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: P821516

Luminaire Tested: **TT-D1-740-12VDC-CQ**

Issue Date: 2/18/2020

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: | P821516 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-473-17) |
| Test Lab: | INNOVATIONS CENTER |
| Issue Date: | 2/18/2020 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | TT-D1-740-12VDC-CQ |
| Description: | TOPTIER LED PARKING GARAGE LUMINAIRE |
| | 4000K, 70 CRI LEDS AND CONCENTRATED DISTRIBUTION |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 3828 lumens |
| Efficiency: | N/A |
| Efficacy: | 136.7 lumens/watt |
| Luminous Opening: | Circular (Dia: 1.12' x H: 0') |
| IES Classification: | Type V - Short |
| BUG Rating: | B1 - U0 - G1 |

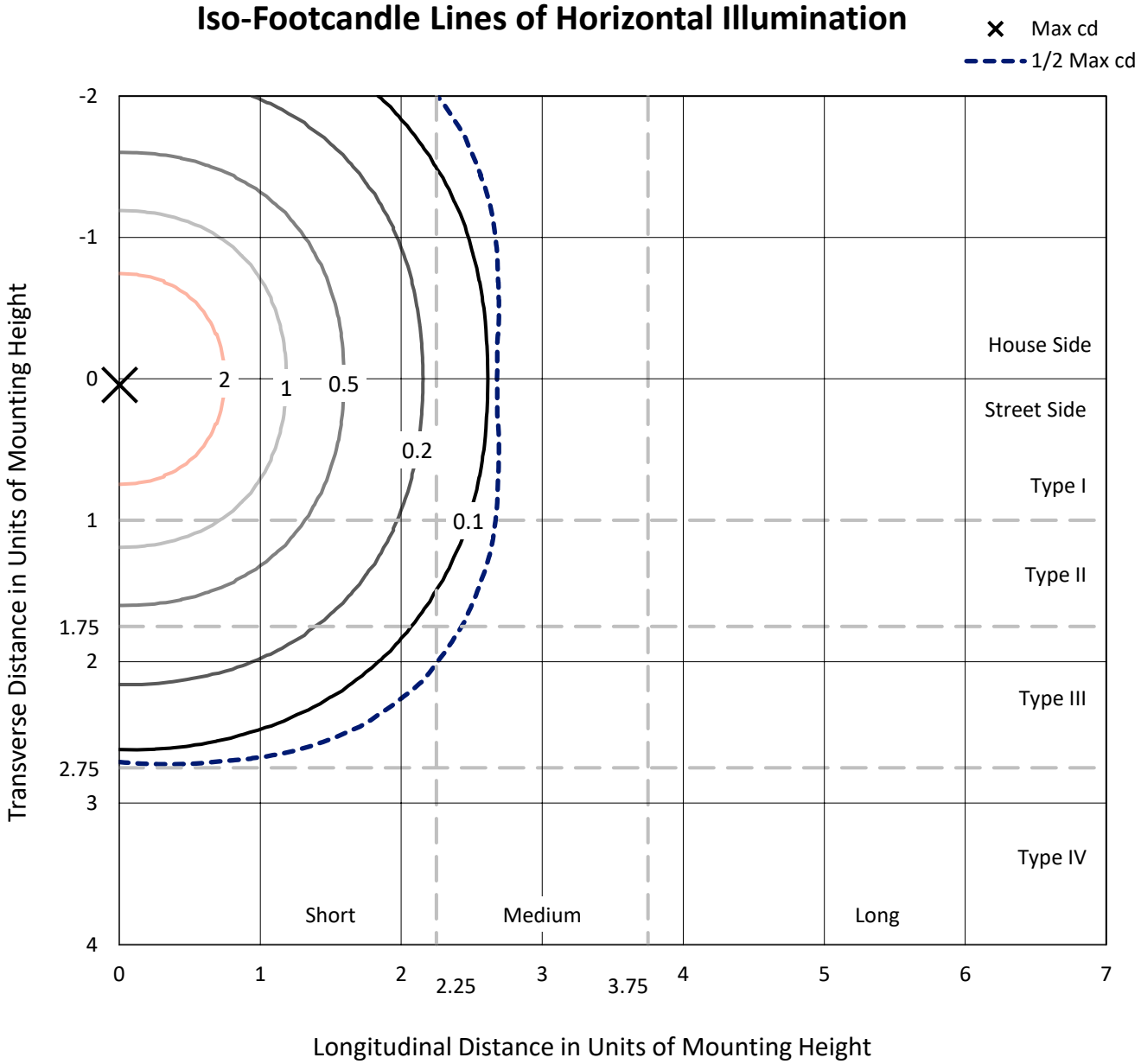
| | |
|---|---|
| Input Watts (W): | 28 |
| Input Voltage (V): | NR |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 25 FT |

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

Scaled Data Report

REPORT NUMBER: P821516
CATALOG NUMBER: TT-D1-740-12VDC-CQ

## Iso-Footcandle Lines of Horizontal Illumination



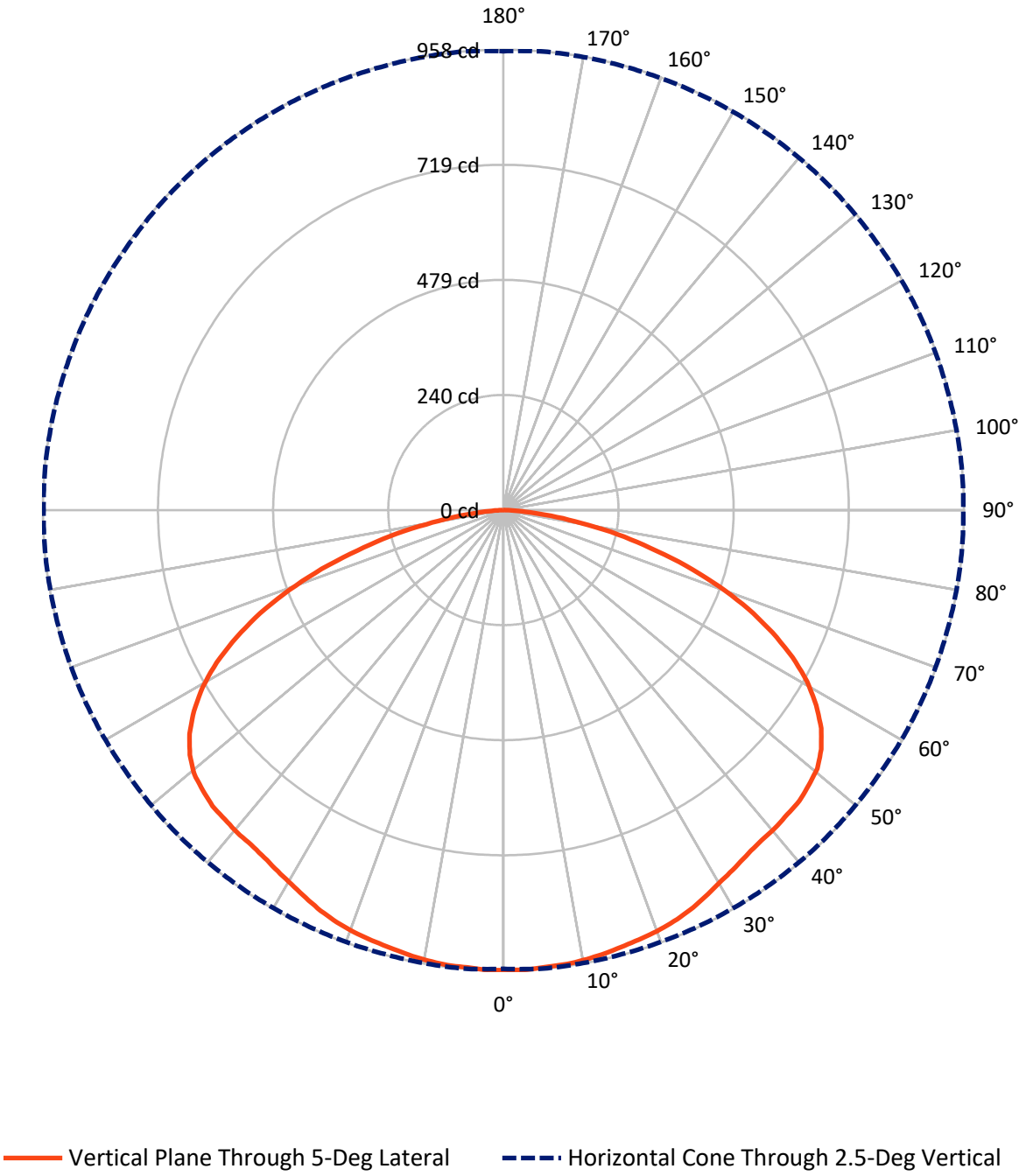

Based on 15 foot mounting height. Maximum calculated value = 4.3 fc
Type V - Short - N/A

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

Scaled Data Report

REPORT NUMBER: P821516
CATALOG NUMBER: TT-D1-740-12VDC-CQ

## Luminous Intensity Polar Plot



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

Scaled Data Report

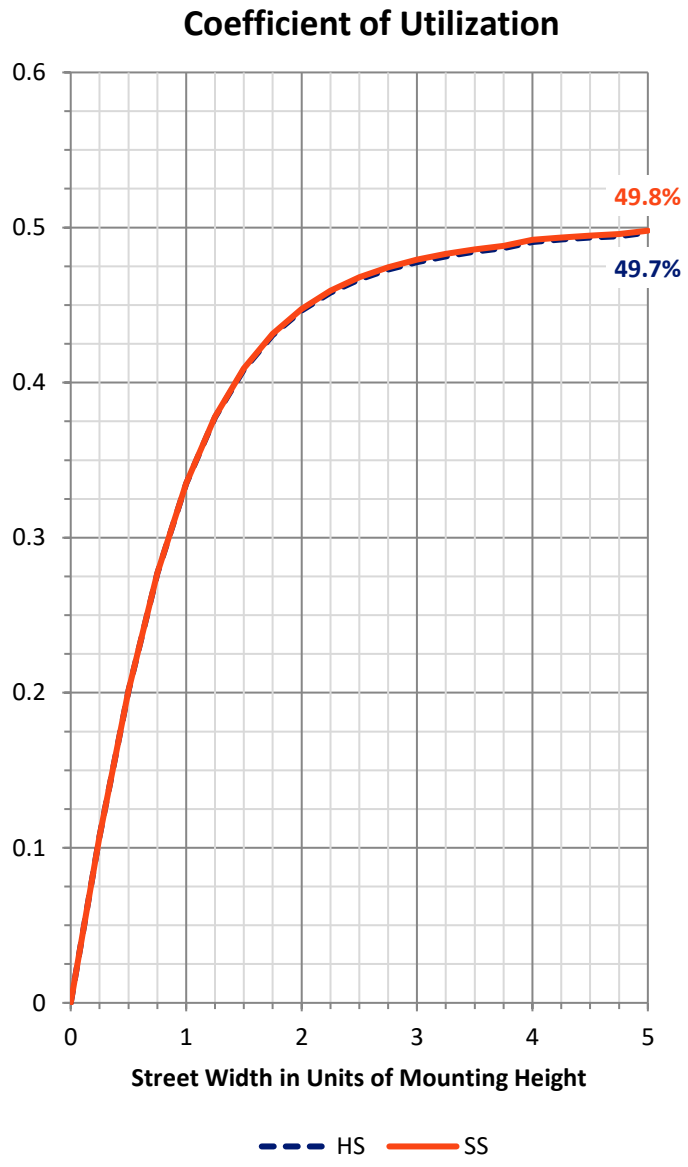
REPORT NUMBER: P821516
CATALOG NUMBER: TT-D1-740-12VDC-CQ

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1914.0 | 0.0 | 1914.0 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Street Side** | Lumens | 1914.0 | 0.0 | 1914.0 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Total** | Lumens | 3828.0 | 0.0 | 3828.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 91.1 | 2.4 |
| 10°-20° | 266.7 | 7.0 |
| 20°-30° | 424.2 | 11.1 |
| 30°-40° | 558.0 | 14.6 |
| 40°-50° | 683.0 | 17.8 |
| 50°-60° | 739.8 | 19.3 |
| 60°-70° | 636.4 | 16.6 |
| 70°-80° | 357.8 | 9.3 |
| 80°-90° | 70.9 | 1.9 |
| 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° | 3828.0 | 100.0 |
| 0°-180° | 3828.0 | 100.0 |



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

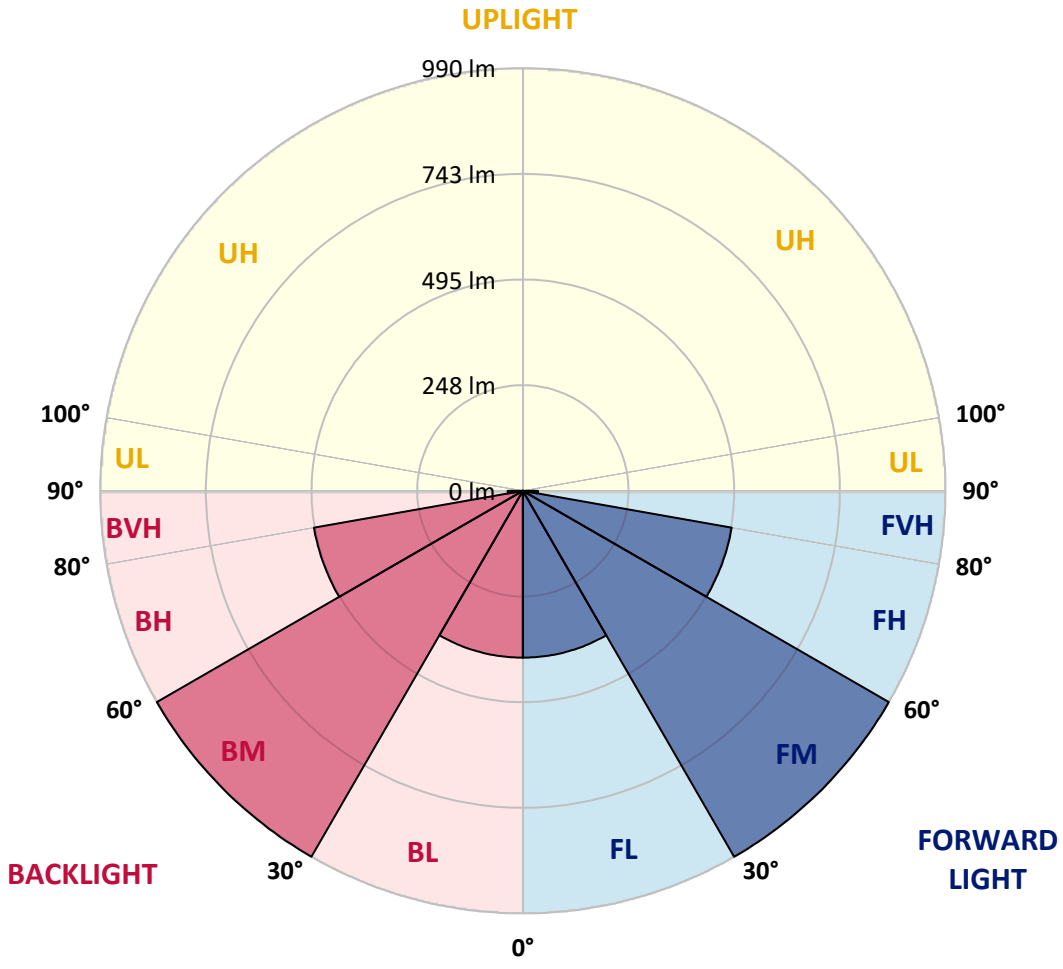
Scaled Data Report

REPORT NUMBER: P821516
CATALOG NUMBER: TT-D1-740-12VDC-CQ

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 391.0 | 10.2 | | | |
| FM | (30°-60°) | 990.4 | 25.9 | | | |
| FH | (60°-80°) | 497.1 | 13.0 | | | G0/660 |
| FVH | (80°-90°) | 35.5 | 0.9 | | | G1/100 |
| BL | (0°-30°) | 391.0 | 10.2 | B1/500 | | |
| BM | (30°-60°) | 990.4 | 25.9 | B1/1000 | | |
| BH | (60°-80°) | 497.1 | 13.0 | B1/500 | | G0/660 |
| BVH | (80°-90°) | 35.5 | 0.9 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B1-U0-G1**
Type V Short



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

Scaled Data Report

REPORT NUMBER: P821516
CATALOG NUMBER: TT-D1-740-12VDC-CQ

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 957.7 | 957.7 | 957.7 | 957.7 | 957.7 | 957.7 | 957.7 | 957.7 | 957.7 | 957.7 | 957.7 |
| 2.5° | 955.2 | 958.3 | 957.0 | 957.0 | 957.0 | 957.0 | 955.8 | 957.0 | 957.0 | 957.7 | 957.0 |
| 5° | 955.8 | 955.2 | 955.2 | 955.8 | 955.8 | 956.4 | 955.2 | 955.8 | 956.4 | 956.4 | 957.0 |
| 7.5° | 954.0 | 954.6 | 953.4 | 954.6 | 953.4 | 954.0 | 954.0 | 954.6 | 954.0 | 954.6 | 955.8 |
| 10° | 950.3 | 951.0 | 950.3 | 950.3 | 950.3 | 951.6 | 949.1 | 951.0 | 950.3 | 951.0 | 950.3 |
| 12.5° | 943.6 | 946.7 | 945.5 | 946.7 | 946.7 | 946.7 | 944.9 | 946.1 | 946.7 | 946.7 | 946.7 |
| 15° | 940.6 | 941.2 | 939.4 | 941.8 | 942.4 | 943.0 | 940.6 | 941.8 | 941.8 | 942.4 | 943.0 |
| 17.5° | 933.9 | 936.9 | 936.3 | 938.2 | 937.6 | 939.4 | 938.8 | 938.2 | 937.6 | 938.8 | 937.6 |
| 20° | 929.0 | 932.1 | 931.5 | 933.3 | 933.9 | 935.7 | 933.9 | 933.9 | 932.1 | 932.7 | 934.5 |
| 22.5° | 924.1 | 925.4 | 925.4 | 927.2 | 927.2 | 929.0 | 927.2 | 926.6 | 926.6 | 926.0 | 927.8 |
| 25° | 916.2 | 916.8 | 916.2 | 918.1 | 919.3 | 920.5 | 919.9 | 918.7 | 918.1 | 918.1 | 917.4 |
| 27.5° | 903.4 | 905.9 | 907.1 | 909.5 | 910.1 | 912.0 | 909.5 | 909.5 | 908.3 | 907.1 | 907.7 |
| 30° | 893.7 | 894.9 | 894.9 | 900.4 | 900.4 | 903.4 | 900.4 | 899.8 | 899.2 | 898.6 | 897.3 |
| 32.5° | 884.6 | 886.4 | 888.2 | 892.5 | 895.5 | 896.7 | 894.9 | 893.7 | 890.6 | 888.8 | 888.2 |
| 35° | 877.2 | 877.8 | 881.5 | 887.6 | 891.3 | 894.3 | 891.9 | 888.8 | 884.6 | 881.5 | 883.9 |
| 37.5° | 871.8 | 872.4 | 877.8 | 885.8 | 892.5 | 894.9 | 891.3 | 886.4 | 879.7 | 876.0 | 874.8 |
| 40° | 866.9 | 870.5 | 876.6 | 887.6 | 894.9 | 898.6 | 895.5 | 888.8 | 879.1 | 871.8 | 871.1 |
| 42.5° | 864.4 | 866.3 | 875.4 | 888.2 | 898.6 | 903.4 | 899.2 | 890.0 | 877.8 | 869.3 | 868.7 |
| 45° | 858.4 | 863.8 | 872.4 | 888.8 | 900.4 | 906.5 | 900.4 | 888.8 | 874.2 | 864.4 | 862.6 |
| 47.5° | 853.5 | 855.3 | 868.7 | 887.6 | 901.6 | 906.5 | 900.4 | 885.8 | 867.5 | 854.7 | 853.5 |
| 50° | 841.9 | 846.2 | 859.6 | 879.7 | 896.1 | 901.0 | 893.7 | 874.2 | 853.5 | 839.5 | 837.0 |
| 52.5° | 824.2 | 827.9 | 843.7 | 868.7 | 884.6 | 890.0 | 879.1 | 858.4 | 834.0 | 816.9 | 816.9 |
| 55° | 796.8 | 802.3 | 818.8 | 844.3 | 864.4 | 869.3 | 856.5 | 834.6 | 807.2 | 790.1 | 789.5 |
| 57.5° | 763.9 | 767.6 | 785.3 | 813.3 | 832.8 | 840.1 | 827.3 | 802.9 | 775.5 | 755.4 | 753.6 |
| 60° | 721.3 | 726.2 | 745.0 | 771.8 | 792.0 | 798.0 | 787.1 | 762.7 | 734.7 | 713.4 | 713.4 |
| 62.5° | 670.1 | 675.6 | 694.5 | 721.9 | 742.6 | 751.7 | 736.5 | 713.4 | 684.1 | 663.4 | 661.6 |
| 65° | 610.4 | 615.3 | 632.3 | 661.0 | 682.3 | 689.0 | 677.4 | 653.1 | 625.0 | 605.5 | 603.7 |
| 67.5° | 543.4 | 550.1 | 567.2 | 591.5 | 609.8 | 618.3 | 611.0 | 589.1 | 559.8 | 539.7 | 537.9 |
| 70° | 470.9 | 475.8 | 489.2 | 511.7 | 532.4 | 538.5 | 527.6 | 512.9 | 485.5 | 467.3 | 464.8 |
| 72.5° | 393.5 | 397.8 | 408.8 | 430.1 | 444.7 | 452.6 | 446.5 | 427.7 | 405.7 | 390.5 | 392.9 |
| 75° | 315.6 | 315.0 | 327.1 | 342.4 | 355.8 | 361.3 | 357.0 | 344.8 | 324.7 | 311.9 | 311.3 |
| 77.5° | 237.6 | 243.7 | 247.9 | 260.7 | 271.7 | 276.0 | 269.9 | 260.1 | 244.9 | 234.5 | 236.4 |
| 80° | 166.9 | 163.3 | 171.2 | 179.1 | 186.4 | 190.7 | 187.0 | 181.5 | 171.2 | 163.3 | 162.0 |
| 82.5° | 102.3 | 99.3 | 103.0 | 110.3 | 115.1 | 116.4 | 117.0 | 110.3 | 106.0 | 99.9 | 101.1 |
| 85° | 45.1 | 45.7 | 48.7 | 53.6 | 54.2 | 54.8 | 54.8 | 53.6 | 48.7 | 48.1 | 46.9 |
| 87.5° | 11.0 | 11.0 | 11.6 | 13.4 | 13.4 | 14.0 | 14.0 | 12.2 | 11.6 | 10.4 | 11.0 |
| 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

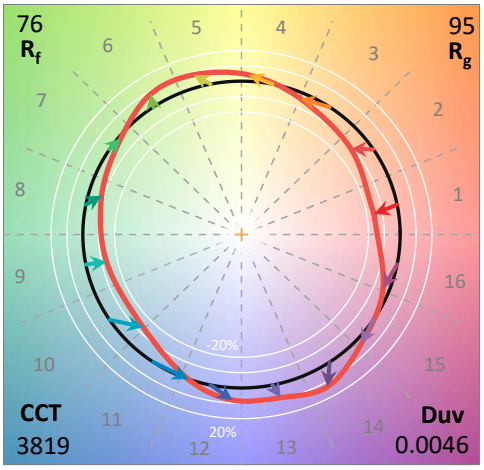
Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

## 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

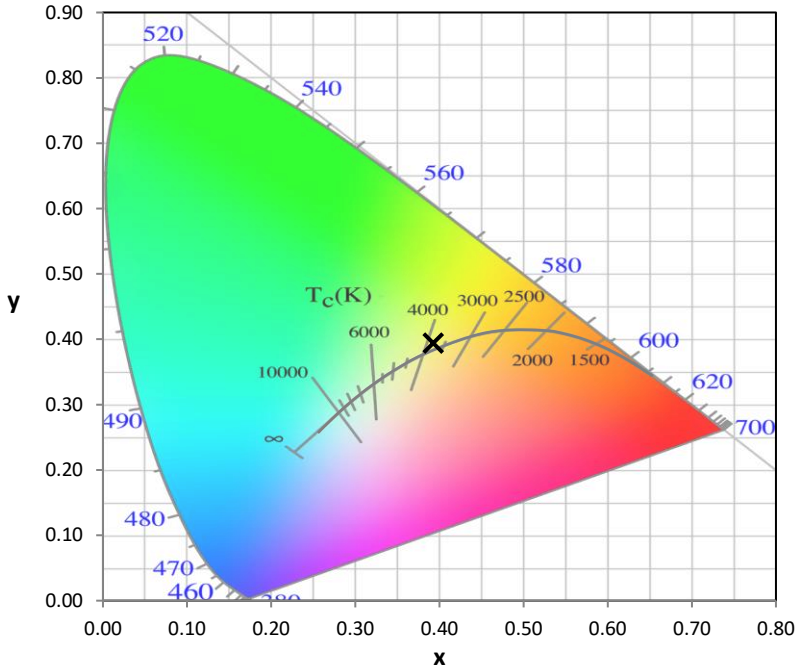
| | |
|---|---|
| Stabilization Time: | 30M |
| Operation Time: | 1H 30M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-176-5

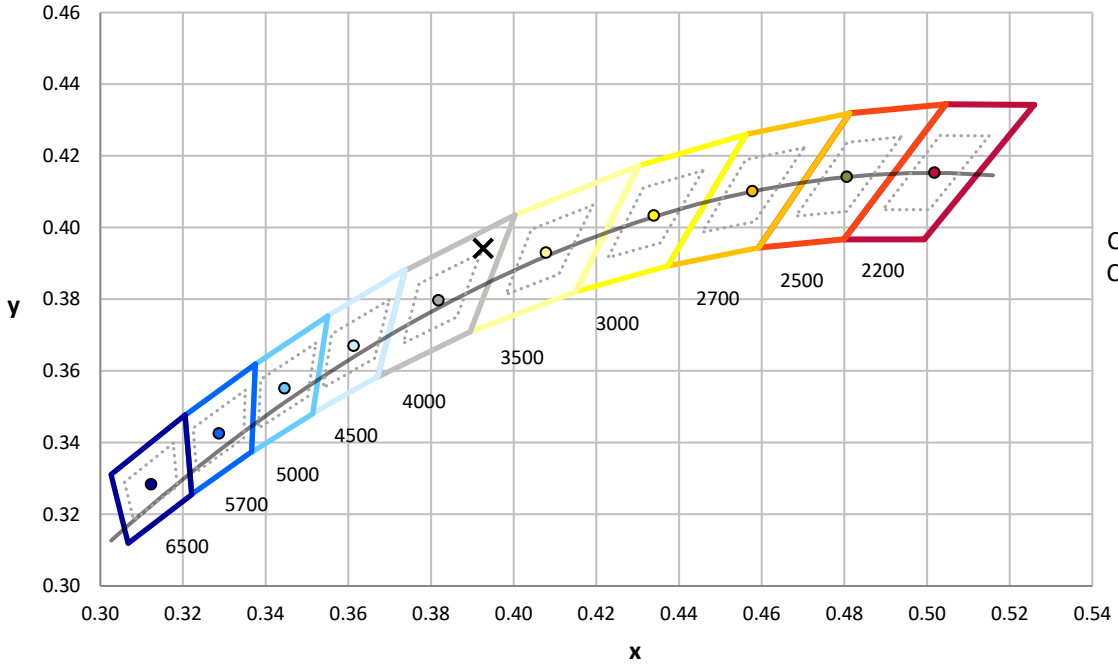
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

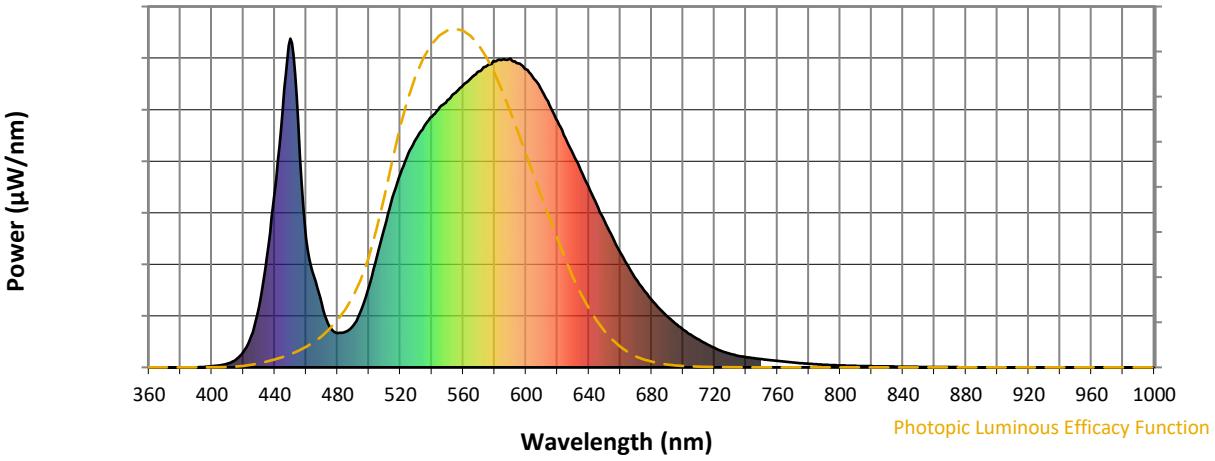



CCT = 3819K
CIE x = 0.3926
CIE y = 0.3942
Duv = 0.0046

Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2407-176-5

## Photopic Flux vs. Wavelength

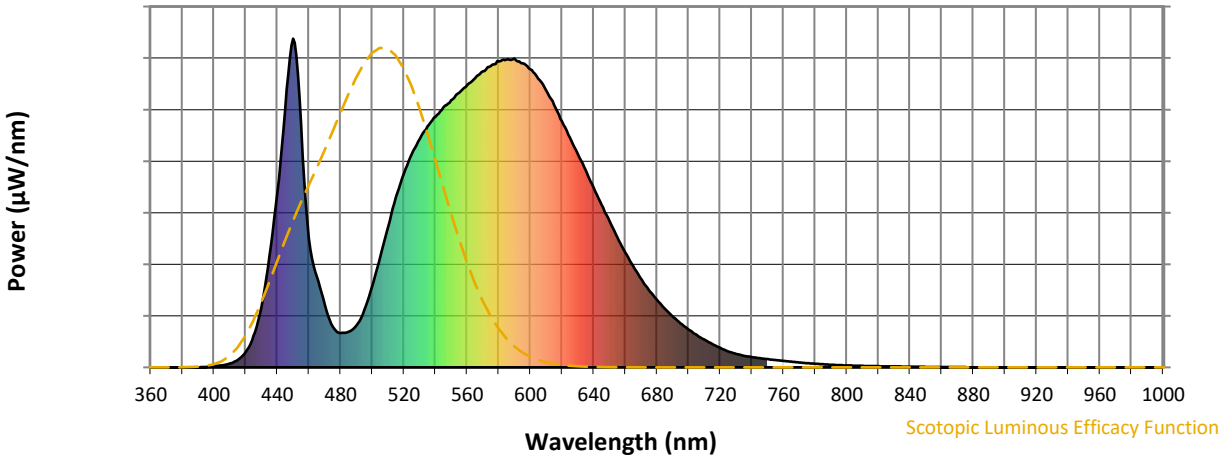



## Photopic Lumens: NR

| 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

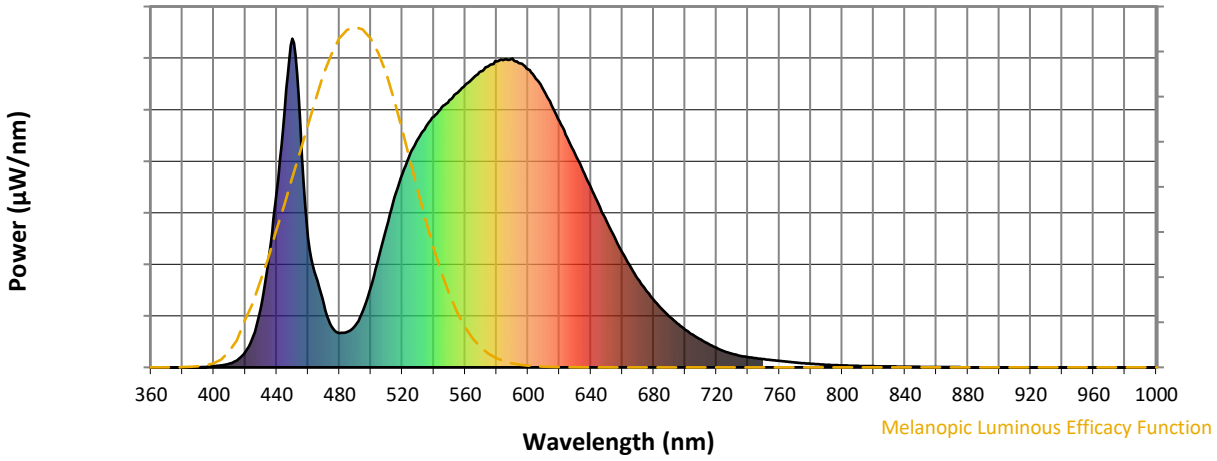



**Scotopic Lumens: NR** **S/P: 1.45**

| 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 | | | |

REPORT NUMBER: SP1-2407-176-5

## 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 | | | |

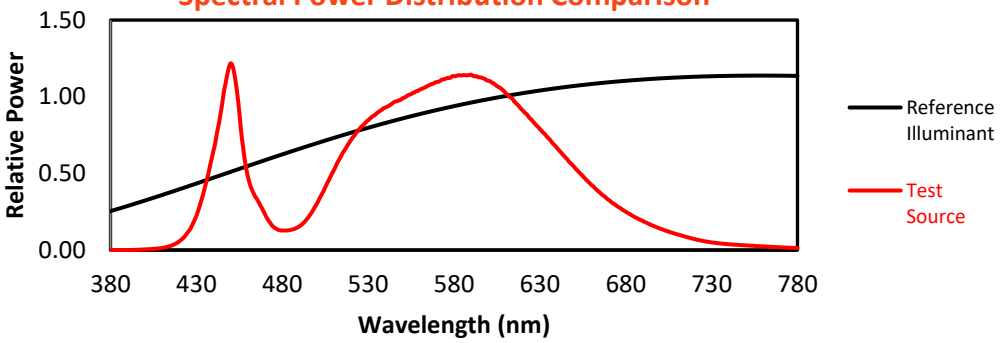
REPORT NUMBER: SP1-2407-176-5

# TM-30-18

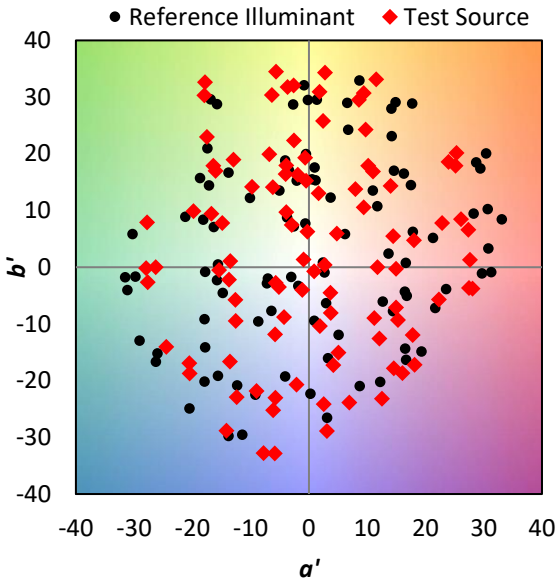
## Summary

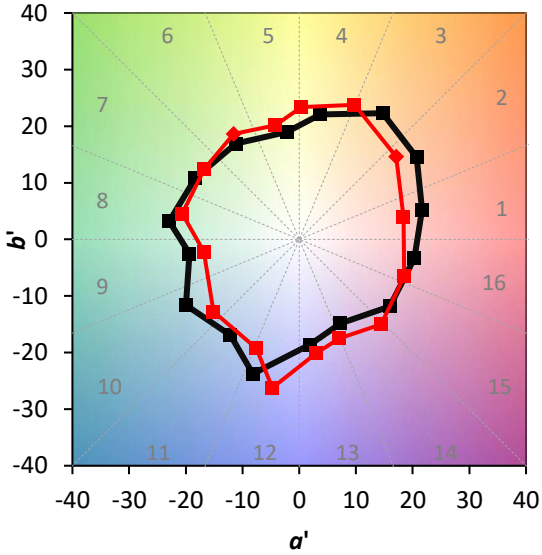
$R_f$ = 75.6
$R_g$ = 94.8
CIE $R_a$ = 72.9
$R_9$ = -21.5

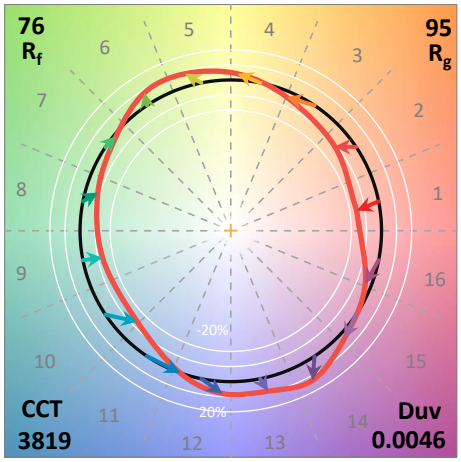
## Spectral Power Distribution Comparison

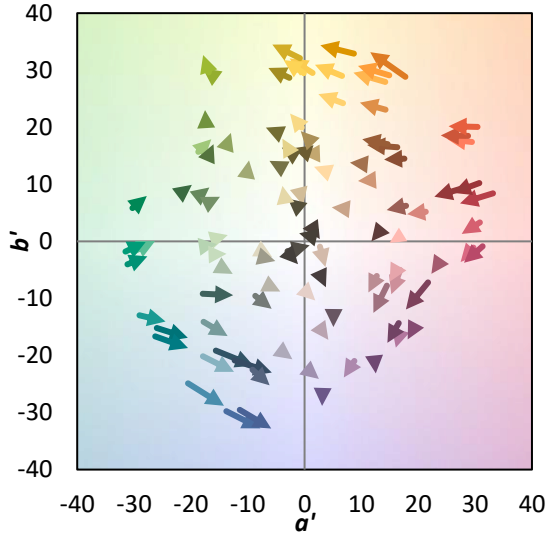



## Color Vector Graphics



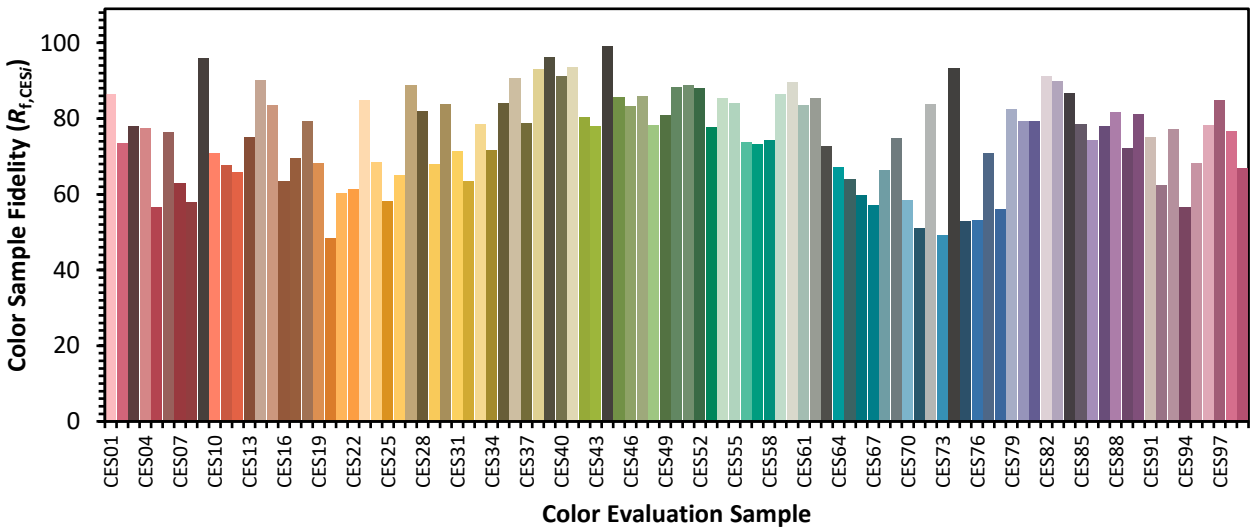



REPORT NUMBER: SP1-2407-176-5

# TM-30-18

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

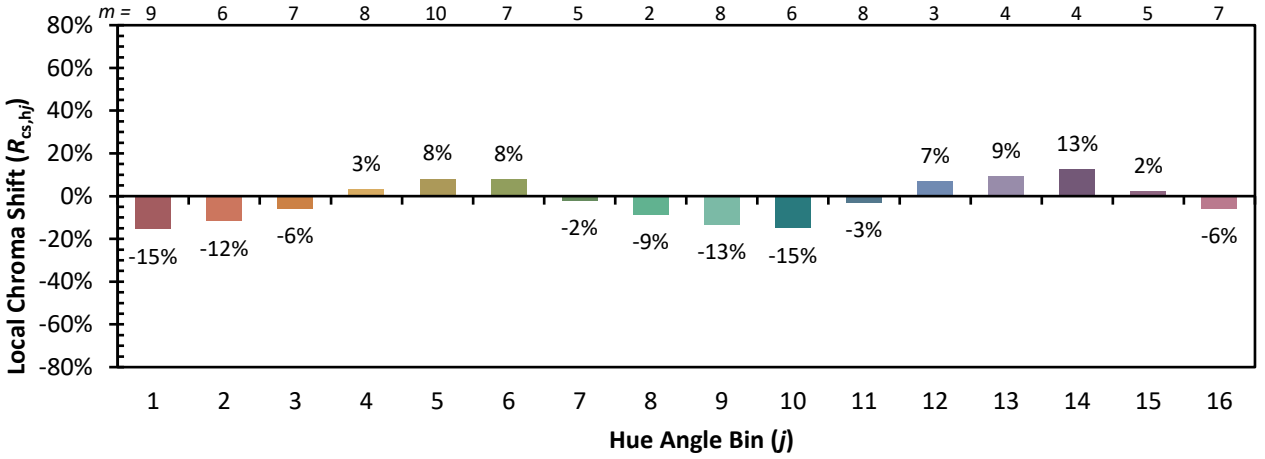
| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 65 | CES51 = 89 | CES76 = 53 |
| CES02 = 61 | CES27 = 89 | CES52 = 88 | CES77 = 71 |
| CES03 = 30 | CES28 = 82 | CES53 = 78 | CES78 = 56 |
| CES04 = 70 | CES29 = 68 | CES54 = 85 | CES79 = 83 |
| CES05 = 48 | CES30 = 84 | CES55 = 84 | CES80 = 79 |
| CES06 = 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 | |

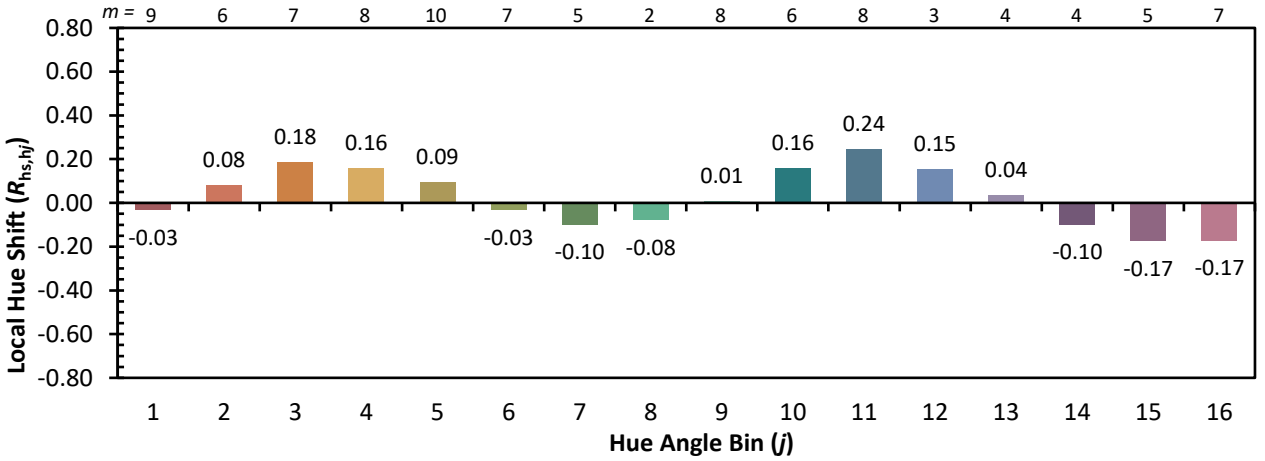


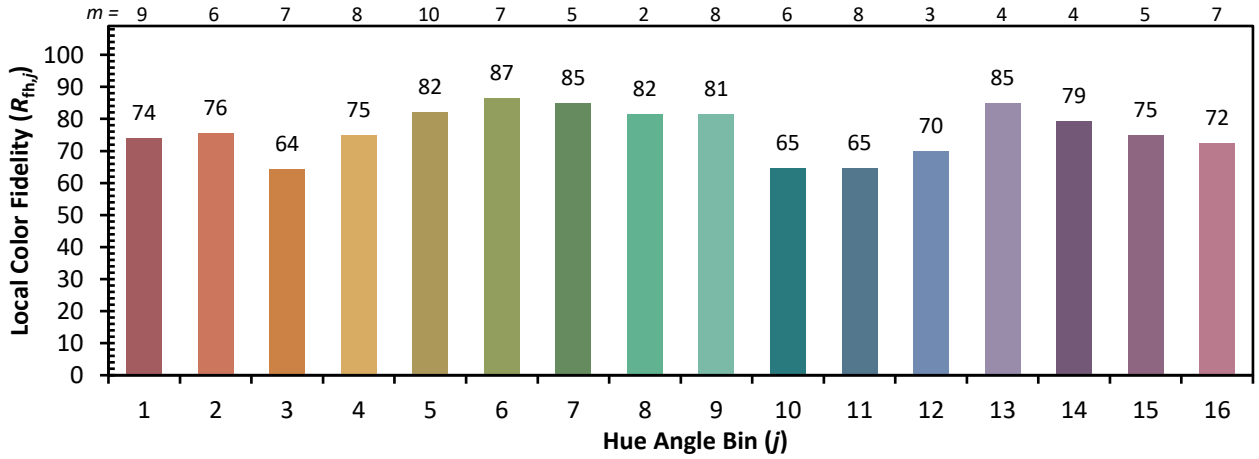
REPORT NUMBER: SP1-2407-176-5

**TM-30-18**

## Color Rendition by Hue-Angle Bin



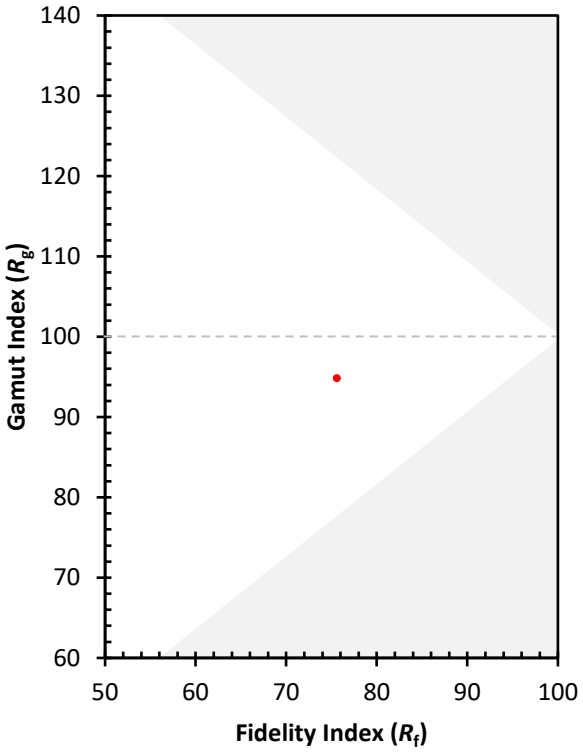



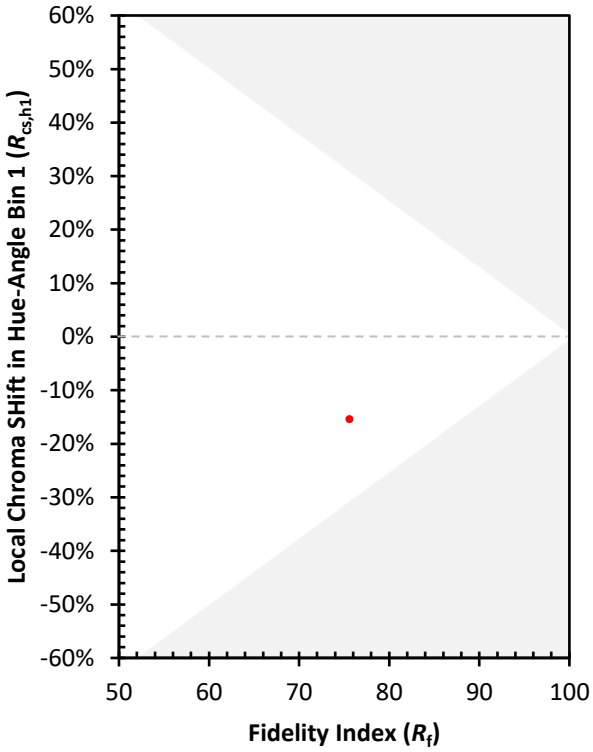



REPORT NUMBER: SP1-2407-176-5

# TM-30-18

## Measure Comparisons




(END OF REPORT)