

Signify Classified - Internal  
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: P510754

Luminaire Tested: **CTN-CA8-230-760-U-T5R**

Issue Date: 4/6/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P510754  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-151-14)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 4/6/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: CTN-CA8-230-760-U-T5R  
Description: CELESTEON HIGH MAST LUMINAIRE  
Light Source: (8) 5700K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 38238 lumens  
Efficiency: N/A  
Efficacy: 167.4 lumens/watt  
Luminous Opening: Circular (Dia: 2.08' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B5 - U0 - G4

Input Watts (W): 228.4  
Input Voltage (V): 120  
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: 28.75 FT



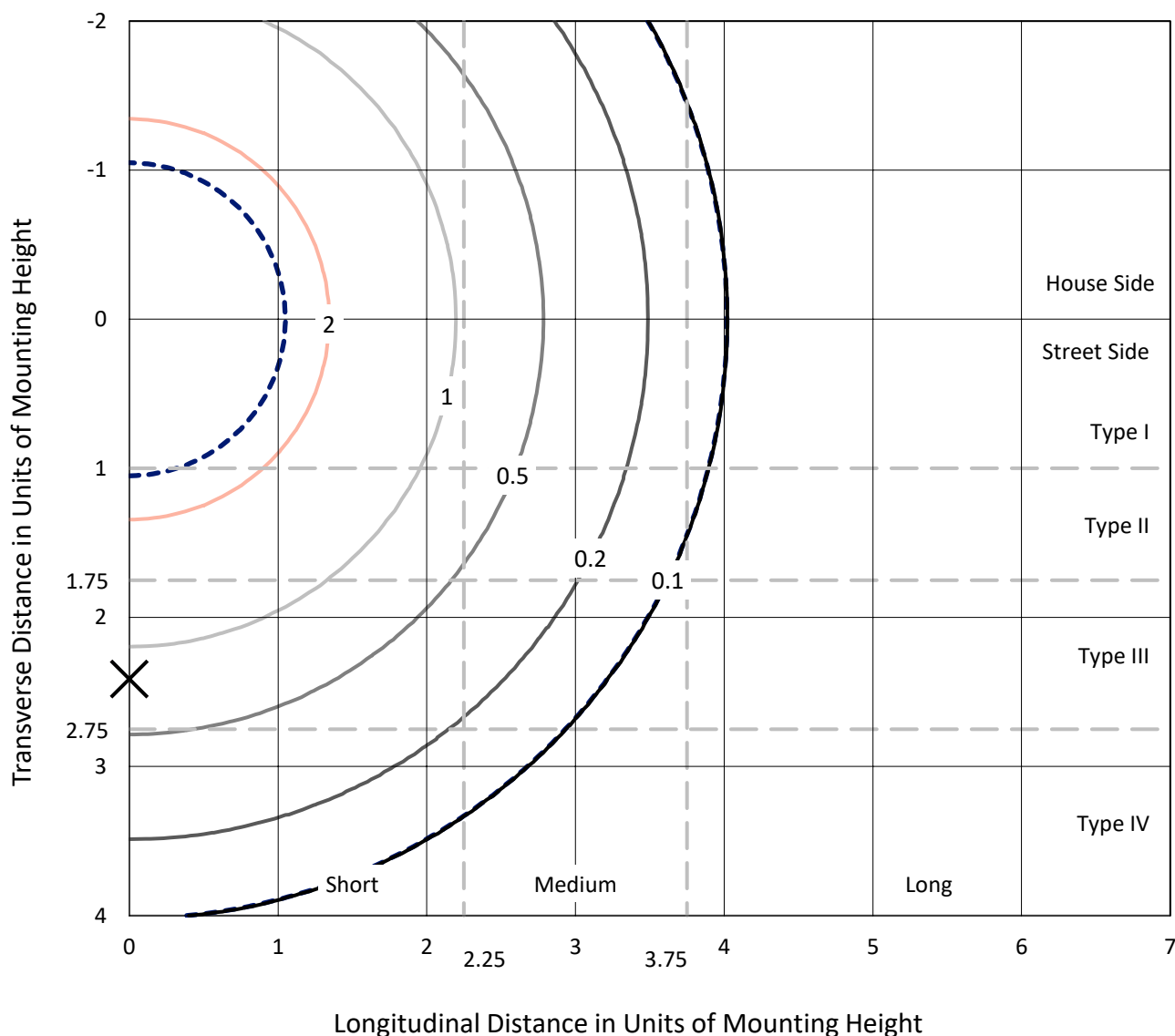
REPORT NUMBER: P510754

CATALOG NUMBER: CTN-CA8-230-760-U-T5R

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

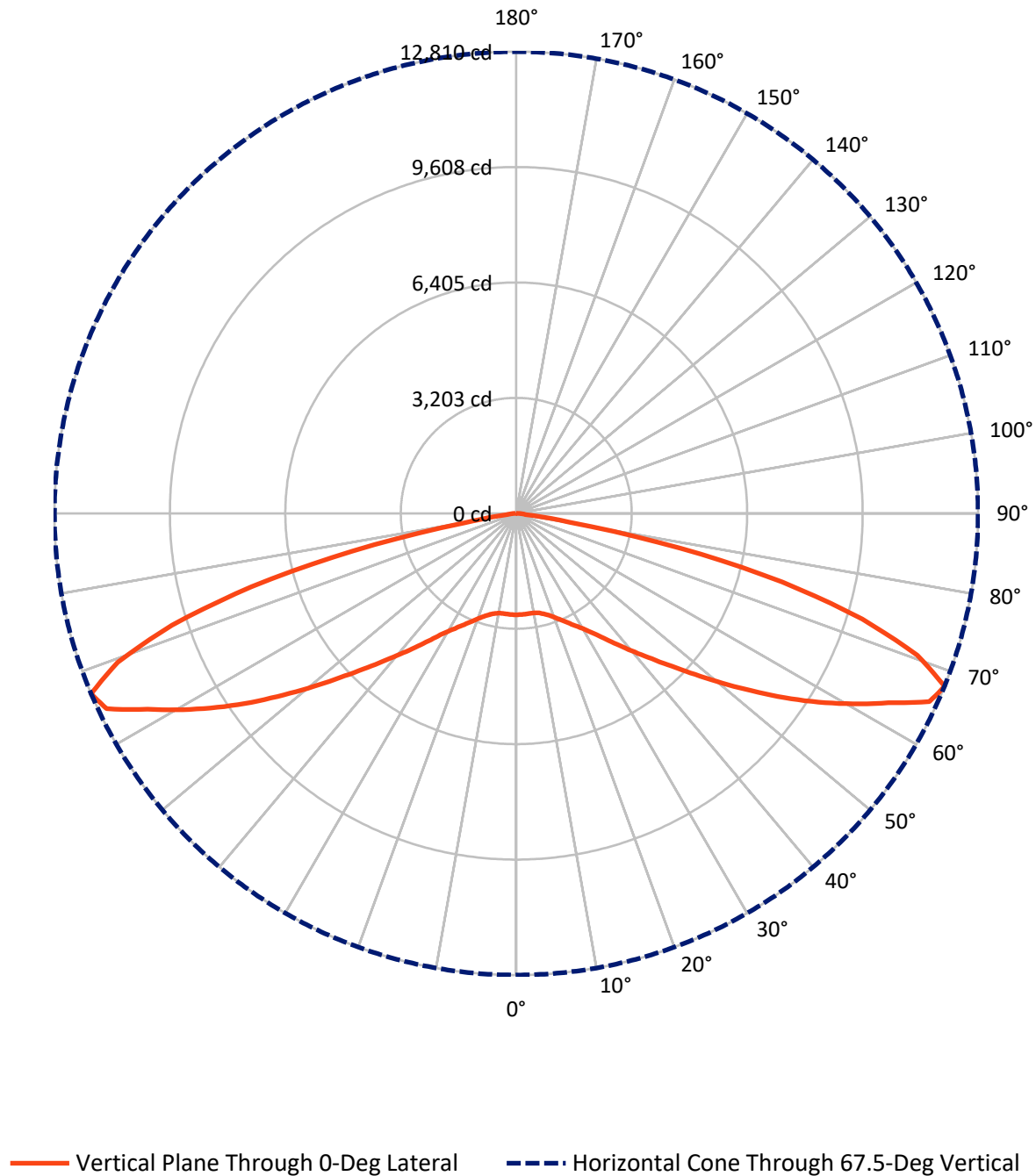


Based on 30 foot mounting height. Maximum calculated value = 3.1 fc

Type V - Short - N/A

REPORT NUMBER: P510754  
CATALOG NUMBER: CTN-CA8-230-760-U-T5R

## Luminous Intensity Polar Plot



REPORT NUMBER: P510754

CATALOG NUMBER: CTN-CA8-230-760-U-T5R

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 19119.0  | 0.0    | 19119.0 |
|                    | % Fixture | 50.0     | 0.0    | 50.0    |
| <b>Street Side</b> | Lumens    | 19119.0  | 0.0    | 19119.0 |
|                    | % Fixture | 50.0     | 0.0    | 50.0    |
| <b>Total</b>       | Lumens    | 38238.0  | 0.0    | 38238.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 267.9   | 0.7       |
| 10°-20°   | 830.3   | 2.2       |
| 20°-30°   | 1575.7  | 4.1       |
| 30°-40°   | 2736.8  | 7.2       |
| 40°-50°   | 4763.7  | 12.5      |
| 50°-60°   | 8138.2  | 21.3      |
| 60°-70°   | 11985.2 | 31.3      |
| 70°-80°   | 7618.8  | 19.9      |
| 80°-90°   | 321.3   | 0.8       |
| 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°    | 38238.0 | 100.0     |
| 0°-180°   | 38238.0 | 100.0     |

**Coefficient of Utilization**



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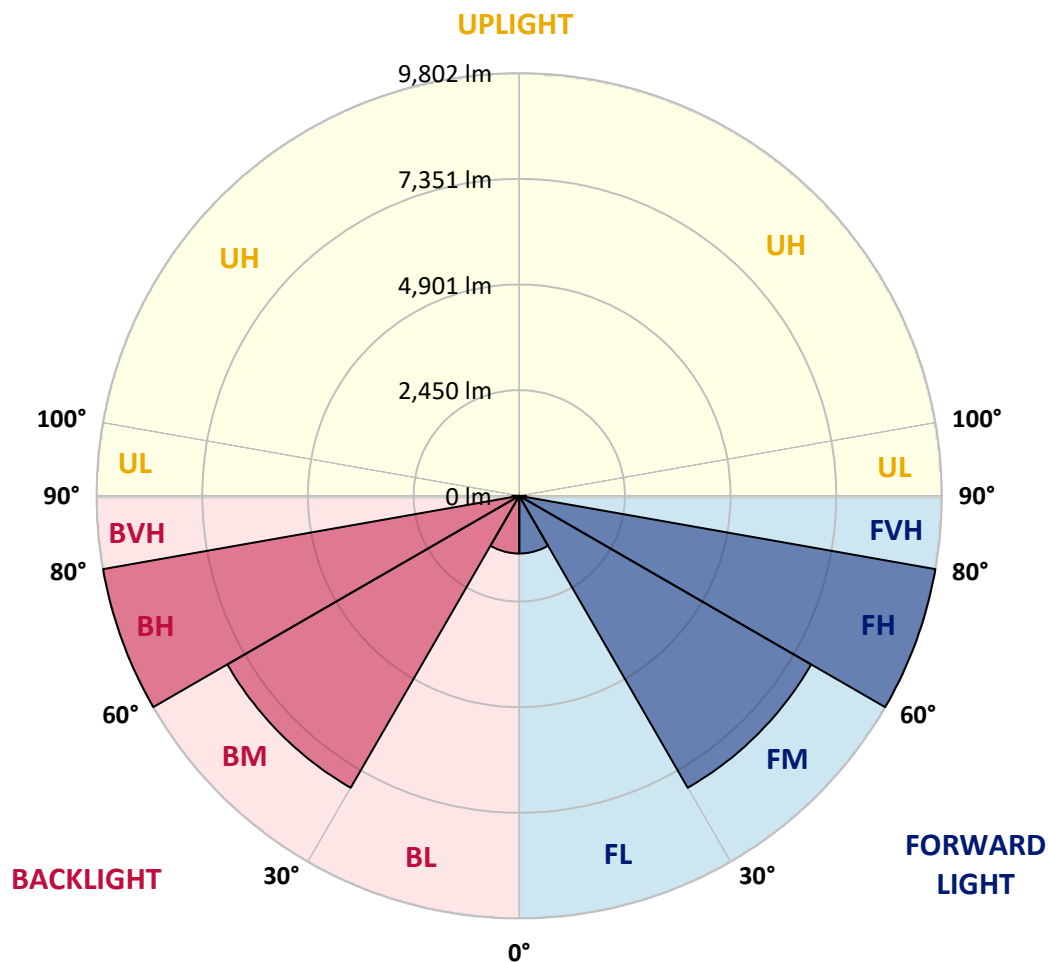
CATALOG NUMBER: CTN-CA8-230-760-U-T5R

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|--------|-----------|-------------------------|------|----------|
|      |             |        |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1337.0 | 3.5       |                         |      |          |
| FM   | (30°-60°)   | 7819.4 | 20.4      |                         |      |          |
| FH   | (60°-80°)   | 9802.0 | 25.6      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 160.7  | 0.4       |                         |      | G2/225   |
| BL   | (0°-30°)    | 1337.0 | 3.5       | B3/2500                 |      |          |
| BM   | (30°-60°)   | 7819.4 | 20.4      | B4/8500                 |      |          |
| BH   | (60°-80°)   | 9802.0 | 25.6      | B5                      |      | G4/12000 |
| BVH  | (80°-90°)   | 160.7  | 0.4       |                         |      | G2/225   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |          |

**BUG Rating: B5-U0-G4**

Type V Short



REPORT NUMBER: P510754  
CATALOG NUMBER: CTN-CA8-230-760-U-T5R

**CANDELA DISTRIBUTION (FULL):**

| 0°    |         |
|-------|---------|
| 0°    | 2812.6  |
| 2.5°  | 2813.4  |
| 5°    | 2807.8  |
| 7.5°  | 2803.1  |
| 10°   | 2807.8  |
| 12.5° | 2838.0  |
| 15°   | 2896.2  |
| 17.5° | 2977.6  |
| 20°   | 3088.2  |
| 22.5° | 3218.7  |
| 25°   | 3372.4  |
| 27.5° | 3539.1  |
| 30°   | 3735.1  |
| 32.5° | 3975.9  |
| 35°   | 4292.2  |
| 37.5° | 4656.2  |
| 40°   | 5060.8  |
| 42.5° | 5515.4  |
| 45°   | 6055.0  |
| 47.5° | 6677.3  |
| 50°   | 7398.1  |
| 52.5° | 8176.6  |
| 55°   | 9030.7  |
| 57.5° | 9883.6  |
| 60°   | 10731.7 |
| 62.5° | 11582.4 |
| 65°   | 12595.2 |
| 67.5° | 12810.2 |
| 70°   | 11802.0 |
| 72.5° | 10038.2 |
| 75°   | 7621.3  |
| 77.5° | 4659.4  |
| 80°   | 1478.9  |
| 82.5° | 251.0   |
| 85°   | 141.8   |
| 87.5° | 51.4    |
| 90°   | 0.0     |

LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

STREETWORKS

Report Number: SP1-2104-215-3

Luminaire Tested: CST-CA6-230-757-U-T4

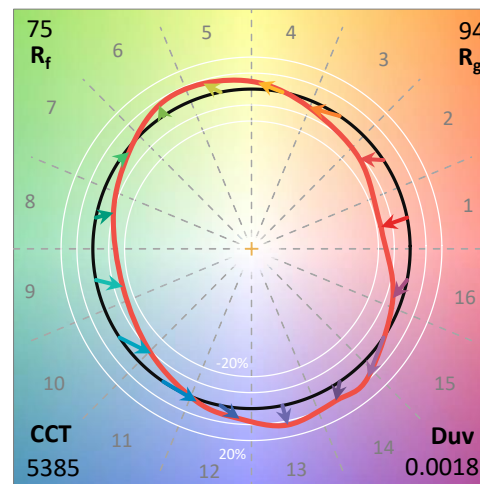
Test Date: 04/21/2021

### Test Information

Test Method: LM-79-08  
 Report Number: SP1-2104-215-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry:  $4\pi$   
 Issue Date: 04/21/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **CST-CA6-230-757-U-T4**  
 Description: STREETWORKS HIGH MAST LUMINAIRE

### Spectral Parameters

|                           |        |           |      |      |       |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K):                  | 5385   | CRI (Ra): | 74.4 |      |       |
| CIE u':                   | 0.2065 | R1:       | 71.8 | R9:  | -25.2 |
| CIE v':                   | 0.4808 | R2:       | 79.4 | R10: | 50.6  |
| Duv:                      | 0.0018 | R3:       | 84.2 | R11: | 72.0  |
| CIE x:                    | 0.3351 | R4:       | 74.7 | R12: | 46.0  |
| CIE y:                    | 0.3467 | R5:       | 72.8 | R13: | 73.1  |
| CIE z:                    | 0.3182 | R6:       | 71.2 | R14: | 91.2  |
| Peak Wavelength (nm):     | 450    | R7:       | 82.2 |      |       |
| Dominant Wavelength (nm): | 560    | R8:       | 58.6 |      |       |
| Purity:                   | 4.7    |           |      |      |       |
| Rf:                       | 75.3   |           |      |      |       |
| Rg:                       | 94.2   |           |      |      |       |



### Test Conditions

Stabilization Time: 66M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.7/32%  
 Sphere Temperature (°C): 24.8

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| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 1/31/2021        | 7/31/2021            |
| Power Meter                    | IN0071                | 12/1/2020        | 12/1/2021            |
| AC Power Source                | IN0063                | 12/1/2020        | 12/1/2021            |
| DC Power Source                | IN0208                | 12/1/2020        | 12/1/2021            |
| Sphere Thermometer             | IN0085                | 12/1/2020        | 12/1/2021            |
| Room Thermometer               | IN0046                | 12/1/2020        | 12/1/2021            |

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**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 5700K 7-step quadrangle

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### Photopic Flux vs. Wavelength



#####

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 16696            | 0.0              | 490       | 164243           | 23.3             | 620       | 415797           | 108.2            | 750       | 22190            | 0.0              | 880       | 22866            | 0.0              |
| 365       | 13447            | 0.0              | 495       | 207773           | 37.7             | 625       | 382869           | 84.5             | 755       | 18942            | 0.0              | 885       | 21901            | 0.0              |
| 370       | 14521            | 0.0              | 500       | 267487           | 59.0             | 630       | 344785           | 62.4             | 760       | 18760            | 0.0              | 890       | 20912            | 0.0              |
| 375       | 15598            | 0.0              | 505       | 333279           | 93.2             | 635       | 309549           | 46.5             | 765       | 19375            | 0.0              | 895       | 19858            | 0.0              |
| 380       | 16553            | 0.0              | 510       | 393084           | 135.0            | 640       | 280226           | 33.5             | 770       | 16788            | 0.0              | 900       | 21828            | 0.0              |
| 385       | 15196            | 0.0              | 515       | 446481           | 185.0            | 645       | 249624           | 24.0             | 775       | 17302            | 0.0              | 905       | 17086            | 0.0              |
| 390       | 13481            | 0.0              | 520       | 488198           | 236.7            | 650       | 224464           | 16.4             | 780       | 15672            | 0.0              | 910       | 17542            | 0.0              |
| 395       | 11977            | 0.0              | 525       | 518433           | 278.3            | 655       | 199646           | 11.5             | 785       | 14771            | 0.0              | 915       | 16185            | 0.0              |
| 400       | 11331            | 0.0              | 530       | 543281           | 319.9            | 660       | 175926           | 7.3              | 790       | 13984            | 0.0              | 920       | 17995            | 0.0              |
| 405       | 11814            | 0.0              | 535       | 561190           | 348.0            | 665       | 155139           | 4.9              | 795       | 14040            | 0.0              | 925       | 15557            | 0.0              |
| 410       | 16208            | 0.0              | 540       | 572451           | 373.0            | 670       | 134630           | 2.9              | 800       | 13342            | 0.0              | 930       | 26095            | 0.0              |
| 415       | 26808            | 0.0              | 545       | 585457           | 389.7            | 675       | 117218           | 2.0              | 805       | 14668            | 0.0              | 935       | 19199            | 0.0              |
| 420       | 50871            | 0.1              | 550       | 599090           | 407.1            | 680       | 102027           | 1.2              | 810       | 14789            | 0.0              | 940       | 23080            | 0.0              |
| 425       | 101020           | 0.5              | 555       | 616995           | 421.4            | 685       | 89213            | 0.8              | 815       | 17650            | 0.0              | 945       | 26343            | 0.0              |
| 430       | 192411           | 1.5              | 560       | 629425           | 427.7            | 690       | 78917            | 0.4              | 820       | 14937            | 0.0              | 950       | 29934            | 0.0              |
| 435       | 336902           | 4.0              | 565       | 636833           | 423.4            | 695       | 68780            | 0.3              | 825       | 16011            | 0.0              | 955       | 22346            | 0.0              |
| 440       | 581105           | 9.1              | 570       | 639836           | 416.0            | 700       | 60229            | 0.2              | 830       | 16981            | 0.0              | 960       | 16017            | 0.0              |
| 445       | 974221           | 20.3             | 575       | 636704           | 396.2            | 705       | 53321            | 0.1              | 835       | 15554            | 0.0              | 965       | 18299            | 0.0              |
| 450       | 1195987          | 31.0             | 580       | 633339           | 376.3            | 710       | 47871            | 0.1              | 840       | 16030            | 0.0              | 970       | 16401            | 0.0              |
| 455       | 889289           | 29.8             | 585       | 623206           | 346.3            | 715       | 44671            | 0.0              | 845       | 19004            | 0.0              | 975       | 23481            | 0.0              |
| 460       | 566512           | 23.2             | 590       | 607134           | 313.9            | 720       | 40236            | 0.0              | 850       | 18632            | 0.0              | 980       | 26457            | 0.0              |
| 465       | 410582           | 21.2             | 595       | 578226           | 274.1            | 725       | 35616            | 0.0              | 855       | 21549            | 0.0              | 985       | 32065            | 0.0              |
| 470       | 276356           | 17.2             | 600       | 554348           | 238.9            | 730       | 31102            | 0.0              | 860       | 21257            | 0.0              | 990       | 31414            | 0.0              |
| 475       | 187504           | 14.7             | 605       | 526616           | 203.9            | 735       | 28341            | 0.0              | 865       | 20272            | 0.0              | 995       | 30650            | 0.0              |
| 480       | 156769           | 14.9             | 610       | 490933           | 168.7            | 740       | 25553            | 0.0              | 870       | 20808            | 0.0              | 1000      | 26490            | 0.0              |
| 485       | 151040           | 17.9             | 615       | 453646           | 136.9            | 745       | 23976            | 0.0              | 875       | 22729            | 0.0              |           |                  |                  |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: 72376.6

S/P: 1.89

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 16696            | 0.0              | 490       | 164243           | 252.9            | 620       | 415797           | 5.2              | 750       | 22190            | 0.0              | 880       | 22866            | 0.0              |
| 365       | 13447            | 0.0              | 495       | 207773           | 335.9            | 625       | 382869           | 3.2              | 755       | 18942            | 0.0              | 885       | 21901            | 0.0              |
| 370       | 14521            | 0.0              | 500       | 267487           | 447.4            | 630       | 344785           | 2.0              | 760       | 18760            | 0.0              | 890       | 20912            | 0.0              |
| 375       | 15598            | 0.0              | 505       | 333279           | 566.6            | 635       | 309549           | 1.2              | 765       | 19375            | 0.0              | 895       | 19858            | 0.0              |
| 380       | 16553            | 0.0              | 510       | 393084           | 666.2            | 640       | 280226           | 0.7              | 770       | 16788            | 0.0              | 900       | 21828            | 0.0              |
| 385       | 15196            | 0.0              | 515       | 446481           | 740.0            | 645       | 249624           | 0.4              | 775       | 17302            | 0.0              | 905       | 17086            | 0.0              |
| 390       | 13481            | 0.1              | 520       | 488198           | 776.0            | 650       | 224464           | 0.3              | 780       | 15672            | 0.0              | 910       | 17542            | 0.0              |
| 395       | 11977            | 0.1              | 525       | 518433           | 775.6            | 655       | 199646           | 0.2              | 785       | 14771            | 0.0              | 915       | 16185            | 0.0              |
| 400       | 11331            | 0.2              | 530       | 543281           | 749.0            | 660       | 175926           | 0.1              | 790       | 13984            | 0.0              | 920       | 17995            | 0.0              |
| 405       | 11814            | 0.4              | 535       | 561190           | 699.3            | 665       | 155139           | 0.1              | 795       | 14040            | 0.0              | 925       | 15557            | 0.0              |
| 410       | 16208            | 1.0              | 540       | 572451           | 632.6            | 670       | 134630           | 0.0              | 800       | 13342            | 0.0              | 930       | 26095            | 0.0              |
| 415       | 26808            | 2.8              | 545       | 585457           | 561.3            | 675       | 117218           | 0.0              | 805       | 14668            | 0.0              | 935       | 19199            | 0.0              |
| 420       | 50871            | 8.4              | 550       | 599090           | 489.9            | 680       | 102027           | 0.0              | 810       | 14789            | 0.0              | 940       | 23080            | 0.0              |
| 425       | 101020           | 24.7             | 555       | 616995           | 421.7            | 685       | 89213            | 0.0              | 815       | 17650            | 0.0              | 945       | 26343            | 0.0              |
| 430       | 192411           | 65.5             | 560       | 629425           | 351.8            | 690       | 78917            | 0.0              | 820       | 14937            | 0.0              | 950       | 29934            | 0.0              |
| 435       | 336902           | 150.6            | 565       | 636833           | 285.7            | 695       | 68780            | 0.0              | 825       | 16011            | 0.0              | 955       | 22346            | 0.0              |
| 440       | 581105           | 324.8            | 570       | 639836           | 225.8            | 700       | 60229            | 0.0              | 830       | 16981            | 0.0              | 960       | 16017            | 0.0              |
| 445       | 974221           | 652.3            | 575       | 636704           | 173.4            | 705       | 53321            | 0.0              | 835       | 15554            | 0.0              | 965       | 18299            | 0.0              |
| 450       | 1195987          | 927.0            | 580       | 633339           | 130.5            | 710       | 47871            | 0.0              | 840       | 16030            | 0.0              | 970       | 16401            | 0.0              |
| 455       | 889289           | 777.1            | 585       | 623206           | 95.2             | 715       | 44671            | 0.0              | 845       | 19004            | 0.0              | 975       | 23481            | 0.0              |
| 460       | 566512           | 547.2            | 590       | 607134           | 67.6             | 720       | 40236            | 0.0              | 850       | 18632            | 0.0              | 980       | 26457            | 0.0              |
| 465       | 410582           | 433.6            | 595       | 578226           | 46.1             | 725       | 35616            | 0.0              | 855       | 21549            | 0.0              | 985       | 32065            | 0.0              |
| 470       | 276356           | 318.2            | 600       | 554348           | 31.2             | 730       | 31102            | 0.0              | 860       | 21257            | 0.0              | 990       | 31414            | 0.0              |
| 475       | 187504           | 234.4            | 605       | 526616           | 20.7             | 735       | 28341            | 0.0              | 865       | 20272            | 0.0              | 995       | 30650            | 0.0              |
| 480       | 156769           | 211.8            | 610       | 490933           | 13.3             | 740       | 25553            | 0.0              | 870       | 20808            | 0.0              | 1000      | 26490            | 0.0              |
| 485       | 151040           | 218.9            | 615       | 453646           | 8.4              | 745       | 23976            | 0.0              | 875       | 22729            | 0.0              |           |                  |                  |

REPORT NUMBER: SP1-2104-215-3

### Melanopic Flux vs. Wavelength



**Melanopic Lumens: 29860.2**      **M/P: 0.78**

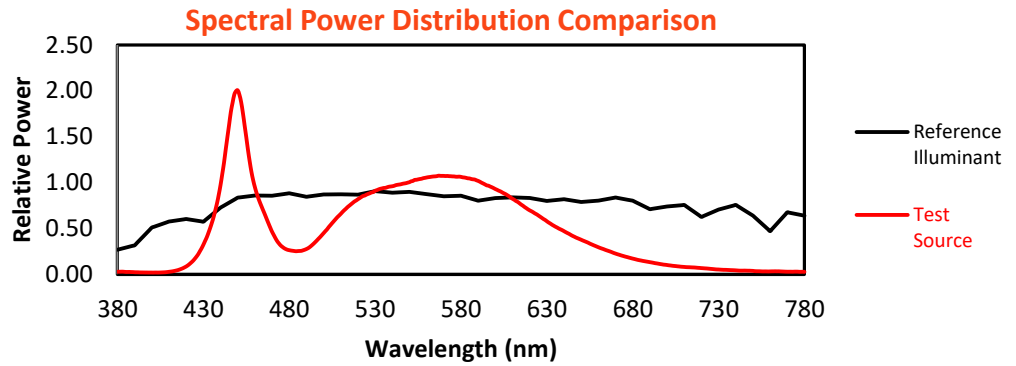
| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 16696            | 0.0              | 490       | 164243           | 136.7            | 620       | 415797           | 0.3              | 750       | 22190            | 0.0              | 880       | 22866            | 0.0              |
| 365       | 13447            | 0.0              | 495       | 207773           | 171.5            | 625       | 382869           | 0.2              | 755       | 18942            | 0.0              | 885       | 21901            | 0.0              |
| 370       | 14521            | 0.0              | 500       | 267487           | 215.0            | 630       | 344785           | 0.1              | 760       | 18760            | 0.0              | 890       | 20912            | 0.0              |
| 375       | 15598            | 0.0              | 505       | 333279           | 255.8            | 635       | 309549           | 0.1              | 765       | 19375            | 0.0              | 895       | 19858            | 0.0              |
| 380       | 16553            | 0.0              | 510       | 393084           | 282.2            | 640       | 280226           | 0.0              | 770       | 16788            | 0.0              | 900       | 21828            | 0.0              |
| 385       | 15196            | 0.0              | 515       | 446481           | 291.7            | 645       | 249624           | 0.0              | 775       | 17302            | 0.0              | 905       | 17086            | 0.0              |
| 390       | 13481            | 0.0              | 520       | 488198           | 284.2            | 650       | 224464           | 0.0              | 780       | 15672            | 0.0              | 910       | 17542            | 0.0              |
| 395       | 11977            | 0.1              | 525       | 518433           | 262.9            | 655       | 199646           | 0.0              | 785       | 14771            | 0.0              | 915       | 16185            | 0.0              |
| 400       | 11331            | 0.1              | 530       | 543281           | 234.8            | 660       | 175926           | 0.0              | 790       | 13984            | 0.0              | 920       | 17995            | 0.0              |
| 405       | 11814            | 0.2              | 535       | 561190           | 202.0            | 665       | 155139           | 0.0              | 795       | 14040            | 0.0              | 925       | 15557            | 0.0              |
| 410       | 16208            | 0.6              | 540       | 572451           | 167.5            | 670       | 134630           | 0.0              | 800       | 13342            | 0.0              | 930       | 26095            | 0.0              |
| 415       | 26808            | 1.8              | 545       | 585457           | 136.0            | 675       | 117218           | 0.0              | 805       | 14668            | 0.0              | 935       | 19199            | 0.0              |
| 420       | 50871            | 5.8              | 550       | 599090           | 107.5            | 680       | 102027           | 0.0              | 810       | 14789            | 0.0              | 940       | 23080            | 0.0              |
| 425       | 101020           | 15.7             | 555       | 616995           | 83.2             | 685       | 89213            | 0.0              | 815       | 17650            | 0.0              | 945       | 26343            | 0.0              |
| 430       | 192411           | 40.6             | 560       | 629425           | 62.1             | 690       | 78917            | 0.0              | 820       | 14937            | 0.0              | 950       | 29934            | 0.0              |
| 435       | 336902           | 89.9             | 565       | 636833           | 44.7             | 695       | 68780            | 0.0              | 825       | 16011            | 0.0              | 955       | 22346            | 0.0              |
| 440       | 581105           | 194.2            | 570       | 639836           | 31.3             | 700       | 60229            | 0.0              | 830       | 16981            | 0.0              | 960       | 16017            | 0.0              |
| 445       | 974221           | 384.3            | 575       | 636704           | 21.2             | 705       | 53321            | 0.0              | 835       | 15554            | 0.0              | 965       | 18299            | 0.0              |
| 450       | 1195987          | 551.1            | 580       | 633339           | 14.2             | 710       | 47871            | 0.0              | 840       | 16030            | 0.0              | 970       | 16401            | 0.0              |
| 455       | 889289           | 465.9            | 585       | 623206           | 9.3              | 715       | 44671            | 0.0              | 845       | 19004            | 0.0              | 975       | 23481            | 0.0              |
| 460       | 566512           | 333.8            | 590       | 607134           | 6.0              | 720       | 40236            | 0.0              | 850       | 18632            | 0.0              | 980       | 26457            | 0.0              |
| 465       | 410582           | 268.3            | 595       | 578226           | 3.7              | 725       | 35616            | 0.0              | 855       | 21549            | 0.0              | 985       | 32065            | 0.0              |
| 470       | 276356           | 197.8            | 600       | 554348           | 2.3              | 730       | 31102            | 0.0              | 860       | 21257            | 0.0              | 990       | 31414            | 0.0              |
| 475       | 187504           | 143.2            | 605       | 526616           | 1.5              | 735       | 28341            | 0.0              | 865       | 20272            | 0.0              | 995       | 30650            | 0.0              |
| 480       | 156769           | 126.0            | 610       | 490933           | 0.9              | 740       | 25553            | 0.0              | 870       | 20808            | 0.0              | 1000      | 26490            | 0.0              |
| 485       | 151040           | 124.5            | 615       | 453646           | 0.5              | 745       | 23976            | 0.0              | 875       | 22729            | 0.0              |           |                  |                  |

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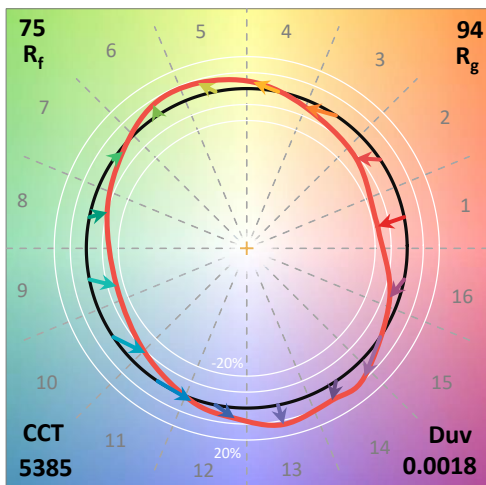
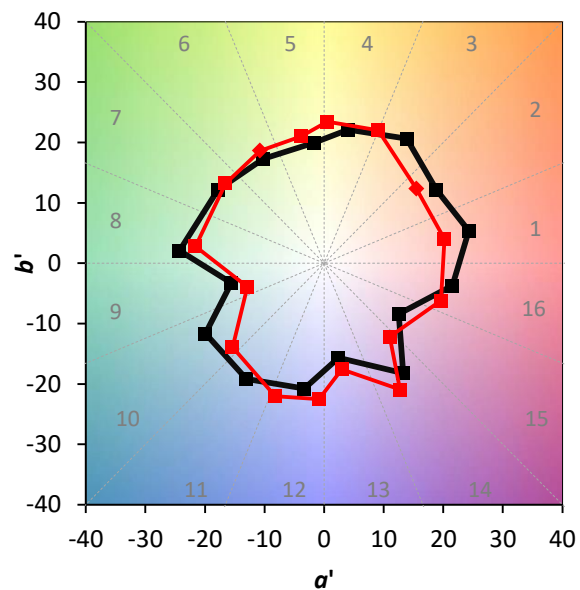
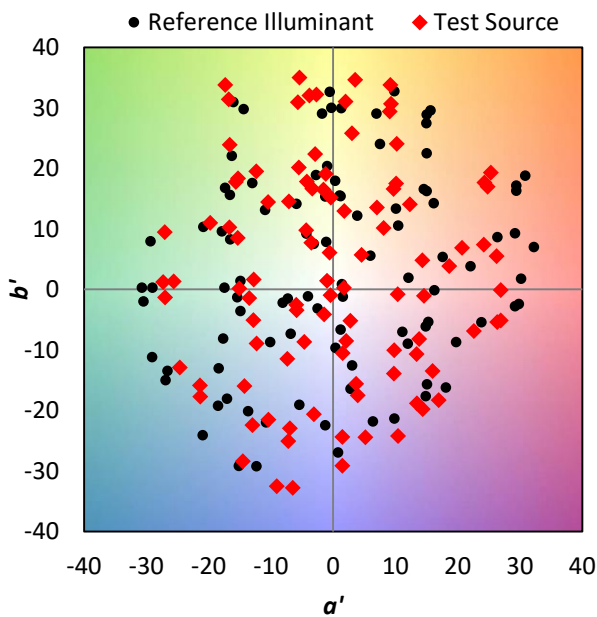
TM-30-18

### Summary

$R_f = 75.3$   
 $R_g = 94.2$   
 CIE  $R_a = 74.4$   
 $R_g = -25.2$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 64 | CES51 = 91 | CES76 = 51 |
| CES02 = 59 | CES27 = 89 | CES52 = 91 | CES77 = 67 |
| CES03 = 30 | CES28 = 81 | CES53 = 81 | CES78 = 53 |
| CES04 = 69 | CES29 = 69 | CES54 = 86 | CES79 = 80 |
| CES05 = 46 | CES30 = 87 | CES55 = 84 | CES80 = 76 |
| CES06 = 50 | CES31 = 72 | CES56 = 76 | CES81 = 79 |
| CES07 = 38 | CES32 = 63 | CES57 = 76 | CES82 = 90 |
| CES08 = 38 | CES33 = 81 | CES58 = 76 | CES83 = 89 |
| CES09 = 29 | CES34 = 70 | CES59 = 87 | CES84 = 85 |
| CES10 = 72 | CES35 = 83 | CES60 = 89 | CES85 = 78 |
| CES11 = 55 | CES36 = 88 | CES61 = 83 | CES86 = 78 |
| CES12 = 61 | CES37 = 78 | CES62 = 83 | CES87 = 77 |
| CES13 = 41 | CES38 = 97 | CES63 = 76 | CES88 = 82 |
| CES14 = 74 | CES39 = 96 | CES64 = 67 | CES89 = 75 |
| CES15 = 70 | CES40 = 91 | CES65 = 64 | CES90 = 82 |
| CES16 = 46 | CES41 = 96 | CES66 = 60 | CES91 = 72 |
| CES17 = 48 | CES42 = 79 | CES67 = 57 | CES92 = 62 |
| CES18 = 55 | CES43 = 78 | CES68 = 65 | CES93 = 77 |
| CES19 = 71 | CES44 = 99 | CES69 = 73 | CES94 = 57 |
| CES20 = 64 | CES45 = 87 | CES70 = 57 | CES95 = 66 |
| CES21 = 85 | CES46 = 86 | CES71 = 49 | CES96 = 78 |
| CES22 = 77 | CES47 = 89 | CES72 = 83 | CES97 = 87 |
| CES23 = 91 | CES48 = 82 | CES73 = 47 | CES98 = 78 |
| CES24 = 90 | CES49 = 84 | CES74 = 90 | CES99 = 65 |
| CES25 = 71 | CES50 = 91 | CES75 = 51 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)