

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: STREETWORKS

Report Number: P1062861

Luminaire Tested: **GLAN-SA9A-750-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1062861  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA9A-750-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 9xLight Square PACKAGE  
70CRI 5000K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (126) 5000K CCT, 70 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 33897.5 lumens  
Efficiency: N/A  
Efficacy: 138.6 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G5

Input Watts (W): 244.6  
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

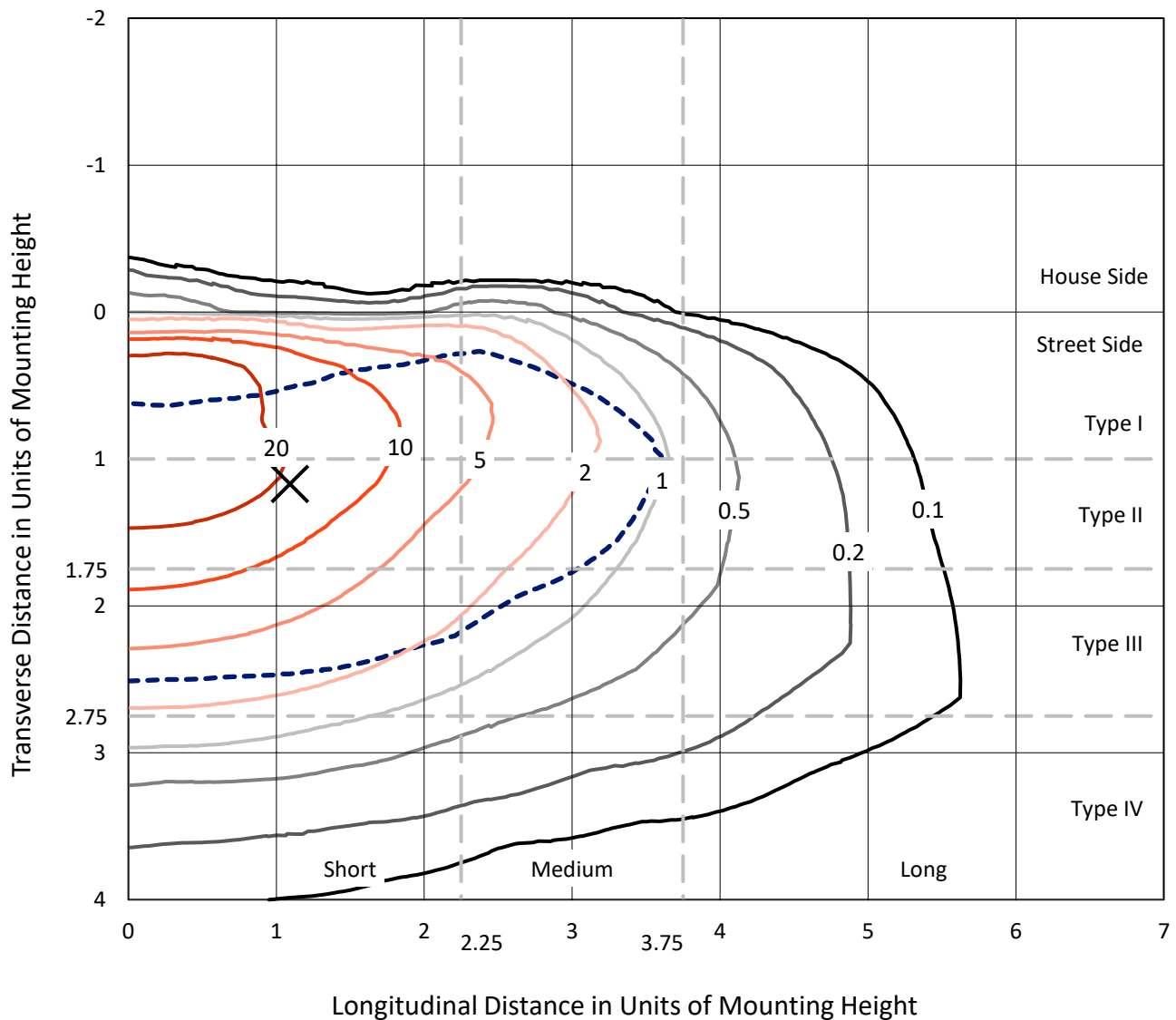


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## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

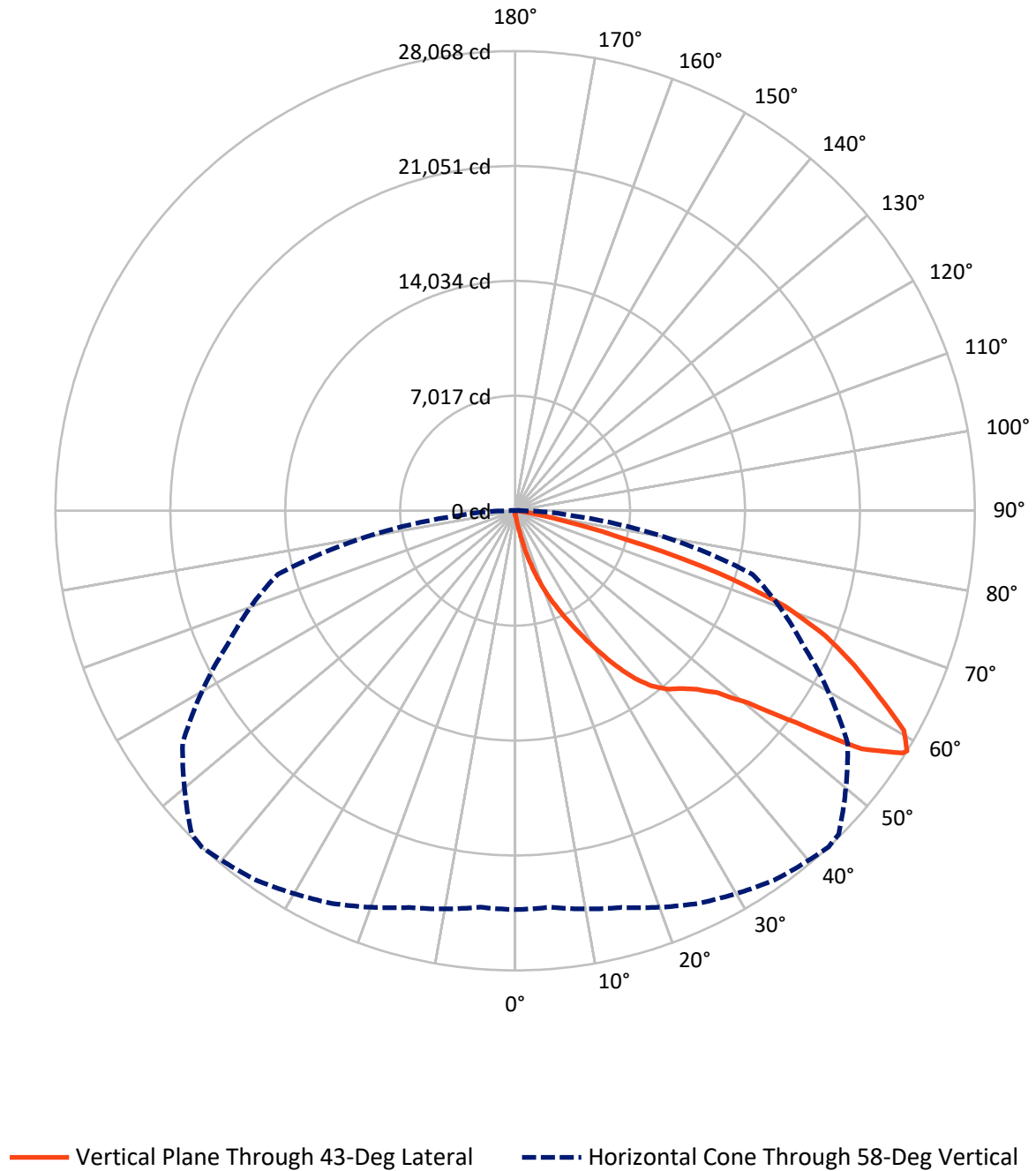


Based on 15 foot mounting height. Maximum calculated value = 38 fc  
 Type III - Short - N/A

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CATALOG NUMBER: GLAN-SA9A-750-U-T3BC

## Luminous Intensity Polar Plot



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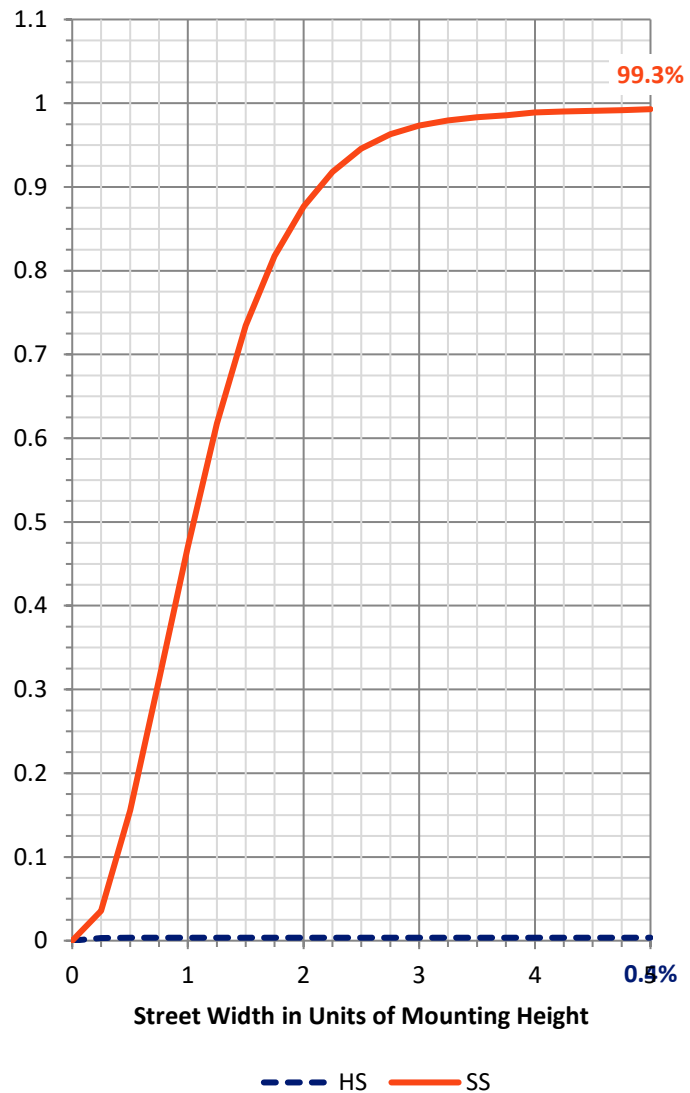
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 123.8    | 0.0    | 123.8   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 33773.7  | 0.0    | 33773.7 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 33897.5  | 0.0    | 33897.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 32.5    | 0.1       |
| 10°-20°   | 389.6   | 1.1       |
| 20°-30°   | 1404.4  | 4.1       |
| 30°-40°   | 3213.3  | 9.5       |
| 40°-50°   | 5419.5  | 16.0      |
| 50°-60°   | 8943.5  | 26.4      |
| 60°-70°   | 9995.6  | 29.5      |
| 70°-80°   | 4127.0  | 12.2      |
| 80°-90°   | 372.0   | 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°    | 33897.5 | 100.0     |
| 0°-180°   | 33897.5 | 100.0     |



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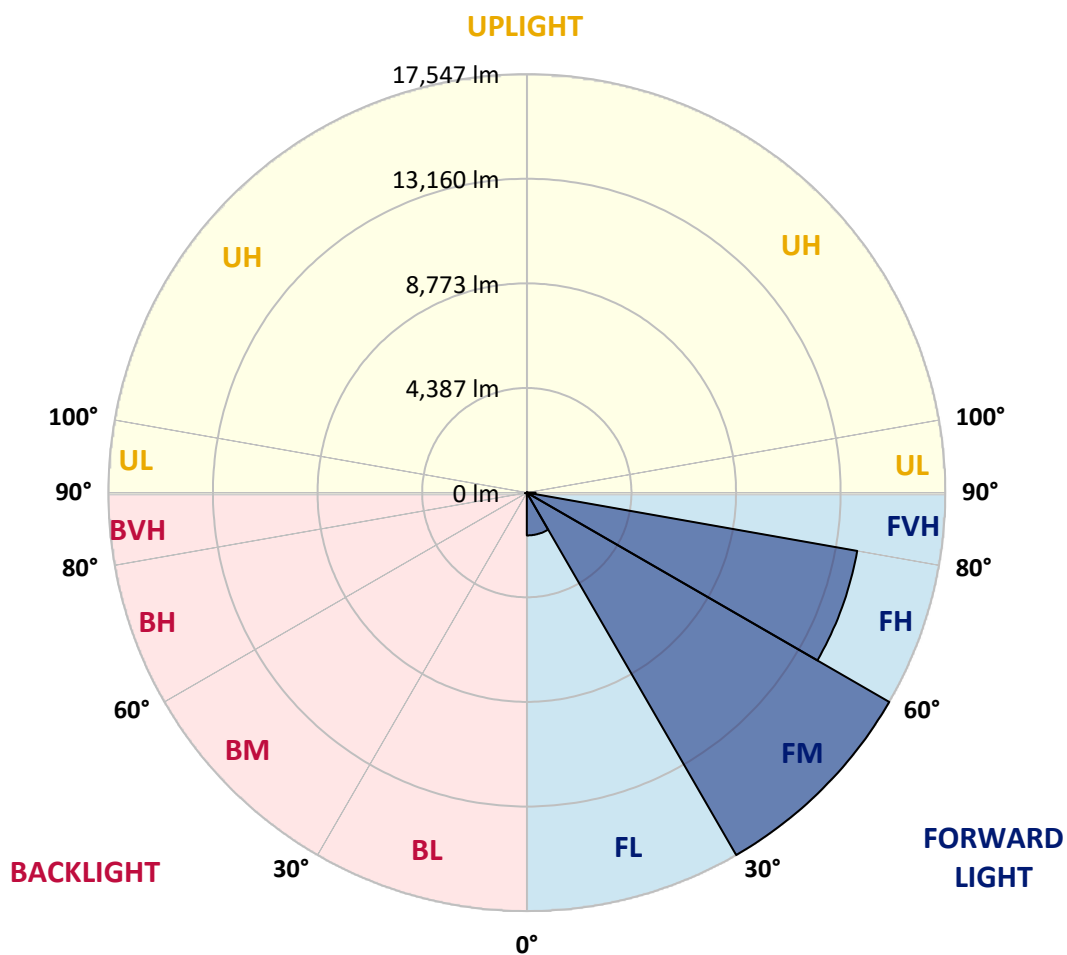
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|---------|-----------|-------------------------|------|--------|
|      |             |         |           | B                       | U    | G      |
| FL   | (0°-30°)    | 1794.3  | 5.3       |                         |      |        |
| FM   | (30°-60°)   | 17546.6 | 51.8      |                         |      |        |
| FH   | (60°-80°)   | 14065.9 | 41.5      |                         |      | G5     |
| FVH  | (80°-90°)   | 366.9   | 1.1       |                         |      | G3/500 |
| BL   | (0°-30°)    | 32.3    | 0.1       | B0/110                  |      |        |
| BM   | (30°-60°)   | 29.7    | 0.1       | B0/220                  |      |        |
| BH   | (60°-80°)   | 56.7    | 0.2       | B0/110                  |      | G0/110 |
| BVH  | (80°-90°)   | 5.1     | 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-G5**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 221.6   | 221.6   | 221.6   | 221.6   | 221.6   | 221.6   | 221.6   | 221.6   | 221.6   | 221.6   | 221.6   |
| 2.5°  | 266.0   | 274.8   | 266.0   | 266.0   | 266.0   | 257.1   | 257.1   | 248.2   | 248.2   | 239.4   | 230.5   |
| 5°    | 390.1   | 390.1   | 363.5   | 345.8   | 328.0   | 319.2   | 310.3   | 292.6   | 274.8   | 257.1   | 239.4   |
| 7.5°  | 868.8   | 868.8   | 789.0   | 682.7   | 540.8   | 461.0   | 443.3   | 363.5   | 310.3   | 274.8   | 239.4   |
| 10°   | 2074.5  | 2074.5  | 1897.2  | 1604.7  | 1241.2  | 922.0   | 824.5   | 523.1   | 372.4   | 292.6   | 248.2   |
| 12.5° | 3448.7  | 3493.0  | 3271.4  | 2899.0  | 2358.2  | 1799.7  | 1604.7  | 957.5   | 496.5   | 319.2   | 248.2   |
| 15°   | 4681.0  | 4574.6  | 4512.6  | 4158.0  | 3643.8  | 2978.8  | 2730.6  | 1613.5  | 718.1   | 363.5   | 248.2   |
| 17.5° | 5514.4  | 5514.4  | 5425.7  | 5186.4  | 4716.5  | 4131.4  | 3927.5  | 2606.5  | 1161.4  | 416.7   | 257.1   |
| 20°   | 6489.6  | 6489.6  | 6330.0  | 6161.6  | 5744.9  | 5248.4  | 5053.4  | 3705.8  | 1799.7  | 531.9   | 257.1   |
| 22.5° | 7668.7  | 7686.5  | 7509.2  | 7207.7  | 6808.8  | 6259.1  | 6090.7  | 4725.4  | 2606.5  | 709.2   | 266.0   |
| 25°   | 9105.0  | 9122.7  | 8865.6  | 8581.9  | 7970.2  | 7376.2  | 7119.1  | 5895.6  | 3590.6  | 992.9   | 266.0   |
| 27.5° | 10691.9 | 10816.0 | 10434.8 | 9947.2  | 9300.0  | 8555.3  | 8360.2  | 6950.6  | 4565.8  | 1400.8  | 283.7   |
| 30°   | 12668.9 | 12668.9 | 12163.6 | 11480.9 | 10780.6 | 9858.5  | 9610.3  | 8058.8  | 5603.1  | 1941.6  | 301.4   |
| 32.5° | 14371.1 | 14238.1 | 13590.9 | 12872.8 | 12128.1 | 11268.2 | 11002.2 | 9220.2  | 6666.9  | 2615.3  | 336.9   |
| 35°   | 15674.4 | 15559.1 | 14761.2 | 13989.9 | 13342.7 | 12553.7 | 12234.5 | 10479.1 | 7792.9  | 3377.8  | 390.1   |
| 37.5° | 16791.4 | 16747.1 | 15665.5 | 14699.1 | 14273.6 | 13582.1 | 13298.4 | 11667.1 | 8901.0  | 4202.3  | 452.1   |
| 40°   | 18014.9 | 17873.0 | 16720.5 | 15523.6 | 14885.3 | 14326.8 | 14069.7 | 12624.6 | 9964.9  | 5168.6  | 540.8   |
| 42.5° | 19061.0 | 18892.6 | 17855.3 | 16685.0 | 15594.6 | 14841.0 | 14592.8 | 13431.4 | 11002.2 | 6135.0  | 656.1   |
| 45°   | 20222.4 | 20133.7 | 19087.6 | 18201.1 | 16747.1 | 15541.4 | 15213.3 | 14078.6 | 11950.8 | 7287.5  | 806.8   |
| 47.5° | 21968.9 | 21809.3 | 20834.1 | 20107.2 | 18422.7 | 16605.2 | 16135.4 | 14743.5 | 12864.0 | 8422.3  | 1037.3  |
| 50°   | 23999.1 | 23892.8 | 23316.5 | 22740.2 | 21064.6 | 18422.7 | 17864.2 | 15701.0 | 13883.5 | 9769.9  | 1338.7  |
| 52.5° | 25657.0 | 25639.3 | 25710.2 | 25719.1 | 24451.3 | 21481.3 | 20648.0 | 17243.6 | 15053.8 | 11099.7 | 1764.3  |
| 55°   | 25621.5 | 25701.3 | 26481.5 | 27376.9 | 27474.5 | 25657.0 | 24850.2 | 19841.2 | 16578.6 | 12739.8 | 2358.2  |
| 57.5° | 24664.1 | 24602.0 | 25426.5 | 26774.1 | 27722.7 | 27917.7 | 27784.8 | 23875.0 | 18874.8 | 14716.9 | 3271.4  |
| 58°   | 24353.8 | 24300.6 | 25080.7 | 26454.9 | 27545.4 | 28068.4 | 27935.5 | 24788.2 | 19389.0 | 15000.6 | 3519.6  |
| 60°   | 23227.8 | 23236.7 | 23697.7 | 24947.8 | 26038.2 | 27279.4 | 27403.5 | 27394.7 | 21951.2 | 16897.8 | 4769.7  |
| 62.5° | 21738.4 | 21667.5 | 22093.0 | 23112.6 | 24070.1 | 24903.4 | 25116.2 | 27572.0 | 25701.3 | 19309.2 | 7154.5  |
| 65°   | 19681.6 | 19575.2 | 20027.4 | 21179.9 | 22208.3 | 22749.1 | 22758.0 | 25196.0 | 27465.6 | 21898.0 | 10558.9 |
| 67.5° | 15860.5 | 15771.9 | 16676.2 | 18156.7 | 19743.7 | 20452.9 | 20772.1 | 21862.5 | 25976.2 | 23653.4 | 12509.3 |
| 70°   | 9716.7  | 9902.9  | 11161.8 | 13484.6 | 16197.4 | 17500.7 | 17979.4 | 18316.3 | 22119.6 | 23387.4 | 10461.4 |
| 72.5° | 4486.0  | 4264.3  | 5337.1  | 6959.5  | 10053.6 | 12952.6 | 13449.1 | 14770.1 | 17536.1 | 20302.2 | 7801.7  |
| 75°   | 2092.3  | 2012.5  | 2260.7  | 3040.9  | 4556.9  | 6994.9  | 7899.2  | 11791.2 | 13449.1 | 14122.9 | 5629.6  |
| 77.5° | 1072.7  | 1081.6  | 1285.5  | 1383.0  | 1879.5  | 3235.9  | 3714.7  | 7757.4  | 9858.5  | 7881.5  | 3776.7  |
| 80°   | 469.9   | 487.6   | 496.5   | 540.8   | 762.4   | 1250.0  | 1409.6  | 3599.4  | 6737.8  | 4016.1  | 2065.7  |
| 82.5° | 301.4   | 310.3   | 310.3   | 310.3   | 363.5   | 496.5   | 567.4   | 1445.1  | 3360.1  | 1994.8  | 638.3   |
| 85°   | 159.6   | 159.6   | 177.3   | 221.6   | 257.1   | 301.4   | 319.2   | 461.0   | 1108.2  | 594.0   | 150.7   |
| 87.5° | 88.7    | 97.5    | 106.4   | 133.0   | 168.4   | 203.9   | 221.6   | 319.2   | 425.5   | 407.8   | 35.5    |
| 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: GLAN-SA9A-750-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 221.6  | 221.6 | 221.6 | 221.6 | 221.6 | 221.6 | 221.6 | 221.6 | 221.6 | 221.6 | 221.6 |
| 2.5°  | 230.5  | 221.6 | 212.8 | 203.9 | 195.0 | 186.2 | 186.2 | 186.2 | 186.2 | 186.2 | 186.2 |
| 5°    | 221.6  | 212.8 | 203.9 | 186.2 | 168.4 | 159.6 | 150.7 | 141.8 | 141.8 | 141.8 | 141.8 |
| 7.5°  | 221.6  | 212.8 | 186.2 | 168.4 | 150.7 | 133.0 | 115.3 | 115.3 | 115.3 | 115.3 | 115.3 |
| 10°   | 221.6  | 203.9 | 177.3 | 150.7 | 124.1 | 106.4 | 97.5  | 88.7  | 88.7  | 88.7  | 88.7  |
| 12.5° | 221.6  | 195.0 | 168.4 | 133.0 | 106.4 | 88.7  | 79.8  | 70.9  | 70.9  | 70.9  | 70.9  |
| 15°   | 221.6  | 195.0 | 159.6 | 124.1 | 97.5  | 70.9  | 62.1  | 53.2  | 53.2  | 53.2  | 53.2  |
| 17.5° | 212.8  | 186.2 | 150.7 | 106.4 | 79.8  | 53.2  | 44.3  | 35.5  | 35.5  | 44.3  | 44.3  |
| 20°   | 203.9  | 177.3 | 133.0 | 88.7  | 62.1  | 44.3  | 26.6  | 26.6  | 26.6  | 26.6  | 26.6  |
| 22.5° | 203.9  | 177.3 | 124.1 | 79.8  | 53.2  | 26.6  | 17.7  | 17.7  | 17.7  | 17.7  | 26.6  |
| 25°   | 203.9  | 168.4 | 106.4 | 62.1  | 35.5  | 17.7  | 8.9   | 8.9   | 8.9   | 8.9   | 8.9   |
| 27.5° | 203.9  | 168.4 | 97.5  | 53.2  | 26.6  | 17.7  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 195.0  | 159.6 | 88.7  | 44.3  | 17.7  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 195.0  | 150.7 | 70.9  | 35.5  | 17.7  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 203.9  | 141.8 | 62.1  | 26.6  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 8.9   |
| 37.5° | 212.8  | 133.0 | 53.2  | 17.7  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 221.6  | 124.1 | 53.2  | 17.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 239.4  | 124.1 | 44.3  | 17.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 257.1  | 124.1 | 35.5  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 292.6  | 133.0 | 35.5  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 319.2  | 141.8 | 26.6  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 354.6  | 133.0 | 26.6  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 399.0  | 133.0 | 26.6  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 434.4  | 124.1 | 26.6  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 452.1  | 115.3 | 17.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 540.8  | 106.4 | 17.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 842.2  | 88.7  | 17.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1711.1 | 79.8  | 17.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 3191.6 | 70.9  | 17.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 3572.8 | 79.8  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 2251.9 | 62.1  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1188.0 | 62.1  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 594.0  | 62.1  | 8.9   | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 274.8  | 44.3  | 8.9   | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 115.3  | 26.6  | 17.7  | 8.9   | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 53.2   | 26.6  | 17.7  | 17.7  | 8.9   | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 26.6   | 26.6  | 26.6  | 17.7  | 17.7  | 8.9   | 8.9   | 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: SP1-2407-184-6

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-750-U-5WQ

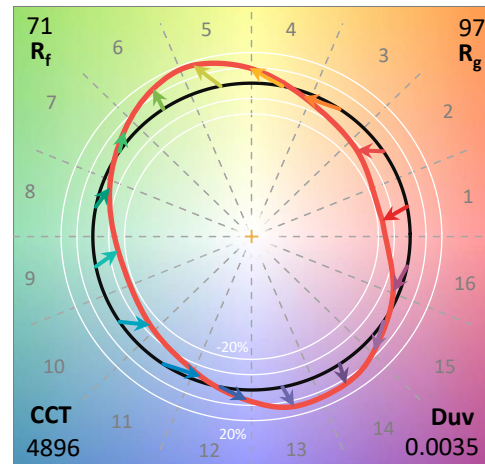
Data in this report applies to families of products including GSS-SB1A-750-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-6  
 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-750-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 5000K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 4896     | CRI (Ra): | 70.2 |      |       |
| CIE u':                   | 0.2101   | R1:       | 68.1 | R9:  | -35.1 |
| CIE v':                   | 0.4901   | R2:       | 73.9 | R10: | 39.3  |
| Duv:                      | 0.0035   | R3:       | 79.4 | R11: | 71.1  |
| CIE x:                    | 0.3489   | R4:       | 72.1 | R12: | 43.8  |
| CIE y:                    | 0.3618   | R5:       | 69.2 | R13: | 68.1  |
| CIE z:                    | 0.2893   | R6:       | 65.7 | R14: | 88.4  |
| Peak Wavelength (nm):     | 443      | R7:       | 78.1 | R15: | 59.7  |
| Dominant Wavelength (nm): | 570      | R8:       | 55.3 |      |       |
| Purity:                   | 13.25435 |           |      |      |       |
| Rf:                       | 70.7     |           |      |      |       |
| Rg:                       | 96.8     |           |      |      |       |



### Test Conditions

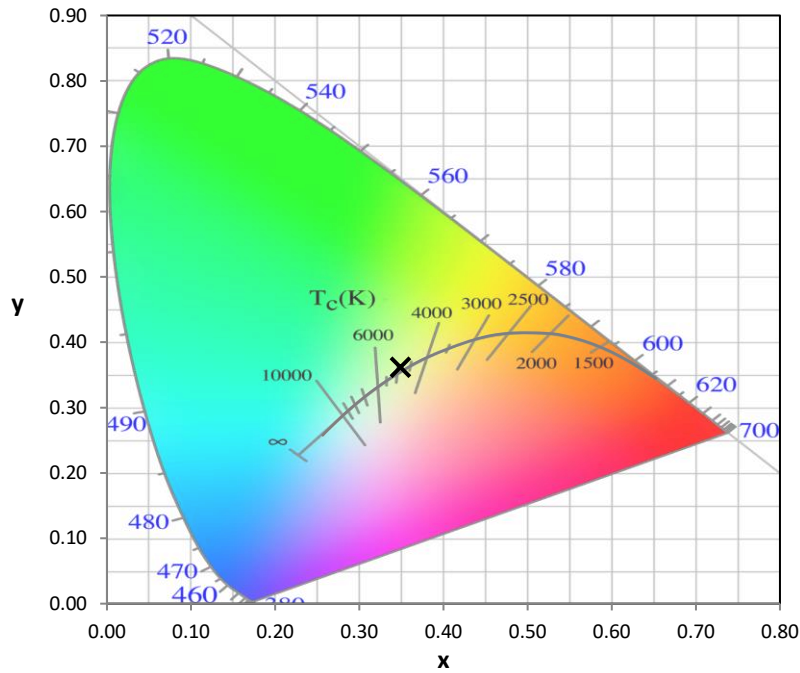
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-6

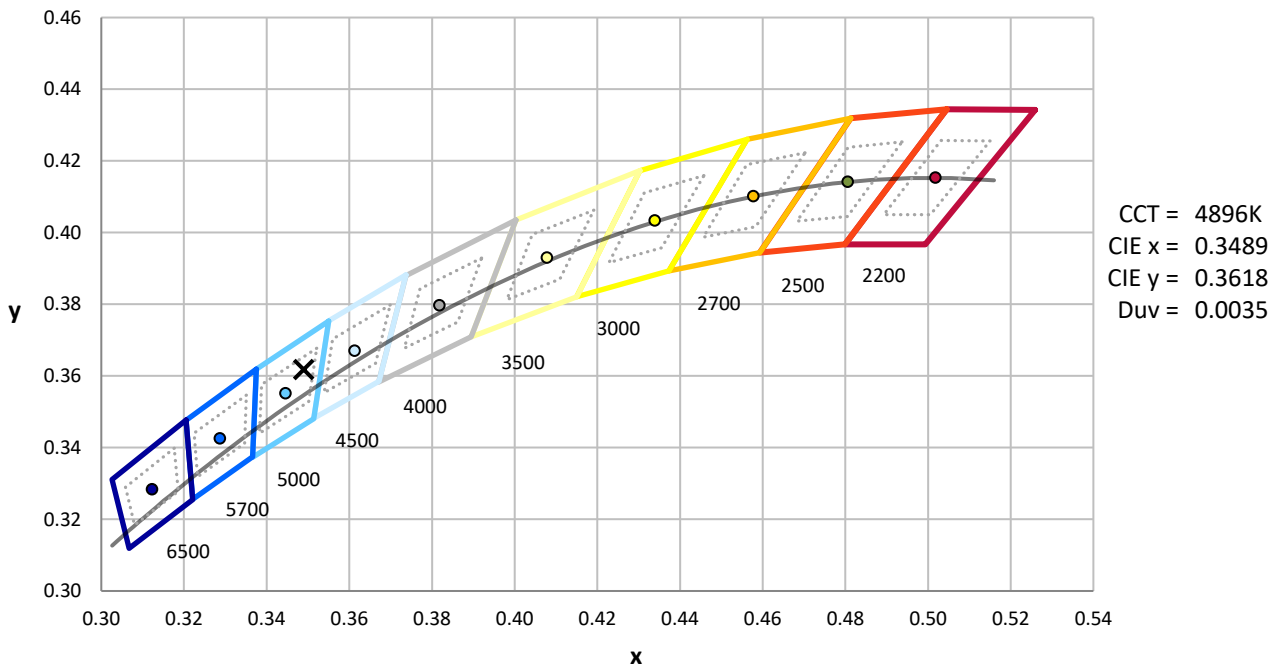
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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**



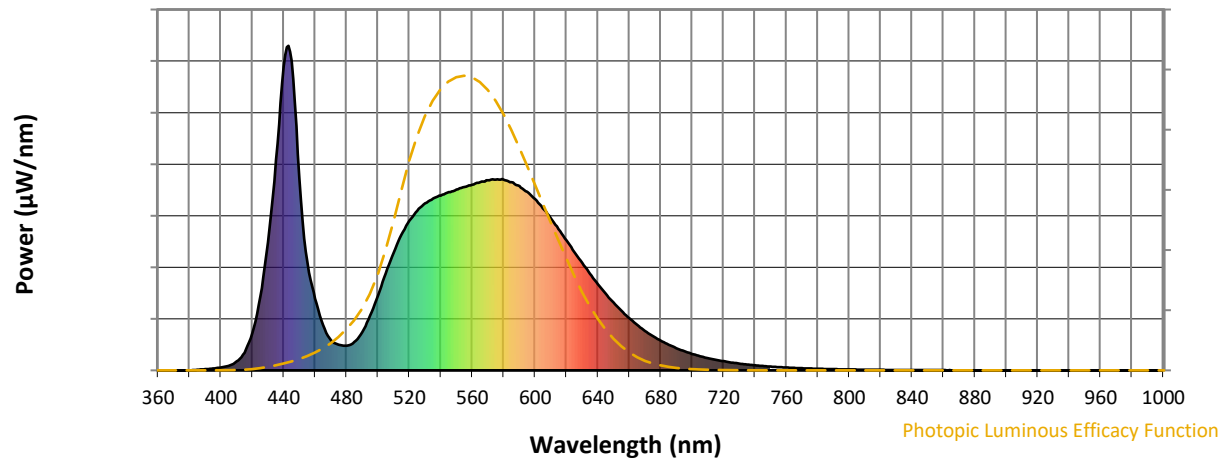
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 5000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

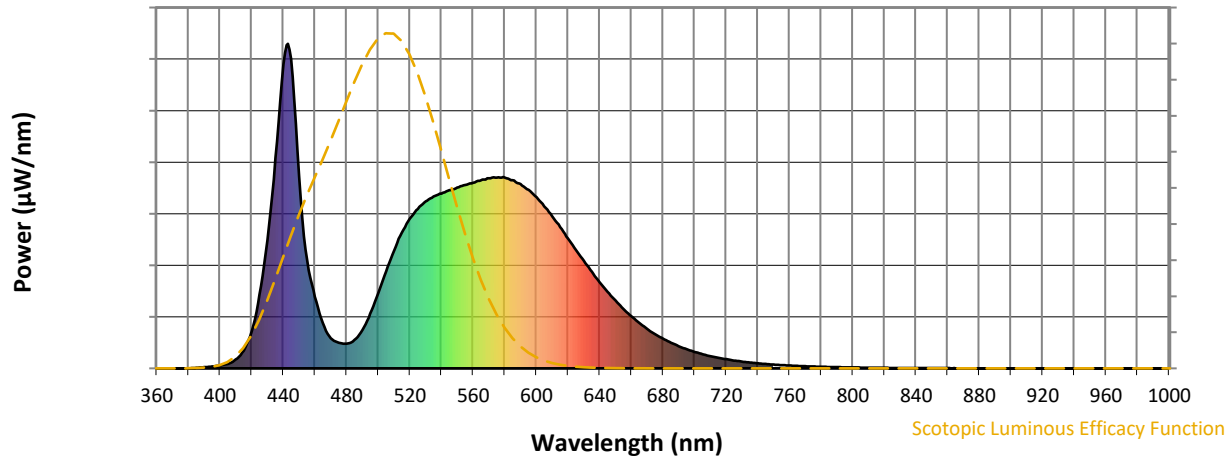


### Photopic Lumens: NR

| 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       | 118                         | NR               | 620       | 401                         | NR               | 750       | 12                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 168                         | NR               | 625       | 365                         | NR               | 755       | 10                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 230                         | NR               | 630       | 331                         | NR               | 760       | 9                           | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 299                         | NR               | 635       | 298                         | NR               | 765       | 8                           | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 362                         | NR               | 640       | 266                         | NR               | 770       | 6                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 418                         | NR               | 645       | 236                         | NR               | 775       | 6                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 461                         | NR               | 650       | 209                         | NR               | 780       | 5                           | NR               | 910       | 0                           | NR               |
| 395       | 6                           | NR               | 525       | 491                         | NR               | 655       | 184                         | NR               | 785       | 4                           | NR               | 915       | 0                           | NR               |
| 400       | 9                           | NR               | 530       | 514                         | NR               | 660       | 160                         | NR               | 790       | 4                           | NR               | 920       | 0                           | NR               |
| 405       | 14                          | NR               | 535       | 530                         | NR               | 665       | 140                         | NR               | 795       | 3                           | NR               | 925       | 0                           | NR               |
| 410       | 27                          | NR               | 540       | 539                         | NR               | 670       | 122                         | NR               | 800       | 3                           | NR               | 930       | 0                           | NR               |
| 415       | 55                          | NR               | 545       | 549                         | NR               | 675       | 106                         | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 115                         | NR               | 550       | 557                         | NR               | 680       | 92                          | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 226                         | NR               | 555       | 565                         | NR               | 685       | 79                          | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 395                         | NR               | 560       | 572                         | NR               | 690       | 68                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 648                         | NR               | 565       | 580                         | NR               | 695       | 59                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 937                         | NR               | 570       | 586                         | NR               | 700       | 51                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 953                         | NR               | 575       | 588                         | NR               | 705       | 44                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 591                         | NR               | 580       | 588                         | NR               | 710       | 38                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 334                         | NR               | 585       | 580                         | NR               | 715       | 32                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 221                         | NR               | 590       | 568                         | NR               | 720       | 28                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 140                         | NR               | 595       | 550                         | NR               | 725       | 24                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 93                          | NR               | 600       | 527                         | NR               | 730       | 21                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 79                          | NR               | 605       | 499                         | NR               | 735       | 18                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 469                         | NR               | 740       | 15                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 87                          | NR               | 615       | 435                         | NR               | 745       | 13                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



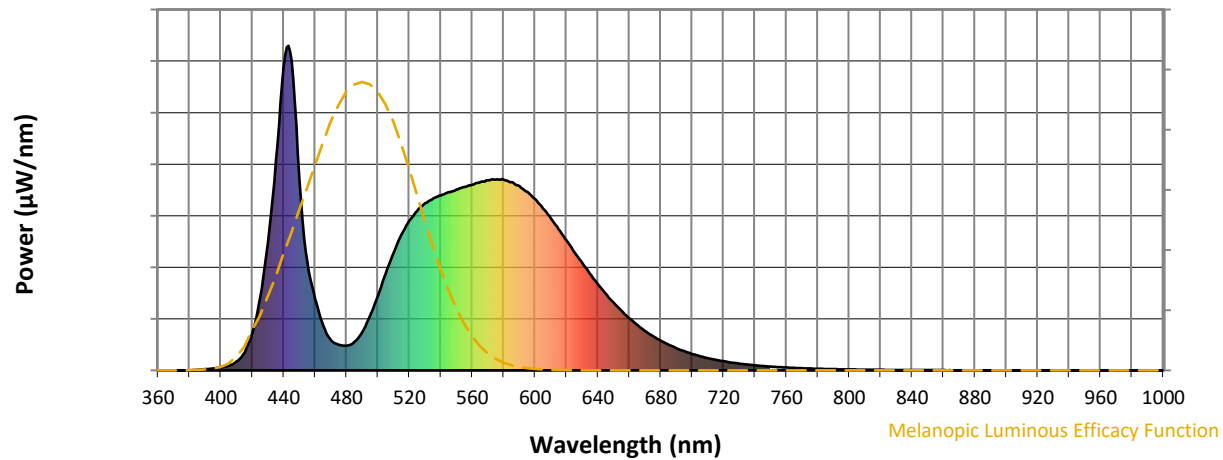
Scotopic Lumens: NR

S/P: 1.7

| λ<br>(nm) | Power<br>W <sup>Λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>Λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>Λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>Λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>Λ</sup> /nm | Lumens<br>(Φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 118                         | NR               | 620       | 401                         | NR               | 750       | 12                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 168                         | NR               | 625       | 365                         | NR               | 755       | 10                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 230                         | NR               | 630       | 331                         | NR               | 760       | 9                           | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 299                         | NR               | 635       | 298                         | NR               | 765       | 8                           | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 362                         | NR               | 640       | 266                         | NR               | 770       | 6                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 418                         | NR               | 645       | 236                         | NR               | 775       | 6                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 461                         | NR               | 650       | 209                         | NR               | 780       | 5                           | NR               | 910       | 0                           | NR               |
| 395       | 6                           | NR               | 525       | 491                         | NR               | 655       | 184                         | NR               | 785       | 4                           | NR               | 915       | 0                           | NR               |
| 400       | 9                           | NR               | 530       | 514                         | NR               | 660       | 160                         | NR               | 790       | 4                           | NR               | 920       | 0                           | NR               |
| 405       | 14                          | NR               | 535       | 530                         | NR               | 665       | 140                         | NR               | 795       | 3                           | NR               | 925       | 0                           | NR               |
| 410       | 27                          | NR               | 540       | 539                         | NR               | 670       | 122                         | NR               | 800       | 3                           | NR               | 930       | 0                           | NR               |
| 415       | 55                          | NR               | 545       | 549                         | NR               | 675       | 106                         | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 115                         | NR               | 550       | 557                         | NR               | 680       | 92                          | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 226                         | NR               | 555       | 565                         | NR               | 685       | 79                          | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 395                         | NR               | 560       | 572                         | NR               | 690       | 68                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 648                         | NR               | 565       | 580                         | NR               | 695       | 59                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 937                         | NR               | 570       | 586                         | NR               | 700       | 51                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 953                         | NR               | 575       | 588                         | NR               | 705       | 44                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 591                         | NR               | 580       | 588                         | NR               | 710       | 38                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 334                         | NR               | 585       | 580                         | NR               | 715       | 32                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 221                         | NR               | 590       | 568                         | NR               | 720       | 28                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 140                         | NR               | 595       | 550                         | NR               | 725       | 24                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 93                          | NR               | 600       | 527                         | NR               | 730       | 21                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 79                          | NR               | 605       | 499                         | NR               | 735       | 18                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 469                         | NR               | 740       | 15                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 87                          | NR               | 615       | 435                         | NR               | 745       | 13                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.37

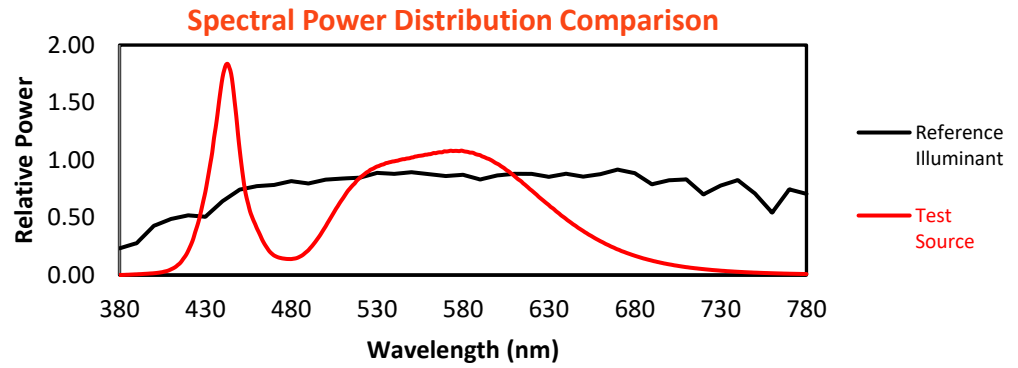
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 118                                  | NR                             | 620               | 401                                  | NR                             | 750               | 12                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 168                                  | NR                             | 625               | 365                                  | NR                             | 755               | 10                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 230                                  | NR                             | 630               | 331                                  | NR                             | 760               | 9                                    | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 299                                  | NR                             | 635               | 298                                  | NR                             | 765               | 8                                    | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 362                                  | NR                             | 640               | 266                                  | NR                             | 770               | 6                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 2                                    | NR                             | 515               | 418                                  | NR                             | 645               | 236                                  | NR                             | 775               | 6                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 4                                    | NR                             | 520               | 461                                  | NR                             | 650               | 209                                  | NR                             | 780               | 5                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 6                                    | NR                             | 525               | 491                                  | NR                             | 655               | 184                                  | NR                             | 785               | 4                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 9                                    | NR                             | 530               | 514                                  | NR                             | 660               | 160                                  | NR                             | 790               | 4                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 14                                   | NR                             | 535               | 530                                  | NR                             | 665               | 140                                  | NR                             | 795               | 3                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 27                                   | NR                             | 540               | 539                                  | NR                             | 670               | 122                                  | NR                             | 800               | 3                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 55                                   | NR                             | 545               | 549                                  | NR                             | 675               | 106                                  | NR                             | 805               | 2                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 115                                  | NR                             | 550               | 557                                  | NR                             | 680               | 92                                   | NR                             | 810               | 2                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 226                                  | NR                             | 555               | 565                                  | NR                             | 685               | 79                                   | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 395                                  | NR                             | 560               | 572                                  | NR                             | 690               | 68                                   | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 648                                  | NR                             | 565               | 580                                  | NR                             | 695               | 59                                   | NR                             | 825               | 1                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 937                                  | NR                             | 570               | 586                                  | NR                             | 700               | 51                                   | NR                             | 830               | 1                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 953                                  | NR                             | 575               | 588                                  | NR                             | 705               | 44                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 591                                  | NR                             | 580               | 588                                  | NR                             | 710               | 38                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 334                                  | NR                             | 585               | 580                                  | NR                             | 715               | 32                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 221                                  | NR                             | 590               | 568                                  | NR                             | 720               | 28                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 140                                  | NR                             | 595               | 550                                  | NR                             | 725               | 24                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 93                                   | NR                             | 600               | 527                                  | NR                             | 730               | 21                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 79                                   | NR                             | 605               | 499                                  | NR                             | 735               | 18                                   | NR                             | 865               | 0                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 76                                   | NR                             | 610               | 469                                  | NR                             | 740               | 15                                   | NR                             | 870               | 0                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 87                                   | NR                             | 615               | 435                                  | NR                             | 745               | 13                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

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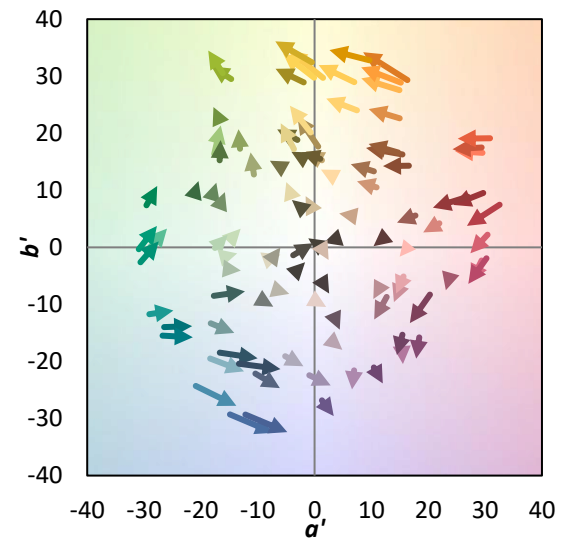
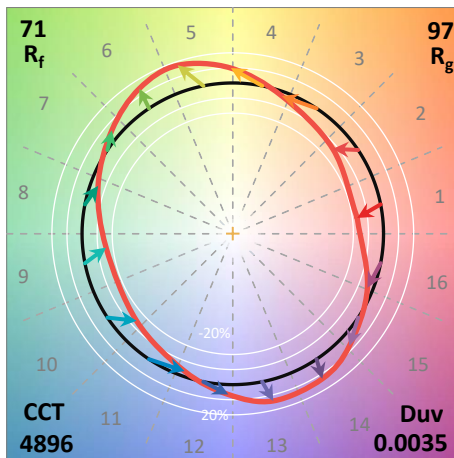
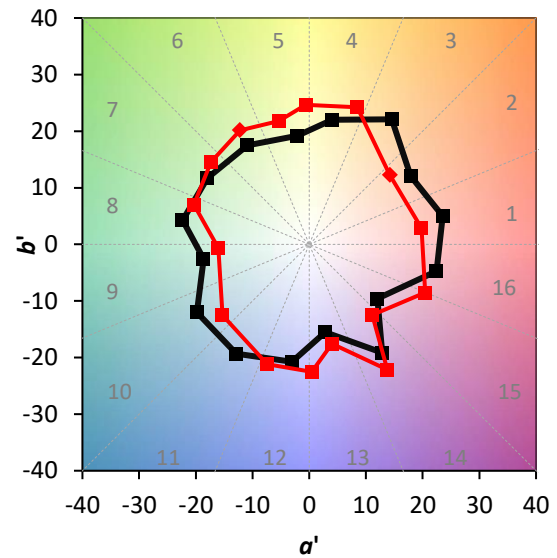
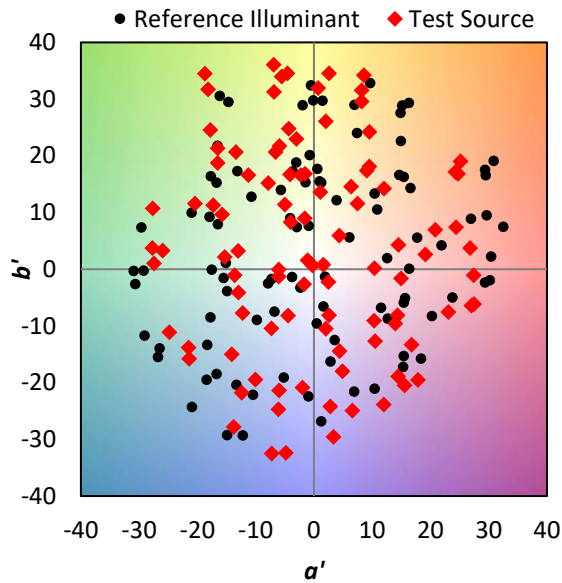
TM-30-18

### Summary

$R_f = 70.7$   
 $R_g = 96.8$   
 $CIE R_a = 70.2$   
 $R_g = -35.1$



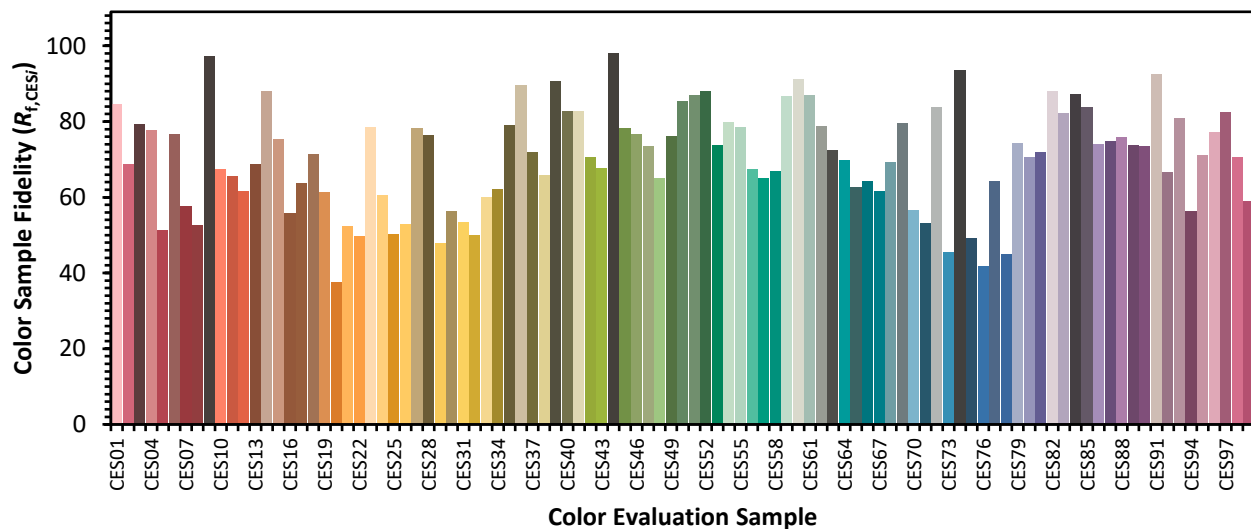
### Color Vector Graphics



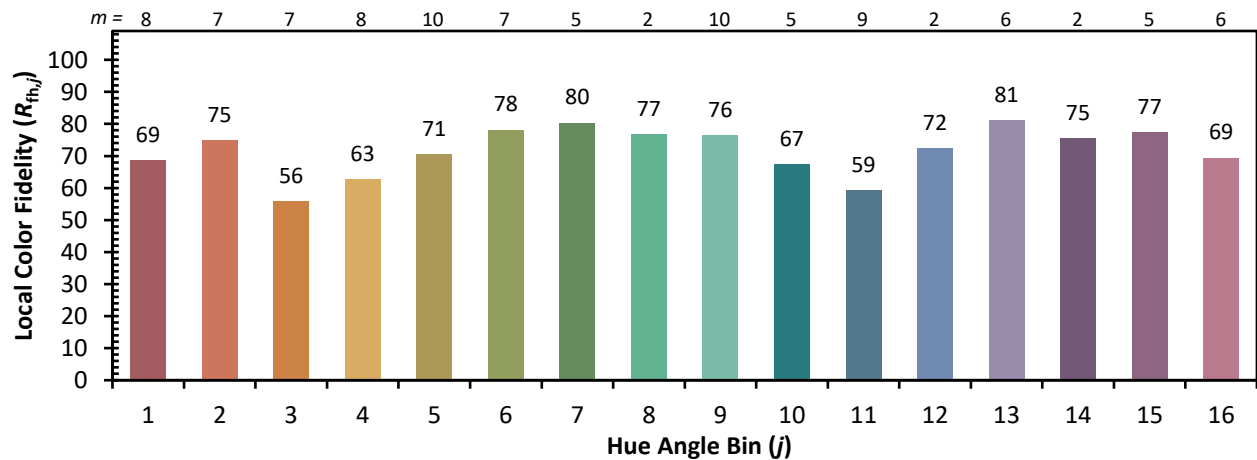
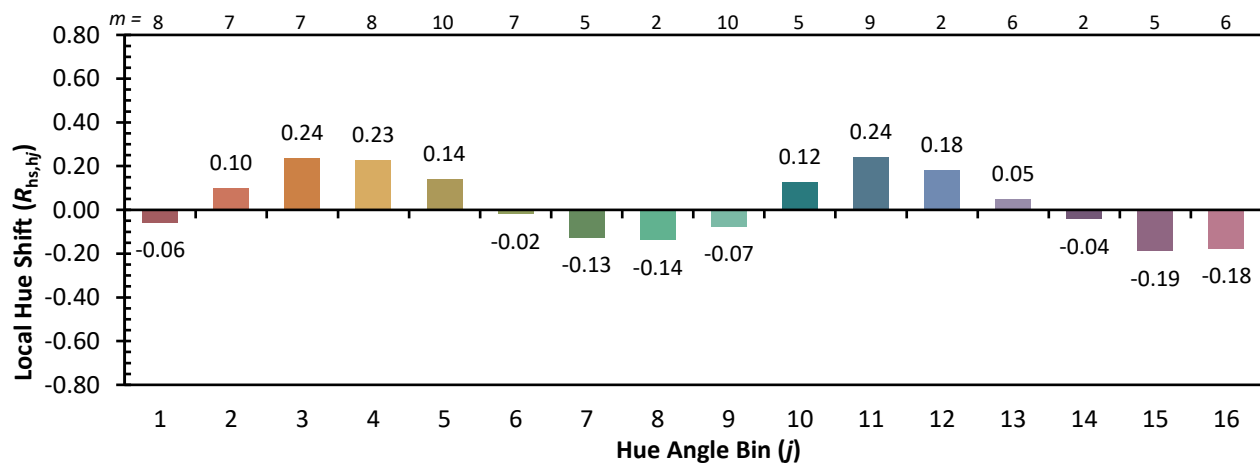
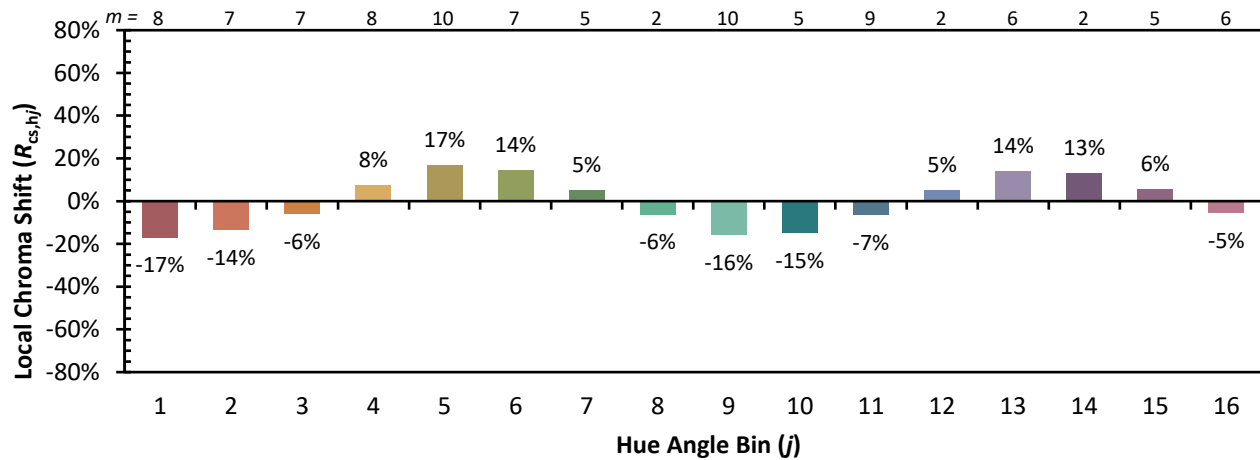


Individual Sample Fidelity Index ( $R_{f,i}$ )

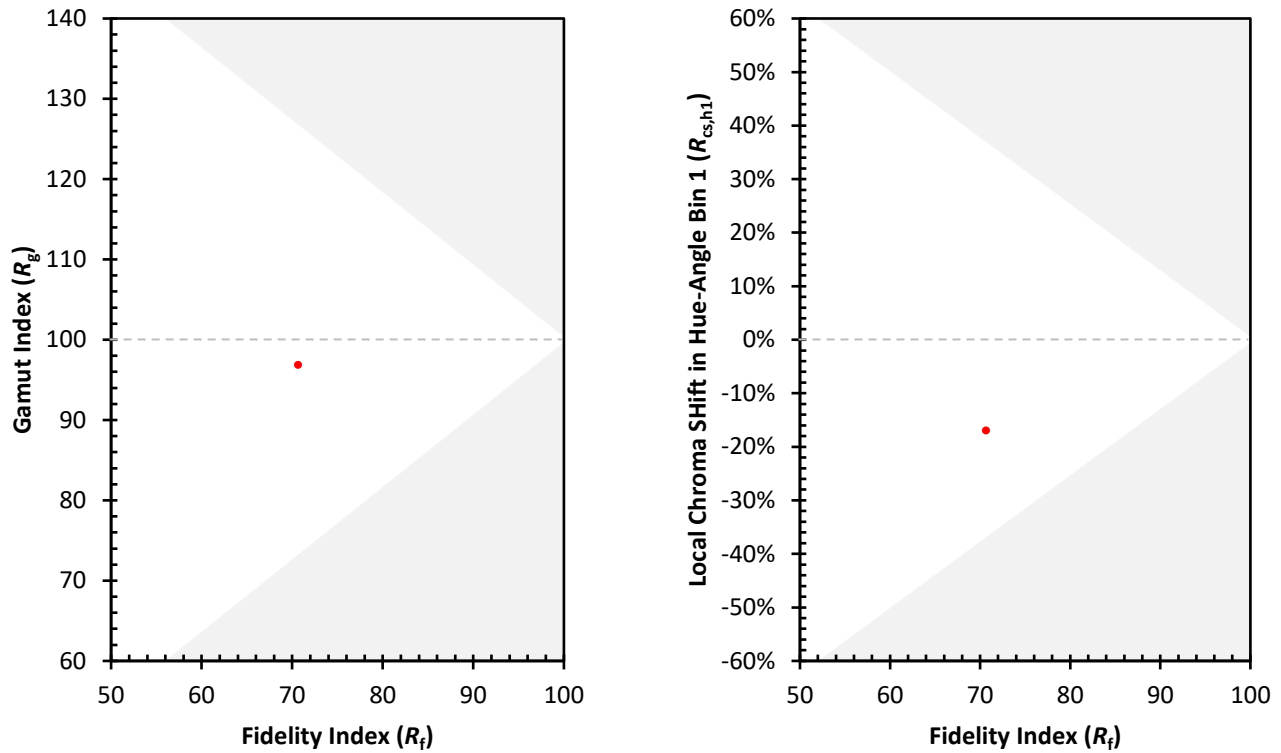
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 53 | CES51 = 87 | CES76 = 42 |
| CES02 = 59 | CES27 = 78 | CES52 = 88 | CES77 = 64 |
| CES03 = 30 | CES28 = 76 | CES53 = 74 | CES78 = 45 |
| CES04 = 69 | CES29 = 48 | CES54 = 80 | CES79 = 74 |
| CES05 = 46 | CES30 = 56 | CES55 = 79 | CES80 = 71 |
| CES06 = 50 | CES31 = 54 | CES56 = 68 | CES81 = 72 |
| CES07 = 39 | CES32 = 50 | CES57 = 65 | CES82 = 88 |
| CES08 = 38 | CES33 = 60 | CES58 = 67 | CES83 = 82 |
| CES09 = 29 | CES34 = 62 | CES59 = 87 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 91 | CES85 = 84 |
| CES11 = 56 | CES36 = 90 | CES61 = 87 | CES86 = 74 |
| CES12 = 61 | CES37 = 72 | CES62 = 79 | CES87 = 75 |
| CES13 = 41 | CES38 = 66 | CES63 = 72 | CES88 = 76 |
| CES14 = 74 | CES39 = 91 | CES64 = 70 | CES89 = 74 |
| CES15 = 70 | CES40 = 83 | CES65 = 63 | CES90 = 73 |
| CES16 = 46 | CES41 = 83 | CES66 = 64 | CES91 = 92 |
| CES17 = 49 | CES42 = 70 | CES67 = 62 | CES92 = 67 |
| CES18 = 55 | CES43 = 68 | CES68 = 69 | CES93 = 81 |
| CES19 = 71 | CES44 = 98 | CES69 = 80 | CES94 = 56 |
| CES20 = 64 | CES45 = 78 | CES70 = 56 | CES95 = 71 |
| CES21 = 85 | CES46 = 77 | CES71 = 53 | CES96 = 77 |
| CES22 = 77 | CES47 = 73 | CES72 = 84 | CES97 = 82 |
| CES23 = 91 | CES48 = 65 | CES73 = 46 | CES98 = 71 |
| CES24 = 90 | CES49 = 76 | CES74 = 94 | CES99 = 59 |
| CES25 = 71 | CES50 = 85 | CES75 = 49 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)