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: McGRAW-EDISON

Report Number: P821332

Luminaire Tested: **TT-D5-740-24VDC-RW**

Issue Date: 10/15/2020

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: | P821332 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-981-1) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 10/15/2020 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | TT-D5-740-24VDC-RW |
| Description: | TOPTIER LED PARKING GARAGE LUMINAIRE |
| | 4000K, 70 CRI LEDS AND RECTANGULAR DISTRIBUTION |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 7615 lumens |
| Efficiency: | N/A |
| Efficacy: | 104.3 lumens/watt |
| Luminous Opening: | Circular (Dia: 1.12' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B3 - U0 - G3 |

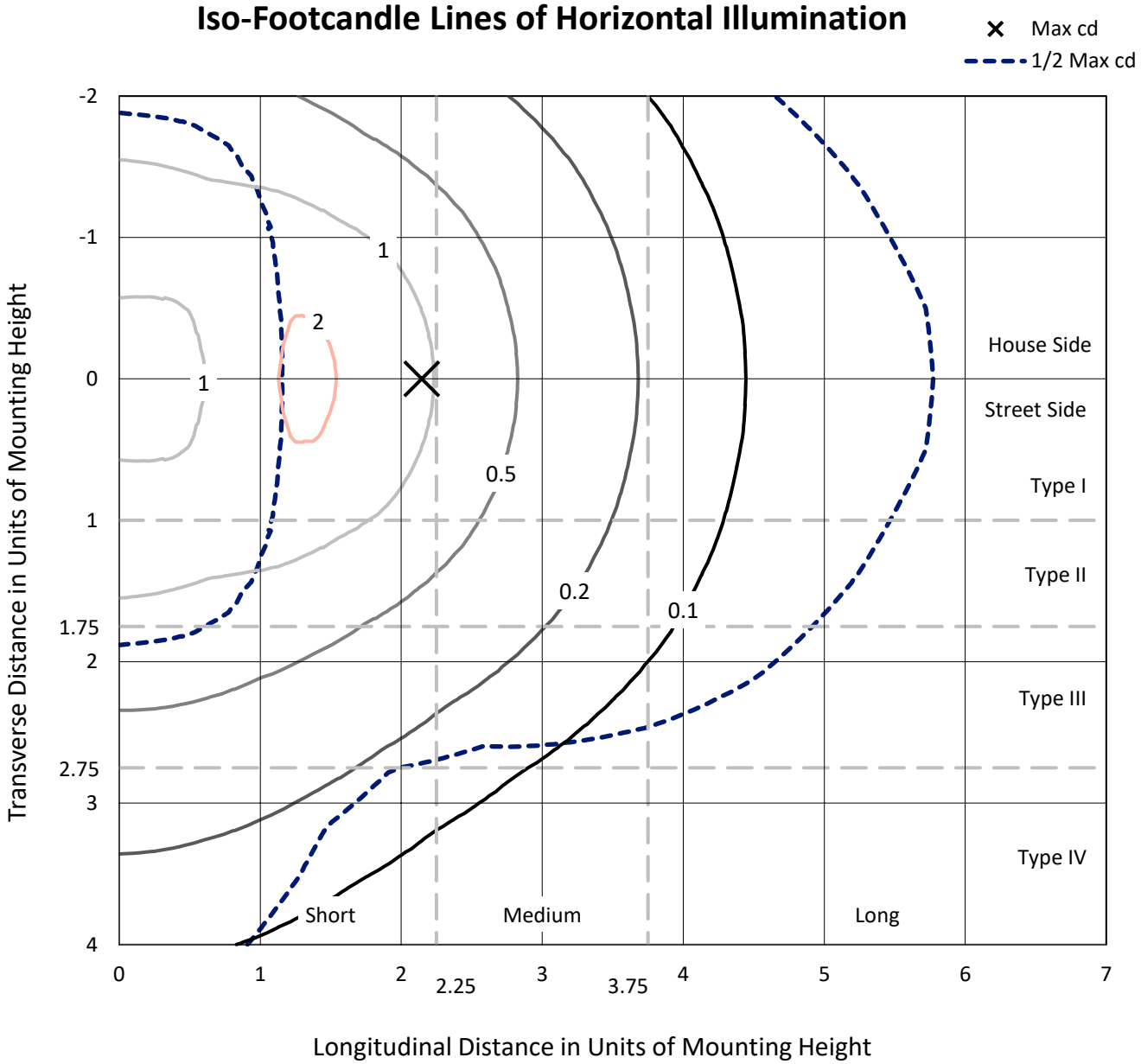
| | |
|---|---|
| Input Watts (W): | 73 |
| Input Voltage (V): | NR |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 25 FT |

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Scaled Data Report

REPORT NUMBER: P821332
CATALOG NUMBER: TT-D5-740-24VDC-RW

## Iso-Footcandle Lines of Horizontal Illumination



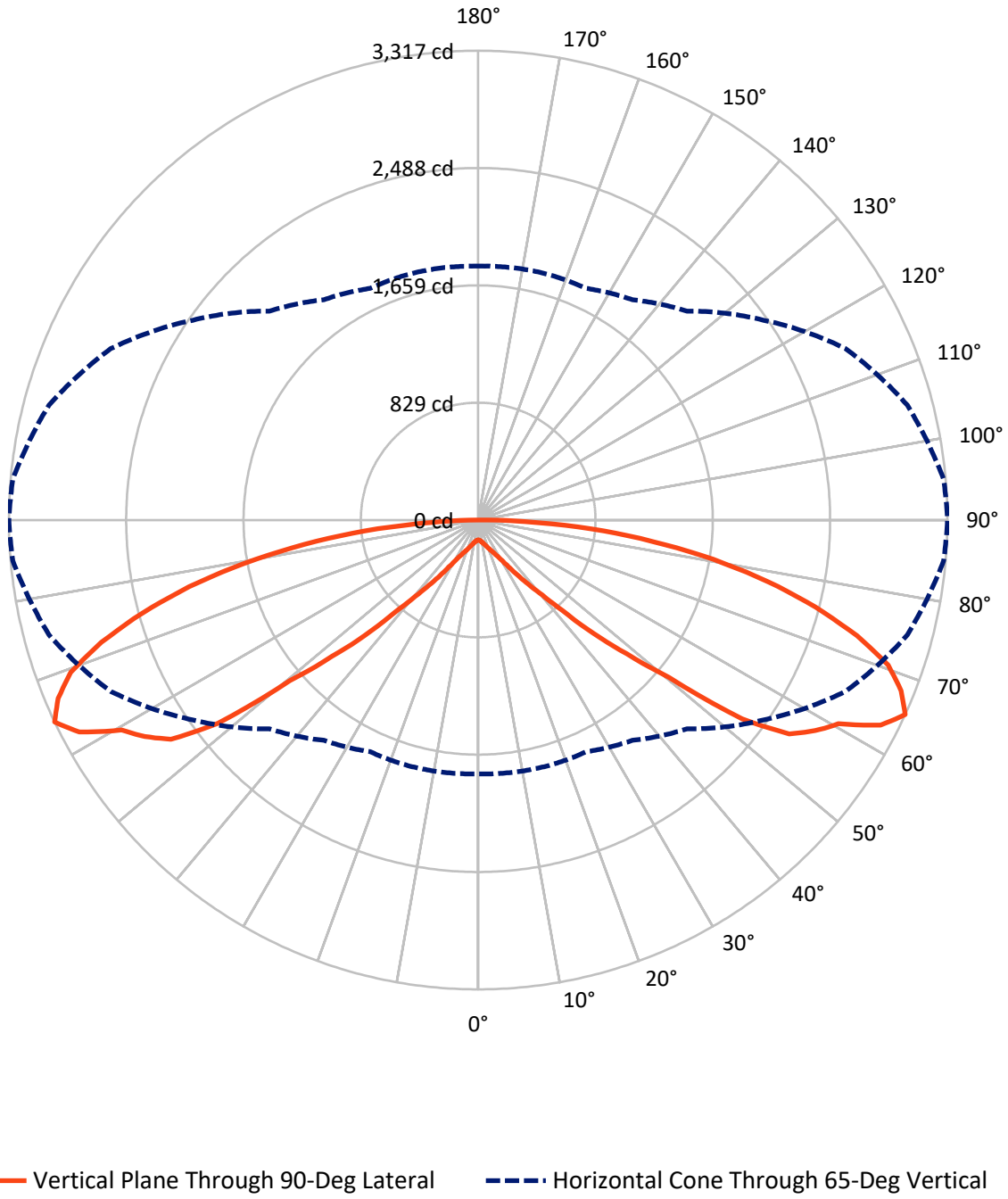

Based on 15 foot mounting height. Maximum calculated value = 2.3 fc
Type IV - Short - N/A

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Scaled Data Report

REPORT NUMBER: P821332
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## Luminous Intensity Polar Plot



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Scaled Data Report

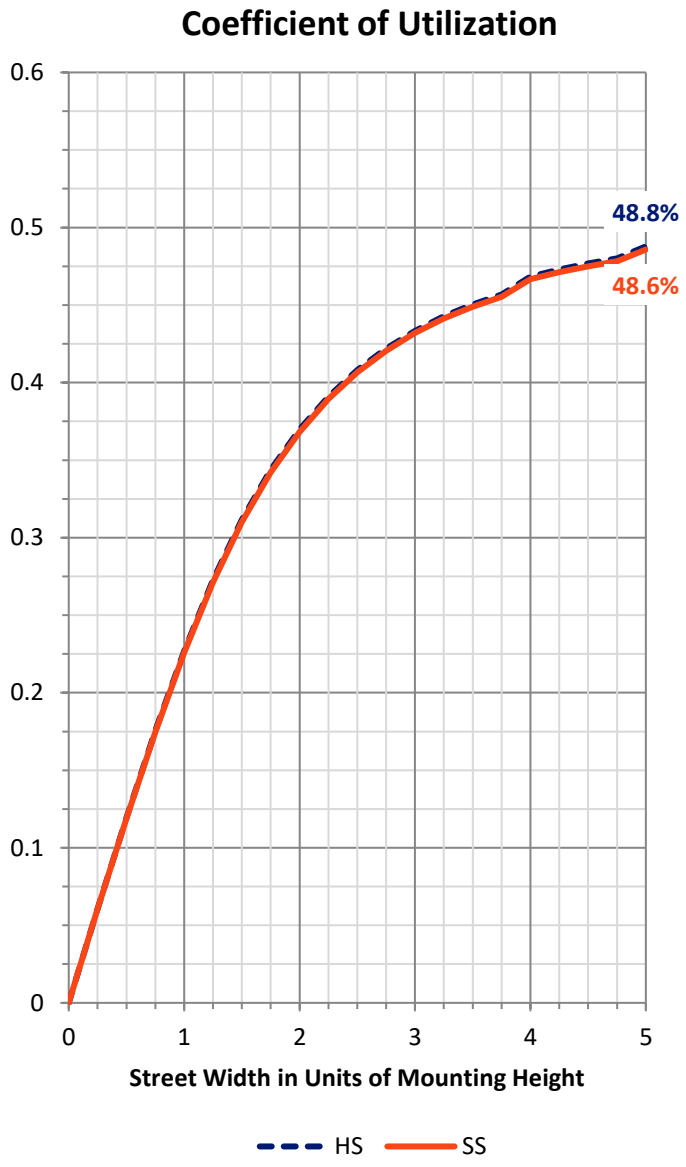
REPORT NUMBER: P821332
CATALOG NUMBER: TT-D5-740-24VDC-RW

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 3807.5 | 0.0 | 3807.5 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Street Side** | Lumens | 3807.5 | 0.0 | 3807.5 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Total** | Lumens | 7615.0 | 0.0 | 7615.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 14.5 | 0.2 |
| 10°-20° | 54.3 | 0.7 |
| 20°-30° | 125.5 | 1.6 |
| 30°-40° | 283.7 | 3.7 |
| 40°-50° | 691.1 | 9.1 |
| 50°-60° | 1554.2 | 20.4 |
| 60°-70° | 2271.4 | 29.8 |
| 70°-80° | 1979.2 | 26.0 |
| 80°-90° | 641.1 | 8.4 |
| 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° | 7615.0 | 100.0 |
| 0°-180° | 7615.0 | 100.0 |



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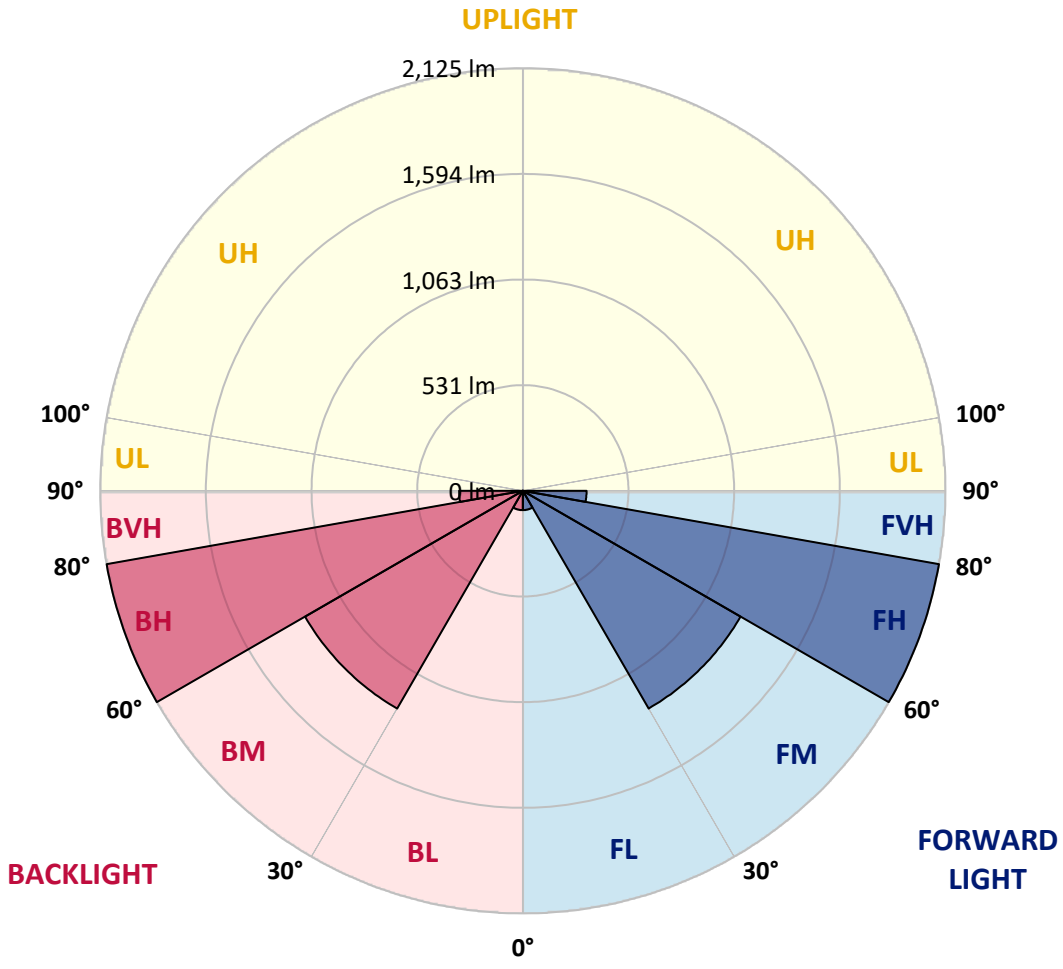
Scaled Data Report

REPORT NUMBER: P821332
CATALOG NUMBER: TT-D5-740-24VDC-RW

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 97.2 | 1.3 | | | |
| FM | (30°-60°) | 1264.5 | 16.6 | | | |
| FH | (60°-80°) | 2125.3 | 27.9 | | | G2/5000 |
| FVH | (80°-90°) | 320.6 | 4.2 | | | G3/500 |
| BL | (0°-30°) | 97.2 | 1.3 | B0/110 | | |
| BM | (30°-60°) | 1264.5 | 16.6 | B2/2500 | | |
| BH | (60°-80°) | 2125.3 | 27.9 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 320.6 | 4.2 | | | G3/500 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B3-U0-G3**
Type IV Short



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CATALOG NUMBER: TT-D5-740-24VDC-RW

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 139.1 | 139.1 | 139.1 | 139.1 | 139.1 | 139.1 | 139.1 | 139.1 | 139.1 | 139.1 | *139.1* |
| 2.5° | 140.9 | 140.9 | 142.7 | 142.7 | 142.7 | 142.7 | 142.7 | 142.7 | 142.7 | 142.7 | *142.7* |
| 5° | 146.4 | 146.4 | 146.4 | 146.4 | 148.2 | 148.2 | 146.4 | 146.4 | 146.4 | 146.4 | *146.4* |
| 7.5° | 155.4 | 153.6 | 155.4 | 155.4 | 155.4 | 153.6 | 153.6 | 153.6 | 151.8 | 151.8 | *151.8* |
| 10° | 164.4 | 164.4 | 166.2 | 164.4 | 164.4 | 162.6 | 162.6 | 162.6 | 160.8 | 160.8 | *160.8* |
| 12.5° | 177.1 | 177.1 | 177.1 | 177.1 | 175.3 | 175.3 | 173.5 | 171.7 | 169.8 | 169.8 | *169.8* |
| 15° | 193.3 | 191.5 | 191.5 | 189.7 | 187.9 | 186.1 | 184.3 | 184.3 | 182.5 | 182.5 | *182.5* |
| 17.5° | 209.6 | 209.6 | 207.8 | 206.0 | 202.4 | 200.6 | 200.6 | 198.8 | 196.9 | 196.9 | *196.9* |
| 20° | 229.5 | 229.5 | 227.7 | 224.0 | 220.4 | 218.6 | 216.8 | 216.8 | 215.0 | 215.0 | *215.0* |
| 22.5° | 253.0 | 251.2 | 247.5 | 243.9 | 240.3 | 238.5 | 236.7 | 234.9 | 234.9 | 234.9 | *234.9* |
| 25° | 278.3 | 276.4 | 274.6 | 269.2 | 263.8 | 262.0 | 258.4 | 258.4 | 256.6 | 258.4 | *258.4* |
| 27.5° | 309.0 | 307.2 | 303.6 | 298.1 | 290.9 | 287.3 | 285.5 | 285.5 | 287.3 | 287.3 | *289.1* |
| 30° | 346.9 | 343.3 | 339.7 | 332.5 | 325.2 | 319.8 | 319.8 | 321.6 | 327.0 | 330.7 | *330.7* |
| 32.5° | 392.1 | 390.3 | 384.9 | 377.6 | 365.0 | 361.4 | 365.0 | 375.8 | 383.1 | 388.5 | *392.1* |
| 35° | 444.5 | 442.7 | 435.4 | 422.8 | 413.8 | 412.0 | 422.8 | 440.9 | 464.4 | 471.6 | *475.2* |
| 37.5° | 502.3 | 504.1 | 495.1 | 480.6 | 471.6 | 475.2 | 496.9 | 531.2 | 554.7 | 571.0 | *574.6* |
| 40° | 574.6 | 578.2 | 567.3 | 551.1 | 542.1 | 556.5 | 590.8 | 630.6 | 672.1 | 692.0 | *697.4* |
| 42.5° | 659.5 | 664.9 | 650.5 | 634.2 | 628.8 | 652.3 | 701.1 | 766.1 | 840.2 | 863.7 | *872.7* |
| 45° | 764.3 | 767.9 | 749.8 | 735.4 | 731.8 | 773.3 | 856.4 | 964.9 | 1082.3 | 1136.5 | *1145.5* |
| 47.5° | 889.0 | 887.2 | 870.9 | 852.8 | 856.4 | 916.1 | 1040.7 | 1187.1 | 1311.8 | 1394.9 | *1413.0* |
| 50° | 1031.7 | 1022.7 | 1010.0 | 988.3 | 1011.8 | 1098.6 | 1255.8 | 1432.8 | 1642.4 | 1716.5 | *1749.0* |
| 52.5° | 1174.4 | 1158.2 | 1147.3 | 1132.9 | 1174.4 | 1286.5 | 1506.9 | 1815.9 | 2132.1 | 2301.9 | *2336.3* |
| 55° | 1302.7 | 1290.1 | 1284.7 | 1286.5 | 1351.5 | 1512.3 | 1801.4 | 2197.1 | 2502.5 | 2643.4 | *2668.7* |
| 57.5° | 1429.2 | 1422.0 | 1416.6 | 1427.4 | 1530.4 | 1740.0 | 2065.2 | 2435.6 | 2686.8 | 2791.6 | *2809.6* |
| 60° | 1548.5 | 1555.7 | 1552.1 | 1584.6 | 1709.3 | 1920.7 | 2202.5 | 2567.5 | 2809.6 | 2905.4 | *2925.3* |
| 62.5° | 1680.4 | 1685.8 | 1685.8 | 1721.9 | 1823.1 | 2009.2 | 2296.5 | 2722.9 | 3030.1 | 3171.0 | *3192.7* |
| 65° | *1794.2* | *1797.8* | *1805.0* | *1806.8* | *1900.8* | *2086.9* | *2462.7* | *2865.7* | *3140.3* | *3302.9* | *3317.4* |
| 67.5° | 1879.1 | 1882.7 | 1873.7 | 1864.7 | 1936.9 | 2105.0 | 2450.1 | 2847.6 | 3091.5 | 3214.4 | *3225.2* |
| 70° | 1947.8 | 1931.5 | 1906.2 | 1861.1 | 1884.5 | 2011.0 | 2345.3 | 2703.0 | 2948.8 | 3059.0 | *3075.3* |
| 72.5° | 1956.8 | 1942.4 | 1862.9 | 1761.7 | 1732.8 | 1843.0 | 2161.0 | 2482.6 | 2694.0 | 2798.8 | *2800.6* |
| 75° | 1902.6 | 1864.7 | 1732.8 | 1581.0 | 1526.8 | 1631.6 | 1904.4 | 2197.1 | 2367.0 | 2455.5 | *2464.5* |
| 77.5° | 1720.1 | 1684.0 | 1517.8 | 1344.3 | 1282.9 | 1373.2 | 1604.5 | 1841.2 | 2003.8 | 2090.5 | *2095.9* |
| 80° | 1396.7 | 1384.0 | 1232.3 | 1073.3 | 999.2 | 1051.6 | 1254.0 | 1440.1 | 1572.0 | 1674.9 | *1684.0* |
| 82.5° | 1029.9 | 1019.1 | 903.4 | 764.3 | 704.7 | 748.0 | 892.6 | 1029.9 | 1152.8 | 1235.9 | *1241.3* |
| 85° | 643.2 | 621.6 | 549.3 | 451.7 | 412.0 | 440.9 | 536.6 | 628.8 | 739.0 | 804.0 | *807.7* |
| 87.5° | 215.0 | 206.0 | 177.1 | 146.4 | 122.9 | 128.3 | 157.2 | 191.5 | 280.1 | 309.0 | *327.0* |
| 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
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: SP1-2407-176-5

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-740-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-740-U-WQ

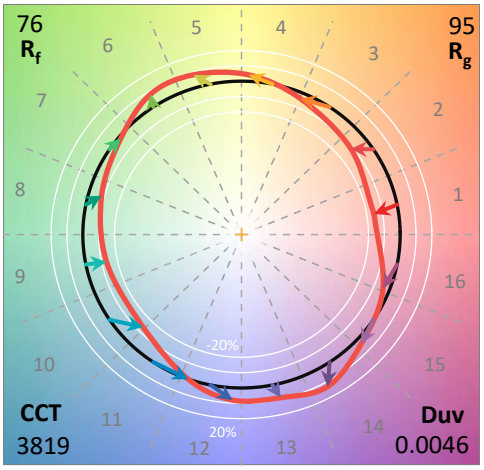
Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-176-5 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 09/27/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | Streetworks |
| Catalog Number: | **MEM2-HTN-VA-30-740-U-WQ** |
| Description: | EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 3819 | CRI (Ra): | 72.9 | | |
| CIE u': | 0.2261 | R1: | 70.1 | R9: | -21.5 |
| CIE v': | 0.5108 | R2: | 78.4 | R10: | 48.5 |
| Duv: | 0.0046 | R3: | 85.0 | R11: | 68.4 |
| CIE x: | 0.3926 | R4: | 72.9 | R12: | 39.0 |
| CIE y: | 0.3942 | R5: | 69.1 | R13: | 71.1 |
| CIE z: | 0.2132 | R6: | 69.2 | R14: | 91.3 |
| Peak Wavelength (nm): | 450 | R7: | 82.8 | R15: | 63.2 |
| Dominant Wavelength (nm): | 577 | R8: | 55.4 | | |
| Purity: | 36.15483 | | | | |
| Rf: | 75.6 | | | | |
| Rg: | 94.8 | | | | |




## Test Conditions

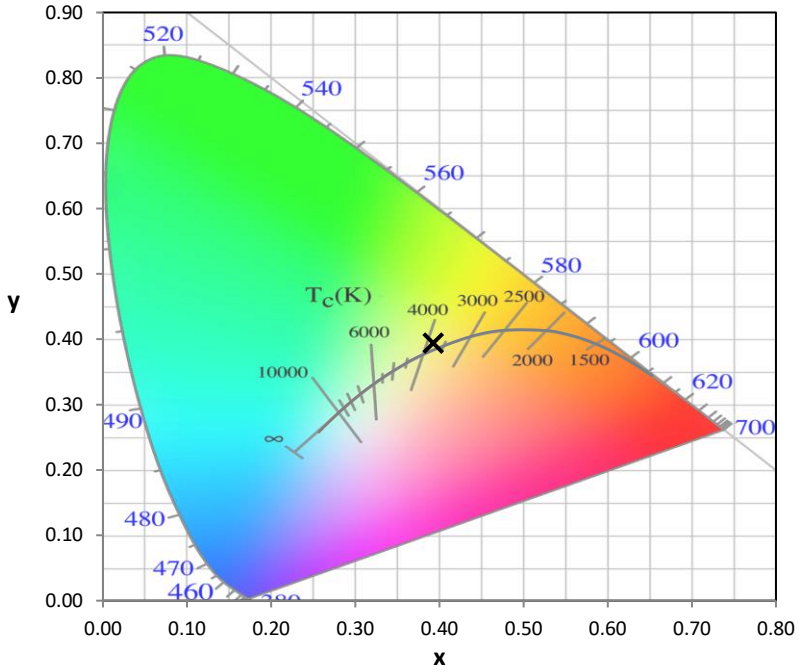
| | |
|---|---|
| Stabilization Time: | 30M |
| Operation Time: | 1H 30M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-176-5

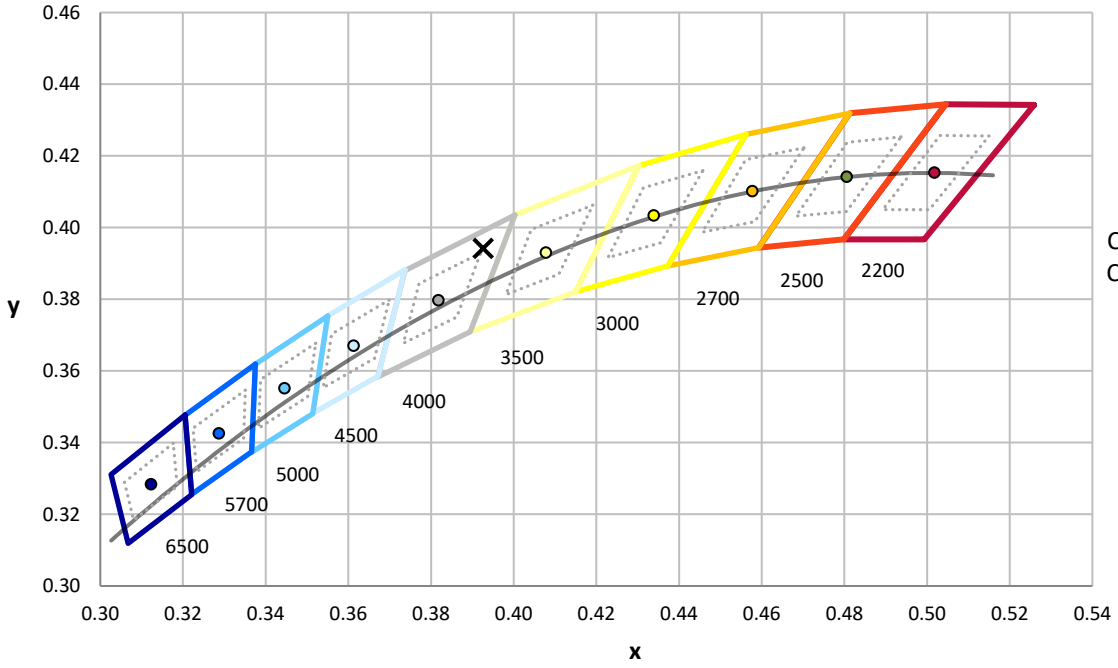
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

REPORT NUMBER: SP1-2407-176-5

## CIE 1931 Chromaticity Diagram




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

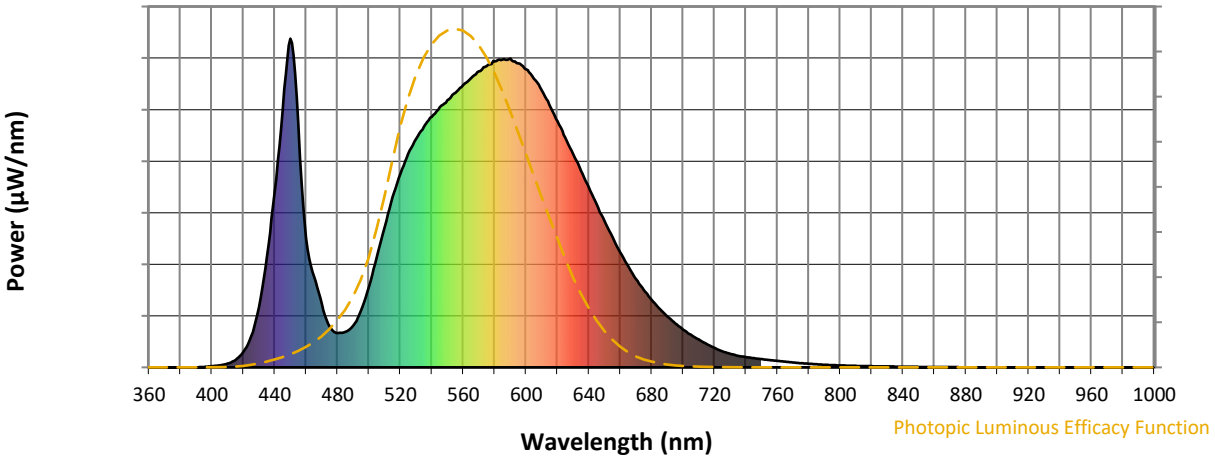



CCT = 3819K
CIE x = 0.3926
CIE y = 0.3942
Duv = 0.0046

Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2407-176-5

## Photopic Flux vs. Wavelength

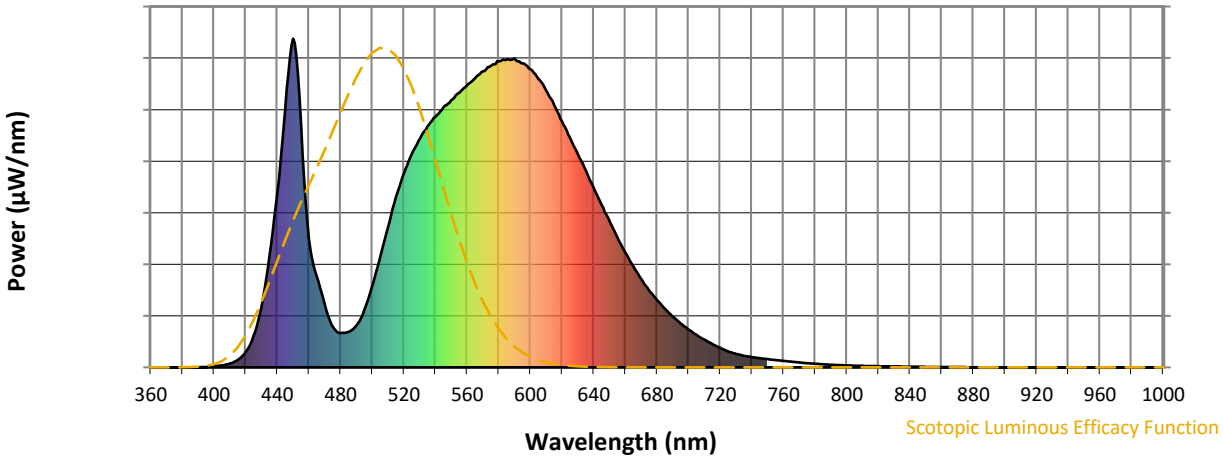



## Photopic Lumens: NR

| 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 | 127 | NR | 620 | 748 | NR | 750 | 25 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 173 | NR | 625 | 699 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 246 | NR | 630 | 648 | NR | 760 | 20 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 335 | NR | 635 | 599 | NR | 765 | 17 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 427 | NR | 640 | 547 | NR | 770 | 15 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 517 | NR | 645 | 495 | NR | 775 | 13 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 589 | NR | 650 | 445 | NR | 780 | 11 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 649 | NR | 655 | 396 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 695 | NR | 660 | 349 | NR | 790 | 8 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 733 | NR | 665 | 308 | NR | 795 | 7 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 763 | NR | 670 | 269 | NR | 800 | 6 | NR | 930 | 0 | NR |
| 415 | 23 | NR | 545 | 792 | NR | 675 | 235 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 46 | NR | 550 | 813 | NR | 680 | 205 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 95 | NR | 555 | 835 | NR | 685 | 178 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 183 | NR | 560 | 859 | NR | 690 | 155 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 338 | NR | 565 | 880 | NR | 695 | 134 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 534 | NR | 570 | 900 | NR | 700 | 115 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 782 | NR | 575 | 918 | NR | 705 | 99 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 931 | NR | 710 | 84 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 739 | NR | 585 | 937 | NR | 715 | 71 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 393 | NR | 590 | 939 | NR | 720 | 59 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 276 | NR | 595 | 925 | NR | 725 | 49 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 190 | NR | 600 | 907 | NR | 730 | 41 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 123 | NR | 605 | 878 | NR | 735 | 35 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 105 | NR | 610 | 842 | NR | 740 | 31 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 108 | NR | 615 | 797 | NR | 745 | 28 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-176-5

## Scotopic Flux vs. Wavelength

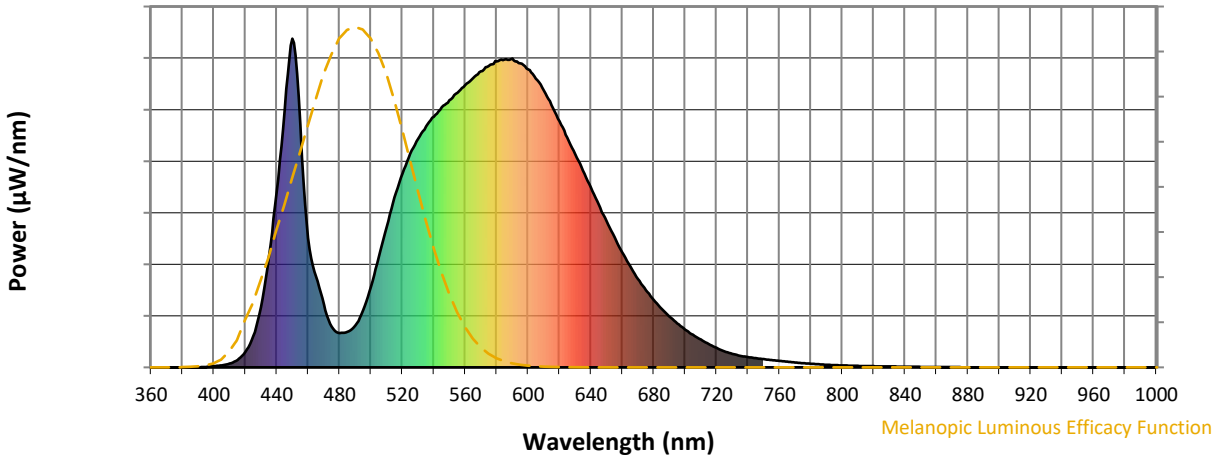



**Scotopic Lumens: NR** **S/P: 1.45**

| 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 | 127 | NR | 620 | 748 | NR | 750 | 25 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 173 | NR | 625 | 699 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 246 | NR | 630 | 648 | NR | 760 | 20 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 335 | NR | 635 | 599 | NR | 765 | 17 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 427 | NR | 640 | 547 | NR | 770 | 15 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 517 | NR | 645 | 495 | NR | 775 | 13 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 589 | NR | 650 | 445 | NR | 780 | 11 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 649 | NR | 655 | 396 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 695 | NR | 660 | 349 | NR | 790 | 8 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 733 | NR | 665 | 308 | NR | 795 | 7 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 763 | NR | 670 | 269 | NR | 800 | 6 | NR | 930 | 0 | NR |
| 415 | 23 | NR | 545 | 792 | NR | 675 | 235 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 46 | NR | 550 | 813 | NR | 680 | 205 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 95 | NR | 555 | 835 | NR | 685 | 178 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 183 | NR | 560 | 859 | NR | 690 | 155 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 338 | NR | 565 | 880 | NR | 695 | 134 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 534 | NR | 570 | 900 | NR | 700 | 115 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 782 | NR | 575 | 918 | NR | 705 | 99 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 931 | NR | 710 | 84 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 739 | NR | 585 | 937 | NR | 715 | 71 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 393 | NR | 590 | 939 | NR | 720 | 59 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 276 | NR | 595 | 925 | NR | 725 | 49 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 190 | NR | 600 | 907 | NR | 730 | 41 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 123 | NR | 605 | 878 | NR | 735 | 35 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 105 | NR | 610 | 842 | NR | 740 | 31 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 108 | NR | 615 | 797 | NR | 745 | 28 | NR | 875 | 1 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.76**

| 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 | 127 | NR | 620 | 748 | NR | 750 | 25 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 173 | NR | 625 | 699 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 246 | NR | 630 | 648 | NR | 760 | 20 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 335 | NR | 635 | 599 | NR | 765 | 17 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 427 | NR | 640 | 547 | NR | 770 | 15 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 517 | NR | 645 | 495 | NR | 775 | 13 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 589 | NR | 650 | 445 | NR | 780 | 11 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 649 | NR | 655 | 396 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 695 | NR | 660 | 349 | NR | 790 | 8 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 733 | NR | 665 | 308 | NR | 795 | 7 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 763 | NR | 670 | 269 | NR | 800 | 6 | NR | 930 | 0 | NR |
| 415 | 23 | NR | 545 | 792 | NR | 675 | 235 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 46 | NR | 550 | 813 | NR | 680 | 205 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 95 | NR | 555 | 835 | NR | 685 | 178 | NR | 815 | 4 | NR | 945 | 0 | NR |
| 430 | 183 | NR | 560 | 859 | NR | 690 | 155 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 338 | NR | 565 | 880 | NR | 695 | 134 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 534 | NR | 570 | 900 | NR | 700 | 115 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 782 | NR | 575 | 918 | NR | 705 | 99 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 931 | NR | 710 | 84 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 739 | NR | 585 | 937 | NR | 715 | 71 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 393 | NR | 590 | 939 | NR | 720 | 59 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 276 | NR | 595 | 925 | NR | 725 | 49 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 190 | NR | 600 | 907 | NR | 730 | 41 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 123 | NR | 605 | 878 | NR | 735 | 35 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 105 | NR | 610 | 842 | NR | 740 | 31 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 108 | NR | 615 | 797 | NR | 745 | 28 | NR | 875 | 1 | NR | | | |

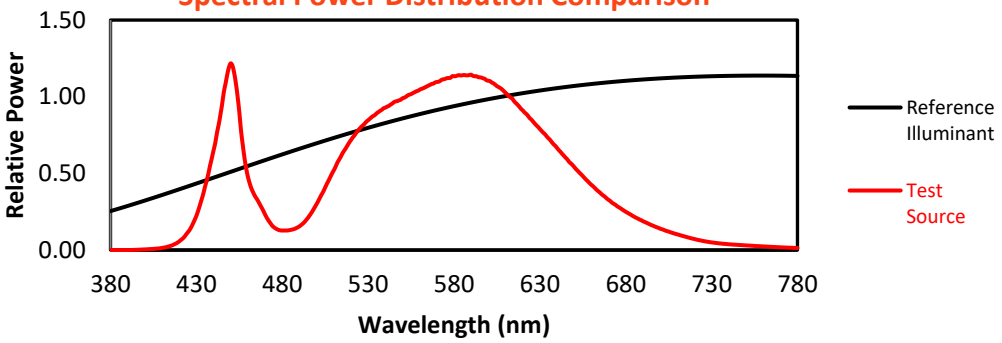
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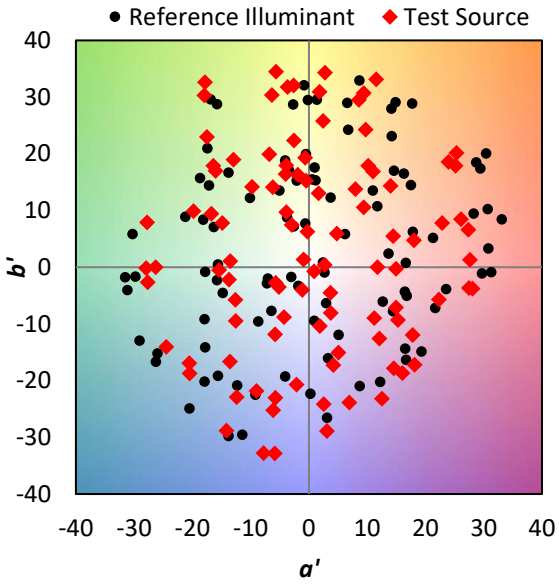
## Summary

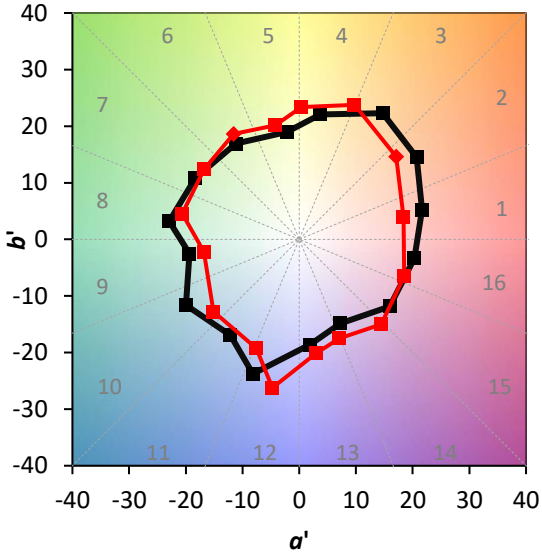
$R_f$ = 75.6
$R_g$ = 94.8
CIE $R_a$ = 72.9
$R_9$ = -21.5

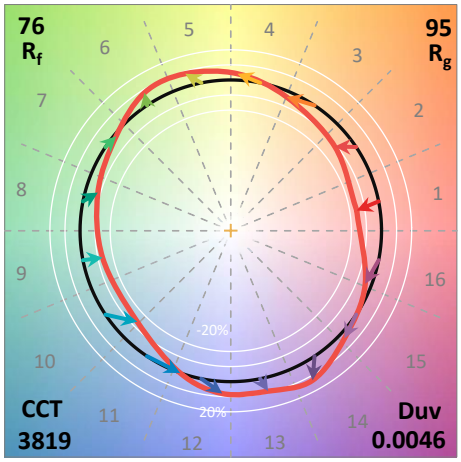
## Spectral Power Distribution Comparison

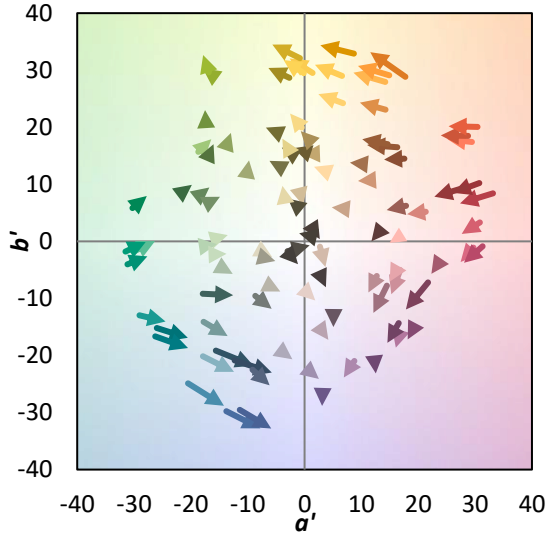



## Color Vector Graphics



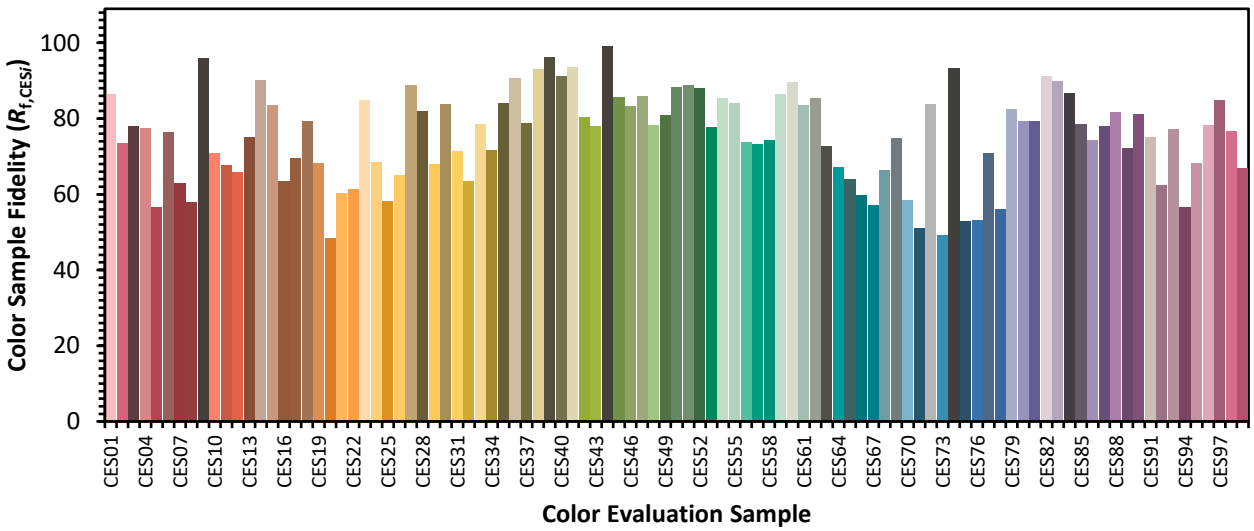



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**Individual Sample Fidelity Index ($R_{f,i}$)**

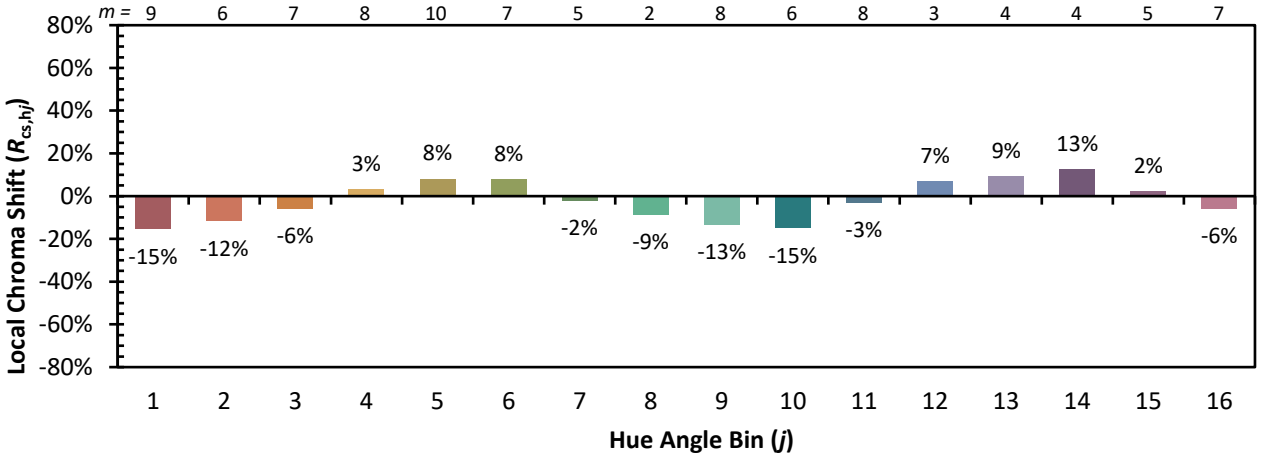
| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 65 | CES51 = 89 | CES76 = 53 |
| CES02 = 61 | CES27 = 89 | CES52 = 88 | CES77 = 71 |
| CES03 = 30 | CES28 = 82 | CES53 = 78 | CES78 = 56 |
| CES04 = 70 | CES29 = 68 | CES54 = 85 | CES79 = 83 |
| CES05 = 48 | CES30 = 84 | CES55 = 84 | CES80 = 79 |
| CES06 = 50 | CES31 = 71 | CES56 = 74 | CES81 = 79 |
| CES07 = 40 | CES32 = 63 | CES57 = 73 | CES82 = 91 |
| CES08 = 39 | CES33 = 79 | CES58 = 74 | CES83 = 90 |
| CES09 = 29 | CES34 = 72 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 84 | CES60 = 90 | CES85 = 78 |
| CES11 = 57 | CES36 = 91 | CES61 = 84 | CES86 = 74 |
| CES12 = 63 | CES37 = 79 | CES62 = 85 | CES87 = 78 |
| CES13 = 42 | CES38 = 93 | CES63 = 73 | CES88 = 82 |
| CES14 = 74 | CES39 = 96 | CES64 = 67 | CES89 = 72 |
| CES15 = 71 | CES40 = 91 | CES65 = 64 | CES90 = 81 |
| CES16 = 47 | CES41 = 93 | CES66 = 60 | CES91 = 75 |
| CES17 = 49 | CES42 = 80 | CES67 = 57 | CES92 = 62 |
| CES18 = 56 | CES43 = 78 | CES68 = 66 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 75 | CES94 = 57 |
| CES20 = 65 | CES45 = 86 | CES70 = 58 | CES95 = 68 |
| CES21 = 86 | CES46 = 83 | CES71 = 51 | CES96 = 78 |
| CES22 = 78 | CES47 = 86 | CES72 = 84 | CES97 = 85 |
| CES23 = 92 | CES48 = 78 | CES73 = 49 | CES98 = 77 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 67 |
| CES25 = 72 | CES50 = 88 | CES75 = 53 | |

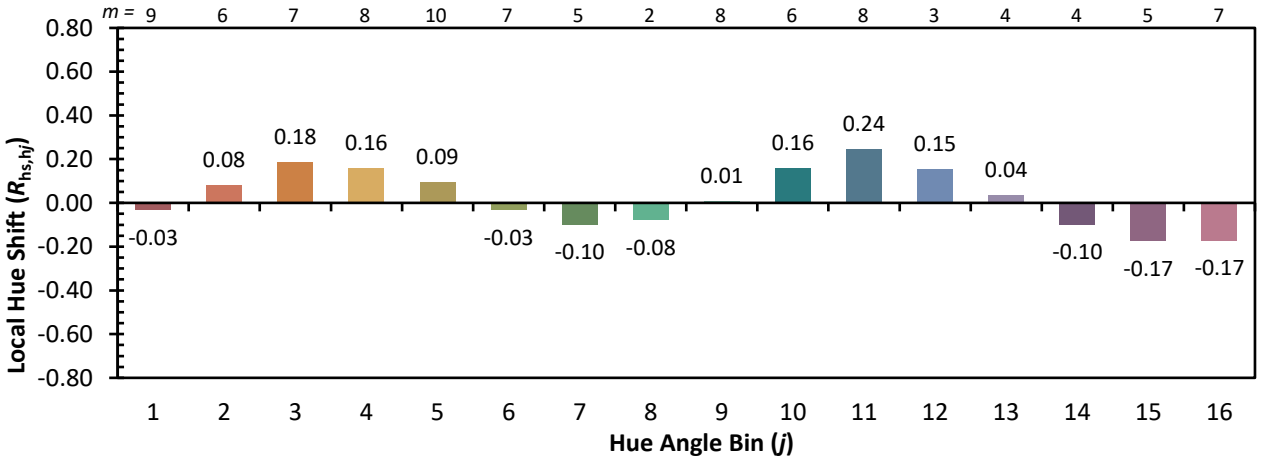


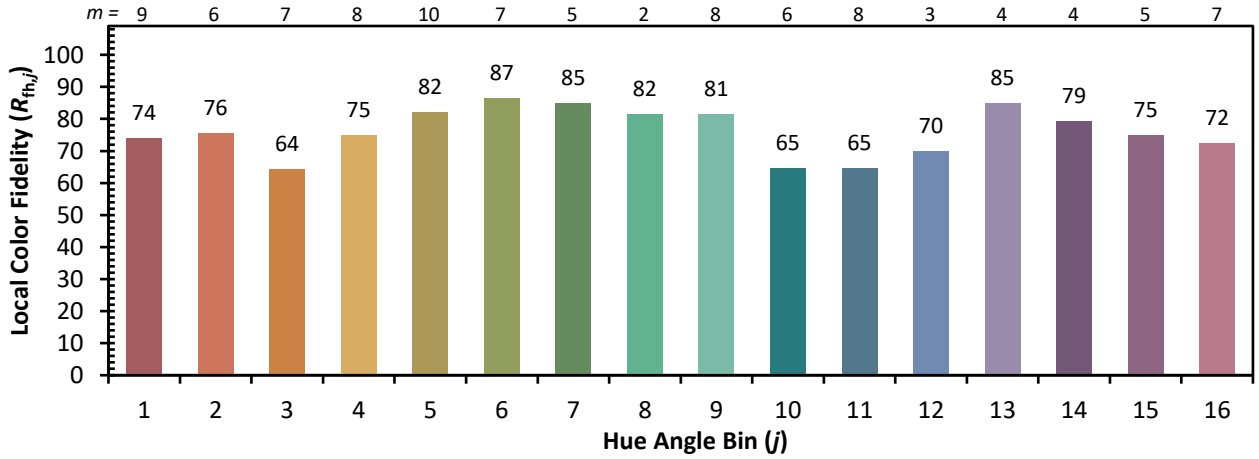
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## Color Rendition by Hue-Angle Bin



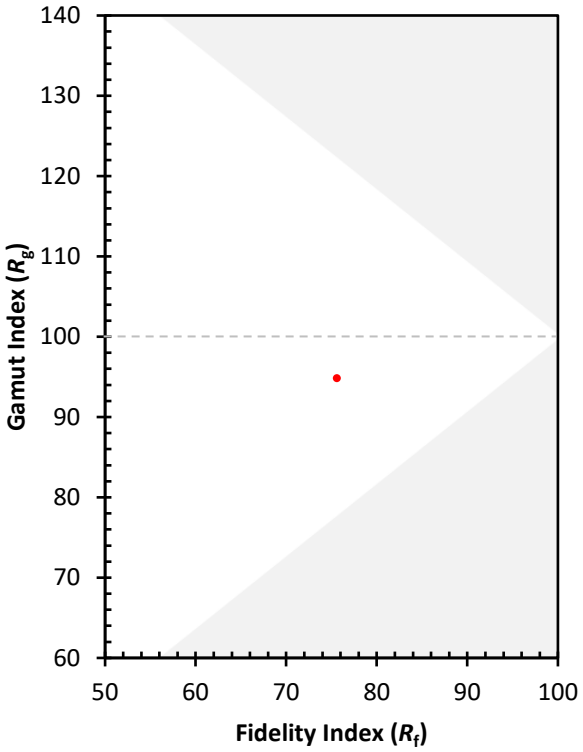



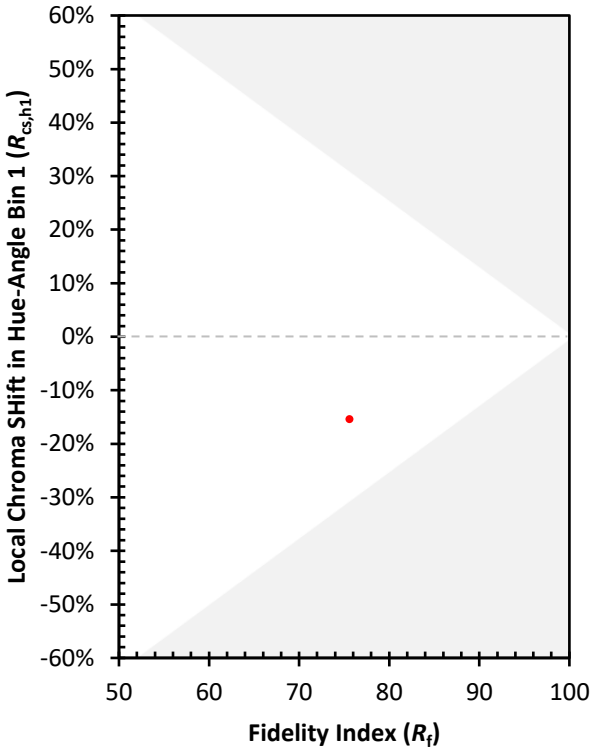



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## Measure Comparisons




(END OF REPORT)