

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: P459792

Luminaire Tested: **GWC-SA1A-AMB-U-5MQ**

Issue Date: 1/6/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P459792  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2003-697-3)  
Test Lab: INNOVATION CENTER  
Issue Date: 1/6/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GWC-SA1A-AMB-U-5MQ  
Description: GALLEON WALL LUMINAIRE  
(1) NARROW BAND AMBER, 500mA LIGHTSQUARE WITH 16 LEDS AND TYPE V MEDIUM OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1241 lumens  
Efficiency: N/A  
Efficacy: 54.9 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B1 - U0 - G0

Input Watts (W): 22.6  
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: 28.75 FT

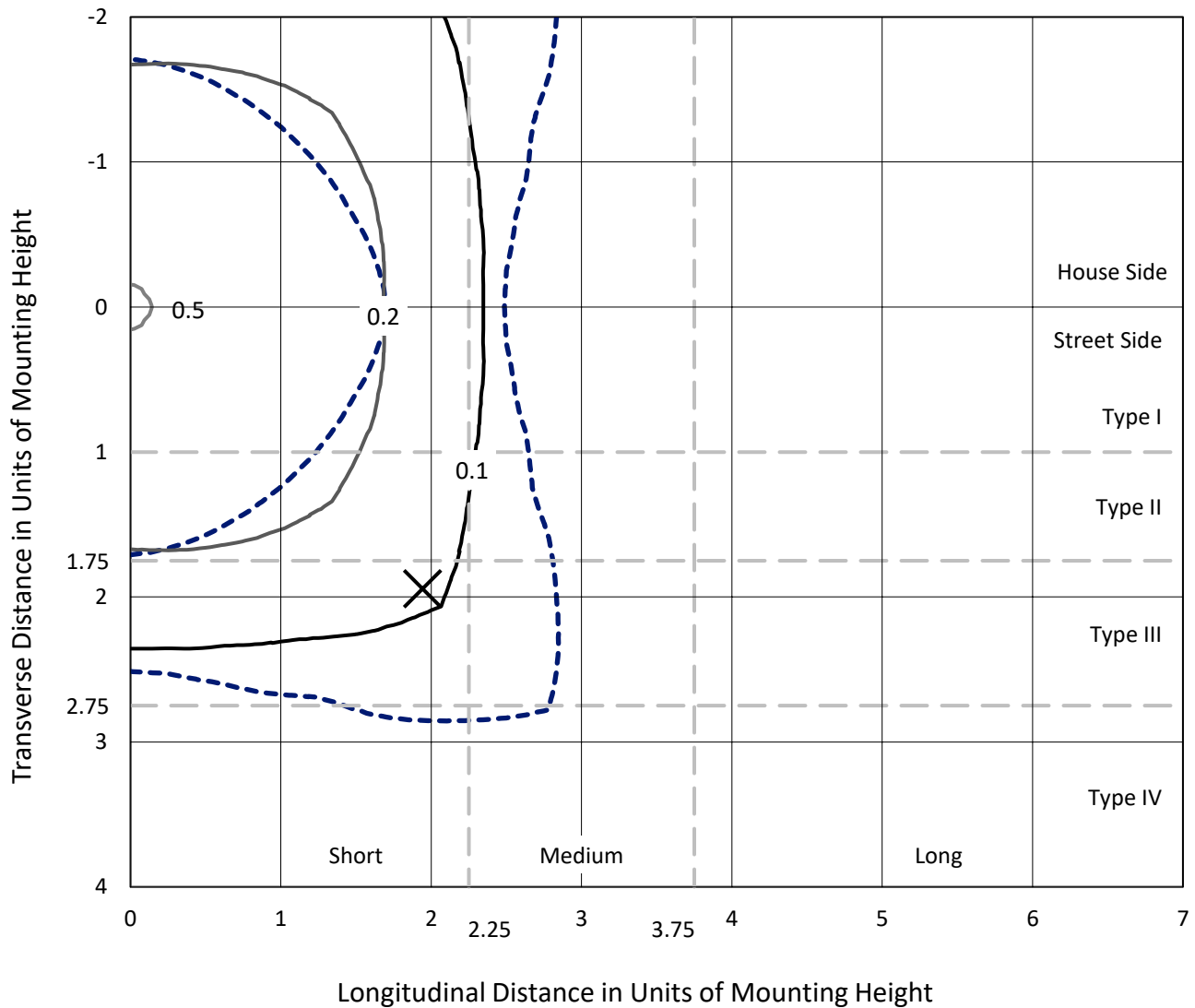


REPORT NUMBER: P459792

CATALOG NUMBER: GWC-SA1A-AMB-U-5MQ

## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 --- 1/2 Max cd

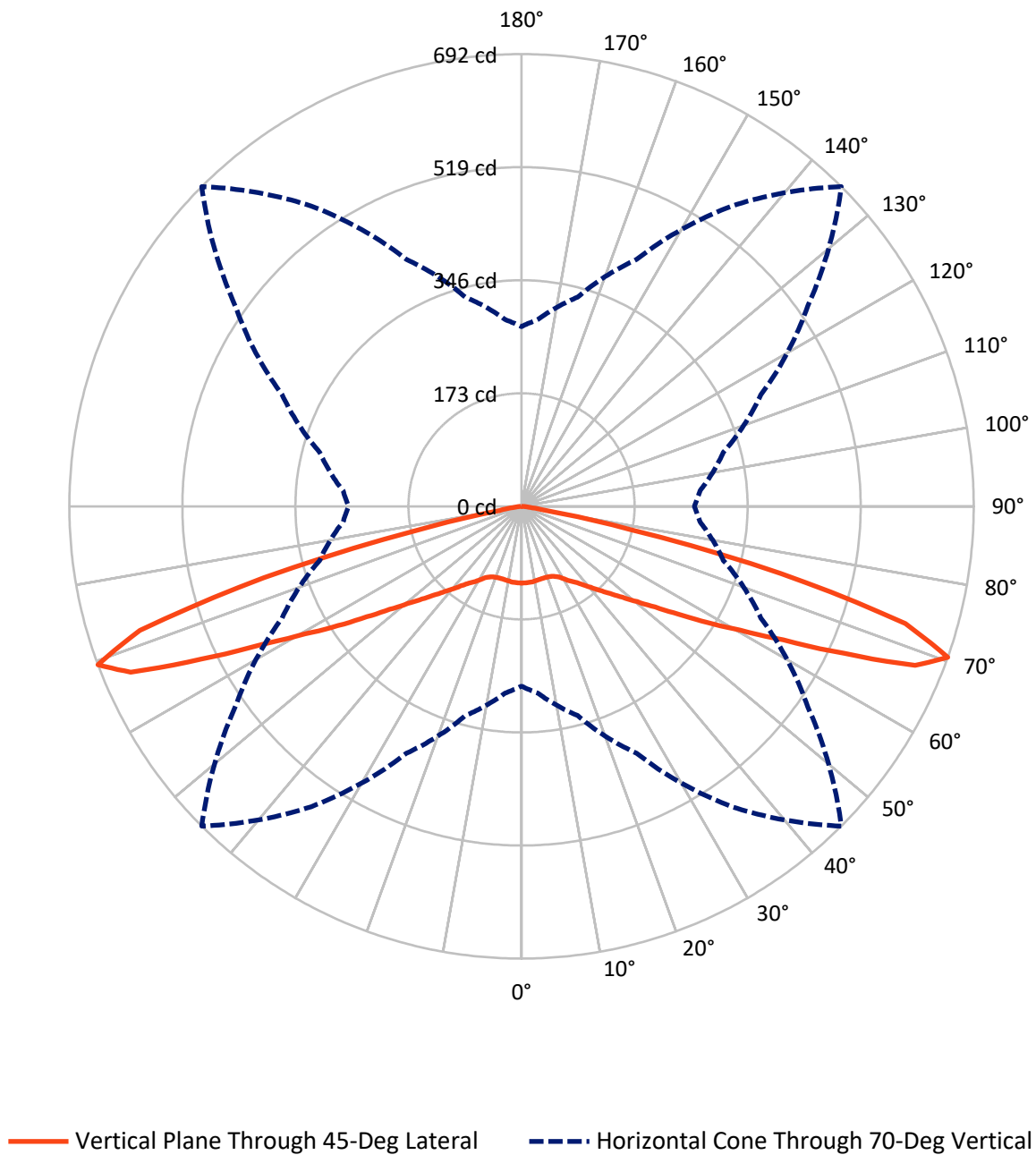


Based on 15 foot mounting height. Maximum calculated value = 0.5 fc  
 Type V - Short - N/A

REPORT NUMBER: P459792

CATALOG NUMBER: GWC-SA1A-AMB-U-5MQ

## Luminous Intensity Polar Plot



REPORT NUMBER: P459792

CATALOG NUMBER: GWC-SA1A-AMB-U-5MQ

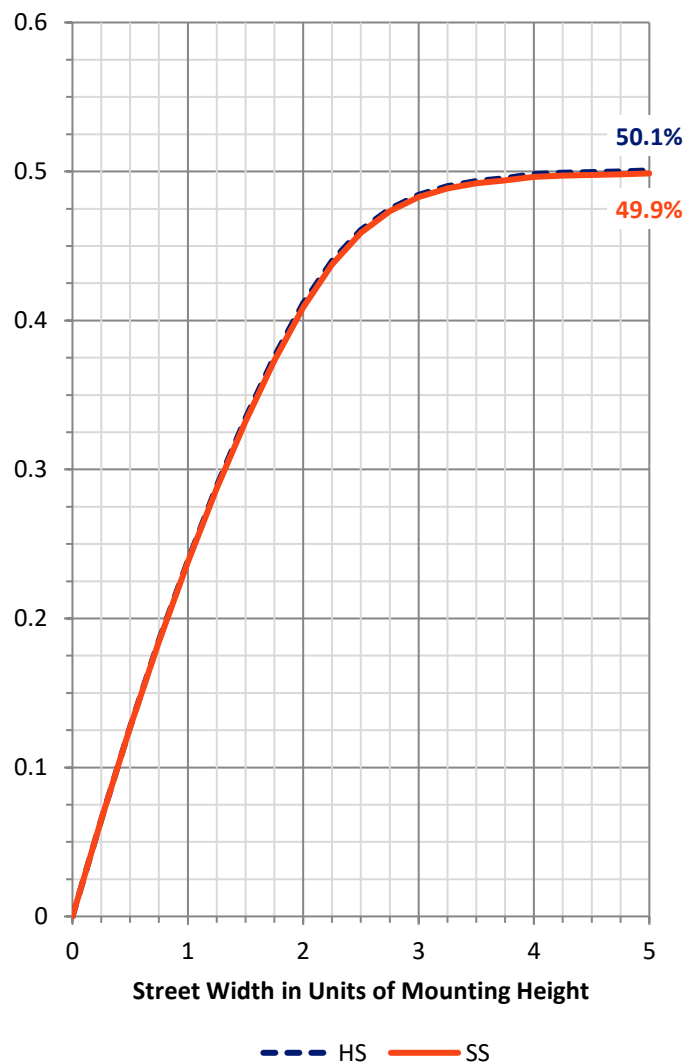
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 620.5    | 0.0    | 620.5  |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Street Side</b> | Lumens    | 620.5    | 0.0    | 620.5  |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Total</b>       | Lumens    | 1241.0   | 0.0    | 1241.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 11.2   | 0.9       |
| 10°-20°   | 32.4   | 2.6       |
| 20°-30°   | 54.9   | 4.4       |
| 30°-40°   | 90.0   | 7.3       |
| 40°-50°   | 150.5  | 12.1      |
| 50°-60°   | 264.2  | 21.3      |
| 60°-70°   | 434.0  | 35.0      |
| 70°-80°   | 195.7  | 15.8      |
| 80°-90°   | 8.1    | 0.7       |
| 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°    | 1241.0 | 100.0     |
| 0°-180°   | 1241.0 | 100.0     |

**Coefficient of Utilization**



REPORT NUMBER: P459792

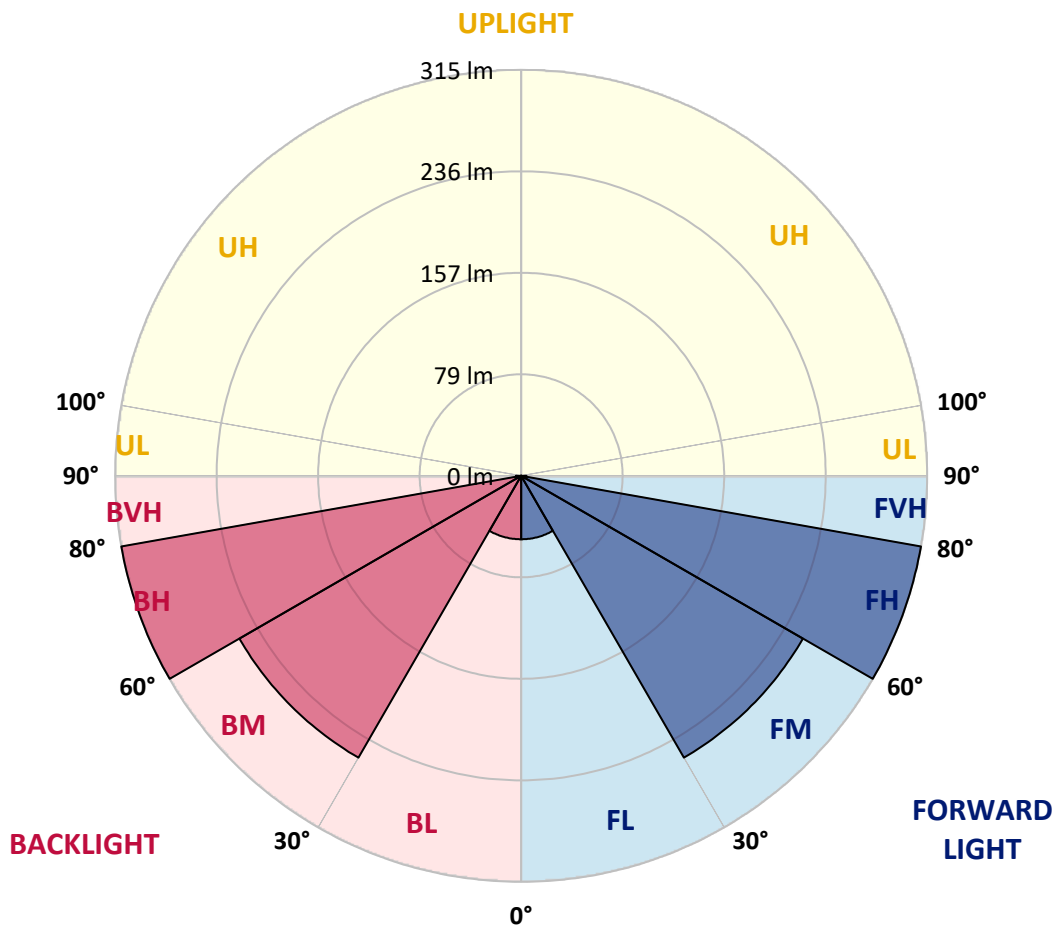
CATALOG NUMBER: GWC-SA1A-AMB-U-5MQ

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|--------|-----------|-------------------------|------|--------|
|      |             |        |           | B                       | U    | G      |
| FL   | (0°-30°)    | 49.2   | 4.0       |                         |      |        |
| FM   | (30°-60°)   | 252.3  | 20.3      |                         |      |        |
| FH   | (60°-80°)   | 314.9  | 25.4      |                         |      | G0/660 |
| FVH  | (80°-90°)   | 4.1    | 0.3       |                         |      | G0/10  |
| BL   | (0°-30°)    | 49.2   | 4.0       | B0/110                  |      |        |
| BM   | (30°-60°)   | 252.3  | 20.3      | B1/1000                 |      |        |
| BH   | (60°-80°)   | 314.9  | 25.4      | B1/500                  |      | G0/660 |
| BVH  | (80°-90°)   | 4.1    | 0.3       |                         |      | G0/10  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |        |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |        |

**BUG Rating: B1-U0-G0**

Type V Short



REPORT NUMBER: P459792

CATALOG NUMBER: GWC-SA1A-AMB-U-5MQ

**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 5°    | 15°   | 25°   | 35°   | 45°   | 55°   | 65°   | 75°   | 85°   | 90°   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 117.4 | 117.4 | 117.4 | 117.4 | 117.4 | 117.4 | 117.4 | 117.4 | 117.4 | 117.4 | 117.4 |
| 2.5°  | 117.9 | 117.9 | 117.9 | 117.9 | 117.4 | 117.4 | 117.4 | 117.4 | 117.4 | 117.4 | 117.4 |
| 5°    | 117.9 | 117.9 | 117.9 | 117.4 | 117.4 | 116.9 | 117.4 | 116.9 | 116.9 | 116.9 | 117.4 |
| 7.5°  | 117.9 | 117.9 | 117.9 | 117.4 | 117.4 | 116.9 | 116.9 | 116.4 | 116.4 | 116.4 | 116.4 |
| 10°   | 116.4 | 116.4 | 116.4 | 116.4 | 116.4 | 115.9 | 115.9 | 115.4 | 115.4 | 115.4 | 115.4 |
| 12.5° | 114.9 | 115.4 | 114.9 | 114.9 | 115.4 | 115.4 | 114.9 | 114.4 | 113.9 | 113.9 | 114.4 |
| 15°   | 113.9 | 113.9 | 113.9 | 113.9 | 114.9 | 114.9 | 114.9 | 113.9 | 113.4 | 113.4 | 113.4 |
| 17.5° | 112.9 | 112.9 | 112.9 | 113.9 | 114.4 | 114.9 | 114.4 | 113.9 | 113.4 | 112.4 | 112.4 |
| 20°   | 112.4 | 112.4 | 112.9 | 113.9 | 114.9 | 115.4 | 115.4 | 114.4 | 113.4 | 112.4 | 112.4 |
| 22.5° | 112.4 | 112.4 | 113.4 | 114.9 | 115.9 | 116.4 | 116.4 | 115.4 | 114.4 | 113.4 | 113.4 |
| 25°   | 114.4 | 113.9 | 114.9 | 116.9 | 118.4 | 118.9 | 119.4 | 117.9 | 116.4 | 115.4 | 114.9 |
| 27.5° | 117.4 | 117.9 | 118.9 | 121.0 | 123.0 | 122.5 | 123.0 | 122.0 | 121.0 | 119.4 | 119.4 |
| 30°   | 123.5 | 123.5 | 125.0 | 127.0 | 128.6 | 129.1 | 129.1 | 128.1 | 126.5 | 125.5 | 125.0 |
| 32.5° | 130.6 | 130.6 | 132.1 | 134.6 | 135.6 | 136.1 | 135.6 | 134.6 | 132.6 | 131.1 | 130.6 |
| 35°   | 137.7 | 137.7 | 139.7 | 142.7 | 143.7 | 142.7 | 143.2 | 142.2 | 140.7 | 139.7 | 139.2 |
| 37.5° | 146.3 | 146.3 | 148.8 | 151.3 | 152.9 | 151.8 | 153.4 | 152.9 | 150.8 | 149.8 | 149.3 |
| 40°   | 156.4 | 156.9 | 159.4 | 162.5 | 162.5 | 163.0 | 164.5 | 165.0 | 163.0 | 162.0 | 161.0 |
| 42.5° | 169.0 | 170.1 | 172.1 | 175.1 | 175.6 | 175.6 | 177.7 | 178.2 | 177.1 | 175.1 | 174.1 |
| 45°   | 184.2 | 185.2 | 188.3 | 191.3 | 191.3 | 190.3 | 193.3 | 195.9 | 193.8 | 190.8 | 189.8 |
| 47.5° | 201.9 | 203.0 | 207.0 | 209.5 | 210.6 | 208.0 | 212.6 | 215.6 | 213.1 | 211.1 | 209.0 |
| 50°   | 223.2 | 225.2 | 229.3 | 233.3 | 232.3 | 229.3 | 235.4 | 238.9 | 237.4 | 232.8 | 231.3 |
| 52.5° | 246.0 | 247.5 | 255.6 | 259.6 | 259.6 | 256.1 | 264.2 | 267.2 | 262.7 | 256.6 | 254.6 |
| 55°   | 276.9 | 276.3 | 281.9 | 291.0 | 294.6 | 291.0 | 297.6 | 298.6 | 292.5 | 287.5 | 283.9 |
| 57.5° | 308.7 | 309.8 | 317.3 | 326.0 | 331.0 | 335.1 | 335.1 | 332.5 | 323.9 | 314.3 | 312.3 |
| 60°   | 345.7 | 348.7 | 357.8 | 369.0 | 379.1 | 384.7 | 376.1 | 371.0 | 357.8 | 349.7 | 346.7 |
| 62.5° | 386.7 | 390.7 | 404.4 | 422.6 | 438.8 | 450.0 | 435.8 | 421.6 | 404.9 | 392.3 | 390.2 |
| 65°   | 399.3 | 402.9 | 429.7 | 469.2 | 516.8 | 543.1 | 498.0 | 464.1 | 424.6 | 398.3 | 395.3 |
| 67.5° | 371.5 | 373.0 | 406.9 | 474.8 | 570.4 | 649.9 | 550.7 | 465.6 | 405.4 | 367.5 | 365.4 |
| 70°   | 275.3 | 287.0 | 331.5 | 417.1 | 561.3 | 692.4 | 535.0 | 404.4 | 319.9 | 274.3 | 264.7 |
| 72.5° | 161.5 | 158.9 | 192.8 | 276.9 | 458.6 | 614.4 | 435.3 | 274.3 | 196.9 | 162.5 | 154.9 |
| 75°   | 63.3  | 64.3  | 80.5  | 128.1 | 259.6 | 409.5 | 260.7 | 129.1 | 71.9  | 58.7  | 58.2  |
| 77.5° | 21.8  | 22.3  | 24.3  | 30.9  | 83.5  | 169.0 | 86.0  | 31.4  | 23.8  | 25.3  | 25.8  |
| 80°   | 13.7  | 13.2  | 14.7  | 15.2  | 18.2  | 33.4  | 19.7  | 16.2  | 15.7  | 15.7  | 16.2  |
| 82.5° | 7.1   | 7.6   | 10.1  | 10.6  | 11.1  | 12.7  | 12.7  | 12.1  | 10.6  | 8.1   | 7.1   |
| 85°   | 4.6   | 3.5   | 7.1   | 7.6   | 7.1   | 6.6   | 8.1   | 9.1   | 8.1   | 4.6   | 5.1   |
| 87.5° | 2.0   | 2.0   | 3.5   | 3.5   | 3.5   | 2.5   | 3.5   | 5.1   | 5.1   | 2.0   | 2.0   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

STREETWORKS

Report Number: SP1-2005-791-1-R5

Test Date: 05/26/2020

Luminaire Tested: Light Squares Family Amber Color

Data in this report applies to families of products including Light Squares Family Amber Color

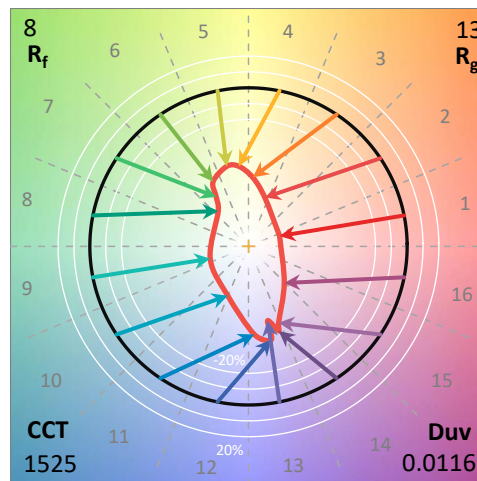


### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2005-791-1-R5  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 02/07/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: STREETWORKS  
 Catalog Number: **Light Squares Family Amber Color**  
 Description: Light Squares Family Amber Color

### Spectral Parameters

|                           |        |           |        |      |        |
|---------------------------|--------|-----------|--------|------|--------|
| CCT (K):                  | 1525   | CRI (Ra): | -20.7  |      |        |
| CIE u':                   | 0.3546 | R1:       | -32.5  | R9:  | -382.8 |
| CIE v':                   | 0.5459 | R2:       | 55.0   | R10: | 34.9   |
| Duv:                      | 0.0116 | R3:       | 15.4   | R11: | -92.4  |
| CIE x:                    | 0.5918 | R4:       | -67.7  | R12: | 2.7    |
| CIE y:                    | 0.4049 | R5:       | -38.7  | R13: | -12.7  |
| CIE z:                    | 0.0033 | R6:       | 47.4   | R14: | 45.0   |
| Peak Wavelength (nm):     | 597    | R7:       | -9.2   |      |        |
| Dominant Wavelength (nm): | 593    | R8:       | -135.0 |      |        |
| Purity:                   | 99.6   |           |        |      |        |
| Rf:                       | 8.4    |           |        |      |        |
| Rg:                       | 12.9   |           |        |      |        |



### Test Conditions

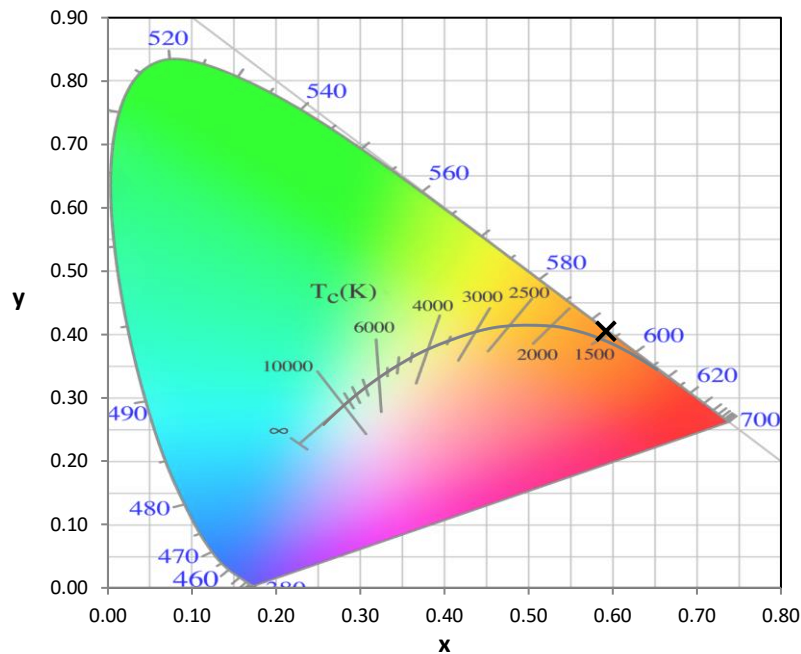
Stabilization Time: 65M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.6/42%  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2005-791-1-R5

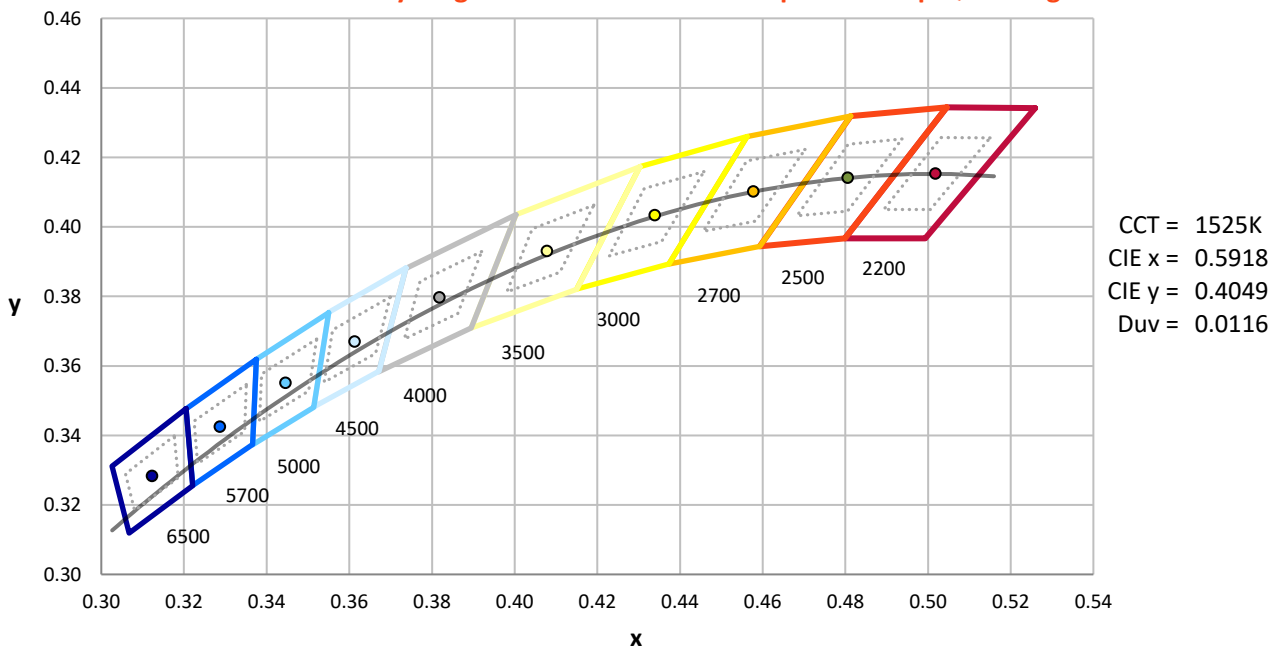
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 76INCH SPHERE IN0058  | 1/17/2020        | 7/17/2020            |
| Power Meter                    | XITRON 2801 IN0071    | 12/3/2019        | 12/3/2020            |
| AC Power Source                | CHROMA 61603 IN0063   | 12/3/2019        | 12/3/2020            |
| DC Power Source                | AGILENT E3634A IN0208 | 12/3/2019        | 12/3/2020            |
| Sphere Thermometer             | ONSET IN0085          | 12/3/2019        | 12/3/2020            |
| Room Thermometer               | ONSET IN0046          | 12/3/2019        | 12/3/2020            |

REPORT NUMBER: SP1-2005-791-1-R5

CIE 1931 Chromaticity Diagram



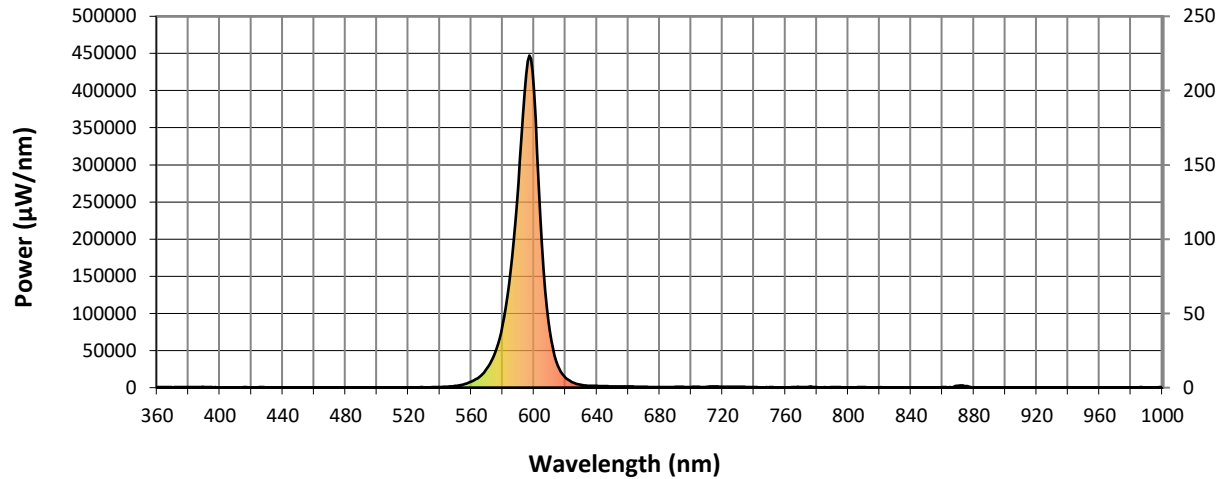
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies outside the range

REPORT NUMBER: SP1-2005-791-1-R5

**Photopic Flux vs. Wavelength**

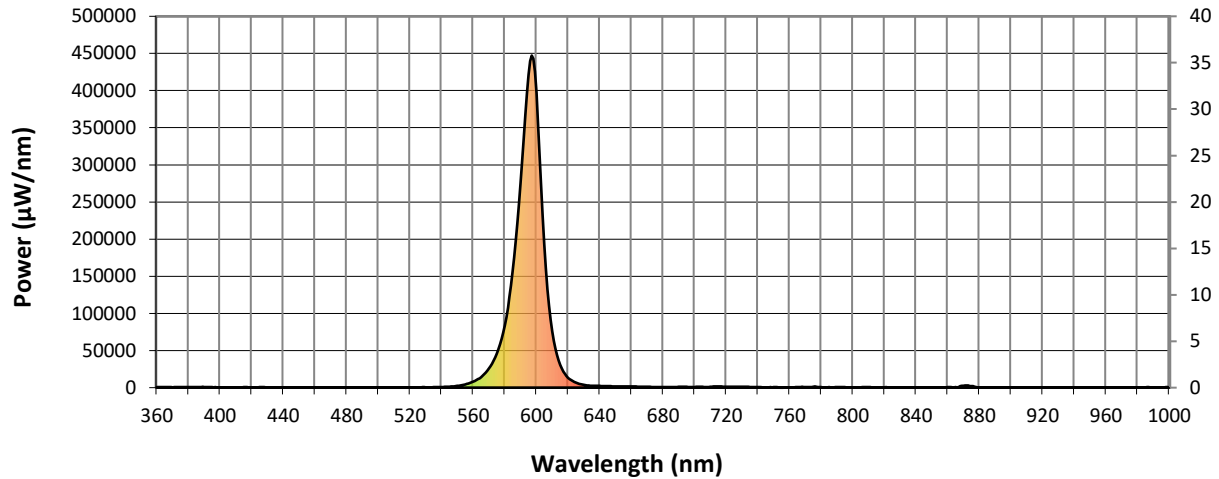


#####

| 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       | 818              | NR               | 490       | 224              | NR               | 620       | 13485            | NR               | 750       | 666              | NR               | 880       | 467              | NR               |
| 365       | 765              | NR               | 495       | 377              | NR               | 625       | 6667             | NR               | 755       | 63               | NR               | 885       | 232              | NR               |
| 370       | 529              | NR               | 500       | 342              | NR               | 630       | 3617             | NR               | 760       | 170              | NR               | 890       | 396              | NR               |
| 375       | 859              | NR               | 505       | 327              | NR               | 635       | 2624             | NR               | 765       | 772              | NR               | 895       | 250              | NR               |
| 380       | 838              | NR               | 510       | 403              | NR               | 640       | 2321             | NR               | 770       | 684              | NR               | 900       | 194              | NR               |
| 385       | 931              | NR               | 515       | 396              | NR               | 645       | 2019             | NR               | 775       | 1108             | NR               | 905       | 303              | NR               |
| 390       | 814              | NR               | 520       | 478              | NR               | 650       | 1694             | NR               | 780       | 562              | NR               | 910       | 335              | NR               |
| 395       | 695              | NR               | 525       | 468              | NR               | 655       | 1437             | NR               | 785       | 582              | NR               | 915       | 255              | NR               |
| 400       | 338              | NR               | 530       | 527              | NR               | 660       | 1541             | NR               | 790       | 675              | NR               | 920       | 182              | NR               |
| 405       | 555              | NR               | 535       | 574              | NR               | 665       | 1318             | NR               | 795       | 578              | NR               | 925       | 228              | NR               |
| 410       | 491              | NR               | 540       | 823              | NR               | 670       | 1092             | NR               | 800       | 147              | NR               | 930       | 239              | NR               |
| 415       | 563              | NR               | 545       | 1340             | NR               | 675       | 936              | NR               | 805       | 559              | NR               | 935       | 148              | NR               |
| 420       | 360              | NR               | 550       | 2313             | NR               | 680       | 727              | NR               | 810       | 727              | NR               | 940       | 308              | NR               |
| 425       | 598              | NR               | 555       | 4294             | NR               | 685       | 833              | NR               | 815       | 444              | NR               | 945       | 313              | NR               |
| 430       | 464              | NR               | 560       | 8017             | NR               | 690       | 1005             | NR               | 820       | 479              | NR               | 950       | 345              | NR               |
| 435       | 440              | NR               | 565       | 14123            | NR               | 695       | 1012             | NR               | 825       | 224              | NR               | 955       | 229              | NR               |
| 440       | 368              | NR               | 570       | 25560            | NR               | 700       | 962              | NR               | 830       | 333              | NR               | 960       | 363              | NR               |
| 445       | 428              | NR               | 575       | 45938            | NR               | 705       | 994              | NR               | 835       | 379              | NR               | 965       | 412              | NR               |
| 450       | 279              | NR               | 580       | 84007            | NR               | 710       | 1014             | NR               | 840       | 285              | NR               | 970       | 272              | NR               |
| 455       | 407              | NR               | 585       | 155807           | NR               | 715       | 1458             | NR               | 845       | 333              | NR               | 975       | 345              | NR               |
| 460       | 365              | NR               | 590       | 275552           | NR               | 720       | 1076             | NR               | 850       | 385              | NR               | 980       | 449              | NR               |
| 465       | 328              | NR               | 595       | 421402           | NR               | 725       | 1113             | NR               | 855       | 558              | NR               | 985       | 501              | NR               |
| 470       | 249              | NR               | 600       | 396839           | NR               | 730       | 1144             | NR               | 860       | 663              | NR               | 990       | 343              | NR               |
| 475       | 277              | NR               | 605       | 193475           | NR               | 735       | 799              | NR               | 865       | 591              | NR               | 995       | 152              | NR               |
| 480       | 229              | NR               | 610       | 75719            | NR               | 740       | 692              | NR               | 870       | 2634             | NR               | 1000      | 132              | NR               |
| 485       | 185              | NR               | 615       | 30466            | NR               | 745       | 414              | NR               | 875       | 2146             | NR               |           |                  |                  |

REPORT NUMBER: SP1-2005-791-1-R5

Scotopic Flux vs. Wavelength



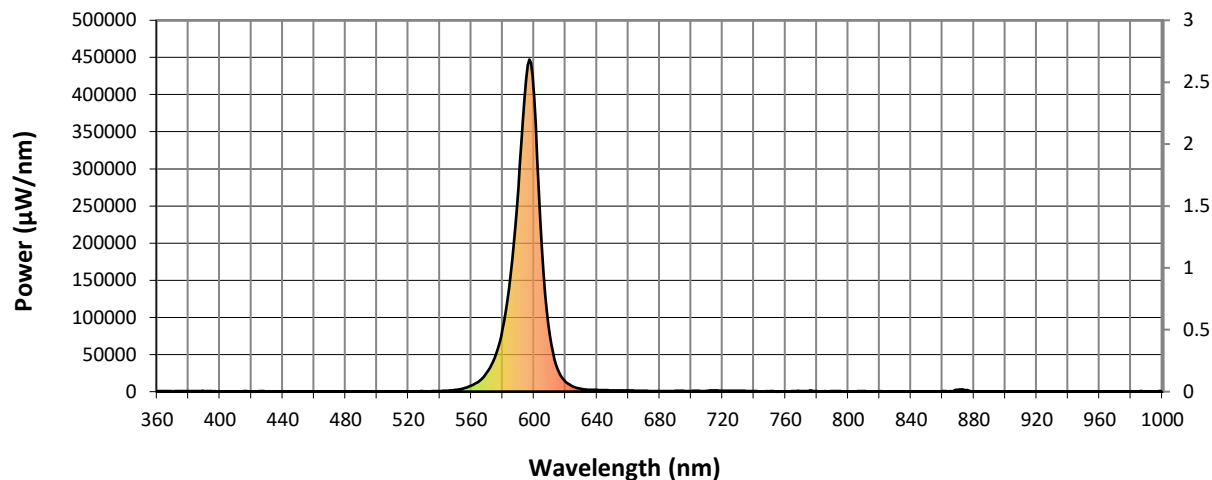
Scotopic Lumens: 939.9

S/P: 0.23

| 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       | 818              | NR               | 490       | 224              | NR               | 620       | 13485            | NR               | 750       | 666              | NR               | 880       | 467              | NR               |
| 365       | 765              | NR               | 495       | 377              | NR               | 625       | 6667             | NR               | 755       | 63               | NR               | 885       | 232              | NR               |
| 370       | 529              | NR               | 500       | 342              | NR               | 630       | 3617             | NR               | 760       | 170              | NR               | 890       | 396              | NR               |
| 375       | 859              | NR               | 505       | 327              | NR               | 635       | 2624             | NR               | 765       | 772              | NR               | 895       | 250              | NR               |
| 380       | 838              | NR               | 510       | 403              | NR               | 640       | 2321             | NR               | 770       | 684              | NR               | 900       | 194              | NR               |
| 385       | 931              | NR               | 515       | 396              | NR               | 645       | 2019             | NR               | 775       | 1108             | NR               | 905       | 303              | NR               |
| 390       | 814              | NR               | 520       | 478              | NR               | 650       | 1694             | NR               | 780       | 562              | NR               | 910       | 335              | NR               |
| 395       | 695              | NR               | 525       | 468              | NR               | 655       | 1437             | NR               | 785       | 582              | NR               | 915       | 255              | NR               |
| 400       | 338              | NR               | 530       | 527              | NR               | 660       | 1541             | NR               | 790       | 675              | NR               | 920       | 182              | NR               |
| 405       | 555              | NR               | 535       | 574              | NR               | 665       | 1318             | NR               | 795       | 578              | NR               | 925       | 228              | NR               |
| 410       | 491              | NR               | 540       | 823              | NR               | 670       | 1092             | NR               | 800       | 147              | NR               | 930       | 239              | NR               |
| 415       | 563              | NR               | 545       | 1340             | NR               | 675       | 936              | NR               | 805       | 559              | NR               | 935       | 148              | NR               |
| 420       | 360              | NR               | 550       | 2313             | NR               | 680       | 727              | NR               | 810       | 727              | NR               | 940       | 308              | NR               |
| 425       | 598              | NR               | 555       | 4294             | NR               | 685       | 833              | NR               | 815       | 444              | NR               | 945       | 313              | NR               |
| 430       | 464              | NR               | 560       | 8017             | NR               | 690       | 1005             | NR               | 820       | 479              | NR               | 950       | 345              | NR               |
| 435       | 440              | NR               | 565       | 14123            | NR               | 695       | 1012             | NR               | 825       | 224              | NR               | 955       | 229              | NR               |
| 440       | 368              | NR               | 570       | 25560            | NR               | 700       | 962              | NR               | 830       | 333              | NR               | 960       | 363              | NR               |
| 445       | 428              | NR               | 575       | 45938            | NR               | 705       | 994              | NR               | 835       | 379              | NR               | 965       | 412              | NR               |
| 450       | 279              | NR               | 580       | 84007            | NR               | 710       | 1014             | NR               | 840       | 285              | NR               | 970       | 272              | NR               |
| 455       | 407              | NR               | 585       | 155807           | NR               | 715       | 1458             | NR               | 845       | 333              | NR               | 975       | 345              | NR               |
| 460       | 365              | NR               | 590       | 275552           | NR               | 720       | 1076             | NR               | 850       | 385              | NR               | 980       | 449              | NR               |
| 465       | 328              | NR               | 595       | 421402           | NR               | 725       | 1113             | NR               | 855       | 558              | NR               | 985       | 501              | NR               |
| 470       | 249              | NR               | 600       | 396839           | NR               | 730       | 1144             | NR               | 860       | 663              | NR               | 990       | 343              | NR               |
| 475       | 277              | NR               | 605       | 193475           | NR               | 735       | 799              | NR               | 865       | 591              | NR               | 995       | 152              | NR               |
| 480       | 229              | NR               | 610       | 75719            | NR               | 740       | 692              | NR               | 870       | 2634             | NR               | 1000      | 132              | NR               |
| 485       | 185              | NR               | 615       | 30466            | NR               | 745       | 414              | NR               | 875       | 2146             | NR               |           |                  |                  |

REPORT NUMBER: SP1-2005-791-1-R5

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 115.1**

**M/P: 0.03**

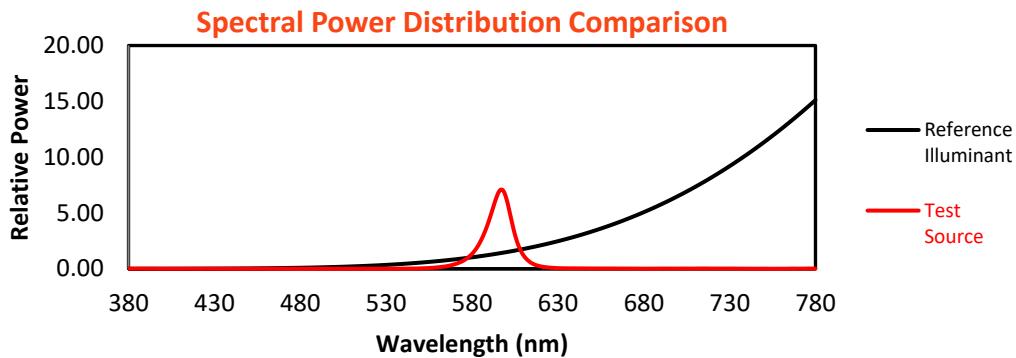
| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 818              | NR               | 490       | 224              | NR               | 620       | 13485            | NR               | 750       | 666              | NR               | 880       | 467              | NR               |
| 365       | 765              | NR               | 495       | 377              | NR               | 625       | 6667             | NR               | 755       | 63               | NR               | 885       | 232              | NR               |
| 370       | 529              | NR               | 500       | 342              | NR               | 630       | 3617             | NR               | 760       | 170              | NR               | 890       | 396              | NR               |
| 375       | 859              | NR               | 505       | 327              | NR               | 635       | 2624             | NR               | 765       | 772              | NR               | 895       | 250              | NR               |
| 380       | 838              | NR               | 510       | 403              | NR               | 640       | 2321             | NR               | 770       | 684              | NR               | 900       | 194              | NR               |
| 385       | 931              | NR               | 515       | 396              | NR               | 645       | 2019             | NR               | 775       | 1108             | NR               | 905       | 303              | NR               |
| 390       | 814              | NR               | 520       | 478              | NR               | 650       | 1694             | NR               | 780       | 562              | NR               | 910       | 335              | NR               |
| 395       | 695              | NR               | 525       | 468              | NR               | 655       | 1437             | NR               | 785       | 582              | NR               | 915       | 255              | NR               |
| 400       | 338              | NR               | 530       | 527              | NR               | 660       | 1541             | NR               | 790       | 675              | NR               | 920       | 182              | NR               |
| 405       | 555              | NR               | 535       | 574              | NR               | 665       | 1318             | NR               | 795       | 578              | NR               | 925       | 228              | NR               |
| 410       | 491              | NR               | 540       | 823              | NR               | 670       | 1092             | NR               | 800       | 147              | NR               | 930       | 239              | NR               |
| 415       | 563              | NR               | 545       | 1340             | NR               | 675       | 936              | NR               | 805       | 559              | NR               | 935       | 148              | NR               |
| 420       | 360              | NR               | 550       | 2313             | NR               | 680       | 727              | NR               | 810       | 727              | NR               | 940       | 308              | NR               |
| 425       | 598              | NR               | 555       | 4294             | NR               | 685       | 833              | NR               | 815       | 444              | NR               | 945       | 313              | NR               |
| 430       | 464              | NR               | 560       | 8017             | NR               | 690       | 1005             | NR               | 820       | 479              | NR               | 950       | 345              | NR               |
| 435       | 440              | NR               | 565       | 14123            | NR               | 695       | 1012             | NR               | 825       | 224              | NR               | 955       | 229              | NR               |
| 440       | 368              | NR               | 570       | 25560            | NR               | 700       | 962              | NR               | 830       | 333              | NR               | 960       | 363              | NR               |
| 445       | 428              | NR               | 575       | 45938            | NR               | 705       | 994              | NR               | 835       | 379              | NR               | 965       | 412              | NR               |
| 450       | 279              | NR               | 580       | 84007            | NR               | 710       | 1014             | NR               | 840       | 285              | NR               | 970       | 272              | NR               |
| 455       | 407              | NR               | 585       | 155807           | NR               | 715       | 1458             | NR               | 845       | 333              | NR               | 975       | 345              | NR               |
| 460       | 365              | NR               | 590       | 275552           | NR               | 720       | 1076             | NR               | 850       | 385              | NR               | 980       | 449              | NR               |
| 465       | 328              | NR               | 595       | 421402           | NR               | 725       | 1113             | NR               | 855       | 558              | NR               | 985       | 501              | NR               |
| 470       | 249              | NR               | 600       | 396839           | NR               | 730       | 1144             | NR               | 860       | 663              | NR               | 990       | 343              | NR               |
| 475       | 277              | NR               | 605       | 193475           | NR               | 735       | 799              | NR               | 865       | 591              | NR               | 995       | 152              | NR               |
| 480       | 229              | NR               | 610       | 75719            | NR               | 740       | 692              | NR               | 870       | 2634             | NR               | 1000      | 132              | NR               |
| 485       | 185              | NR               | 615       | 30466            | NR               | 745       | 414              | NR               | 875       | 2146             | NR               |           |                  |                  |

REPORT NUMBER: SP1-2005-791-1-R5

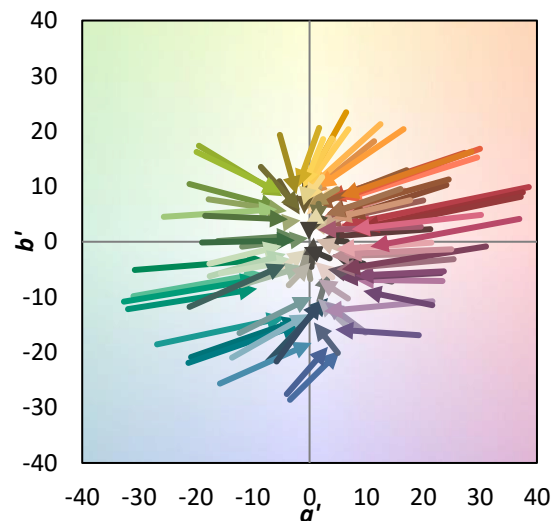
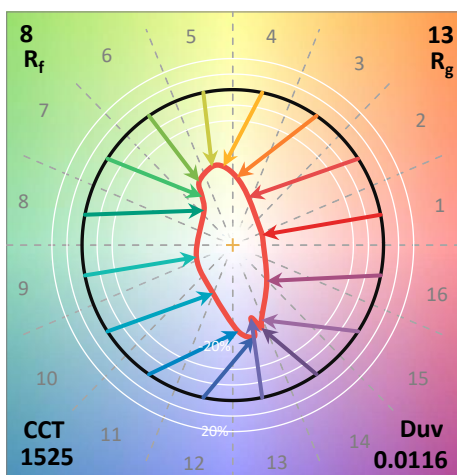
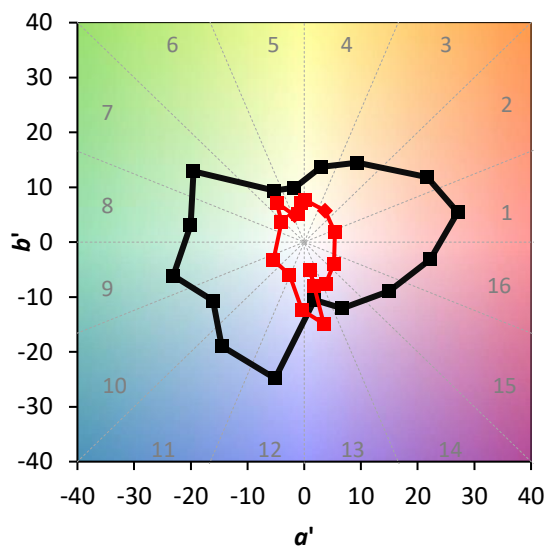
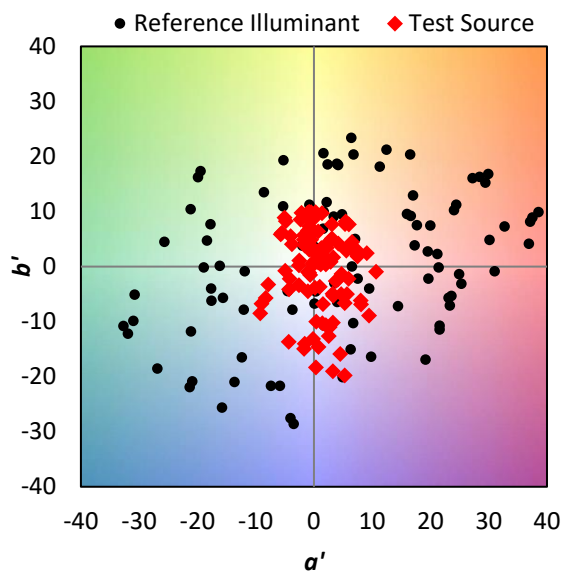
**TM-30-18**

**Summary**

$R_f = 8.4$   
 $R_g = 12.9$   
 $CIE R_a = -20.7$   
 $R_g = -382.8$



**Color Vector Graphics**

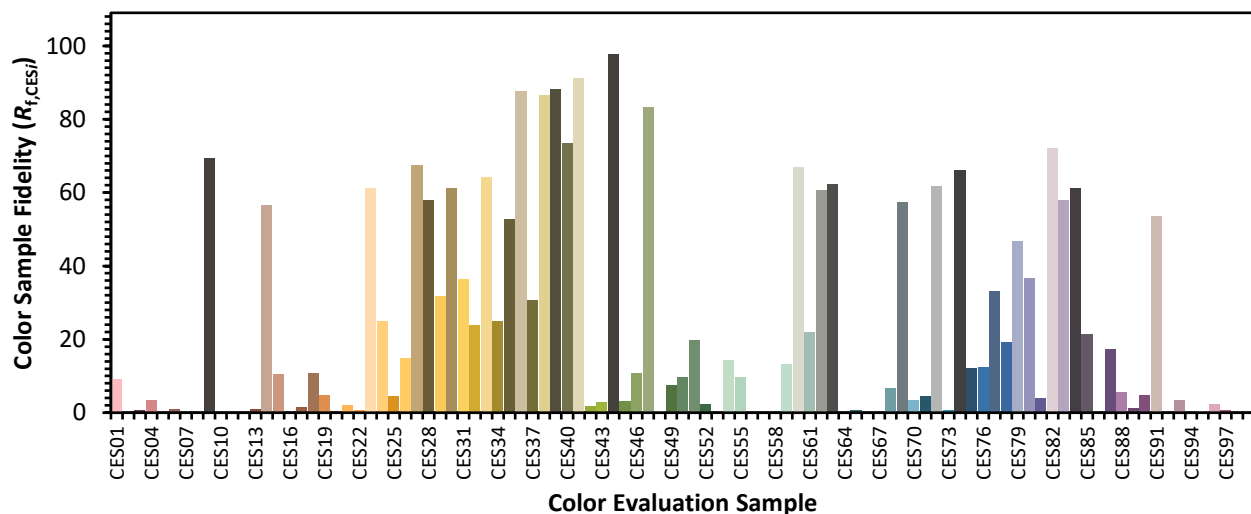


REPORT NUMBER: SP1-2005-791-1-R5

**TM-30-18**

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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 90 | CES26 = 15 | CES51 = 20 | CES76 = 12 |
| CES02 = 69 | CES27 = 67 | CES52 = 2  | CES77 = 33 |
| CES03 = 31 | CES28 = 58 | CES53 = 0  | CES78 = 19 |
| CES04 = 77 | CES29 = 32 | CES54 = 14 | CES79 = 47 |
| CES05 = 52 | CES30 = 61 | CES55 = 10 | CES80 = 37 |
| CES06 = 56 | CES31 = 36 | CES56 = 0  | CES81 = 4  |
| CES07 = 41 | CES32 = 24 | CES57 = 0  | CES82 = 72 |
| CES08 = 38 | CES33 = 64 | CES58 = 0  | CES83 = 58 |
| CES09 = 29 | CES34 = 25 | CES59 = 13 | CES84 = 61 |
| CES10 = 87 | CES35 = 53 | CES60 = 67 | CES85 = 21 |
| CES11 = 70 | CES36 = 88 | CES61 = 22 | CES86 = 0  |
| CES12 = 75 | CES37 = 31 | CES62 = 61 | CES87 = 17 |
| CES13 = 47 | CES38 = 86 | CES63 = 62 | CES88 = 5  |
| CES14 = 76 | CES39 = 88 | CES64 = 0  | CES89 = 1  |
| CES15 = 74 | CES40 = 74 | CES65 = 1  | CES90 = 5  |
| CES16 = 49 | CES41 = 91 | CES66 = 0  | CES91 = 54 |
| CES17 = 55 | CES42 = 2  | CES67 = 0  | CES92 = 0  |
| CES18 = 59 | CES43 = 3  | CES68 = 7  | CES93 = 3  |
| CES19 = 80 | CES44 = 98 | CES69 = 57 | CES94 = 0  |
| CES20 = 71 | CES45 = 3  | CES70 = 3  | CES95 = 0  |
| CES21 = 94 | CES46 = 11 | CES71 = 5  | CES96 = 2  |
| CES22 = 86 | CES47 = 83 | CES72 = 62 | CES97 = 1  |
| CES23 = 93 | CES48 = 0  | CES73 = 1  | CES98 = 0  |
| CES24 = 95 | CES49 = 7  | CES74 = 66 | CES99 = 0  |
| CES25 = 78 | CES50 = 10 | CES75 = 12 |            |

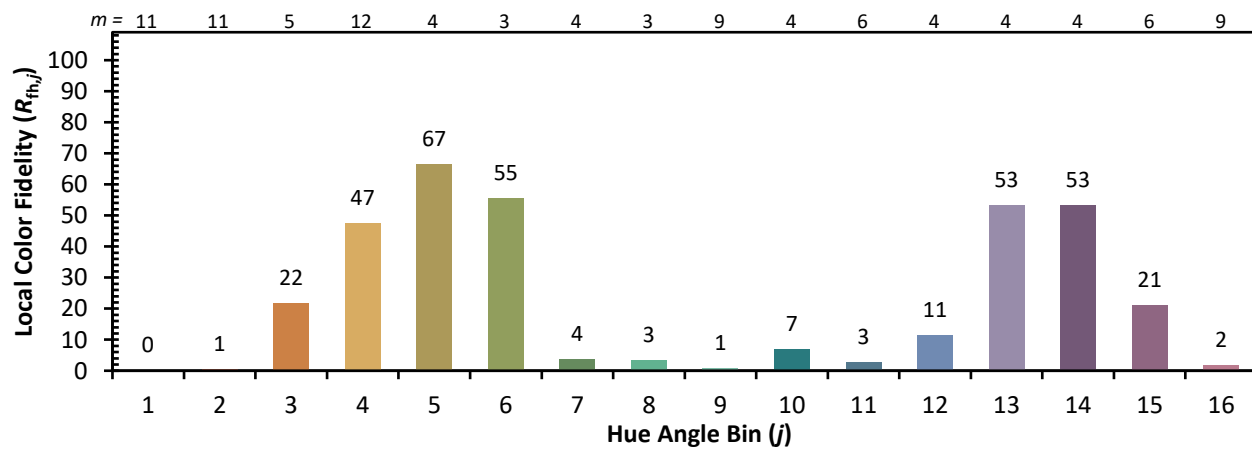
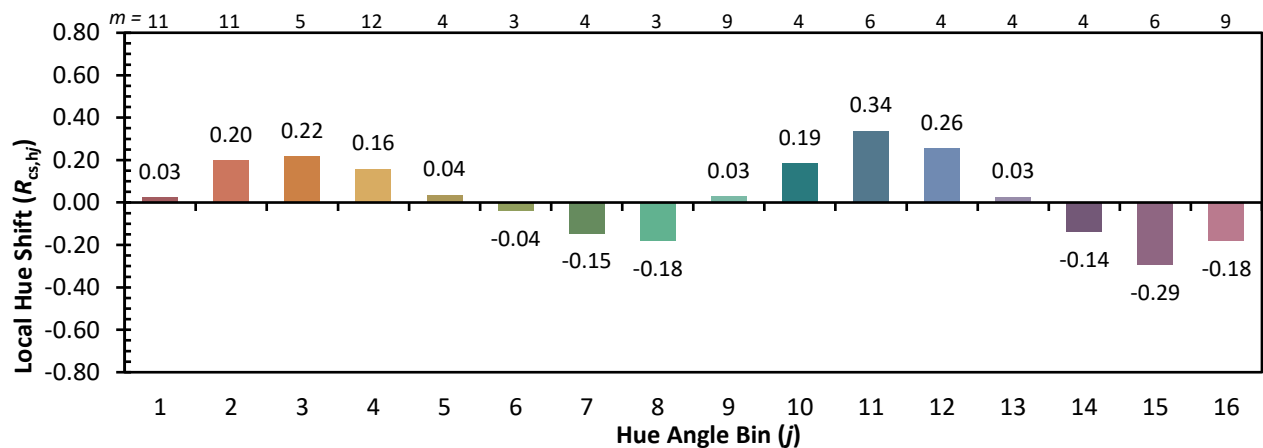
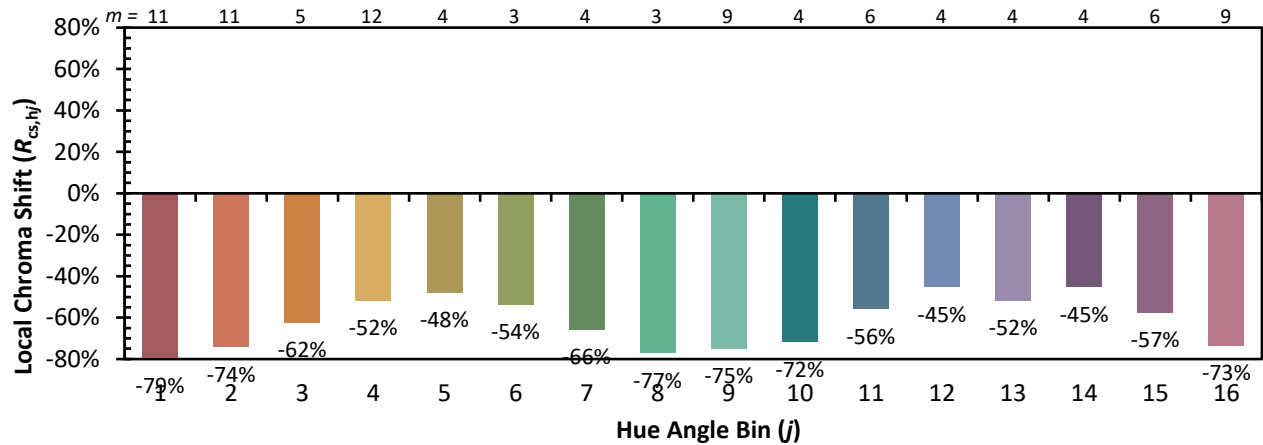




REPORT NUMBER: SP1-2005-791-1-R5

**TM-30-18**

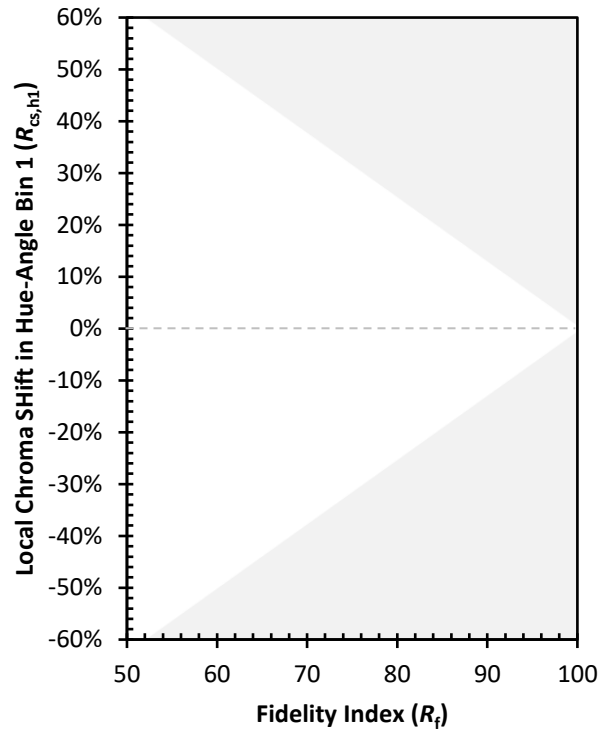
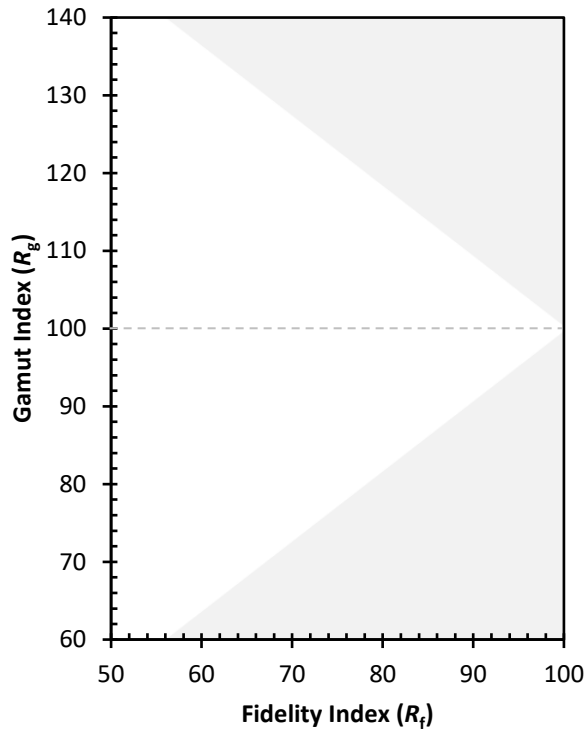
Color Rendition by Hue-Angle Bin



REPORT NUMBER: SP1-2005-791-1-R5

**TM-30-18**

**Measure Comparisons**



(END OF REPORT)