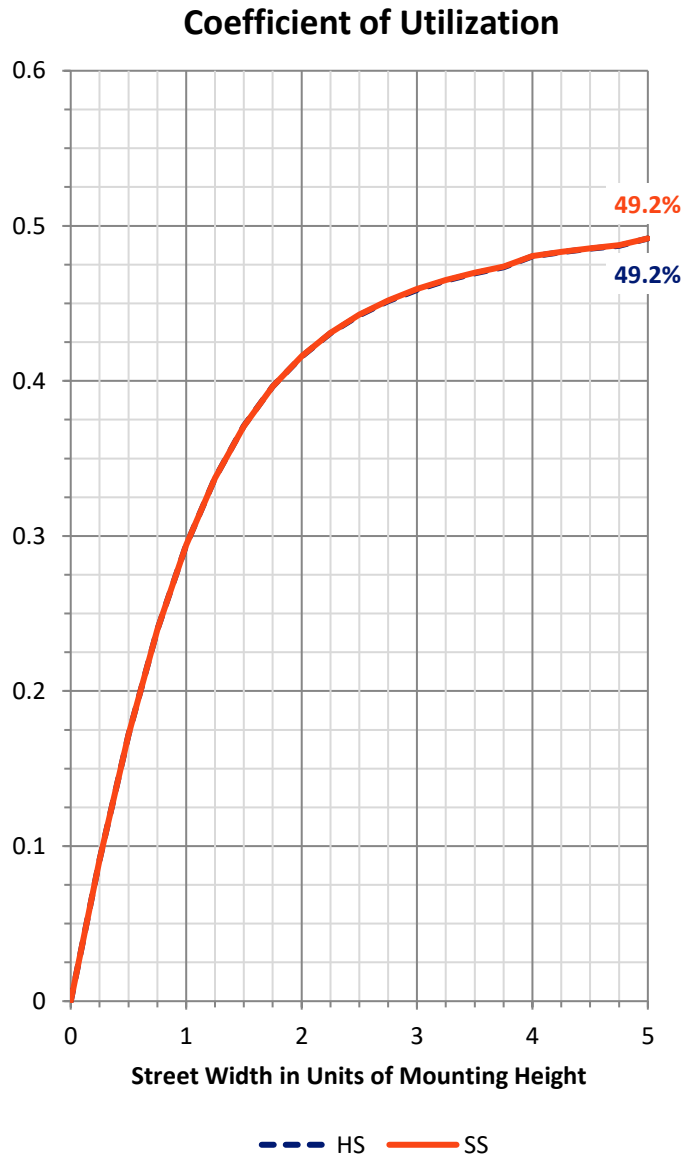
REPORT NUMBER: P879556
CATALOG NUMBER: MEM2-HTN-VA-180-727-U-MQ

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 8348.2 | 0.0 | 8348.2 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Street Side** | Lumens | 8348.2 | 0.0 | 8348.2 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Total** | Lumens | 16696.5 | 0.0 | 16696.5 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 317.1 | 1.9 |
| 10°-20° | 908.9 | 5.4 |
| 20°-30° | 1460.6 | 8.7 |
| 30°-40° | 1979.9 | 11.9 |
| 40°-50° | 2528.5 | 15.1 |
| 50°-60° | 3151.7 | 18.9 |
| 60°-70° | 3211.5 | 19.2 |
| 70°-80° | 2379.6 | 14.3 |
| 80°-90° | 758.8 | 4.5 |
| 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° | 16696.5 | 100.0 |
| 0°-180° | 16696.5 | 100.0 |



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

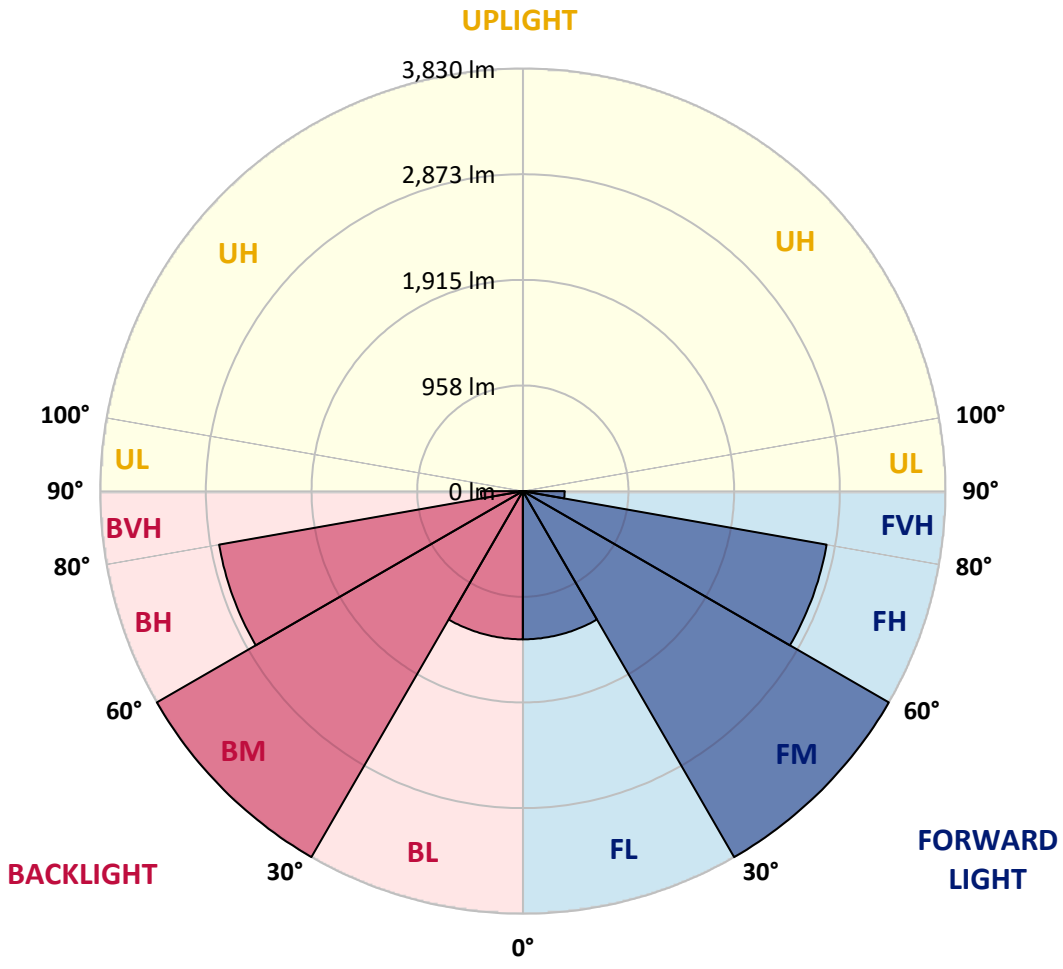
Scaled Data Report

REPORT NUMBER: P879556
CATALOG NUMBER: MEM2-HTN-VA-180-727-U-MQ

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1343.3 | 8.0 | | | |
| FM | (30°-60°) | 3830.1 | 22.9 | | | |
| FH | (60°-80°) | 2795.5 | 16.7 | | | G2/5000 |
| FVH | (80°-90°) | 379.4 | 2.3 | | | G3/500 |
| BL | (0°-30°) | 1343.3 | 8.0 | B3/2500 | | |
| BM | (30°-60°) | 3830.1 | 22.9 | B3/5000 | | |
| BH | (60°-80°) | 2795.5 | 16.7 | B4/5000 | | G2/5000 |
| BVH | (80°-90°) | 379.4 | 2.3 | | | G3/500 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B4-U0-G3**
Type V Short



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Scaled Data Report

REPORT NUMBER: P879556
CATALOG NUMBER: MEM2-HTN-VA-180-727-U-MQ

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3377.6 | 3377.6 | 3377.6 | 3377.6 | 3377.6 | 3377.6 | 3377.6 | 3377.6 | 3377.6 | 3377.6 | 3377.6 |
| 2.5° | 3371.8 | 3371.8 | 3371.0 | 3371.0 | 3370.1 | 3371.0 | 3371.8 | 3371.8 | 3371.0 | 3370.1 | 3369.3 |
| 5° | 3347.7 | 3348.5 | 3348.5 | 3346.9 | 3345.2 | 3345.2 | 3345.2 | 3346.0 | 3344.4 | 3345.2 | 3344.4 |
| 7.5° | 3312.8 | 3310.3 | 3312.8 | 3312.0 | 3312.8 | 3310.3 | 3314.4 | 3312.8 | 3310.3 | 3312.0 | 3312.0 |
| 10° | 3273.7 | 3274.6 | 3275.4 | 3274.6 | 3277.0 | 3276.2 | 3275.4 | 3274.6 | 3272.9 | 3274.6 | 3272.1 |
| 12.5° | 3237.2 | 3238.0 | 3240.5 | 3241.3 | 3243.8 | 3243.0 | 3243.8 | 3242.1 | 3241.3 | 3238.0 | 3237.2 |
| 15° | 3202.2 | 3203.9 | 3207.2 | 3209.7 | 3212.2 | 3213.1 | 3211.4 | 3210.6 | 3206.4 | 3203.9 | 3202.2 |
| 17.5° | 3173.2 | 3173.2 | 3178.1 | 3182.3 | 3186.5 | 3187.3 | 3186.5 | 3182.3 | 3176.5 | 3170.7 | 3171.5 |
| 20° | 3153.2 | 3153.2 | 3159.0 | 3165.7 | 3171.5 | 3173.2 | 3170.7 | 3163.2 | 3154.0 | 3149.9 | 3149.1 |
| 22.5° | 3144.1 | 3144.9 | 3150.7 | 3158.2 | 3166.5 | 3168.2 | 3163.2 | 3154.0 | 3144.1 | 3136.6 | 3135.8 |
| 25° | 3144.9 | 3143.2 | 3148.2 | 3159.9 | 3169.0 | 3170.7 | 3166.5 | 3154.0 | 3142.4 | 3135.8 | 3133.3 |
| 27.5° | 3142.4 | 3143.2 | 3149.1 | 3160.7 | 3172.3 | 3175.7 | 3169.0 | 3154.0 | 3138.3 | 3132.4 | 3130.8 |
| 30° | 3141.6 | 3142.4 | 3144.1 | 3163.2 | 3176.5 | 3182.3 | 3172.3 | 3152.4 | 3139.1 | 3129.9 | 3129.1 |
| 32.5° | 3138.3 | 3134.1 | 3145.7 | 3157.4 | 3174.0 | 3181.5 | 3171.5 | 3153.2 | 3131.6 | 3125.0 | 3121.6 |
| 35° | 3125.0 | 3129.1 | 3139.1 | 3159.0 | 3178.1 | 3183.1 | 3171.5 | 3149.1 | 3129.9 | 3116.6 | 3115.8 |
| 37.5° | 3122.5 | 3122.5 | 3138.3 | 3159.0 | 3178.1 | 3185.6 | 3175.7 | 3150.7 | 3124.1 | 3107.5 | 3107.5 |
| 40° | 3119.1 | 3118.3 | 3139.1 | 3164.8 | 3189.8 | 3199.8 | 3186.5 | 3155.7 | 3123.3 | 3107.5 | 3099.2 |
| 42.5° | 3128.3 | 3133.3 | 3157.4 | 3194.8 | 3226.3 | 3243.0 | 3223.9 | 3189.8 | 3151.5 | 3121.6 | 3120.8 |
| 45° | 3171.5 | 3182.3 | 3207.2 | 3270.4 | 3312.8 | 3332.7 | 3310.3 | 3251.3 | 3191.4 | 3151.5 | 3149.1 |
| 47.5° | 3238.8 | 3235.5 | 3294.5 | 3361.0 | 3423.3 | 3444.9 | 3412.5 | 3343.5 | 3257.1 | 3208.9 | 3196.4 |
| 50° | 3285.4 | 3293.7 | 3354.3 | 3450.7 | 3543.8 | 3568.8 | 3521.4 | 3432.5 | 3338.5 | 3272.1 | 3260.4 |
| 52.5° | 3348.5 | 3350.2 | 3427.5 | 3549.6 | 3645.2 | 3672.7 | 3626.9 | 3516.4 | 3390.1 | 3307.0 | 3301.1 |
| 55° | 3356.0 | 3383.4 | 3477.3 | 3610.3 | 3725.0 | 3757.4 | 3700.9 | 3582.9 | 3435.8 | 3332.7 | 3322.8 |
| 57.5° | 3350.2 | 3341.9 | 3455.7 | 3608.7 | 3716.7 | 3762.4 | 3706.7 | 3576.2 | 3418.3 | 3309.5 | 3282.9 |
| 60° | 3230.5 | 3265.4 | 3390.9 | 3540.5 | 3679.3 | 3725.0 | 3660.2 | 3527.2 | 3354.3 | 3234.7 | 3223.9 |
| 62.5° | 3149.1 | 3164.0 | 3278.7 | 3479.8 | 3593.7 | 3639.4 | 3589.5 | 3433.3 | 3248.8 | 3124.1 | 3109.2 |
| 65° | 3021.9 | 3033.5 | 3168.2 | 3333.6 | 3492.3 | 3533.0 | 3469.0 | 3337.7 | 3139.9 | 3002.8 | 2975.4 |
| 67.5° | 2819.1 | 2850.7 | 2983.7 | 3193.9 | 3303.6 | 3373.5 | 3316.1 | 3131.6 | 2952.1 | 2817.4 | 2797.5 |
| 70° | 2583.1 | 2625.5 | 2762.6 | 2934.6 | 3117.5 | 3152.4 | 3073.4 | 2947.9 | 2746.8 | 2603.0 | 2568.1 |
| 72.5° | 2355.4 | 2358.7 | 2486.7 | 2688.6 | 2804.1 | 2869.0 | 2824.1 | 2658.7 | 2461.7 | 2339.6 | 2318.0 |
| 75° | 2037.0 | 2037.9 | 2178.3 | 2343.7 | 2490.0 | 2532.4 | 2460.9 | 2344.5 | 2169.2 | 2032.1 | 2018.8 |
| 77.5° | 1668.0 | 1690.5 | 1815.1 | 1974.7 | 2090.2 | 2151.7 | 2101.0 | 1969.7 | 1806.0 | 1688.8 | 1675.5 |
| 80° | 1308.2 | 1336.4 | 1424.5 | 1567.5 | 1667.2 | 1721.2 | 1666.4 | 1551.7 | 1427.0 | 1312.3 | 1314.0 |
| 82.5° | 923.4 | 944.1 | 1027.2 | 1124.5 | 1221.7 | 1261.6 | 1238.3 | 1153.6 | 1039.7 | 939.1 | 911.7 |
| 85° | 515.3 | 541.9 | 597.6 | 683.2 | 748.0 | 799.5 | 770.4 | 703.9 | 605.0 | 541.9 | 540.2 |
| 87.5° | 151.3 | 163.7 | 186.2 | 243.5 | 305.0 | 327.5 | 320.8 | 304.2 | 266.8 | 239.4 | 221.9 |
| 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
Peachtree City, GA 30269

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-12

Test Date: 10/23/2024

Luminaire Tested: MEM2-HTN-VA-130-727-U-RW

Data in this report applies to families of products including MEM2-HTN-VA-130-727-U-RW

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

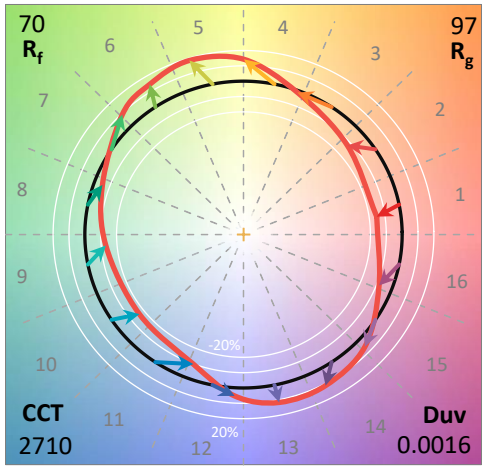
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-176-12 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/24/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | Streetworks |
| Catalog Number: | **MEM2-HTN-VA-130-727-U-RW** |
| Description: | EPIC MODERN VISUAL COMFORT 130W WAVESTREAM RECTANGULAR WIDE |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 2710 | CRI (Ra): | 70.4 | | |
| CIE u': | 0.2616 | R1: | 67.3 | R9: | -24.6 |
| CIE v': | 0.5295 | R2: | 79.1 | R10: | 51.3 |
| Duv: | 0.0016 | R3: | 89.5 | R11: | 61.0 |
| CIE x: | 0.4619 | R4: | 67.6 | R12: | 41.2 |
| CIE y: | 0.4154 | R5: | 64.7 | R13: | 68.7 |
| CIE z: | 0.1227 | R6: | 69.6 | R14: | 93.5 |
| Peak Wavelength (nm): | 601 | R7: | 78.9 | R15: | 60.6 |
| Dominant Wavelength (nm): | 583 | R8: | 46.2 | | |
| Purity: | 63.3407 | | | | |

| | |
|---|---|
| Rf: | 70.4 |
| Rg: | 96.7 |




## Test Conditions

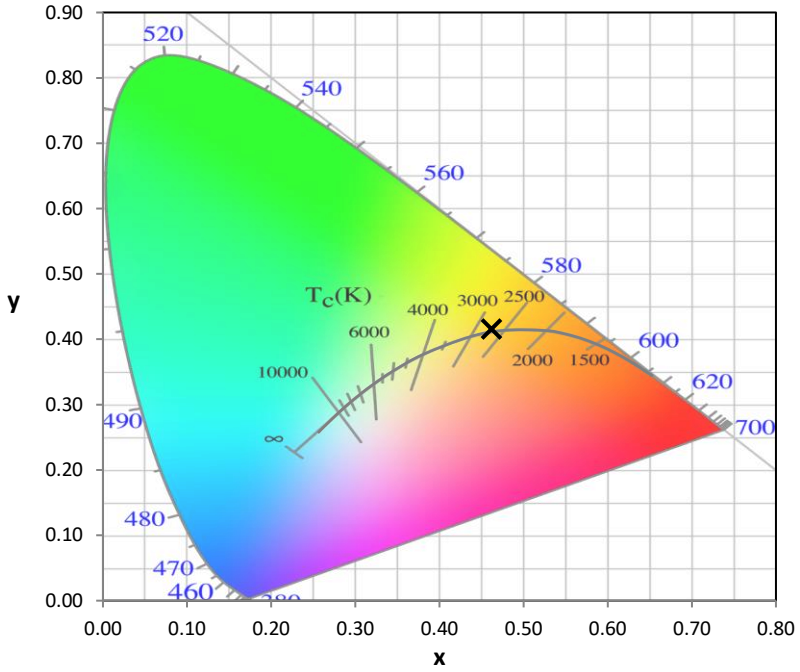
| | |
|---|---|
| Stabilization Time: | 47M |
| Operation Time: | 1H 47M |
| Sphere Temperature (°C): | 24.4 |

REPORT NUMBER: SP1-2407-176-12

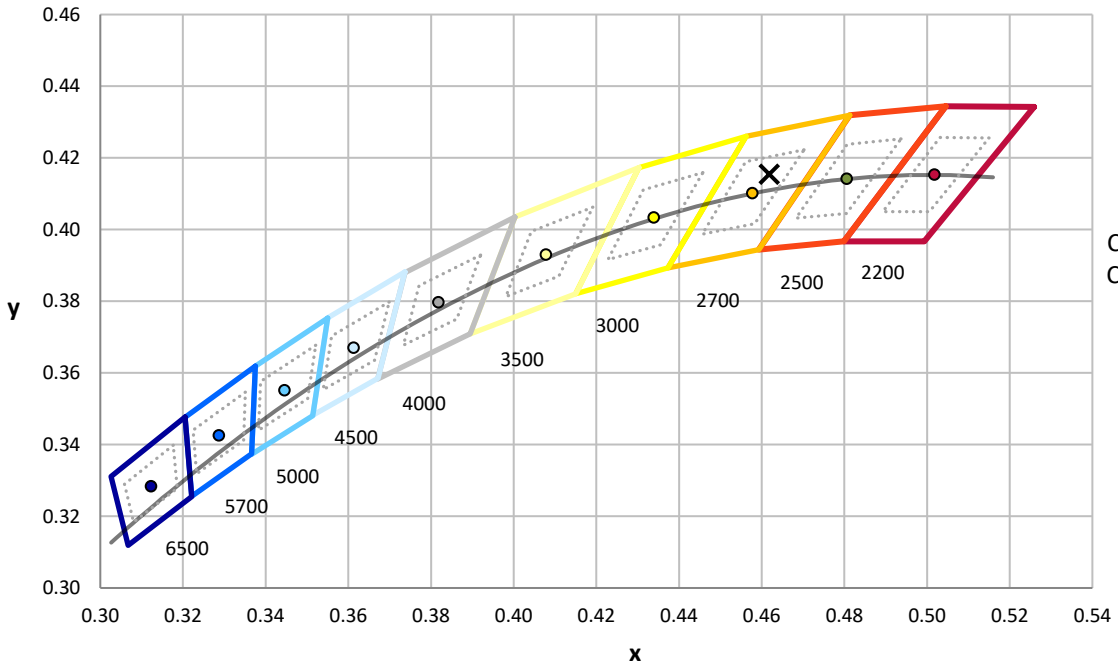
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/22/2024 | 10/22/2025 |
| DC Power Source | IN0208 | 10/22/2024 | 10/22/2025 |
| Sphere Thermometer | IN0085 | 10/22/2024 | 10/22/2025 |
| Room Thermometer | IN0046 | 10/22/2024 | 10/22/2025 |

REPORT NUMBER: SP1-2407-176-12

## CIE 1931 Chromaticity Diagram




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

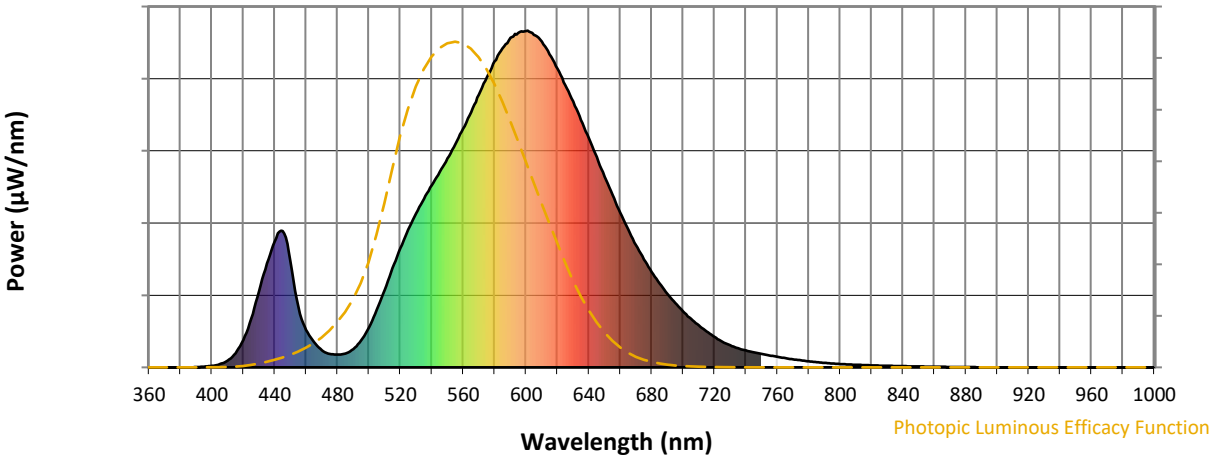



CCT = 2710K
CIE x = 0.4619
CIE y = 0.4154
Duv = 0.0016

Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-12

## Photopic Flux vs. Wavelength

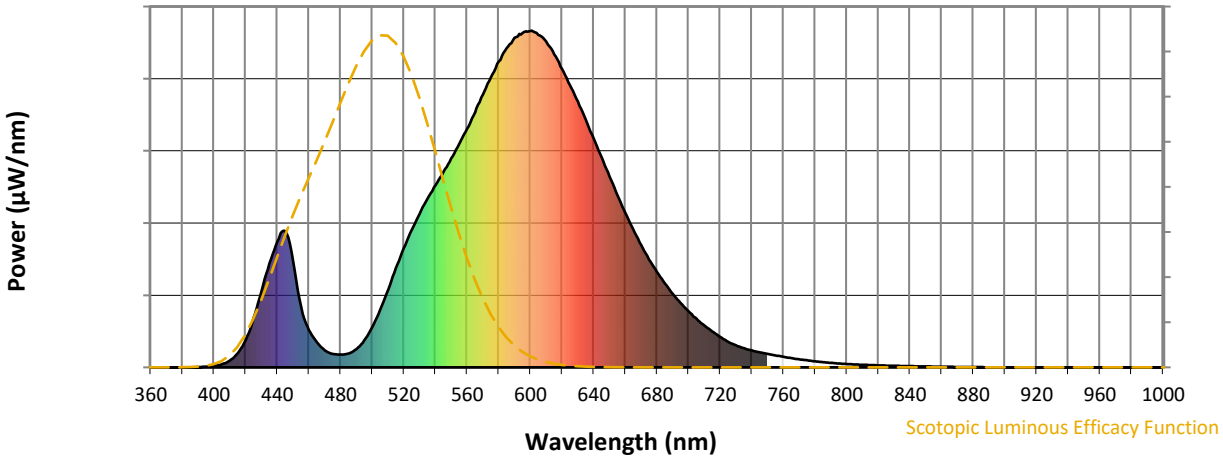



## Photopic Lumens: NR

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 54 | NR | 620 | 887 | NR | 750 | 40 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 80 | NR | 625 | 838 | NR | 755 | 35 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 119 | NR | 630 | 790 | NR | 760 | 31 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 171 | NR | 635 | 735 | NR | 765 | 27 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 230 | NR | 640 | 681 | NR | 770 | 24 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 295 | NR | 645 | 624 | NR | 775 | 21 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 354 | NR | 650 | 567 | NR | 780 | 18 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 408 | NR | 655 | 512 | NR | 785 | 15 | NR | 915 | 0 | NR |
| 400 | 5 | NR | 530 | 457 | NR | 660 | 459 | NR | 790 | 13 | NR | 920 | 0 | NR |
| 405 | 9 | NR | 535 | 500 | NR | 665 | 410 | NR | 795 | 12 | NR | 925 | 0 | NR |
| 410 | 20 | NR | 540 | 541 | NR | 670 | 363 | NR | 800 | 10 | NR | 930 | 0 | NR |
| 415 | 42 | NR | 545 | 581 | NR | 675 | 320 | NR | 805 | 9 | NR | 935 | 0 | NR |
| 420 | 81 | NR | 550 | 620 | NR | 680 | 283 | NR | 810 | 8 | NR | 940 | 0 | NR |
| 425 | 145 | NR | 555 | 664 | NR | 685 | 249 | NR | 815 | 7 | NR | 945 | 0 | NR |
| 430 | 225 | NR | 560 | 709 | NR | 690 | 219 | NR | 820 | 6 | NR | 950 | 0 | NR |
| 435 | 309 | NR | 565 | 758 | NR | 695 | 191 | NR | 825 | 5 | NR | 955 | 0 | NR |
| 440 | 373 | NR | 570 | 810 | NR | 700 | 166 | NR | 830 | 5 | NR | 960 | 0 | NR |
| 445 | 405 | NR | 575 | 861 | NR | 705 | 144 | NR | 835 | 4 | NR | 965 | 0 | NR |
| 450 | 316 | NR | 580 | 908 | NR | 710 | 124 | NR | 840 | 4 | NR | 970 | 0 | NR |
| 455 | 180 | NR | 585 | 948 | NR | 715 | 106 | NR | 845 | 3 | NR | 975 | 0 | NR |
| 460 | 111 | NR | 590 | 978 | NR | 720 | 90 | NR | 850 | 3 | NR | 980 | 0 | NR |
| 465 | 75 | NR | 595 | 993 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 50 | NR | 600 | 999 | NR | 730 | 65 | NR | 860 | 2 | NR | 990 | 0 | NR |
| 475 | 40 | NR | 605 | 988 | NR | 735 | 57 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 38 | NR | 610 | 967 | NR | 740 | 50 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 41 | NR | 615 | 930 | NR | 745 | 45 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-176-12

## Scotopic Flux vs. Wavelength




**Scotopic Lumens: NR** **S/P: 1.02**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 54 | NR | 620 | 887 | NR | 750 | 40 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 80 | NR | 625 | 838 | NR | 755 | 35 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 119 | NR | 630 | 790 | NR | 760 | 31 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 171 | NR | 635 | 735 | NR | 765 | 27 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 230 | NR | 640 | 681 | NR | 770 | 24 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 295 | NR | 645 | 624 | NR | 775 | 21 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 354 | NR | 650 | 567 | NR | 780 | 18 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 408 | NR | 655 | 512 | NR | 785 | 15 | NR | 915 | 0 | NR |
| 400 | 5 | NR | 530 | 457 | NR | 660 | 459 | NR | 790 | 13 | NR | 920 | 0 | NR |
| 405 | 9 | NR | 535 | 500 | NR | 665 | 410 | NR | 795 | 12 | NR | 925 | 0 | NR |
| 410 | 20 | NR | 540 | 541 | NR | 670 | 363 | NR | 800 | 10 | NR | 930 | 0 | NR |
| 415 | 42 | NR | 545 | 581 | NR | 675 | 320 | NR | 805 | 9 | NR | 935 | 0 | NR |
| 420 | 81 | NR | 550 | 620 | NR | 680 | 283 | NR | 810 | 8 | NR | 940 | 0 | NR |
| 425 | 145 | NR | 555 | 664 | NR | 685 | 249 | NR | 815 | 7 | NR | 945 | 0 | NR |
| 430 | 225 | NR | 560 | 709 | NR | 690 | 219 | NR | 820 | 6 | NR | 950 | 0 | NR |
| 435 | 309 | NR | 565 | 758 | NR | 695 | 191 | NR | 825 | 5 | NR | 955 | 0 | NR |
| 440 | 373 | NR | 570 | 810 | NR | 700 | 166 | NR | 830 | 5 | NR | 960 | 0 | NR |
| 445 | 405 | NR | 575 | 861 | NR | 705 | 144 | NR | 835 | 4 | NR | 965 | 0 | NR |
| 450 | 316 | NR | 580 | 908 | NR | 710 | 124 | NR | 840 | 4 | NR | 970 | 0 | NR |
| 455 | 180 | NR | 585 | 948 | NR | 715 | 106 | NR | 845 | 3 | NR | 975 | 0 | NR |
| 460 | 111 | NR | 590 | 978 | NR | 720 | 90 | NR | 850 | 3 | NR | 980 | 0 | NR |
| 465 | 75 | NR | 595 | 993 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 50 | NR | 600 | 999 | NR | 730 | 65 | NR | 860 | 2 | NR | 990 | 0 | NR |
| 475 | 40 | NR | 605 | 988 | NR | 735 | 57 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 38 | NR | 610 | 967 | NR | 740 | 50 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 41 | NR | 615 | 930 | NR | 745 | 45 | NR | 875 | 1 | NR | | | |

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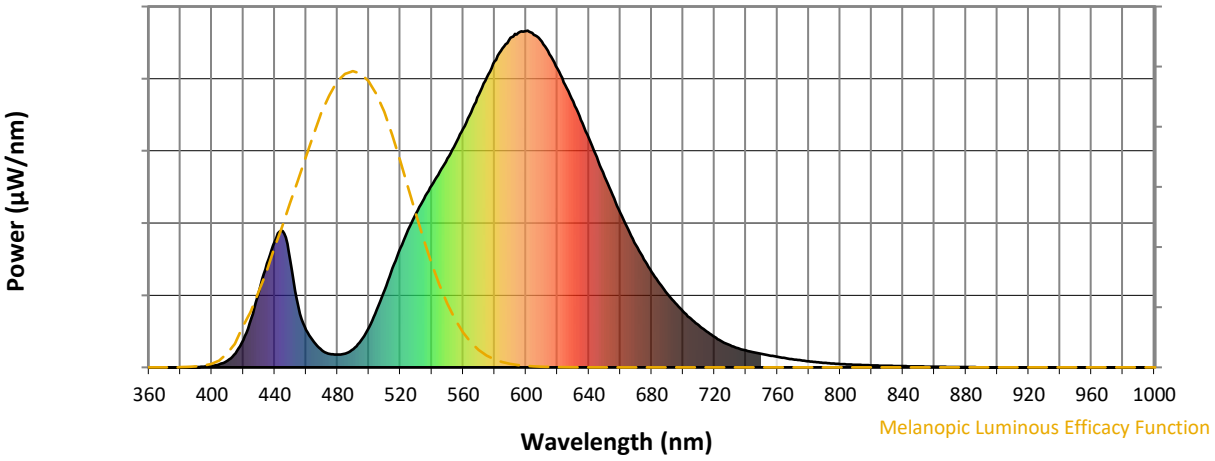
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 1.71**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 54 | NR | 620 | 887 | NR | 750 | 40 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 80 | NR | 625 | 838 | NR | 755 | 35 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 119 | NR | 630 | 790 | NR | 760 | 31 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 171 | NR | 635 | 735 | NR | 765 | 27 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 230 | NR | 640 | 681 | NR | 770 | 24 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 295 | NR | 645 | 624 | NR | 775 | 21 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 354 | NR | 650 | 567 | NR | 780 | 18 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 408 | NR | 655 | 512 | NR | 785 | 15 | NR | 915 | 0 | NR |
| 400 | 5 | NR | 530 | 457 | NR | 660 | 459 | NR | 790 | 13 | NR | 920 | 0 | NR |
| 405 | 9 | NR | 535 | 500 | NR | 665 | 410 | NR | 795 | 12 | NR | 925 | 0 | NR |
| 410 | 20 | NR | 540 | 541 | NR | 670 | 363 | NR | 800 | 10 | NR | 930 | 0 | NR |
| 415 | 42 | NR | 545 | 581 | NR | 675 | 320 | NR | 805 | 9 | NR | 935 | 0 | NR |
| 420 | 81 | NR | 550 | 620 | NR | 680 | 283 | NR | 810 | 8 | NR | 940 | 0 | NR |
| 425 | 145 | NR | 555 | 664 | NR | 685 | 249 | NR | 815 | 7 | NR | 945 | 0 | NR |
| 430 | 225 | NR | 560 | 709 | NR | 690 | 219 | NR | 820 | 6 | NR | 950 | 0 | NR |
| 435 | 309 | NR | 565 | 758 | NR | 695 | 191 | NR | 825 | 5 | NR | 955 | 0 | NR |
| 440 | 373 | NR | 570 | 810 | NR | 700 | 166 | NR | 830 | 5 | NR | 960 | 0 | NR |
| 445 | 405 | NR | 575 | 861 | NR | 705 | 144 | NR | 835 | 4 | NR | 965 | 0 | NR |
| 450 | 316 | NR | 580 | 908 | NR | 710 | 124 | NR | 840 | 4 | NR | 970 | 0 | NR |
| 455 | 180 | NR | 585 | 948 | NR | 715 | 106 | NR | 845 | 3 | NR | 975 | 0 | NR |
| 460 | 111 | NR | 590 | 978 | NR | 720 | 90 | NR | 850 | 3 | NR | 980 | 0 | NR |
| 465 | 75 | NR | 595 | 993 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 50 | NR | 600 | 999 | NR | 730 | 65 | NR | 860 | 2 | NR | 990 | 0 | NR |
| 475 | 40 | NR | 605 | 988 | NR | 735 | 57 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 38 | NR | 610 | 967 | NR | 740 | 50 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 41 | NR | 615 | 930 | NR | 745 | 45 | NR | 875 | 1 | NR | | | |

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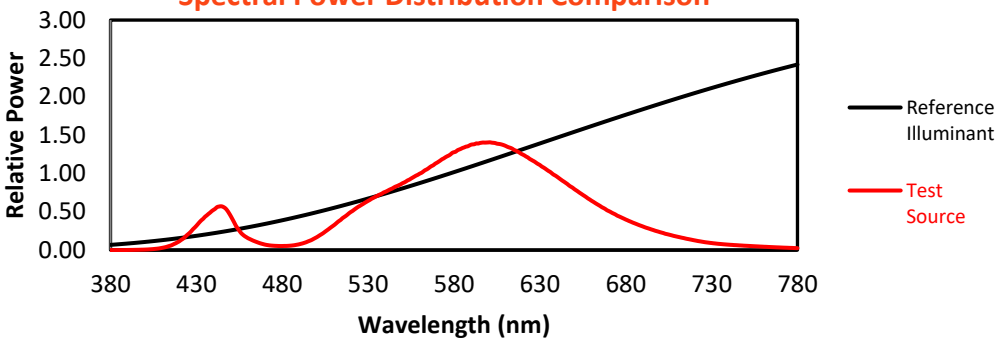
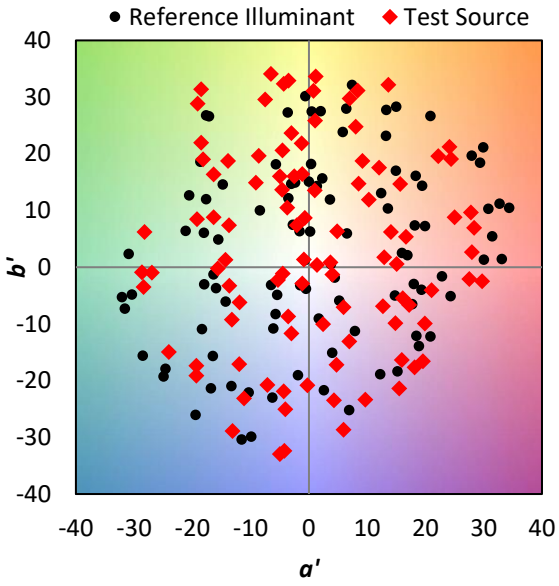
## Summary

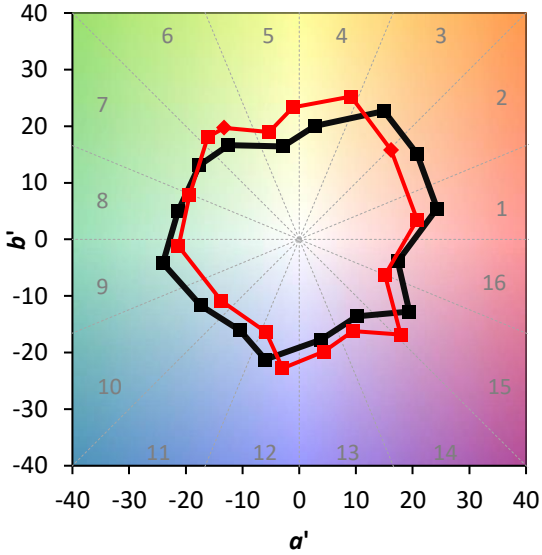
$R_f$ = 70.4
$R_g$ = 96.7
CIE $R_a$ = 70.4
$R_9$ = -24.6

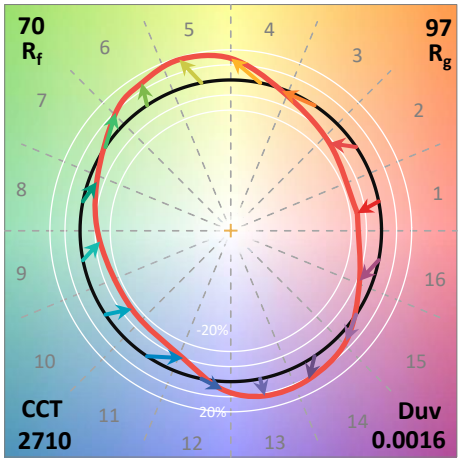
## Spectral Power Distribution Comparison

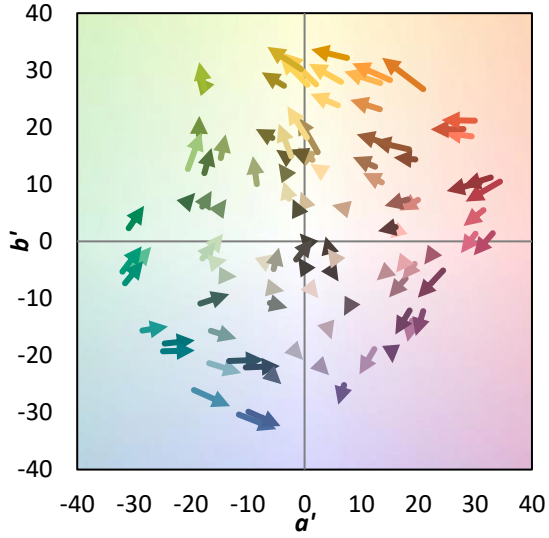



## Color Vector Graphics



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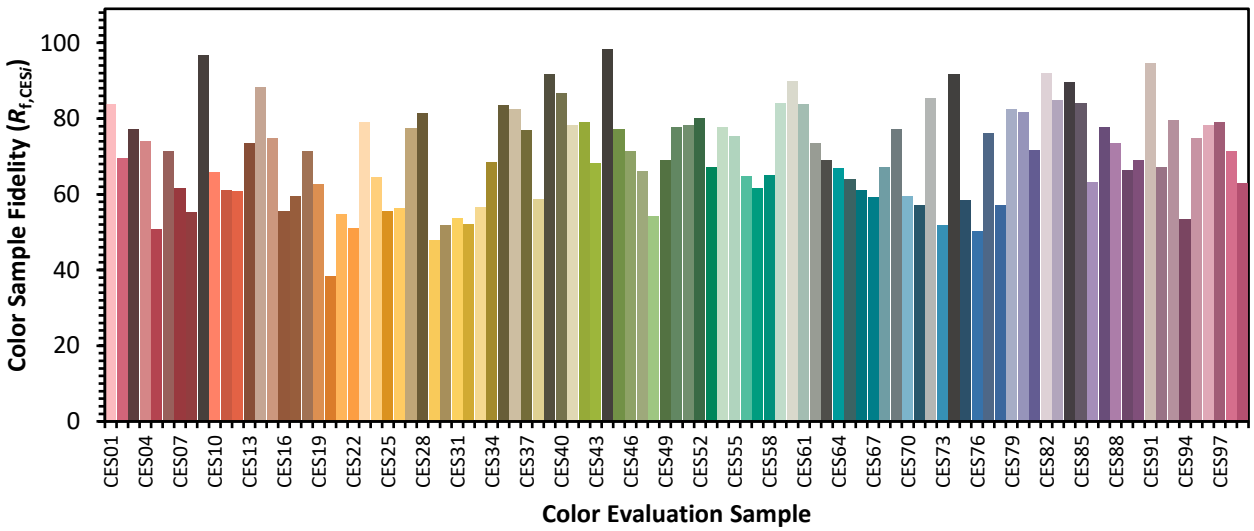
**Individual Sample Fidelity Index ($R_{f,i}$)**

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 56 | CES51 = 78 | CES76 = 50 |
| CES02 = 63 | CES27 = 77 | CES52 = 80 | CES77 = 76 |
| CES03 = 31 | CES28 = 81 | CES53 = 67 | CES78 = 57 |
| CES04 = 71 | CES29 = 48 | CES54 = 78 | CES79 = 82 |
| CES05 = 50 | CES30 = 52 | CES55 = 75 | CES80 = 82 |
| CES06 = 52 | CES31 = 54 | CES56 = 65 | CES81 = 72 |
| CES07 = 42 | CES32 = 52 | CES57 = 62 | CES82 = 92 |
| CES08 = 41 | CES33 = 57 | CES58 = 65 | CES83 = 85 |
| CES09 = 29 | CES34 = 69 | CES59 = 84 | CES84 = 90 |
| CES10 = 77 | CES35 = 84 | CES60 = 90 | CES85 = 84 |
| CES11 = 60 | CES36 = 82 | CES61 = 84 | CES86 = 63 |
| CES12 = 66 | CES37 = 77 | CES62 = 73 | CES87 = 78 |
| CES13 = 43 | CES38 = 59 | CES63 = 69 | CES88 = 74 |
| CES14 = 74 | CES39 = 92 | CES64 = 67 | CES89 = 66 |
| CES15 = 71 | CES40 = 87 | CES65 = 64 | CES90 = 69 |
| CES16 = 48 | CES41 = 78 | CES66 = 61 | CES91 = 95 |
| CES17 = 51 | CES42 = 79 | CES67 = 59 | CES92 = 67 |
| CES18 = 57 | CES43 = 68 | CES68 = 67 | CES93 = 80 |
| CES19 = 73 | CES44 = 98 | CES69 = 77 | CES94 = 54 |
| CES20 = 67 | CES45 = 77 | CES70 = 60 | CES95 = 75 |
| CES21 = 88 | CES46 = 71 | CES71 = 57 | CES96 = 78 |
| CES22 = 80 | CES47 = 66 | CES72 = 85 | CES97 = 79 |
| CES23 = 92 | CES48 = 54 | CES73 = 52 | CES98 = 71 |
| CES24 = 92 | CES49 = 69 | CES74 = 92 | CES99 = 63 |
| CES25 = 73 | CES50 = 78 | CES75 = 58 | |



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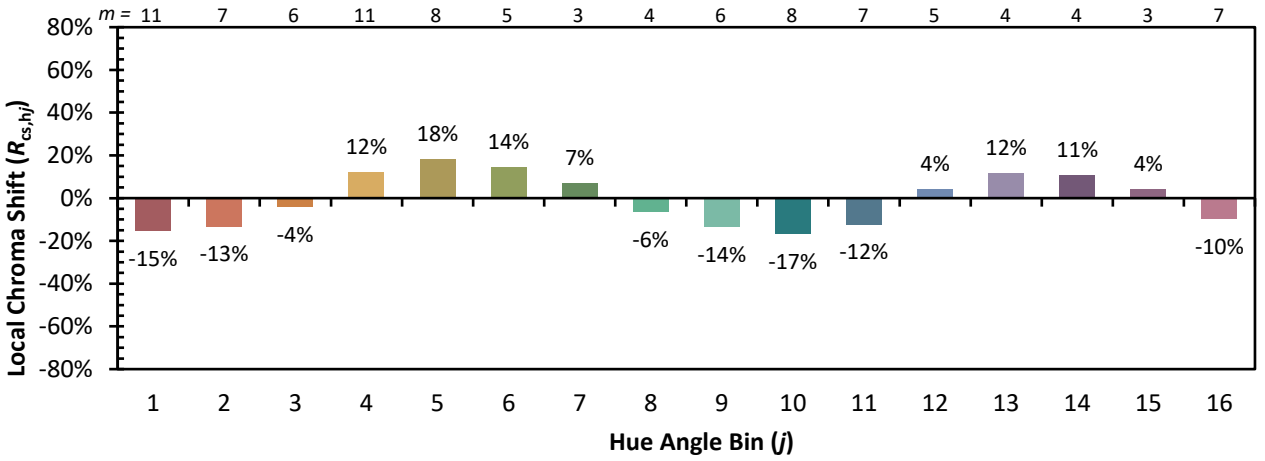
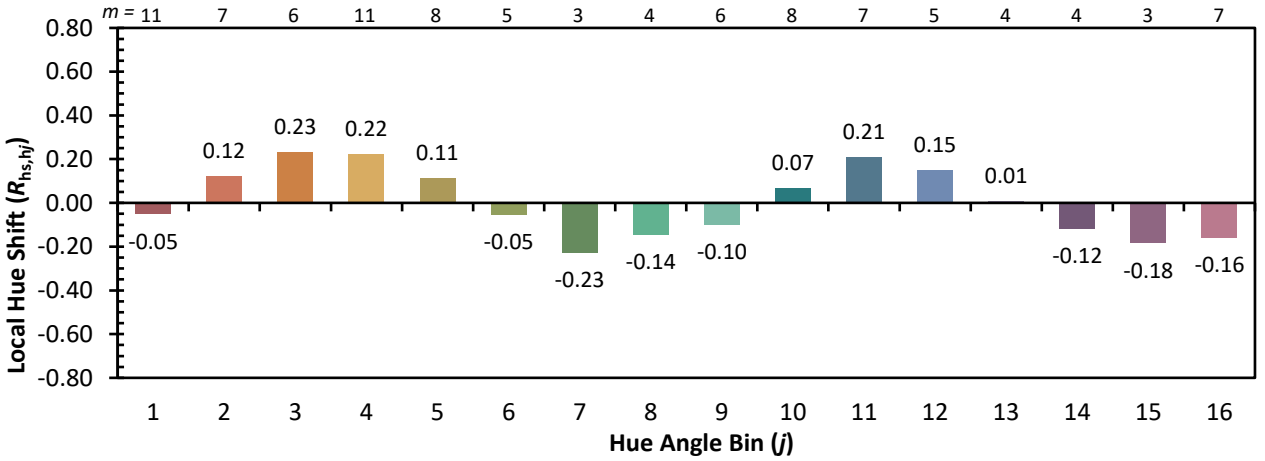
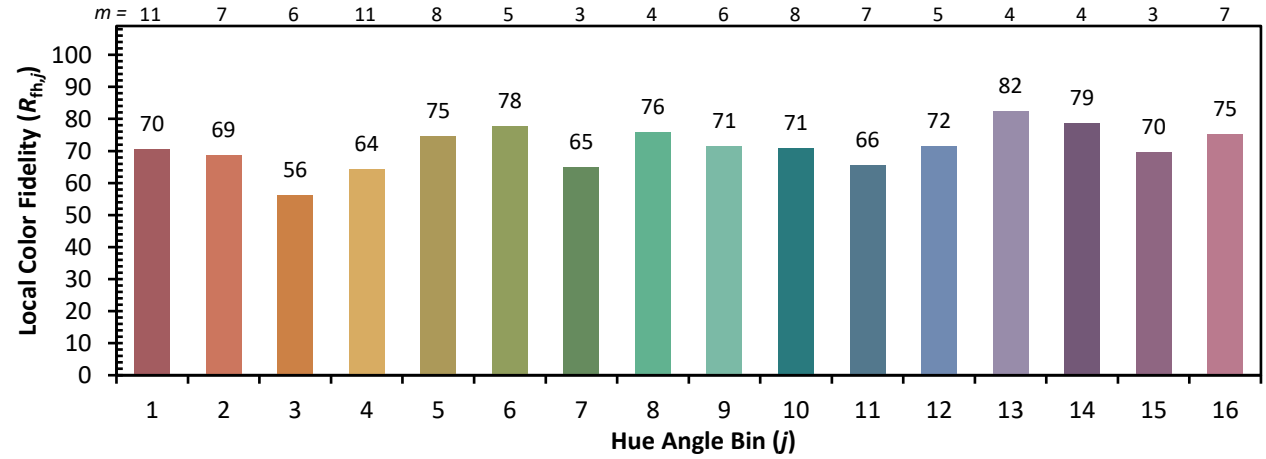
## Color Rendition by Hue-Angle Bin



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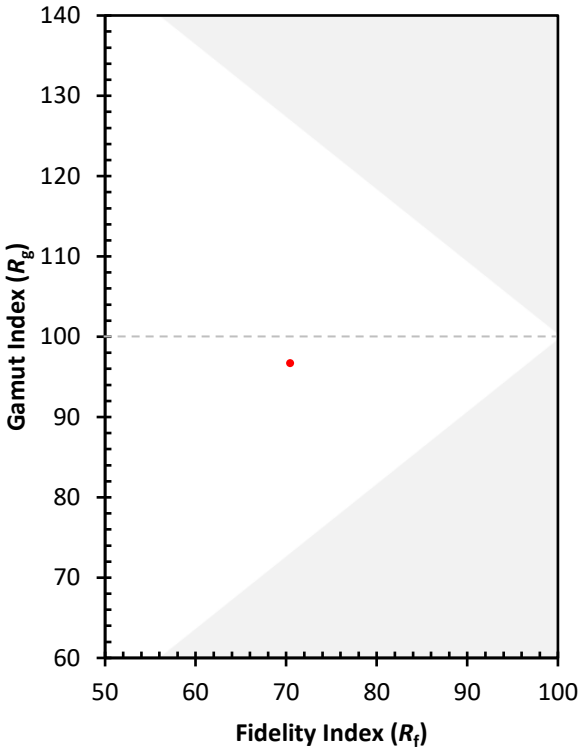
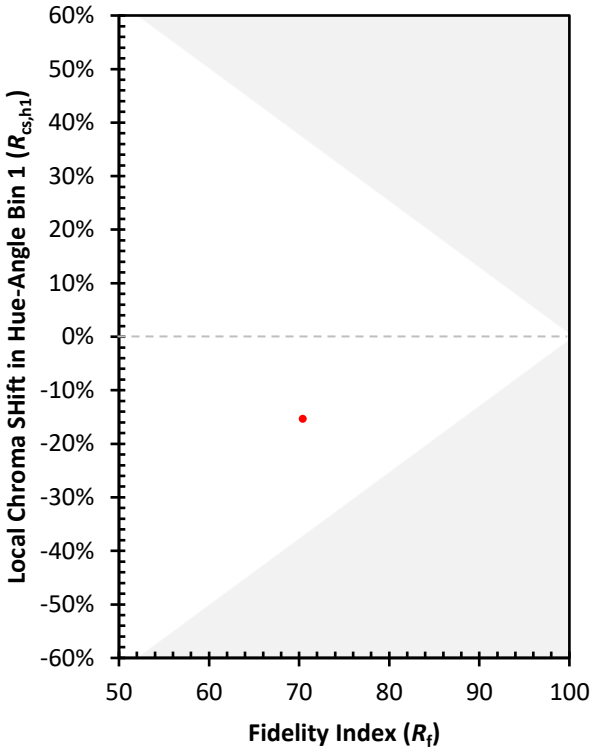
## Measure Comparisons

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