

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: P1047430

Luminaire Tested: **GALN-SA6B-850-U-T3BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047430  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA6B-850-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 6xLight Square PACKAGE  
80CRI 5000K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (84) 5000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 25496.3 lumens  
Efficiency: N/A  
Efficacy: 119.3 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 213.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

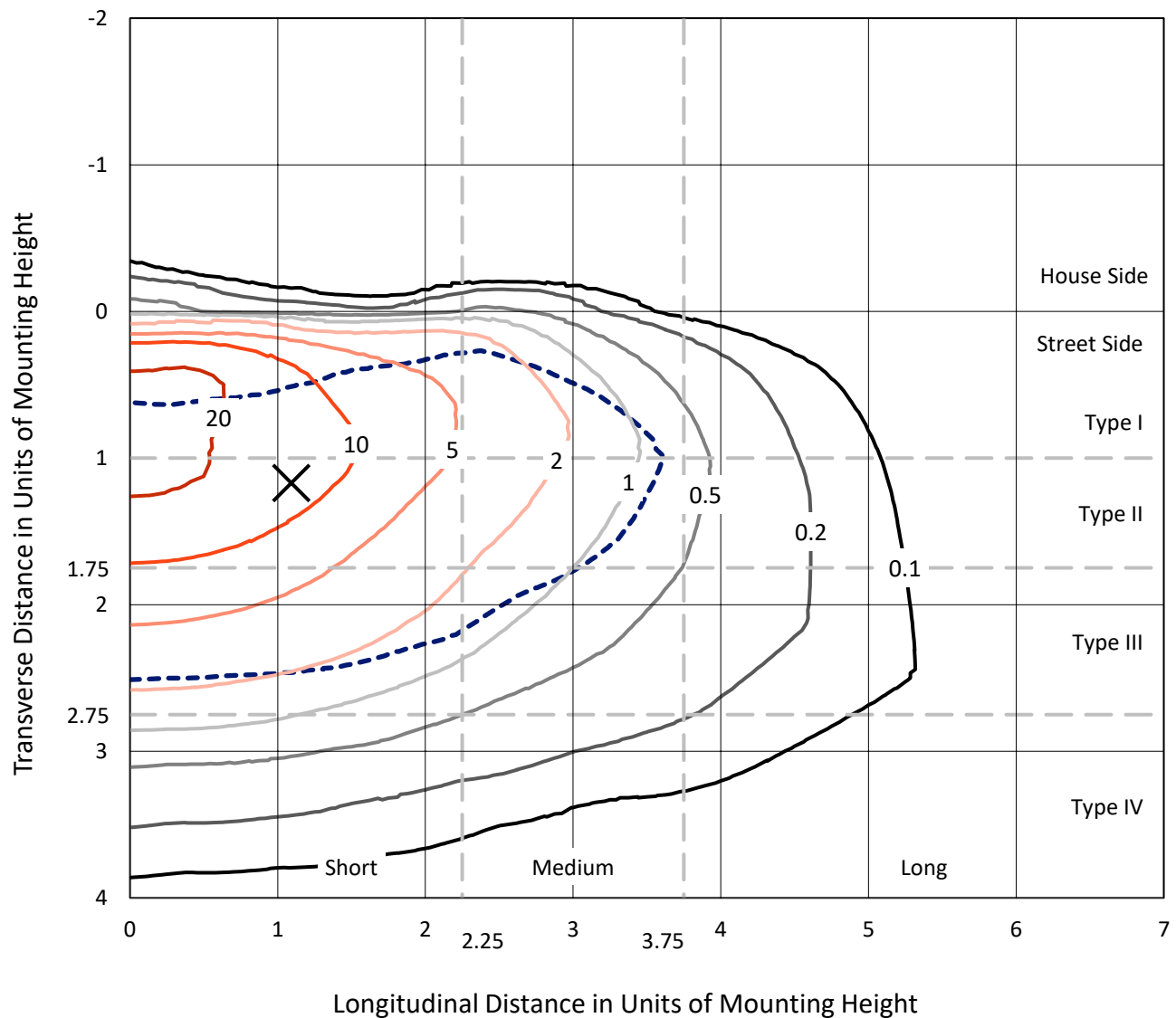


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
- - - 1/2 Max cd

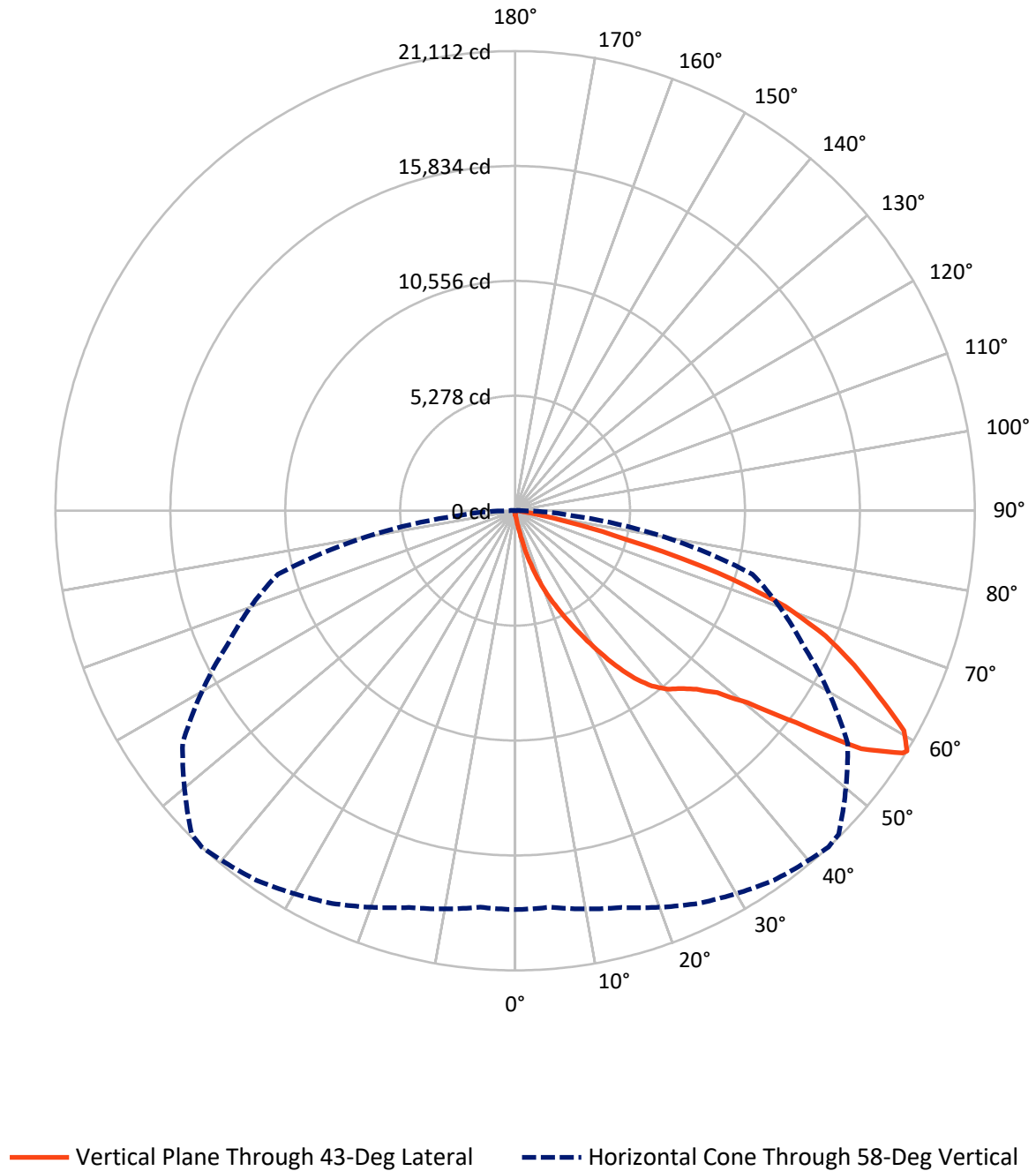


Based on 15 foot mounting height. Maximum calculated value = 28.6 fc  
Type III - Short - N/A

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CATALOG NUMBER: GALN-SA6B-850-U-T3BC

## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA6B-850-U-T3BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 93.1     | 0.0    | 93.1    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 25403.3  | 0.0    | 25403.3 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 25496.3  | 0.0    | 25496.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 24.4    | 0.1       |
| 10°-20°   | 293.1   | 1.1       |
| 20°-30°   | 1056.3  | 4.1       |
| 30°-40°   | 2416.9  | 9.5       |
| 40°-50°   | 4076.4  | 16.0      |
| 50°-60°   | 6727.0  | 26.4      |
| 60°-70°   | 7518.3  | 29.5      |
| 70°-80°   | 3104.2  | 12.2      |
| 80°-90°   | 279.8   | 1.1       |
| 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°    | 25496.3 | 100.0     |
| 0°-180°   | 25496.3 | 100.0     |



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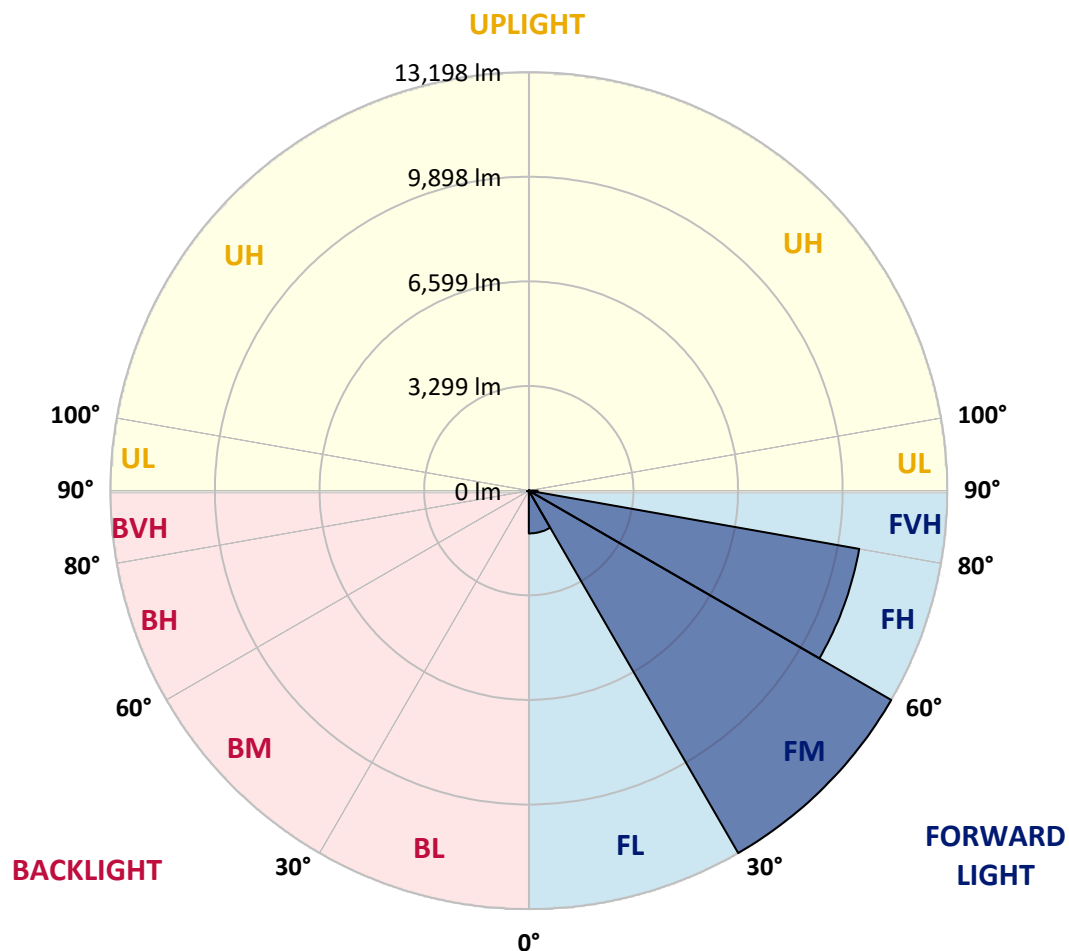
CATALOG NUMBER: GALN-SA6B-850-U-T3BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1349.6  | 5.3       |                         |      |          |
| FM   | (30°-60°)   | 13197.9 | 51.8      |                         |      |          |
| FH   | (60°-80°)   | 10579.8 | 41.5      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 276.0   | 1.1       |                         |      | G3/500   |
| BL   | (0°-30°)    | 24.3    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 22.3    | 0.1       | B0/220                  |      |          |
| BH   | (60°-80°)   | 42.7    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 3.8     | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B0-U0-G4**

Type III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 166.7   | 166.7   | 166.7   | 166.7   | 166.7   | 166.7   | 166.7   | 166.7   | 166.7   | 166.7   | 166.7  |
| 2.5°  | 200.1   | 206.7   | 200.1   | 200.1   | 200.1   | 193.4   | 193.4   | 186.7   | 186.7   | 180.0   | 173.4  |
| 5°    | 293.4   | 293.4   | 273.4   | 260.1   | 246.7   | 240.1   | 233.4   | 220.1   | 206.7   | 193.4   | 180.0  |
| 7.5°  | 653.5   | 653.5   | 593.5   | 513.5   | 406.8   | 346.8   | 333.4   | 273.4   | 233.4   | 206.7   | 180.0  |
| 10°   | 1560.4  | 1560.4  | 1427.0  | 1207.0  | 933.6   | 693.5   | 620.2   | 393.4   | 280.1   | 220.1   | 186.7  |
| 12.5° | 2594.0  | 2627.3  | 2460.6  | 2180.5  | 1773.8  | 1353.7  | 1207.0  | 720.2   | 373.4   | 240.1   | 186.7  |
| 15°   | 3520.9  | 3440.9  | 3394.2  | 3127.5  | 2740.7  | 2240.6  | 2053.9  | 1213.6  | 540.1   | 273.4   | 186.7  |
| 17.5° | 4147.7  | 4147.7  | 4081.0  | 3901.0  | 3547.6  | 3107.4  | 2954.1  | 1960.5  | 873.6   | 313.4   | 193.4  |
| 20°   | 4881.2  | 4881.2  | 4761.2  | 4634.5  | 4321.1  | 3947.7  | 3801.0  | 2787.4  | 1353.7  | 400.1   | 193.4  |
| 22.5° | 5768.1  | 5781.5  | 5648.1  | 5421.4  | 5121.3  | 4707.9  | 4581.2  | 3554.2  | 1960.5  | 533.5   | 200.1  |
| 25°   | 6848.4  | 6861.7  | 6668.3  | 6455.0  | 5994.8  | 5548.1  | 5354.7  | 4434.4  | 2700.7  | 746.9   | 200.1  |
| 27.5° | 8042.0  | 8135.4  | 7848.6  | 7481.9  | 6995.1  | 6435.0  | 6288.2  | 5228.0  | 3434.2  | 1053.6  | 213.4  |
| 30°   | 9529.1  | 9529.1  | 9149.0  | 8635.5  | 8108.7  | 7415.2  | 7228.5  | 6061.5  | 4214.4  | 1460.4  | 226.7  |
| 32.5° | 10809.4 | 10709.4 | 10222.6 | 9682.4  | 9122.3  | 8475.5  | 8275.4  | 6935.1  | 5014.6  | 1967.2  | 253.4  |
| 35°   | 11789.6 | 11702.9 | 11102.8 | 10522.6 | 10035.9 | 9442.4  | 9202.3  | 7882.0  | 5861.5  | 2540.6  | 293.4  |
| 37.5° | 12629.8 | 12596.5 | 11783.0 | 11056.1 | 10736.0 | 10215.9 | 10002.5 | 8775.5  | 6695.0  | 3160.8  | 340.1  |
| 40°   | 13550.1 | 13443.4 | 12576.5 | 11676.3 | 11196.2 | 10776.0 | 10582.7 | 9495.7  | 7495.2  | 3887.6  | 406.8  |
| 42.5° | 14336.9 | 14210.2 | 13430.0 | 12549.8 | 11729.6 | 11162.8 | 10976.1 | 10102.5 | 8275.4  | 4614.5  | 493.5  |
| 45°   | 15210.5 | 15143.8 | 14356.9 | 13690.1 | 12596.5 | 11689.6 | 11442.9 | 10589.3 | 8988.9  | 5481.4  | 606.8  |
| 47.5° | 16524.2 | 16404.1 | 15670.6 | 15123.8 | 13856.8 | 12489.8 | 12136.4 | 11089.5 | 9675.8  | 6334.9  | 780.2  |
| 50°   | 18051.2 | 17971.2 | 17537.7 | 17104.3 | 15844.0 | 13856.8 | 13436.7 | 11809.6 | 10442.6 | 7348.5  | 1006.9 |
| 52.5° | 19298.2 | 19284.9 | 19338.2 | 19344.9 | 18391.3 | 16157.4 | 15530.6 | 12969.9 | 11322.8 | 8348.8  | 1327.0 |
| 55°   | 19271.5 | 19331.5 | 19918.3 | 20591.8 | 20665.2 | 19298.2 | 18691.4 | 14923.8 | 12469.8 | 9582.4  | 1773.8 |
| 57.5° | 18551.3 | 18504.7 | 19124.8 | 20138.4 | 20851.9 | 20998.6 | 20898.6 | 17957.9 | 14196.9 | 11069.5 | 2460.6 |
| 58°   | 18317.9 | 18277.9 | 18864.7 | 19898.3 | 20718.5 | 21112.0 | 21012.0 | 18644.7 | 14583.7 | 11282.8 | 2647.3 |
| 60°   | 17471.1 | 17477.7 | 17824.5 | 18764.7 | 19584.9 | 20518.5 | 20611.9 | 20605.2 | 16510.8 | 12709.9 | 3587.6 |
| 62.5° | 16350.8 | 16297.4 | 16617.5 | 17384.4 | 18104.6 | 18731.4 | 18891.4 | 20738.6 | 19331.5 | 14523.7 | 5381.4 |
| 65°   | 14803.7 | 14723.7 | 15063.8 | 15930.7 | 16704.2 | 17111.0 | 17117.6 | 18951.4 | 20658.5 | 16470.8 | 7942.0 |
| 67.5° | 11929.7 | 11863.0 | 12543.2 | 13656.8 | 14850.4 | 15383.9 | 15623.9 | 16444.1 | 19538.2 | 17791.1 | 9409.0 |
| 70°   | 7308.5  | 7448.5  | 8395.4  | 10142.6 | 12183.1 | 13163.3 | 13523.4 | 13776.8 | 16637.5 | 17591.1 | 7868.6 |
| 72.5° | 3374.2  | 3207.5  | 4014.3  | 5234.7  | 7561.9  | 9742.5  | 10115.9 | 11109.5 | 13190.0 | 15270.5 | 5868.1 |
| 75°   | 1573.7  | 1513.7  | 1700.4  | 2287.2  | 3427.5  | 5261.3  | 5941.5  | 8868.9  | 10115.9 | 10622.7 | 4234.4 |
| 77.5° | 806.9   | 813.5   | 966.9   | 1040.3  | 1413.7  | 2433.9  | 2794.0  | 5834.8  | 7415.2  | 5928.2  | 2840.7 |
| 80°   | 353.4   | 366.8   | 373.4   | 406.8   | 573.5   | 940.2   | 1060.3  | 2707.3  | 5067.9  | 3020.8  | 1553.7 |
| 82.5° | 226.7   | 233.4   | 233.4   | 233.4   | 273.4   | 373.4   | 426.8   | 1086.9  | 2527.3  | 1500.4  | 480.1  |
| 85°   | 120.0   | 120.0   | 133.4   | 166.7   | 193.4   | 226.7   | 240.1   | 346.8   | 833.5   | 446.8   | 113.4  |
| 87.5° | 66.7    | 73.4    | 80.0    | 100.0   | 126.7   | 153.4   | 166.7   | 240.1   | 320.1   | 306.7   | 26.7   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |



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CATALOG NUMBER: GALN-SA6B-850-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 166.7  | 166.7 | 166.7 | 166.7 | 166.7 | 166.7 | 166.7 | 166.7 | 166.7 | 166.7 | 166.7 |
| 2.5°  | 173.4  | 166.7 | 160.0 | 153.4 | 146.7 | 140.0 | 140.0 | 140.0 | 140.0 | 140.0 | 140.0 |
| 5°    | 166.7  | 160.0 | 153.4 | 140.0 | 126.7 | 120.0 | 113.4 | 106.7 | 106.7 | 106.7 | 106.7 |
| 7.5°  | 166.7  | 160.0 | 140.0 | 126.7 | 113.4 | 100.0 | 86.7  | 86.7  | 86.7  | 86.7  | 86.7  |
| 10°   | 166.7  | 153.4 | 133.4 | 113.4 | 93.4  | 80.0  | 73.4  | 66.7  | 66.7  | 66.7  | 66.7  |
| 12.5° | 166.7  | 146.7 | 126.7 | 100.0 | 80.0  | 66.7  | 60.0  | 53.3  | 53.3  | 53.3  | 53.3  |
| 15°   | 166.7  | 146.7 | 120.0 | 93.4  | 73.4  | 53.3  | 46.7  | 40.0  | 40.0  | 40.0  | 40.0  |
| 17.5° | 160.0  | 140.0 | 113.4 | 80.0  | 60.0  | 40.0  | 33.3  | 26.7  | 26.7  | 33.3  | 33.3  |
| 20°   | 153.4  | 133.4 | 100.0 | 66.7  | 46.7  | 33.3  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |
| 22.5° | 153.4  | 133.4 | 93.4  | 60.0  | 40.0  | 20.0  | 13.3  | 13.3  | 13.3  | 13.3  | 20.0  |
| 25°   | 153.4  | 126.7 | 80.0  | 46.7  | 26.7  | 13.3  | 6.7   | 6.7   | 6.7   | 6.7   | 6.7   |
| 27.5° | 153.4  | 126.7 | 73.4  | 40.0  | 20.0  | 13.3  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 146.7  | 120.0 | 66.7  | 33.3  | 13.3  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 146.7  | 113.4 | 53.3  | 26.7  | 13.3  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 153.4  | 106.7 | 46.7  | 20.0  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 6.7   |
| 37.5° | 160.0  | 100.0 | 40.0  | 13.3  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 166.7  | 93.4  | 40.0  | 13.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 180.0  | 93.4  | 33.3  | 13.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 193.4  | 93.4  | 26.7  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 220.1  | 100.0 | 26.7  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 240.1  | 106.7 | 20.0  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 266.7  | 100.0 | 20.0  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 300.1  | 100.0 | 20.0  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 326.7  | 93.4  | 20.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 340.1  | 86.7  | 13.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 406.8  | 80.0  | 13.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 633.5  | 66.7  | 13.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1287.0 | 60.0  | 13.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2400.6 | 53.3  | 13.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2687.3 | 60.0  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1693.8 | 46.7  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 893.6  | 46.7  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 446.8  | 46.7  | 6.7   | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 206.7  | 33.3  | 6.7   | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 86.7   | 20.0  | 13.3  | 6.7   | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 40.0   | 20.0  | 13.3  | 13.3  | 6.7   | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 20.0   | 20.0  | 20.0  | 13.3  | 13.3  | 6.7   | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 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

McGraw-Edison

Report Number: SP1-2407-184-12

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-850-U-5WQ

Data in this report applies to families of products including GSS-SB1A-850-U-5WQ

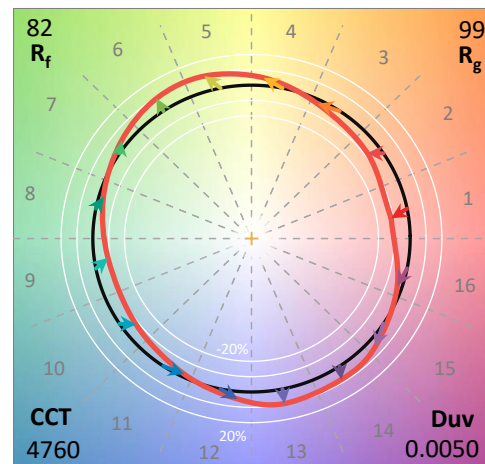
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-12  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-850-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI  
 5000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 4760  
 CIE  $u'$ : 0.2107  
 CIE  $v'$ : 0.4939  
 Duv: 0.0050  
 CIE x: 0.3537  
 CIE y: 0.3685  
 CIE z: 0.2779  
 Peak Wavelength (nm): 443  
 Dominant Wavelength (nm): 571  
 Purity: 16.69598  
 R<sub>f</sub>: 82  
 R<sub>g</sub>: 99.4

CRI (Ra): 81.1  
 R1: 79.8  
 R2: 83.5  
 R3: 87.9  
 R4: 83.1  
 R5: 80.5  
 R6: 79.1  
 R7: 86.1  
 R8: 69.0  
 R9: 8.7  
 R10: 62.4  
 R11: 83.8  
 R12: 63.0  
 R13: 79.9  
 R14: 93.3  
 R15: 72.7



### Test Conditions

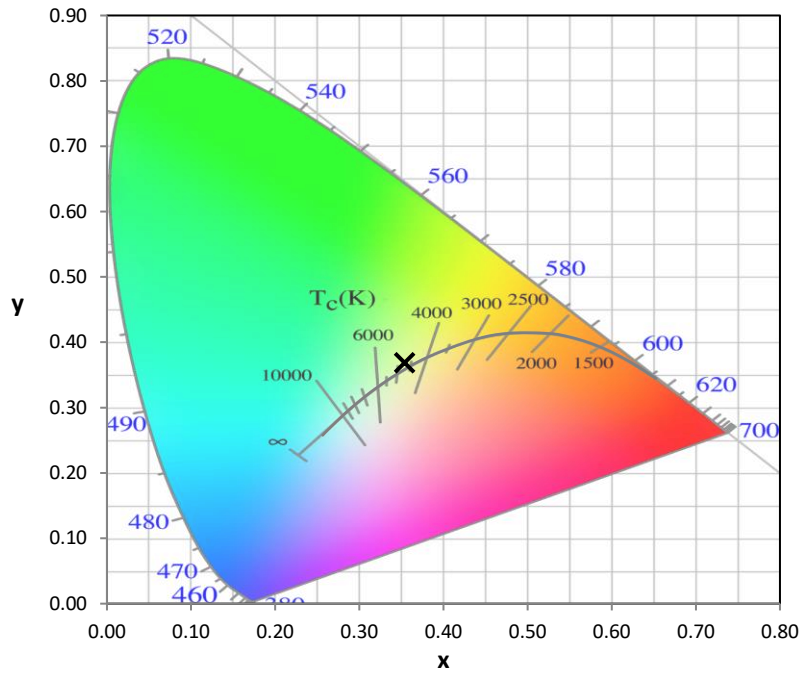
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-12

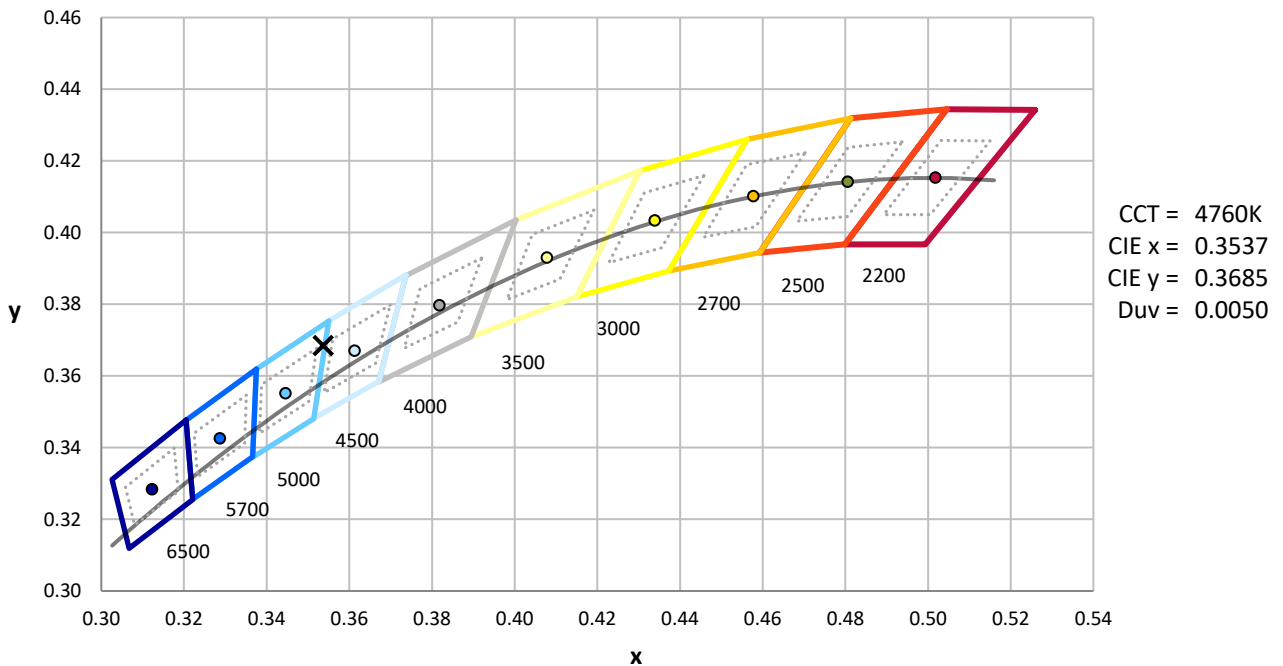
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

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**CIE 1931 Chromaticity Diagram**



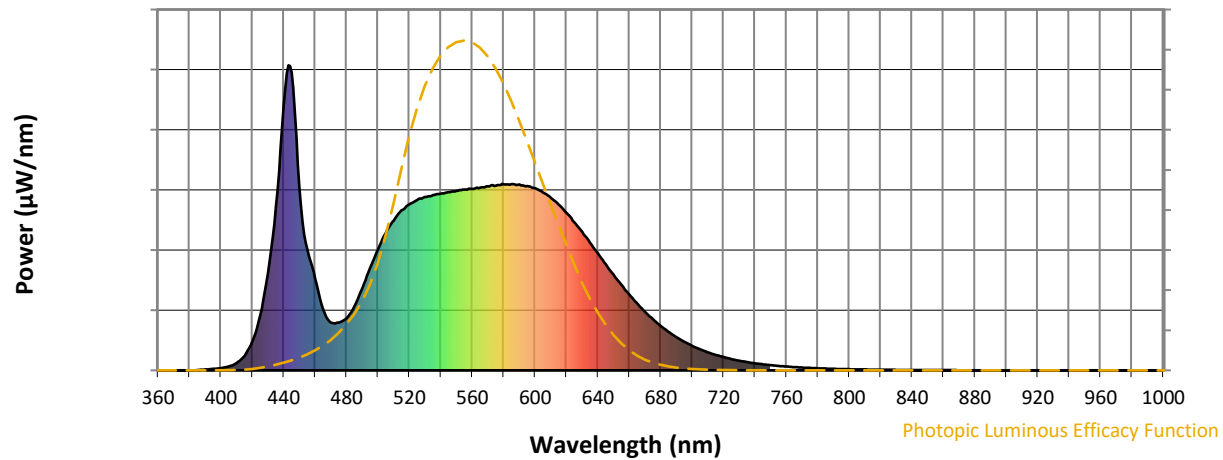
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 5000K 7-step quadrangle

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### Photopic Flux vs. Wavelength

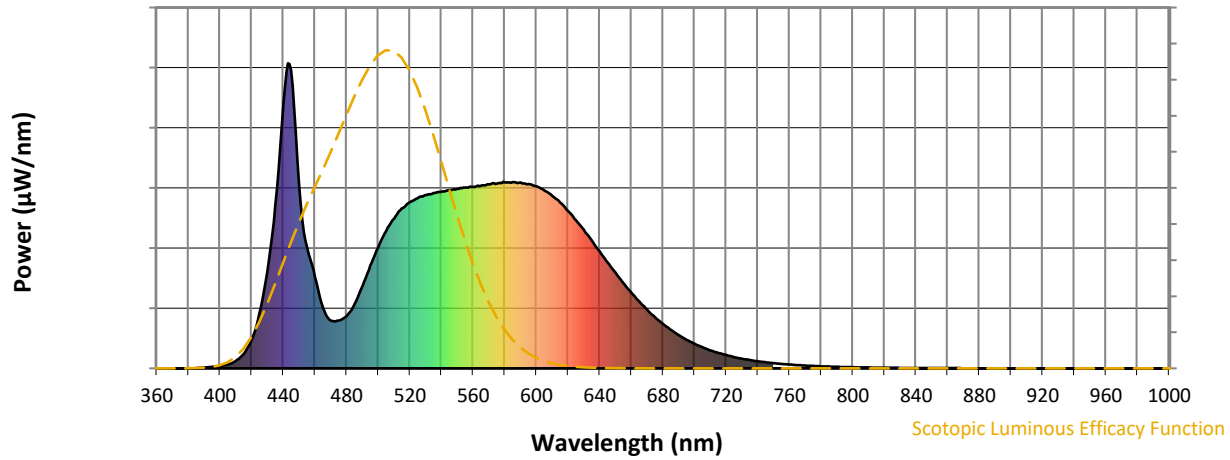


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 270                                  | NR                             | 620               | 517                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 335                                  | NR                             | 625               | 486                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 397                                  | NR                             | 630               | 454                                  | NR                             | 760               | 12                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 451                                  | NR                             | 635               | 419                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 492                                  | NR                             | 640               | 384                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 1                                    | NR                             | 515               | 524                                  | NR                             | 645               | 347                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 3                                    | NR                             | 520               | 545                                  | NR                             | 650               | 313                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 5                                    | NR                             | 525               | 558                                  | NR                             | 655               | 280                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 7                                    | NR                             | 530               | 568                                  | NR                             | 660               | 248                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 13                                   | NR                             | 535               | 575                                  | NR                             | 665               | 219                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 24                                   | NR                             | 540               | 579                                  | NR                             | 670               | 192                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 47                                   | NR                             | 545               | 585                                  | NR                             | 675               | 167                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 95                                   | NR                             | 550               | 588                                  | NR                             | 680               | 146                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 181                                  | NR                             | 555               | 593                                  | NR                             | 685               | 126                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 319                                  | NR                             | 560               | 595                                  | NR                             | 690               | 109                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 539                                  | NR                             | 565               | 600                                  | NR                             | 695               | 94                                   | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 868                                  | NR                             | 570               | 603                                  | NR                             | 700               | 80                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 977                                  | NR                             | 575               | 606                                  | NR                             | 705               | 69                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 601                                  | NR                             | 580               | 609                                  | NR                             | 710               | 59                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 397                                  | NR                             | 585               | 611                                  | NR                             | 715               | 51                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 302                                  | NR                             | 590               | 610                                  | NR                             | 720               | 44                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 201                                  | NR                             | 595               | 604                                  | NR                             | 725               | 37                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 157                                  | NR                             | 600               | 596                                  | NR                             | 730               | 32                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 157                                  | NR                             | 605               | 583                                  | NR                             | 735               | 27                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 171                                  | NR                             | 610               | 566                                  | NR                             | 740               | 23                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 210                                  | NR                             | 615               | 543                                  | NR                             | 745               | 20                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



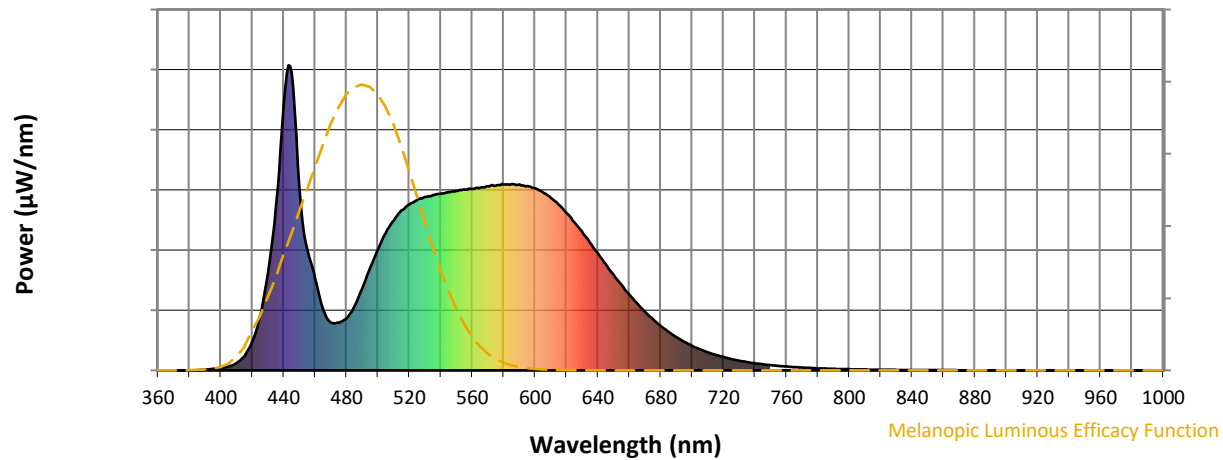
Scotopic Lumens: NR

S/P: 1.83

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 270                         | NR               | 620       | 517                         | NR               | 750       | 17                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 335                         | NR               | 625       | 486                         | NR               | 755       | 15                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 397                         | NR               | 630       | 454                         | NR               | 760       | 12                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 451                         | NR               | 635       | 419                         | NR               | 765       | 11                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 492                         | NR               | 640       | 384                         | NR               | 770       | 9                           | NR               | 900       | 0                           | NR               |
| 385       | 1                           | NR               | 515       | 524                         | NR               | 645       | 347                         | NR               | 775       | 8                           | NR               | 905       | 0                           | NR               |
| 390       | 3                           | NR               | 520       | 545                         | NR               | 650       | 313                         | NR               | 780       | 7                           | NR               | 910       | 0                           | NR               |
| 395       | 5                           | NR               | 525       | 558                         | NR               | 655       | 280                         | NR               | 785       | 6                           | NR               | 915       | 0                           | NR               |
| 400       | 7                           | NR               | 530       | 568                         | NR               | 660       | 248                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 13                          | NR               | 535       | 575                         | NR               | 665       | 219                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 24                          | NR               | 540       | 579                         | NR               | 670       | 192                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 47                          | NR               | 545       | 585                         | NR               | 675       | 167                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 95                          | NR               | 550       | 588                         | NR               | 680       | 146                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 181                         | NR               | 555       | 593                         | NR               | 685       | 126                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 319                         | NR               | 560       | 595                         | NR               | 690       | 109                         | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 539                         | NR               | 565       | 600                         | NR               | 695       | 94                          | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 868                         | NR               | 570       | 603                         | NR               | 700       | 80                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 977                         | NR               | 575       | 606                         | NR               | 705       | 69                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 601                         | NR               | 580       | 609                         | NR               | 710       | 59                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 397                         | NR               | 585       | 611                         | NR               | 715       | 51                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 302                         | NR               | 590       | 610                         | NR               | 720       | 44                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 201                         | NR               | 595       | 604                         | NR               | 725       | 37                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 157                         | NR               | 600       | 596                         | NR               | 730       | 32                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 157                         | NR               | 605       | 583                         | NR               | 735       | 27                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 171                         | NR               | 610       | 566                         | NR               | 740       | 23                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 210                         | NR               | 615       | 543                         | NR               | 745       | 20                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 3.74**

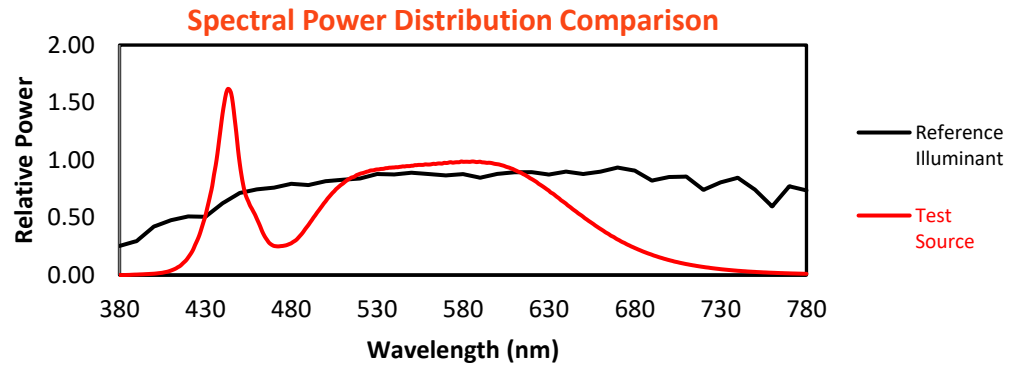
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 270                                  | NR                             | 620               | 517                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 335                                  | NR                             | 625               | 486                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 397                                  | NR                             | 630               | 454                                  | NR                             | 760               | 12                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 451                                  | NR                             | 635               | 419                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 492                                  | NR                             | 640               | 384                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 1                                    | NR                             | 515               | 524                                  | NR                             | 645               | 347                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 3                                    | NR                             | 520               | 545                                  | NR                             | 650               | 313                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 5                                    | NR                             | 525               | 558                                  | NR                             | 655               | 280                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 7                                    | NR                             | 530               | 568                                  | NR                             | 660               | 248                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 13                                   | NR                             | 535               | 575                                  | NR                             | 665               | 219                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 24                                   | NR                             | 540               | 579                                  | NR                             | 670               | 192                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 47                                   | NR                             | 545               | 585                                  | NR                             | 675               | 167                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 95                                   | NR                             | 550               | 588                                  | NR                             | 680               | 146                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 181                                  | NR                             | 555               | 593                                  | NR                             | 685               | 126                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 319                                  | NR                             | 560               | 595                                  | NR                             | 690               | 109                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 539                                  | NR                             | 565               | 600                                  | NR                             | 695               | 94                                   | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 868                                  | NR                             | 570               | 603                                  | NR                             | 700               | 80                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 977                                  | NR                             | 575               | 606                                  | NR                             | 705               | 69                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 601                                  | NR                             | 580               | 609                                  | NR                             | 710               | 59                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 397                                  | NR                             | 585               | 611                                  | NR                             | 715               | 51                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 302                                  | NR                             | 590               | 610                                  | NR                             | 720               | 44                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 201                                  | NR                             | 595               | 604                                  | NR                             | 725               | 37                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 157                                  | NR                             | 600               | 596                                  | NR                             | 730               | 32                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 157                                  | NR                             | 605               | 583                                  | NR                             | 735               | 27                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 171                                  | NR                             | 610               | 566                                  | NR                             | 740               | 23                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 210                                  | NR                             | 615               | 543                                  | NR                             | 745               | 20                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

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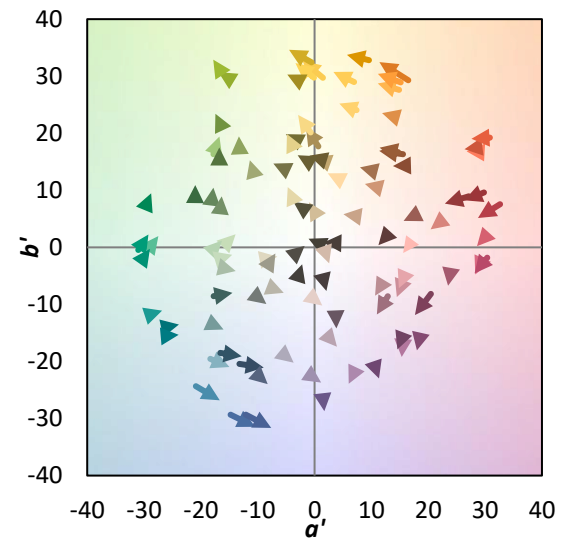
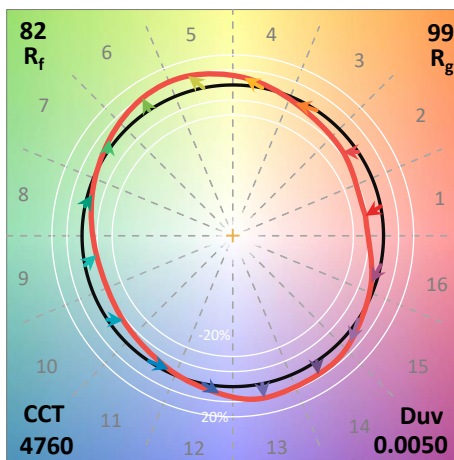
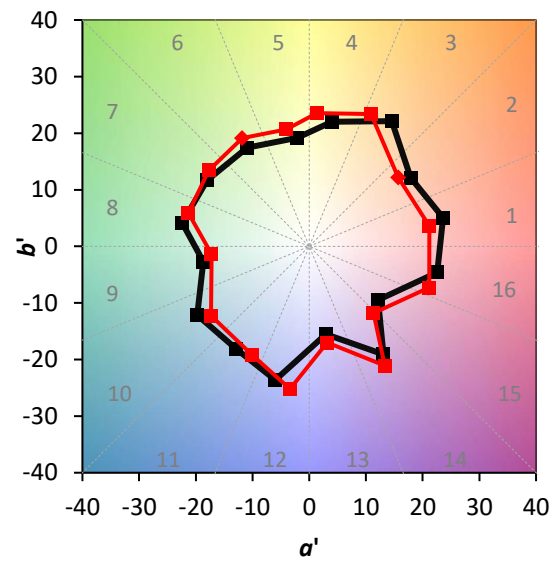
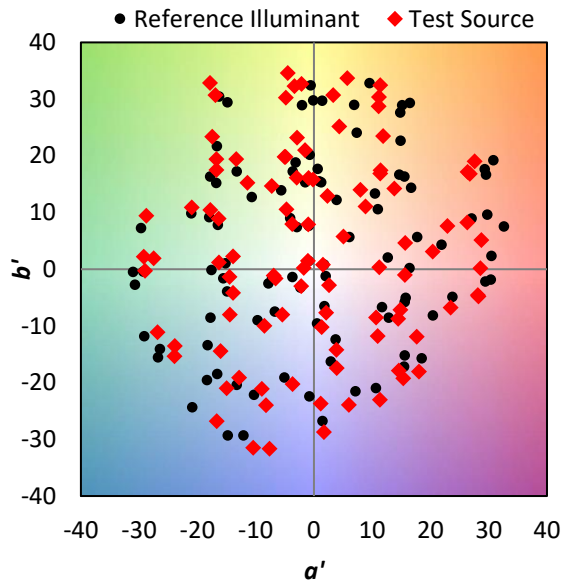
TM-30-18

### Summary

$R_f = 82$   
 $R_g = 99.4$   
 $CIE R_a = 81.1$   
 $R_9 = 8.7$

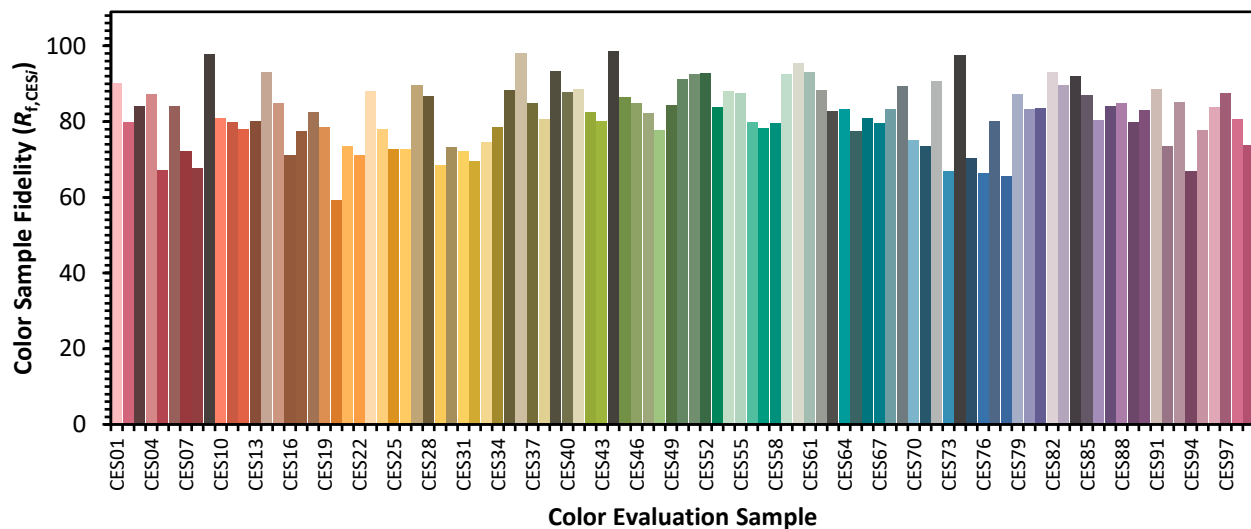


### Color Vector Graphics

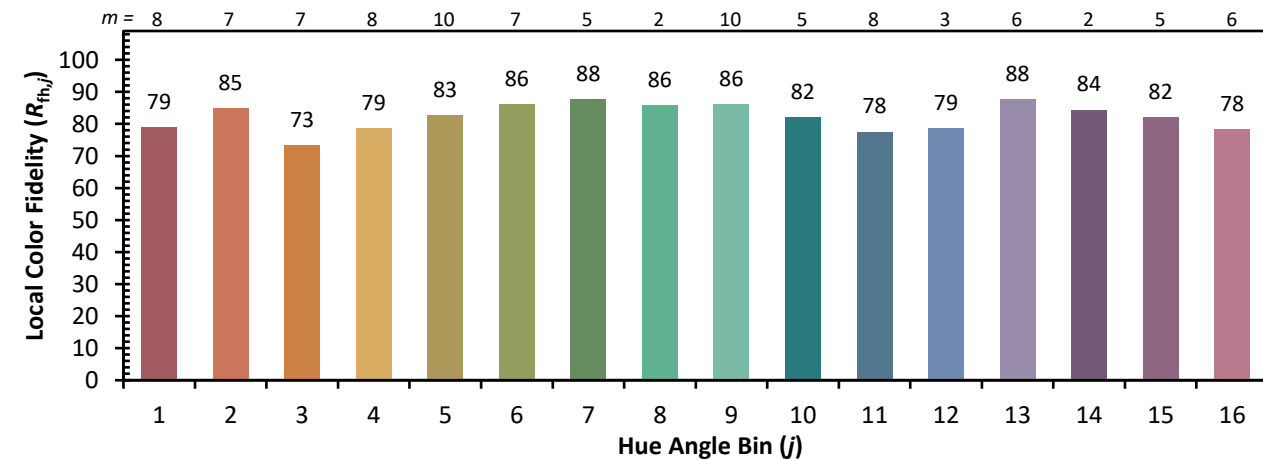
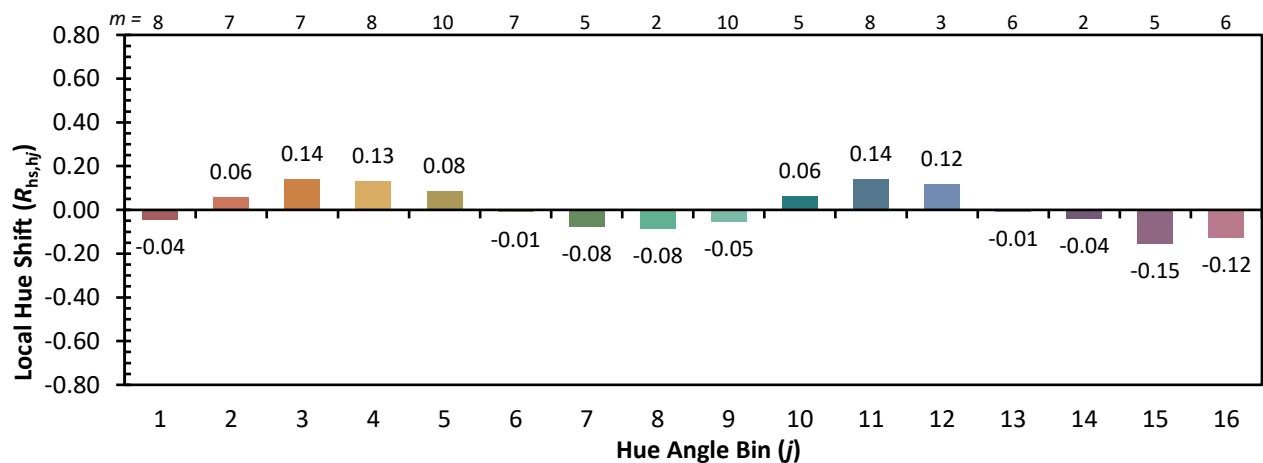
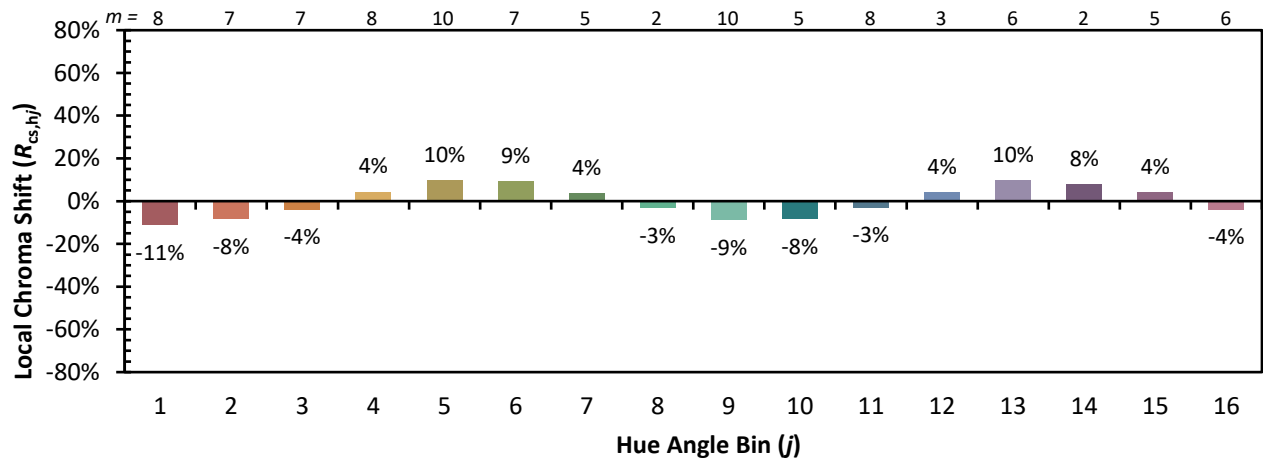


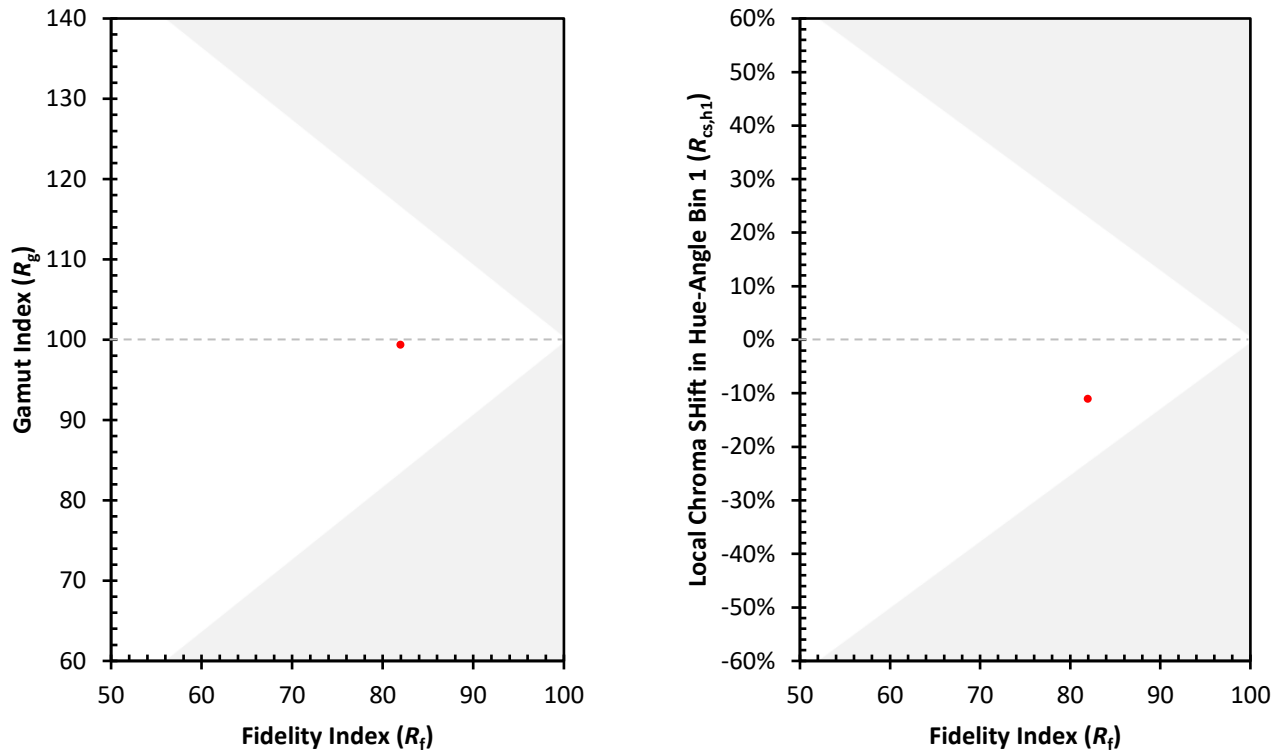
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 73 | CES51 = 92 | CES76 = 66 |
| CES02 = 60 | CES27 = 90 | CES52 = 93 | CES77 = 80 |
| CES03 = 30 | CES28 = 87 | CES53 = 84 | CES78 = 65 |
| CES04 = 69 | CES29 = 69 | CES54 = 88 | CES79 = 87 |
| CES05 = 47 | CES30 = 73 | CES55 = 88 | CES80 = 83 |
| CES06 = 50 | CES31 = 72 | CES56 = 80 | CES81 = 84 |
| CES07 = 40 | CES32 = 69 | CES57 = 78 | CES82 = 93 |
| CES08 = 39 | CES33 = 75 | CES58 = 80 | CES83 = 90 |
| CES09 = 29 | CES34 = 78 | CES59 = 93 | CES84 = 92 |
| CES10 = 73 | CES35 = 88 | CES60 = 95 | CES85 = 87 |
| CES11 = 56 | CES36 = 98 | CES61 = 93 | CES86 = 80 |
| CES12 = 62 | CES37 = 85 | CES62 = 88 | CES87 = 84 |
| CES13 = 42 | CES38 = 81 | CES63 = 83 | CES88 = 85 |
| CES14 = 74 | CES39 = 93 | CES64 = 83 | CES89 = 80 |
| CES15 = 71 | CES40 = 88 | CES65 = 77 | CES90 = 83 |
| CES16 = 46 | CES41 = 89 | CES66 = 81 | CES91 = 89 |
| CES17 = 48 | CES42 = 82 | CES67 = 80 | CES92 = 73 |
| CES18 = 55 | CES43 = 80 | CES68 = 83 | CES93 = 85 |
| CES19 = 70 | CES44 = 99 | CES69 = 89 | CES94 = 67 |
| CES20 = 64 | CES45 = 87 | CES70 = 75 | CES95 = 78 |
| CES21 = 85 | CES46 = 85 | CES71 = 73 | CES96 = 84 |
| CES22 = 77 | CES47 = 82 | CES72 = 91 | CES97 = 87 |
| CES23 = 91 | CES48 = 78 | CES73 = 67 | CES98 = 81 |
| CES24 = 90 | CES49 = 84 | CES74 = 98 | CES99 = 74 |
| CES25 = 71 | CES50 = 91 | CES75 = 70 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**


(END OF REPORT)