

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: P317074

Luminaire Tested: **GLEON-SA0A-730-U-RW**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P317074  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-7)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA0A-730-U-RW  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(10) 70 CRI, 3000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND RECTANGULAR  
WIDE OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 42940 lumens  
Efficiency: N/A  
Efficacy: 132.9 lumens/watt  
Luminous Opening: Rectangular (W 2.5' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B5 - U0 - G5

Input Watts (W): 323  
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: 24 FT

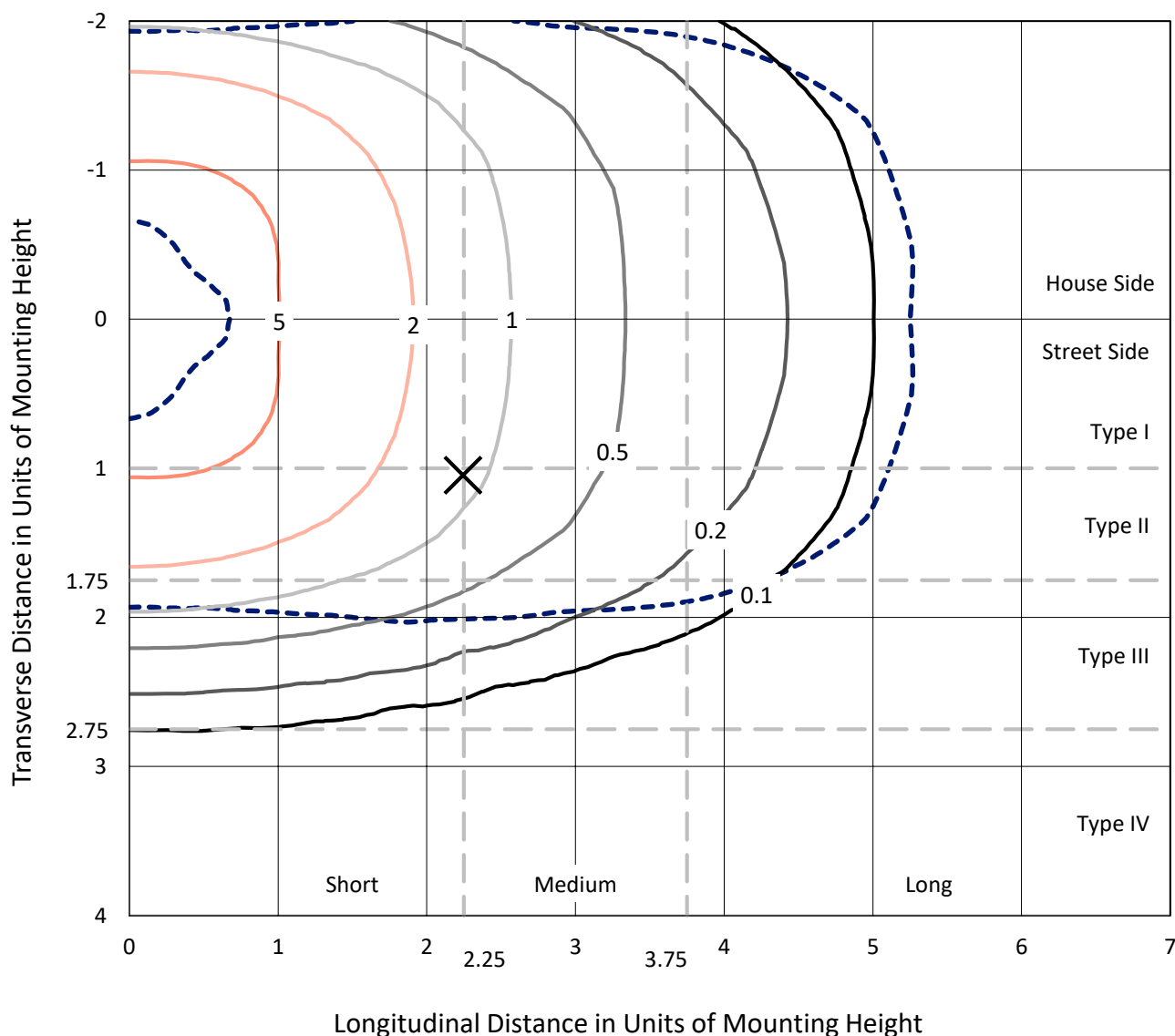


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CATALOG NUMBER: GLEON-SA0A-730-U-RW

## Iso-Footcandle Lines of Horizontal Illumination

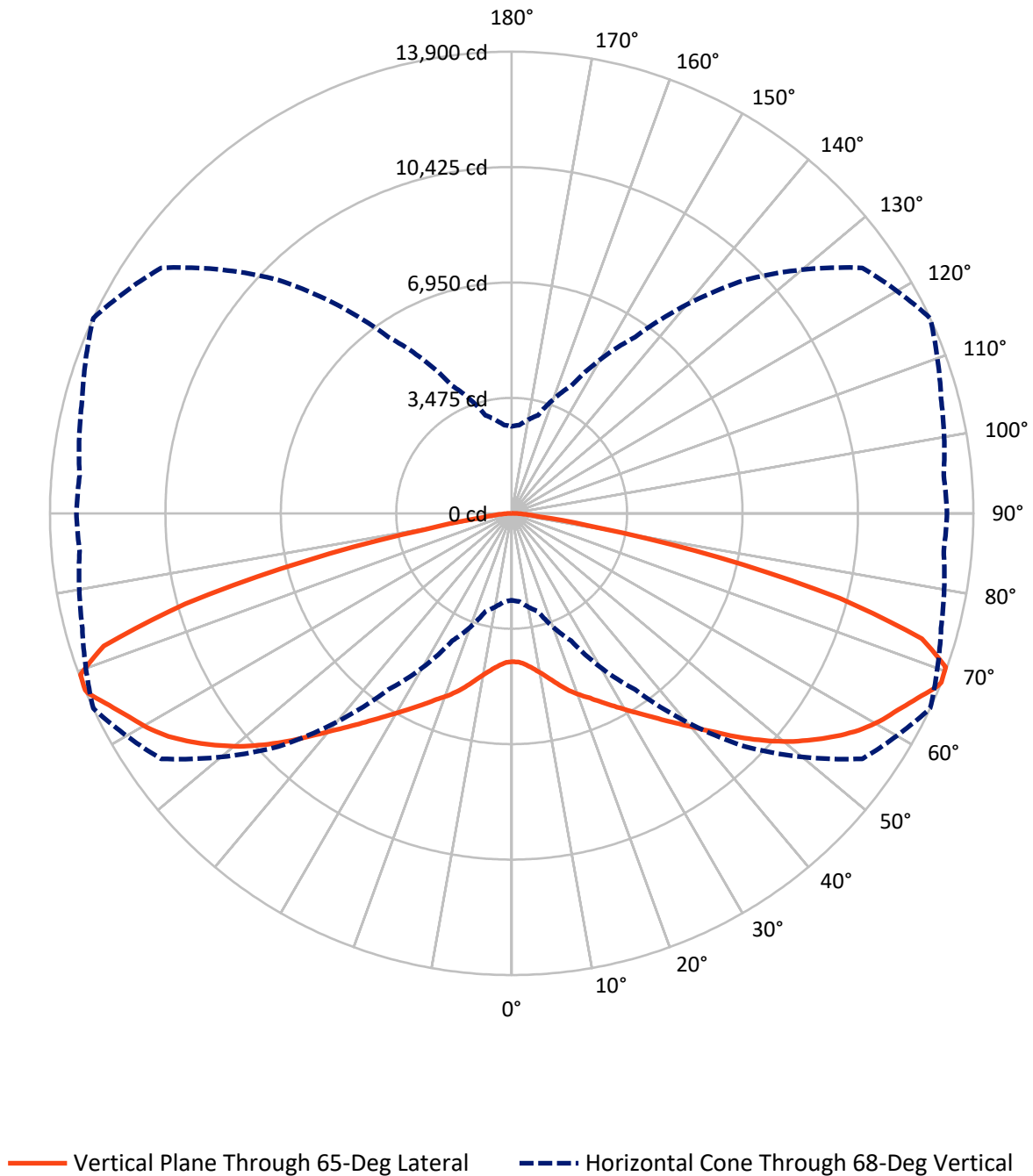
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8.1 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



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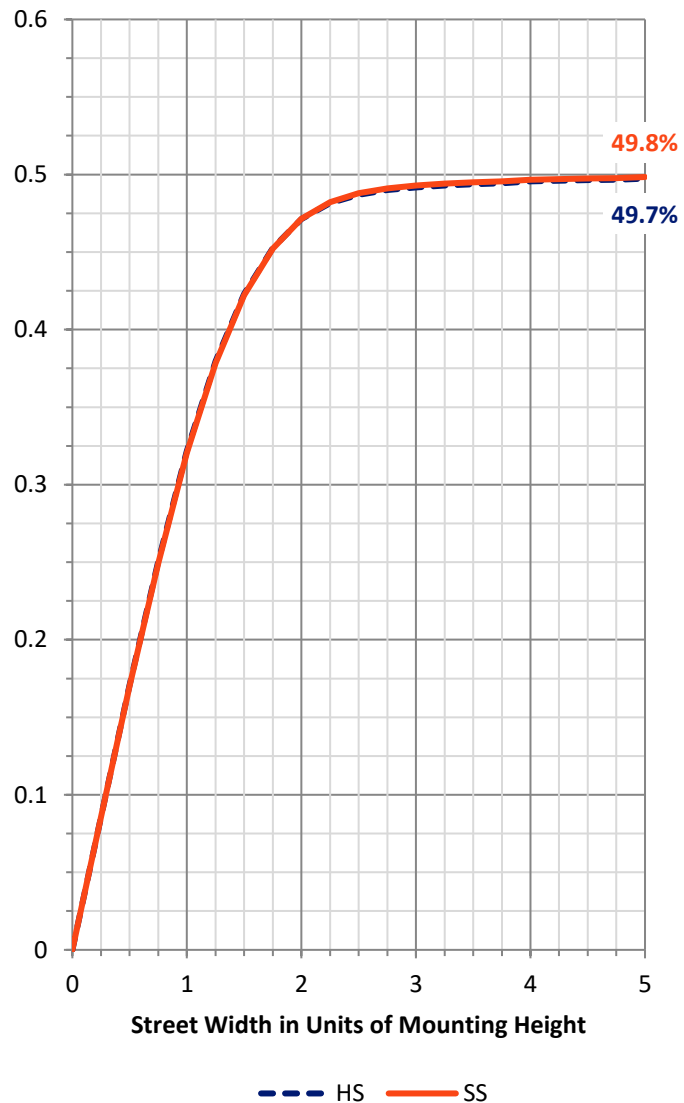
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 21470.0  | 0.0    | 21470.0 |
|                    | % Fixture | 50.0     | 0.0    | 50.0    |
| <b>Street Side</b> | Lumens    | 21470.0  | 0.0    | 21470.0 |
|                    | % Fixture | 50.0     | 0.0    | 50.0    |
| <b>Total</b>       | Lumens    | 42940.0  | 0.0    | 42940.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 437.1   | 1.0       |
| 10°-20°   | 1463.7  | 3.4       |
| 20°-30°   | 2853.8  | 6.6       |
| 30°-40°   | 4794.2  | 11.2      |
| 40°-50°   | 7554.0  | 17.6      |
| 50°-60°   | 10102.2 | 23.5      |
| 60°-70°   | 9820.6  | 22.9      |
| 70°-80°   | 5368.4  | 12.5      |
| 80°-90°   | 546.0   | 1.3       |
| 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°    | 42940.0 | 100.0     |
| 0°-180°   | 42940.0 | 100.0     |

**Coefficient of Utilization**



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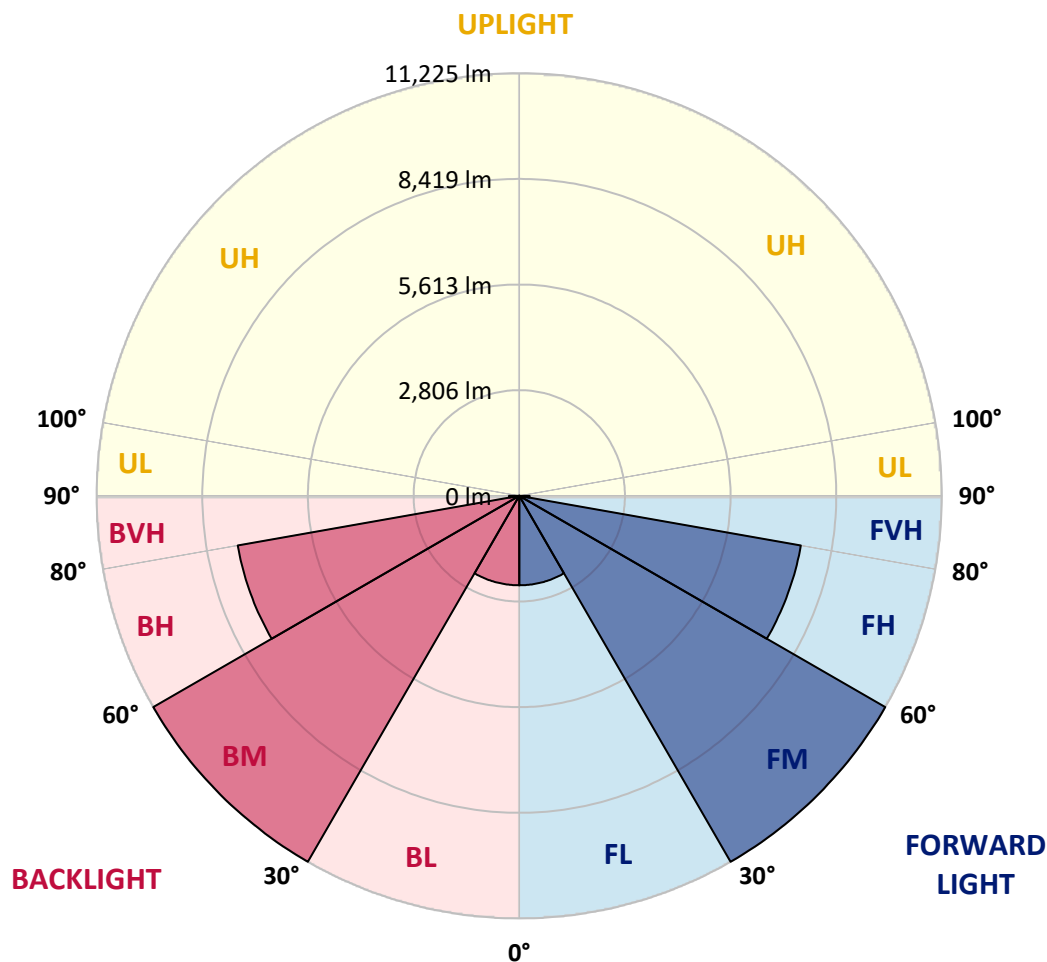
CATALOG NUMBER: GLEON-SA0A-730-U-RW

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 2377.3  | 5.5       |                         |      |          |
| FM   | (30°-60°)   | 11225.2 | 26.1      |                         |      |          |
| FH   | (60°-80°)   | 7594.5  | 17.7      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 273.0   | 0.6       |                         |      | G3/500   |
| BL   | (0°-30°)    | 2377.3  | 5.5       | B3/2500                 |      |          |
| BM   | (30°-60°)   | 11225.2 | 26.1      | B5                      |      |          |
| BH   | (60°-80°)   | 7594.5  | 17.7      | B5                      |      | G5       |
| BVH  | (80°-90°)   | 273.0   | 0.6       |                         |      | G3/500   |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B5-U0-G5**

Type III Short





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CATALOG NUMBER: GLEON-SA0A-730-U-RW

**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 75°     | 85°     | 90°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 4464.7  | 4464.7  | 4464.7  | 4464.7  | 4464.7  | 4464.7  | 4464.7  | 4464.7  | 4464.7  | 4464.7  | 4464.7  |
| 2.5°  | 4433.1  | 4434.5  | 4441.7  | 4450.4  | 4457.6  | 4476.3  | 4480.6  | 4487.8  | 4490.7  | 4497.9  | 4497.9  |
| 5°    | 4394.2  | 4397.1  | 4414.4  | 4437.4  | 4463.3  | 4509.4  | 4542.5  | 4579.9  | 4598.6  | 4618.8  | 4617.4  |
| 7.5°  | 4389.9  | 4397.1  | 4421.6  | 4459.0  | 4502.2  | 4578.5  | 4647.6  | 4722.5  | 4772.9  | 4818.9  | 4816.1  |
| 10°   | 4434.5  | 4446.0  | 4480.6  | 4536.7  | 4601.5  | 4696.6  | 4798.8  | 4899.6  | 4987.4  | 5057.9  | 5060.8  |
| 12.5° | 4502.2  | 4516.6  | 4571.3  | 4656.2  | 4754.1  | 4876.5  | 4997.5  | 5111.2  | 5232.2  | 5337.3  | 5345.9  |
| 15°   | 4591.5  | 4610.2  | 4692.2  | 4818.9  | 4968.7  | 5114.1  | 5243.7  | 5360.3  | 5499.9  | 5645.4  | 5659.8  |
| 17.5° | 4723.9  | 4749.8  | 4857.8  | 5029.1  | 5226.4  | 5386.2  | 5521.5  | 5609.4  | 5726.0  | 5875.7  | 5903.1  |
| 20°   | 4925.5  | 4958.6  | 5095.4  | 5299.8  | 5540.3  | 5707.3  | 5810.9  | 5829.7  | 5887.2  | 6021.1  | 6052.8  |
| 22.5° | 5187.5  | 5216.3  | 5368.9  | 5612.3  | 5881.5  | 6062.9  | 6117.6  | 6042.7  | 6037.0  | 6145.0  | 6175.2  |
| 25°   | 5479.8  | 5505.7  | 5682.8  | 5956.4  | 6245.8  | 6445.9  | 6444.4  | 6299.0  | 6198.2  | 6281.7  | 6313.4  |
| 27.5° | 5808.1  | 5848.4  | 6018.3  | 6306.2  | 6615.8  | 6813.0  | 6801.5  | 6576.9  | 6385.4  | 6407.0  | 6434.4  |
| 30°   | 6185.3  | 6229.9  | 6395.5  | 6687.8  | 6997.3  | 7190.2  | 7175.9  | 6879.3  | 6591.3  | 6533.7  | 6553.9  |
| 32.5° | 6653.2  | 6706.5  | 6863.4  | 7151.4  | 7424.9  | 7599.1  | 7557.4  | 7207.5  | 6838.9  | 6713.7  | 6732.4  |
| 35°   | 7216.2  | 7247.8  | 7413.4  | 7697.0  | 7918.8  | 8038.3  | 7950.5  | 7587.6  | 7152.8  | 7001.6  | 7001.6  |
| 37.5° | 7786.3  | 7810.8  | 7996.5  | 8271.5  | 8486.0  | 8549.4  | 8378.1  | 8003.7  | 7563.2  | 7348.6  | 7352.9  |
| 40°   | 8333.4  | 8399.7  | 8608.4  | 8890.6  | 9102.3  | 9119.5  | 8892.1  | 8478.8  | 8019.6  | 7797.8  | 7823.8  |
| 42.5° | 8905.0  | 8969.8  | 9218.9  | 9538.5  | 9725.7  | 9754.5  | 9488.1  | 9011.6  | 8535.0  | 8355.0  | 8383.8  |
| 45°   | 9414.7  | 9466.5  | 9754.5  | 10126.0 | 10359.2 | 10434.1 | 10118.8 | 9622.0  | 9092.2  | 8916.5  | 8923.7  |
| 47.5° | 9770.3  | 9838.0  | 10154.7 | 10592.4 | 10932.2 | 11047.4 | 10737.9 | 10216.7 | 9640.7  | 9427.7  | 9446.4  |
| 50°   | 10092.8 | 10128.8 | 10449.9 | 10927.9 | 11359.8 | 11597.4 | 11332.5 | 10804.1 | 10195.1 | 9969.0  | 9989.2  |
| 52.5° | 10272.8 | 10318.9 | 10629.9 | 11128.0 | 11639.2 | 12022.1 | 11860.9 | 11332.5 | 10730.7 | 10510.4 | 10534.9 |
| 55°   | 10147.6 | 10182.1 | 10555.0 | 11172.7 | 11811.9 | 12284.2 | 12308.7 | 11849.4 | 11256.2 | 11063.2 | 11132.4 |
| 57.5° | 9577.4  | 9620.6  | 10075.6 | 10884.7 | 11833.5 | 12461.3 | 12645.6 | 12328.8 | 11747.1 | 11590.2 | 11630.5 |
| 60°   | 8686.2  | 8713.5  | 9198.7  | 10108.7 | 11413.1 | 12534.7 | 12860.1 | 12720.4 | 12228.0 | 12071.1 | 12125.8 |
| 62.5° | 7098.1  | 7138.4  | 7718.6  | 8938.1  | 10524.8 | 12317.3 | 13067.4 | 13044.4 | 12675.8 | 12531.8 | 12580.8 |
| 65°   | 4852.0  | 4922.6  | 5564.7  | 7106.7  | 9155.5  | 11652.1 | 13256.0 | 13421.6 | 13071.7 | 12890.3 | 12955.1 |
| 67.5° | 2929.9  | 2981.8  | 3446.8  | 4692.2  | 7006.0  | 10310.2 | 13061.7 | 13850.7 | 13351.1 | 13058.8 | 13112.1 |
| 68°   | 2619.0  | 2666.5  | 3055.2  | 4234.4  | 6480.4  | 9931.6  | 12884.6 | 13899.6 | 13381.3 | 13055.9 | 13103.4 |
| 70°   | 1582.3  | 1614.0  | 1874.6  | 2617.5  | 4320.8  | 7878.5  | 11676.6 | 13859.3 | 13574.2 | 13096.2 | 13123.6 |
| 72.5° | 1030.9  | 1041.0  | 1084.2  | 1343.3  | 2207.2  | 4405.7  | 8763.9  | 12914.8 | 13863.6 | 13330.9 | 13326.6 |
| 75°   | 856.7   | 850.9   | 855.2   | 885.5   | 1088.5  | 1932.2  | 5121.3  | 10202.3 | 13215.7 | 12960.9 | 12870.2 |
| 77.5° | 724.2   | 719.9   | 718.4   | 719.9   | 728.5   | 933.0   | 2223.0  | 6355.2  | 10113.0 | 11464.9 | 11545.6 |
| 80°   | 586.0   | 580.2   | 598.9   | 590.3   | 564.4   | 580.2   | 931.5   | 2643.4  | 4767.1  | 5128.5  | 4806.0  |
| 82.5° | 426.2   | 404.6   | 485.2   | 462.2   | 440.6   | 408.9   | 514.0   | 853.8   | 1137.4  | 780.4   | 548.6   |
| 85°   | 328.3   | 305.2   | 368.6   | 354.2   | 302.4   | 208.8   | 305.2   | 417.5   | 460.7   | 263.5   | 207.3   |
| 87.5° | 133.9   | 141.1   | 266.4   | 210.2   | 177.1   | 100.8   | 125.3   | 167.0   | 224.6   | 112.3   | 86.4    |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |

LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-2-R4

Test Date: 10/03/2019

Luminaire Tested: SA1C-730-U-5WQ

Data in this report applies to families of products SA1C-730-U-5WQ .



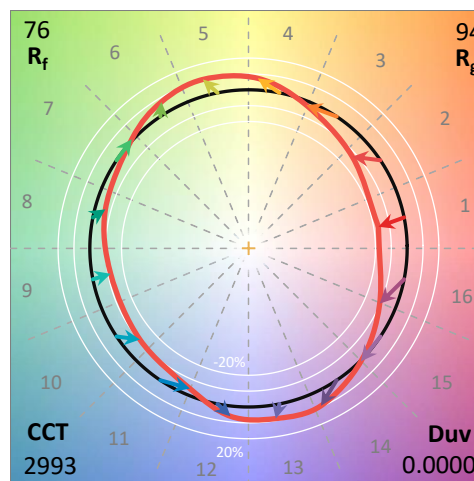
### Test Information

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-2-R4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/28/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: MCGRAW-EDISON  
 Catalog Number: **SA1C-730-U-5WQ**  
 Description: MCGRAW EDISON ROADWAY AND AREA LUMINAIRE

\*\*\*THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.\*\*\*TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

### Spectral Parameters

|                           |        |           |      |      |       |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K):                  | 2993   | CRI (Ra): | 71.8 |      |       |
| CIE u':                   | 0.2508 | R1:       | 67.5 | R9:  | -38.3 |
| CIE v':                   | 0.5215 | R2:       | 82.9 | R10: | 62.5  |
| Duv:                      | 0.0000 | R3:       | 94.7 | R11: | 63.7  |
| CIE x:                    | 0.4374 | R4:       | 67.7 | R12: | 57.8  |
| CIE y:                    | 0.4043 | R5:       | 67.9 | R13: | 70.4  |
| CIE z:                    | 0.1583 | R6:       | 77.6 | R14: | 97.3  |
| Peak Wavelength (nm):     | 593    | R7:       | 76.0 |      |       |
| Dominant Wavelength (nm): | 582    | R8:       | 40.5 |      |       |
| Purity:                   | 53     |           |      |      |       |
| Rf:                       | 75.7   |           |      |      |       |
| Rg:                       | 93.9   |           |      |      |       |



### Test Conditions

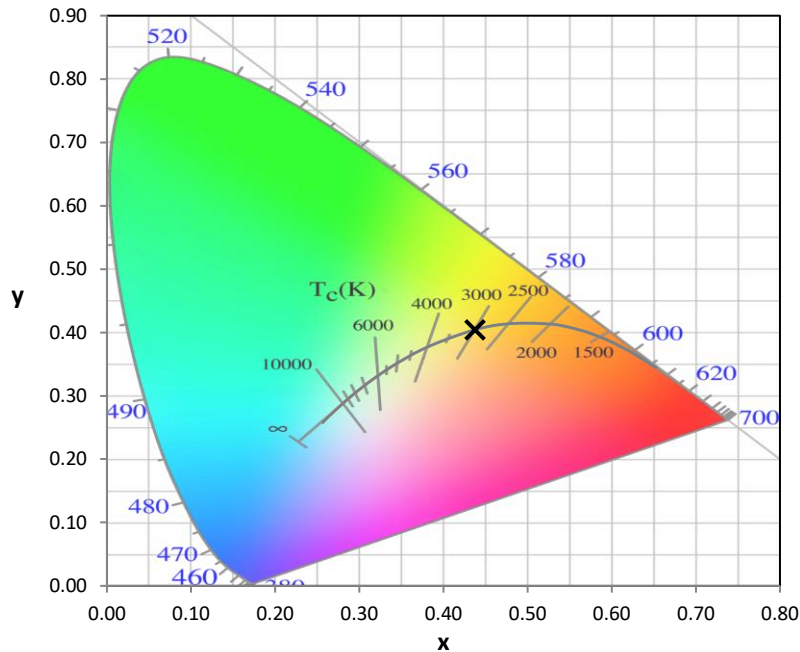
Stabilization Time: 53M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0./44%  
 Sphere Temperature (°C): 25.7

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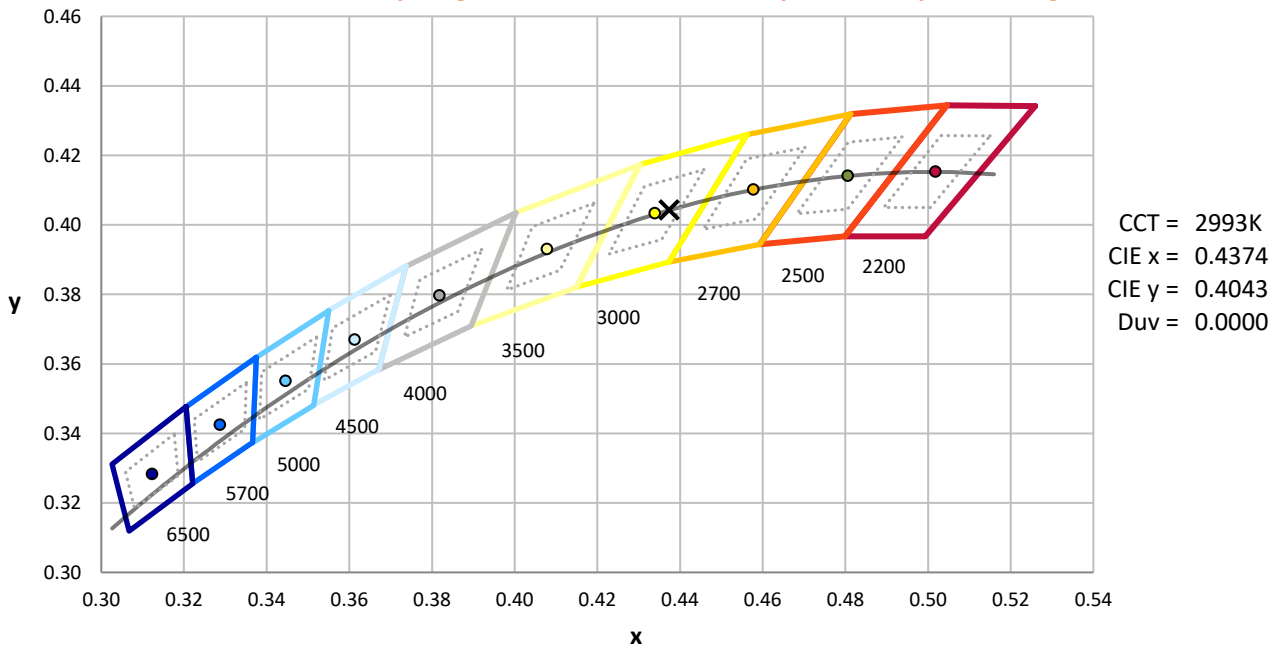
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/28/2019        | 12/28/2019           |
| Power Meter                    | IN0071                | 12/5/2018        | 12/5/2019            |
| AC Power Source                | IN0063                | 12/5/2018        | 12/5/2019            |
| DC Power Source                | IN0208                | 12/5/2018        | 12/5/2019            |
| Sphere Thermometer             | IN0085                | 12/5/2018        | 12/5/2019            |
| Room Thermometer               | IN0046                | 12/5/2018        | 12/5/2019            |

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CIE 1931 Chromaticity Diagram



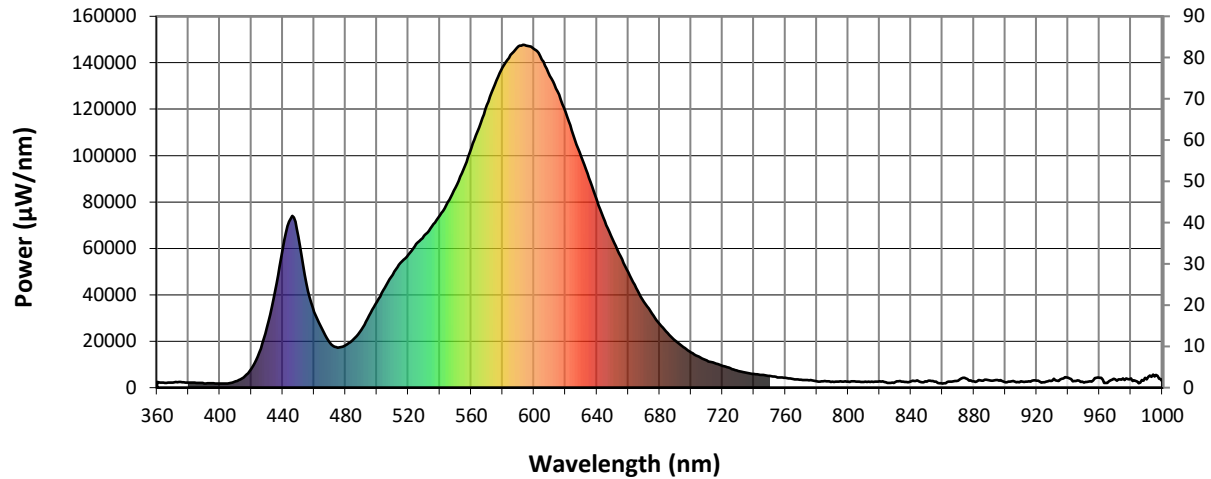
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**

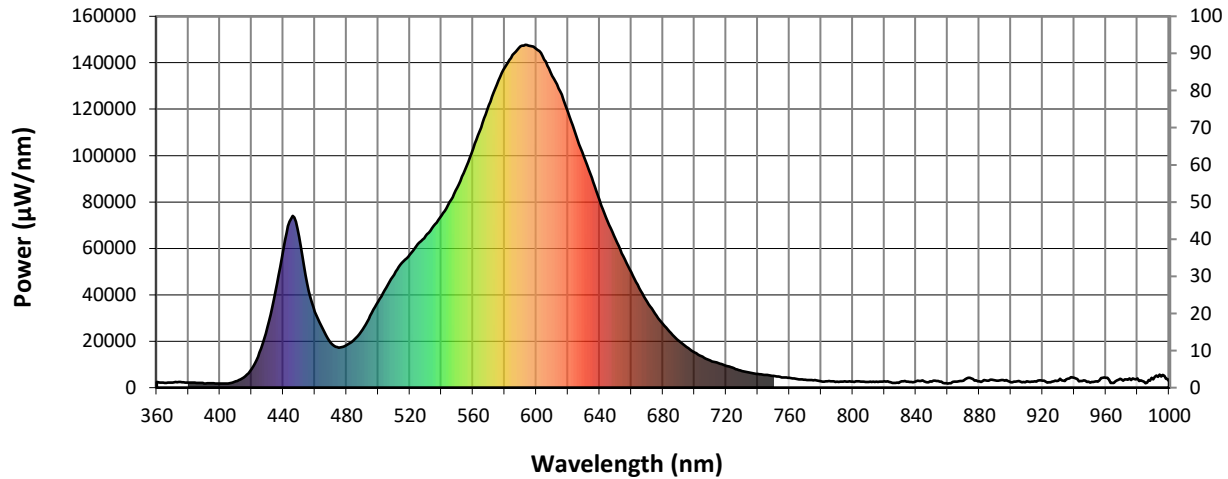


#####

| 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       | 2397             | NR               | 490       | 24908            | NR               | 620       | 118784           | NR               | 750       | 5037             | NR               | 880       | 2677             | NR               |
| 365       | 2084             | NR               | 495       | 30998            | NR               | 625       | 108951           | NR               | 755       | 4413             | NR               | 885       | 2940             | NR               |
| 370       | 2143             | NR               | 500       | 37103            | NR               | 630       | 99573            | NR               | 760       | 4189             | NR               | 890       | 3116             | NR               |
| 375       | 2413             | NR               | 505       | 42987            | NR               | 635       | 90444            | NR               | 765       | 3677             | NR               | 895       | 3345             | NR               |
| 380       | 2172             | NR               | 510       | 48702            | NR               | 640       | 80749            | NR               | 770       | 3366             | NR               | 900       | 2312             | NR               |
| 385       | 1997             | NR               | 515       | 53741            | NR               | 645       | 71664            | NR               | 775       | 3211             | NR               | 905       | 2829             | NR               |
| 390       | 1830             | NR               | 520       | 57283            | NR               | 650       | 63936            | NR               | 780       | 2682             | NR               | 910       | 2783             | NR               |
| 395       | 1861             | NR               | 525       | 61876            | NR               | 655       | 56611            | NR               | 785       | 2804             | NR               | 915       | 2662             | NR               |
| 400       | 1717             | NR               | 530       | 65398            | NR               | 660       | 49763            | NR               | 790       | 2581             | NR               | 920       | 3047             | NR               |
| 405       | 1761             | NR               | 535       | 69597            | NR               | 665       | 42891            | NR               | 795       | 2711             | NR               | 925       | 2256             | NR               |
| 410       | 2680             | NR               | 540       | 74214            | NR               | 670       | 36939            | NR               | 800       | 2609             | NR               | 930       | 2976             | NR               |
| 415       | 4374             | NR               | 545       | 79911            | NR               | 675       | 31946            | NR               | 805       | 2581             | NR               | 935       | 3503             | NR               |
| 420       | 8071             | NR               | 550       | 86153            | NR               | 680       | 27385            | NR               | 810       | 2404             | NR               | 940       | 4226             | NR               |
| 425       | 15169            | NR               | 555       | 93952            | NR               | 685       | 23504            | NR               | 815       | 2556             | NR               | 945       | 2930             | NR               |
| 430       | 26038            | NR               | 560       | 102904           | NR               | 690       | 20210            | NR               | 820       | 2742             | NR               | 950       | 2115             | NR               |
| 435       | 41316            | NR               | 565       | 112009           | NR               | 695       | 17459            | NR               | 825       | 2014             | NR               | 955       | 2634             | NR               |
| 440       | 59674            | NR               | 570       | 121662           | NR               | 700       | 15207            | NR               | 830       | 2488             | NR               | 960       | 4200             | NR               |
| 445       | 72751            | NR               | 575       | 130476           | NR               | 705       | 13322            | NR               | 835       | 2625             | NR               | 965       | 1982             | NR               |
| 450       | 65091            | NR               | 580       | 137926           | NR               | 710       | 11676            | NR               | 840       | 2754             | NR               | 970       | 3613             | NR               |
| 455       | 44894            | NR               | 585       | 143406           | NR               | 715       | 10626            | NR               | 845       | 2708             | NR               | 975       | 4034             | NR               |
| 460       | 32712            | NR               | 590       | 147039           | NR               | 720       | 9416             | NR               | 850       | 2608             | NR               | 980       | 3922             | NR               |
| 465       | 25296            | NR               | 595       | 147365           | NR               | 725       | 8333             | NR               | 855       | 2605             | NR               | 985       | 1909             | NR               |
| 470       | 19318            | NR               | 600       | 145800           | NR               | 730       | 7134             | NR               | 860       | 1765             | NR               | 990       | 3617             | NR               |
| 475       | 17265            | NR               | 605       | 141363           | NR               | 735       | 6437             | NR               | 865       | 2581             | NR               | 995       | 4767             | NR               |
| 480       | 18260            | NR               | 610       | 134199           | NR               | 740       | 5834             | NR               | 870       | 3016             | NR               | 1000      | 2528             | NR               |
| 485       | 20845            | NR               | 615       | 127683           | NR               | 745       | 5500             | NR               | 875       | 3952             | NR               |           |                  |                  |

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**Scotopic Flux vs. Wavelength**



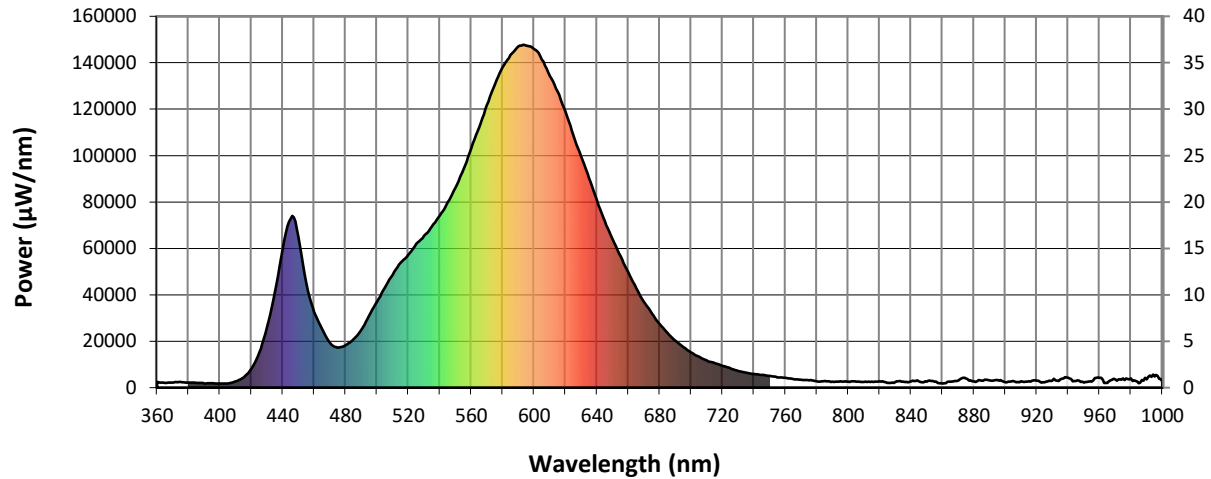
**Scotopic Lumens: 8494.8**

**S/P: 1.23**

| 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       | 2397             | NR               | 490       | 24908            | NR               | 620       | 118784           | NR               | 750       | 5037             | NR               | 880       | 2677             | NR               |
| 365       | 2084             | NR               | 495       | 30998            | NR               | 625       | 108951           | NR               | 755       | 4413             | NR               | 885       | 2940             | NR               |
| 370       | 2143             | NR               | 500       | 37103            | NR               | 630       | 99573            | NR               | 760       | 4189             | NR               | 890       | 3116             | NR               |
| 375       | 2413             | NR               | 505       | 42987            | NR               | 635       | 90444            | NR               | 765       | 3677             | NR               | 895       | 3345             | NR               |
| 380       | 2172             | NR               | 510       | 48702            | NR               | 640       | 80749            | NR               | 770       | 3366             | NR               | 900       | 2312             | NR               |
| 385       | 1997             | NR               | 515       | 53741            | NR               | 645       | 71664            | NR               | 775       | 3211             | NR               | 905       | 2829             | NR               |
| 390       | 1830             | NR               | 520       | 57283            | NR               | 650       | 63936            | NR               | 780       | 2682             | NR               | 910       | 2783             | NR               |
| 395       | 1861             | NR               | 525       | 61876            | NR               | 655       | 56611            | NR               | 785       | 2804             | NR               | 915       | 2662             | NR               |
| 400       | 1717             | NR               | 530       | 65398            | NR               | 660       | 49763            | NR               | 790       | 2581             | NR               | 920       | 3047             | NR               |
| 405       | 1761             | NR               | 535       | 69597            | NR               | 665       | 42891            | NR               | 795       | 2711             | NR               | 925       | 2256             | NR               |
| 410       | 2680             | NR               | 540       | 74214            | NR               | 670       | 36939            | NR               | 800       | 2609             | NR               | 930       | 2976             | NR               |
| 415       | 4374             | NR               | 545       | 79911            | NR               | 675       | 31946            | NR               | 805       | 2581             | NR               | 935       | 3503             | NR               |
| 420       | 8071             | NR               | 550       | 86153            | NR               | 680       | 27385            | NR               | 810       | 2404             | NR               | 940       | 4226             | NR               |
| 425       | 15169            | NR               | 555       | 93952            | NR               | 685       | 23504            | NR               | 815       | 2556             | NR               | 945       | 2930             | NR               |
| 430       | 26038            | NR               | 560       | 102904           | NR               | 690       | 20210            | NR               | 820       | 2742             | NR               | 950       | 2115             | NR               |
| 435       | 41316            | NR               | 565       | 112009           | NR               | 695       | 17459            | NR               | 825       | 2014             | NR               | 955       | 2634             | NR               |
| 440       | 59674            | NR               | 570       | 121662           | NR               | 700       | 15207            | NR               | 830       | 2488             | NR               | 960       | 4200             | NR               |
| 445       | 72751            | NR               | 575       | 130476           | NR               | 705       | 13322            | NR               | 835       | 2625             | NR               | 965       | 1982             | NR               |
| 450       | 65091            | NR               | 580       | 137926           | NR               | 710       | 11676            | NR               | 840       | 2754             | NR               | 970       | 3613             | NR               |
| 455       | 44894            | NR               | 585       | 143406           | NR               | 715       | 10626            | NR               | 845       | 2708             | NR               | 975       | 4034             | NR               |
| 460       | 32712            | NR               | 590       | 147039           | NR               | 720       | 9416             | NR               | 850       | 2608             | NR               | 980       | 3922             | NR               |
| 465       | 25296            | NR               | 595       | 147365           | NR               | 725       | 8333             | NR               | 855       | 2605             | NR               | 985       | 1909             | NR               |
| 470       | 19318            | NR               | 600       | 145800           | NR               | 730       | 7134             | NR               | 860       | 1765             | NR               | 990       | 3617             | NR               |
| 475       | 17265            | NR               | 605       | 141363           | NR               | 735       | 6437             | NR               | 865       | 2581             | NR               | 995       | 4767             | NR               |
| 480       | 18260            | NR               | 610       | 134199           | NR               | 740       | 5834             | NR               | 870       | 3016             | NR               | 1000      | 2528             | NR               |
| 485       | 20845            | NR               | 615       | 127683           | NR               | 745       | 5500             | NR               | 875       | 3952             | NR               |           |                  |                  |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 3101.5 M/P: 0.45**

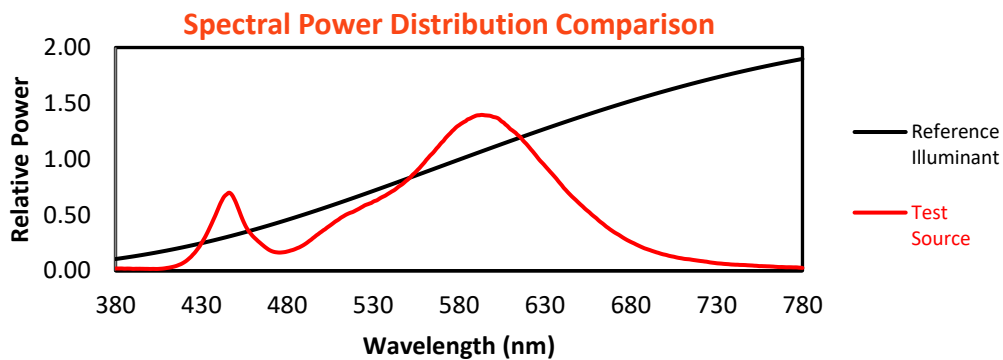
| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2397             | NR               | 490       | 24908            | NR               | 620       | 118784           | NR               | 750       | 5037             | NR               | 880       | 2677             | NR               |
| 365       | 2084             | NR               | 495       | 30998            | NR               | 625       | 108951           | NR               | 755       | 4413             | NR               | 885       | 2940             | NR               |
| 370       | 2143             | NR               | 500       | 37103            | NR               | 630       | 99573            | NR               | 760       | 4189             | NR               | 890       | 3116             | NR               |
| 375       | 2413             | NR               | 505       | 42987            | NR               | 635       | 90444            | NR               | 765       | 3677             | NR               | 895       | 3345             | NR               |
| 380       | 2172             | NR               | 510       | 48702            | NR               | 640       | 80749            | NR               | 770       | 3366             | NR               | 900       | 2312             | NR               |
| 385       | 1997             | NR               | 515       | 53741            | NR               | 645       | 71664            | NR               | 775       | 3211             | NR               | 905       | 2829             | NR               |
| 390       | 1830             | NR               | 520       | 57283            | NR               | 650       | 63936            | NR               | 780       | 2682             | NR               | 910       | 2783             | NR               |
| 395       | 1861             | NR               | 525       | 61876            | NR               | 655       | 56611            | NR               | 785       | 2804             | NR               | 915       | 2662             | NR               |
| 400       | 1717             | NR               | 530       | 65398            | NR               | 660       | 49763            | NR               | 790       | 2581             | NR               | 920       | 3047             | NR               |
| 405       | 1761             | NR               | 535       | 69597            | NR               | 665       | 42891            | NR               | 795       | 2711             | NR               | 925       | 2256             | NR               |
| 410       | 2680             | NR               | 540       | 74214            | NR               | 670       | 36939            | NR               | 800       | 2609             | NR               | 930       | 2976             | NR               |
| 415       | 4374             | NR               | 545       | 79911            | NR               | 675       | 31946            | NR               | 805       | 2581             | NR               | 935       | 3503             | NR               |
| 420       | 8071             | NR               | 550       | 86153            | NR               | 680       | 27385            | NR               | 810       | 2404             | NR               | 940       | 4226             | NR               |
| 425       | 15169            | NR               | 555       | 93952            | NR               | 685       | 23504            | NR               | 815       | 2556             | NR               | 945       | 2930             | NR               |
| 430       | 26038            | NR               | 560       | 102904           | NR               | 690       | 20210            | NR               | 820       | 2742             | NR               | 950       | 2115             | NR               |
| 435       | 41316            | NR               | 565       | 112009           | NR               | 695       | 17459            | NR               | 825       | 2014             | NR               | 955       | 2634             | NR               |
| 440       | 59674            | NR               | 570       | 121662           | NR               | 700       | 15207            | NR               | 830       | 2488             | NR               | 960       | 4200             | NR               |
| 445       | 72751            | NR               | 575       | 130476           | NR               | 705       | 13322            | NR               | 835       | 2625             | NR               | 965       | 1982             | NR               |
| 450       | 65091            | NR               | 580       | 137926           | NR               | 710       | 11676            | NR               | 840       | 2754             | NR               | 970       | 3613             | NR               |
| 455       | 44894            | NR               | 585       | 143406           | NR               | 715       | 10626            | NR               | 845       | 2708             | NR               | 975       | 4034             | NR               |
| 460       | 32712            | NR               | 590       | 147039           | NR               | 720       | 9416             | NR               | 850       | 2608             | NR               | 980       | 3922             | NR               |
| 465       | 25296            | NR               | 595       | 147365           | NR               | 725       | 8333             | NR               | 855       | 2605             | NR               | 985       | 1909             | NR               |
| 470       | 19318            | NR               | 600       | 145800           | NR               | 730       | 7134             | NR               | 860       | 1765             | NR               | 990       | 3617             | NR               |
| 475       | 17265            | NR               | 605       | 141363           | NR               | 735       | 6437             | NR               | 865       | 2581             | NR               | 995       | 4767             | NR               |
| 480       | 18260            | NR               | 610       | 134199           | NR               | 740       | 5834             | NR               | 870       | 3016             | NR               | 1000      | 2528             | NR               |
| 485       | 20845            | NR               | 615       | 127683           | NR               | 745       | 5500             | NR               | 875       | 3952             | NR               |           |                  |                  |

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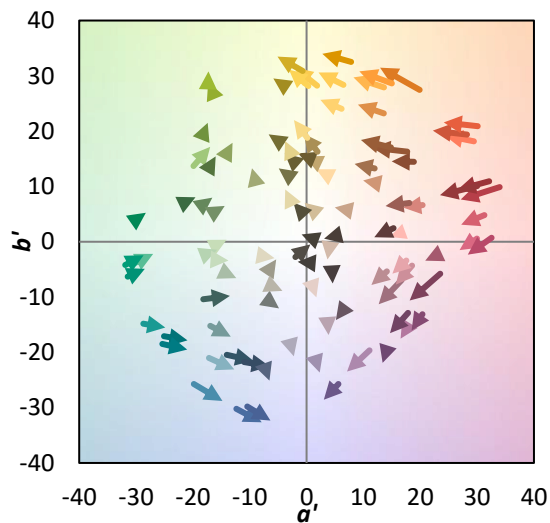
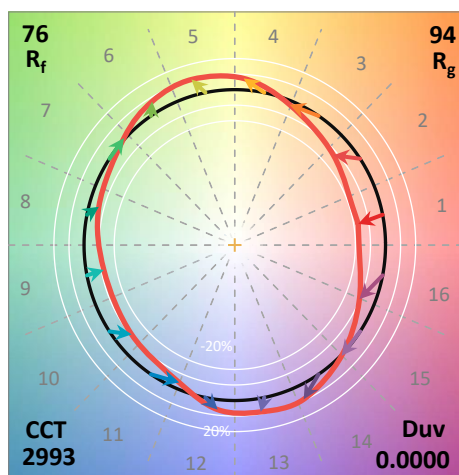
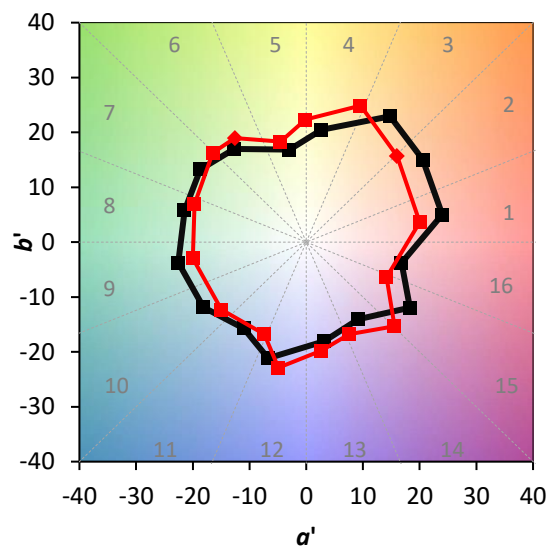
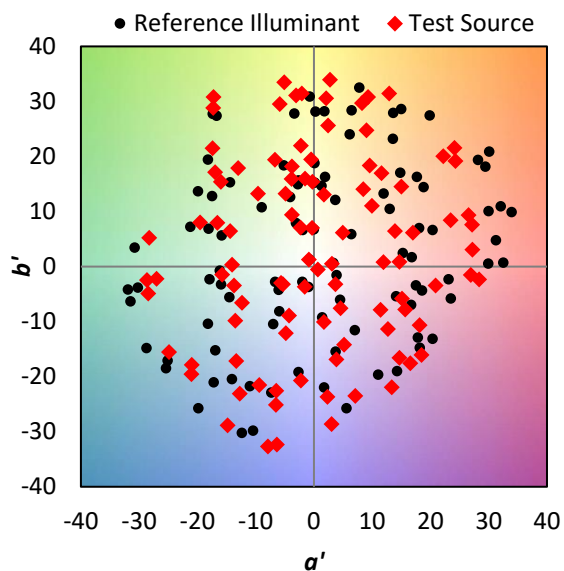
**TM-30-18**

### Summary

$R_f = 75.7$   
 $R_g = 93.9$   
 CIE  $R_a = 71.8$   
 $R_g = -38.3$



### Color Vector Graphics

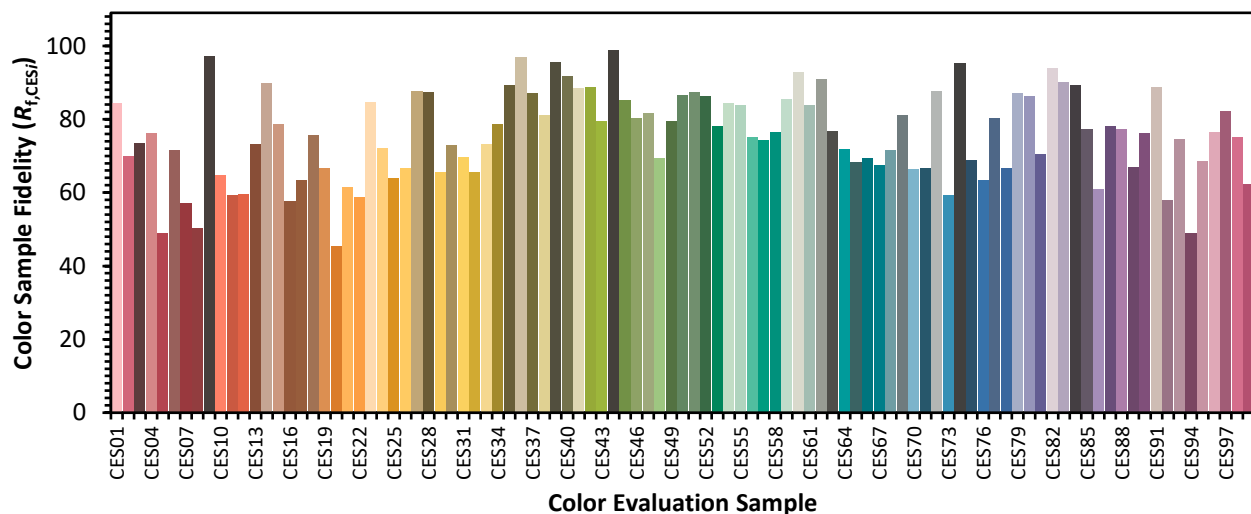


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**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 |            |

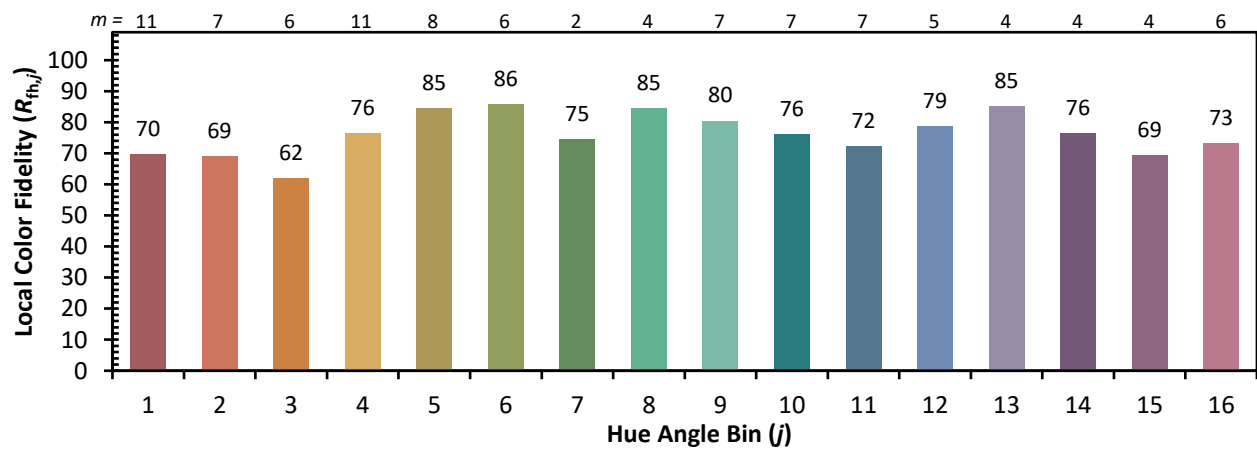
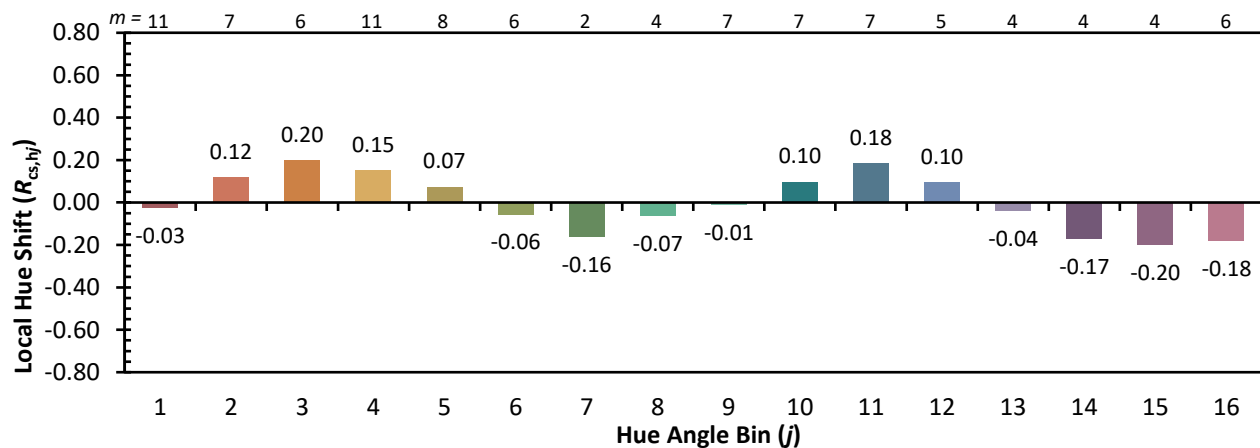
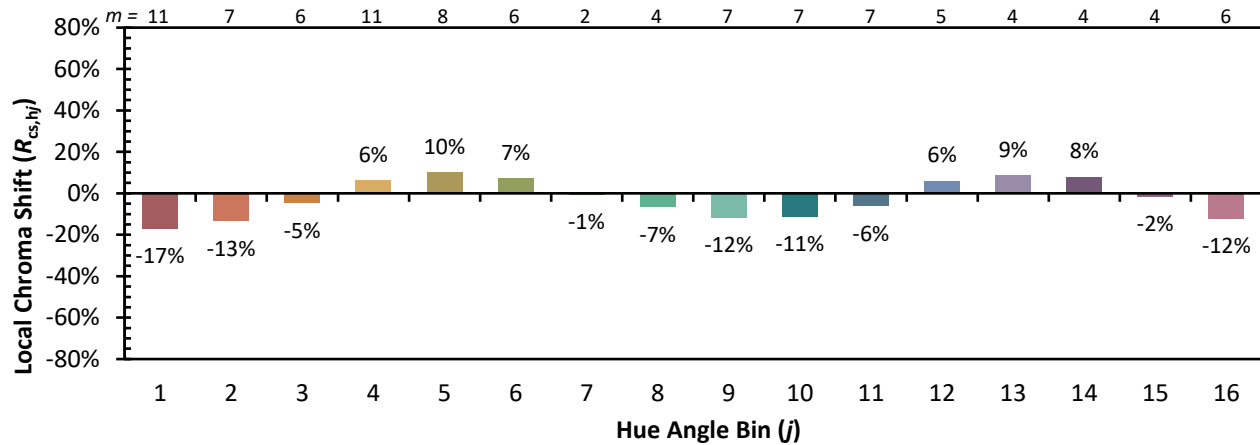




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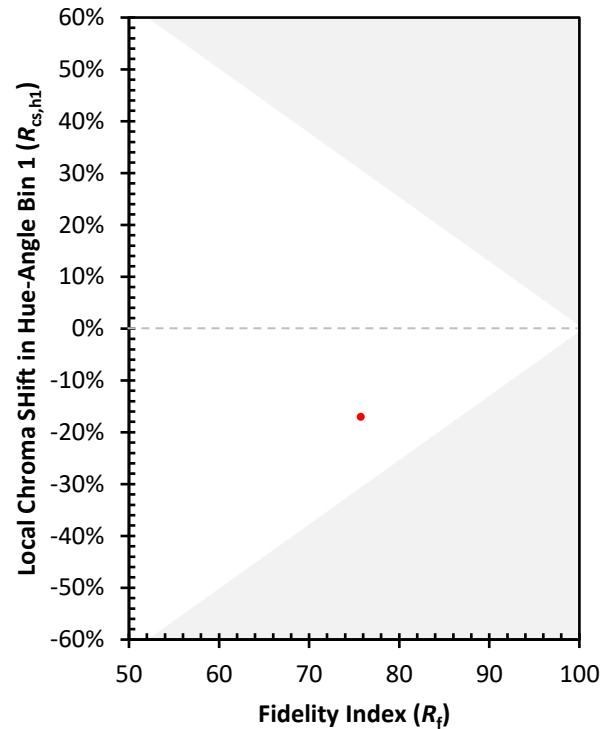
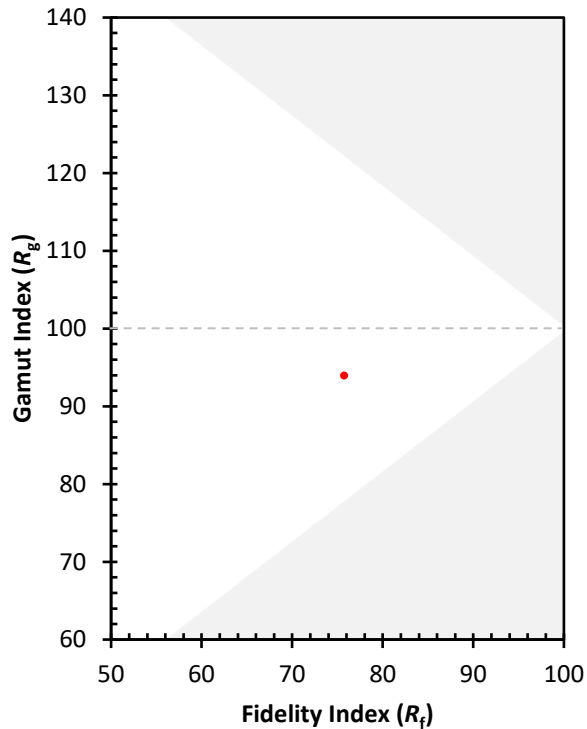
**Color Rendition by Hue-Angle Bin**



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**Measure Comparisons**



(END OF REPORT)