

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: P1048151

Luminaire Tested: **GALN-SA6C-935-U-T2BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1048151  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA6C-935-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 6xLight Square PACKAGE  
90CRI 3500K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (84) 3500K CCT, 90 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 24208.4 lumens  
Efficiency: N/A  
Efficacy: 85.7 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 282.5  
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

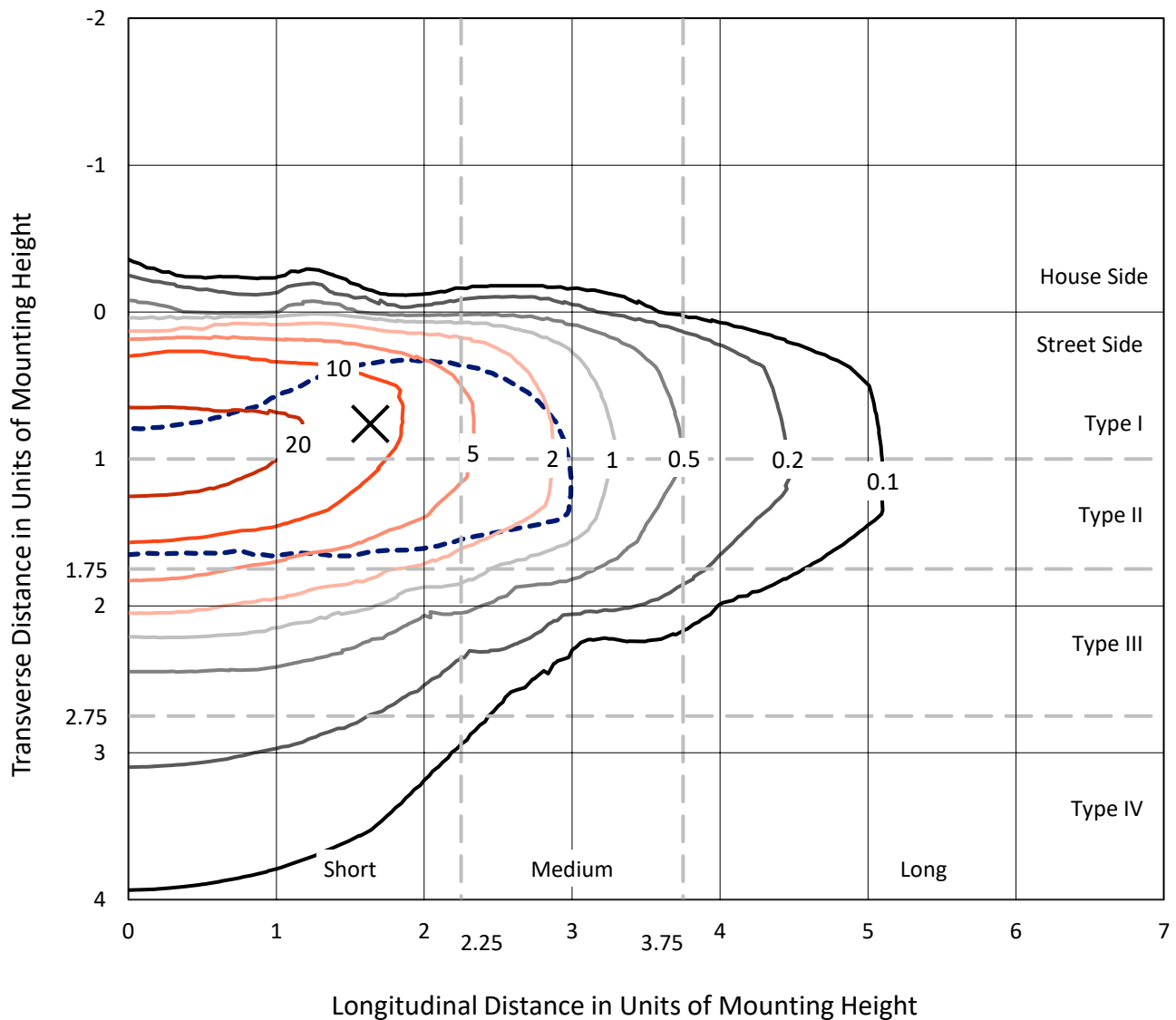


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

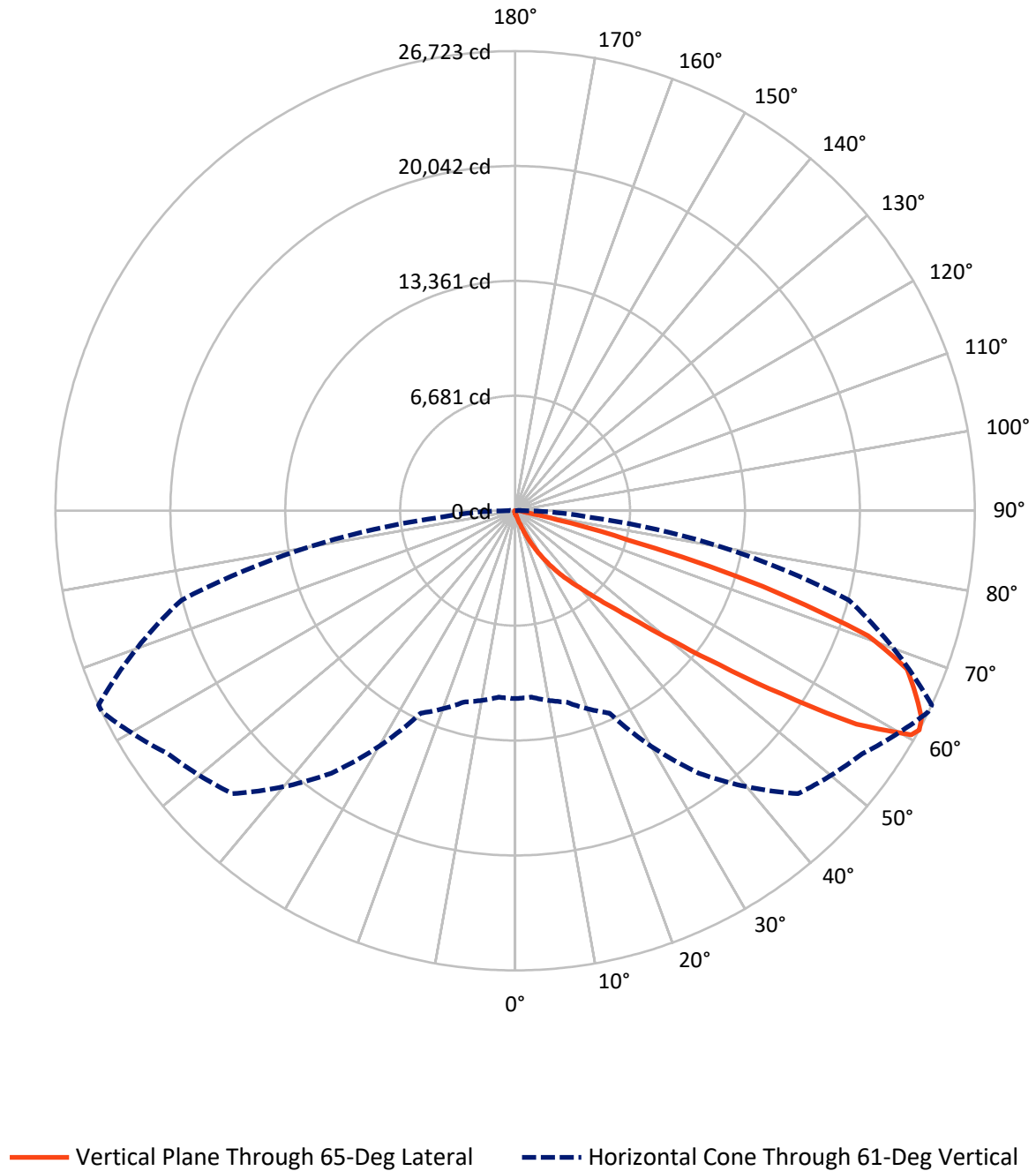


Based on 15 foot mounting height. Maximum calculated value = 32 fc  
 Type II - Short - N/A

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CATALOG NUMBER: GALN-SA6C-935-U-T2BC

## Luminous Intensity Polar Plot



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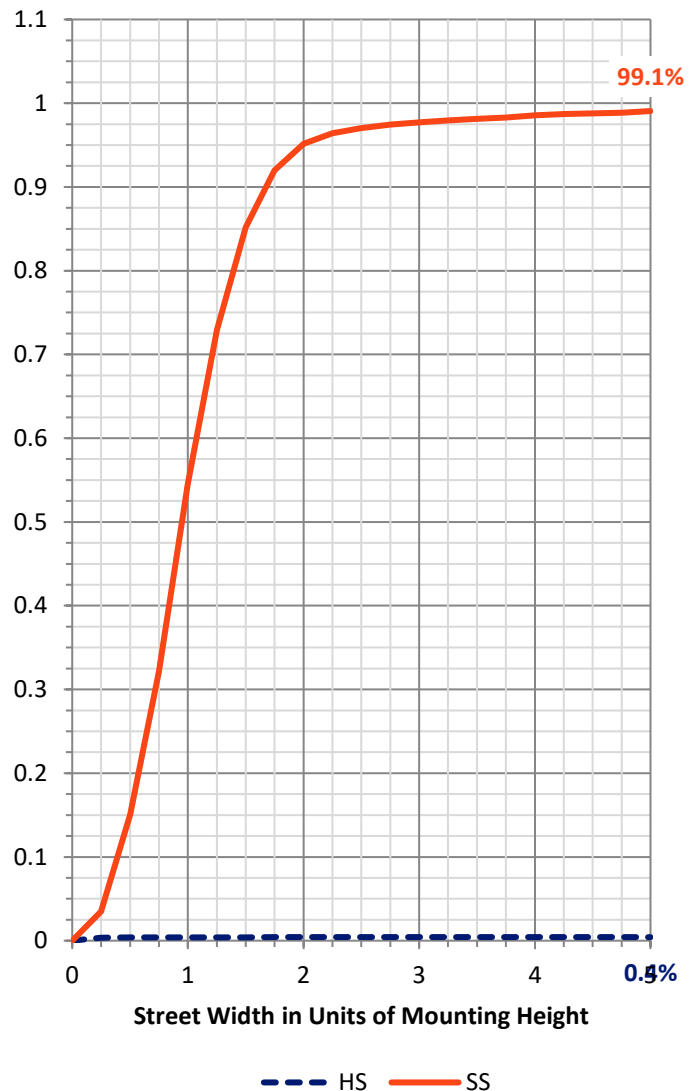
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 103.4    | 0.0    | 103.4   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 24105.0  | 0.0    | 24105.0 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 24208.4  | 0.0    | 24208.4 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 18.8    | 0.1       |
| 10°-20°   | 199.1   | 0.8       |
| 20°-30°   | 714.4   | 3.0       |
| 30°-40°   | 1902.1  | 7.9       |
| 40°-50°   | 4996.7  | 20.6      |
| 50°-60°   | 7740.9  | 32.0      |
| 60°-70°   | 6490.6  | 26.8      |
| 70°-80°   | 1910.1  | 7.9       |
| 80°-90°   | 235.6   | 1.0       |
| 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°    | 24208.4 | 100.0     |
| 0°-180°   | 24208.4 | 100.0     |



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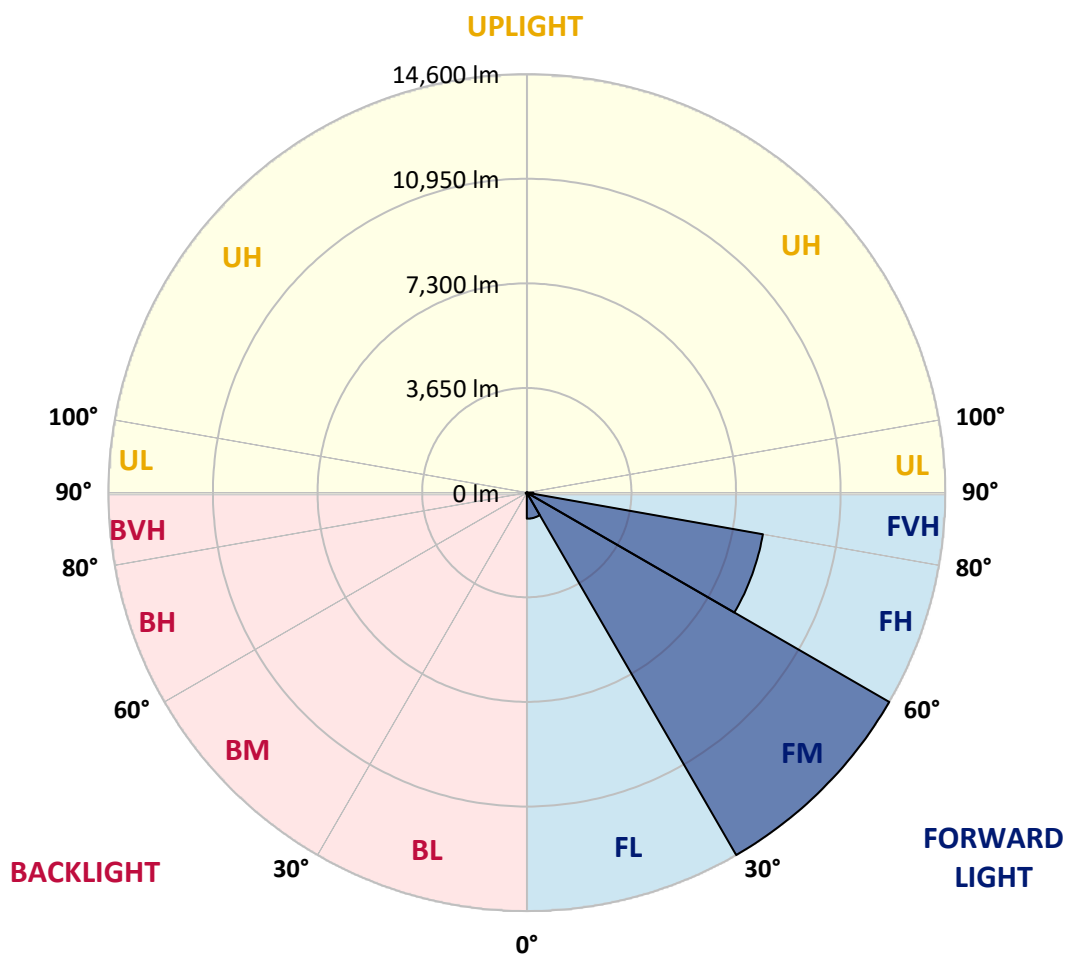
CATALOG NUMBER: GALN-SA6C-935-U-T2BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 909.2   | 3.8       |                         |      |          |
| FM   | (30°-60°)   | 14600.4 | 60.3      |                         |      |          |
| FH   | (60°-80°)   | 8364.2  | 34.6      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 231.3   | 1.0       |                         |      | G3/500   |
| BL   | (0°-30°)    | 23.2    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 39.3    | 0.2       | B0/220                  |      |          |
| BH   | (60°-80°)   | 36.5    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 4.4     | 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 II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 148.2   | 148.2   | 148.2   | 148.2   | 148.2   | 148.2   | 148.2   | 148.2   | 148.2   | 148.2   | 148.2  |
| 2.5°  | 179.8   | 181.5   | 178.2   | 171.5   | 166.5   | 166.5   | 164.9   | 159.9   | 159.9   | 154.9   | 151.5  |
| 5°    | 251.5   | 248.1   | 241.5   | 228.1   | 216.5   | 204.8   | 193.2   | 181.5   | 179.8   | 164.9   | 154.9  |
| 7.5°  | 411.3   | 414.7   | 393.0   | 351.4   | 316.4   | 271.4   | 229.8   | 204.8   | 201.5   | 176.5   | 156.5  |
| 10°   | 902.6   | 877.6   | 827.6   | 666.1   | 547.9   | 413.0   | 306.4   | 238.1   | 234.8   | 189.8   | 159.9  |
| 12.5° | 1645.3  | 1625.3  | 1533.7  | 1367.2  | 1062.4  | 739.4   | 448.0   | 294.8   | 284.8   | 201.5   | 161.5  |
| 15°   | 2371.4  | 2339.7  | 2289.8  | 2121.6  | 1765.2  | 1325.6  | 732.7   | 403.0   | 376.4   | 218.2   | 159.9  |
| 17.5° | 2834.3  | 2839.3  | 2794.3  | 2722.7  | 2492.9  | 1961.7  | 1265.6  | 601.2   | 549.5   | 248.1   | 156.5  |
| 20°   | 3239.0  | 3227.3  | 3252.3  | 3214.0  | 3052.4  | 2666.1  | 1841.8  | 952.5   | 864.3   | 296.4   | 158.2  |
| 22.5° | 3705.2  | 3733.5  | 3751.9  | 3743.5  | 3565.4  | 3235.6  | 2496.2  | 1425.5  | 1313.9  | 384.7   | 163.2  |
| 25°   | 4329.7  | 4326.4  | 4328.1  | 4306.4  | 4133.2  | 3766.9  | 3152.4  | 2013.3  | 1900.1  | 527.9   | 174.9  |
| 27.5° | 4984.2  | 5004.2  | 5012.5  | 4934.2  | 4707.7  | 4348.0  | 3760.2  | 2656.1  | 2522.9  | 757.7   | 189.8  |
| 30°   | 5878.4  | 5861.8  | 5823.5  | 5663.6  | 5388.8  | 4942.5  | 4359.7  | 3330.6  | 3190.7  | 1079.1  | 213.2  |
| 32.5° | 7084.1  | 7065.8  | 6872.6  | 6519.6  | 6108.2  | 5562.0  | 4962.5  | 4006.7  | 3836.8  | 1480.4  | 244.8  |
| 35°   | 9070.8  | 9099.1  | 8624.5  | 7710.2  | 6972.5  | 6306.4  | 5630.3  | 4679.4  | 4529.5  | 1975.0  | 288.1  |
| 37.5° | 12113.2 | 11958.3 | 11313.9 | 9698.6  | 8109.9  | 7235.6  | 6268.1  | 5358.9  | 5229.0  | 2584.5  | 344.7  |
| 40°   | 15069.1 | 14915.9 | 14729.4 | 13199.0 | 10086.6 | 8259.8  | 7160.7  | 6156.5  | 5988.3  | 3272.3  | 428.0  |
| 42.5° | 18176.5 | 18091.6 | 18083.2 | 16929.2 | 13693.6 | 9870.1  | 8234.8  | 7090.7  | 6947.5  | 4026.6  | 564.5  |
| 45°   | 20378.0 | 20293.0 | 20471.2 | 20672.7 | 18606.1 | 13320.5 | 10104.9 | 8304.7  | 8096.6  | 4942.5  | 782.7  |
| 47.5° | 20674.4 | 20677.7 | 21154.0 | 21785.1 | 22256.4 | 18657.7 | 12596.1 | 9913.4  | 9660.3  | 6253.1  | 1149.0 |
| 50°   | 19688.6 | 19726.9 | 20484.6 | 21613.6 | 22882.6 | 23135.7 | 16989.1 | 12248.1 | 11873.4 | 7806.8  | 1668.6 |
| 52.5° | 17811.8 | 17855.1 | 18910.9 | 20767.7 | 22306.4 | 24211.4 | 22161.5 | 15302.2 | 14870.9 | 9745.2  | 2401.3 |
| 55°   | 16121.5 | 16148.2 | 17358.8 | 19705.2 | 21611.9 | 23626.9 | 25232.3 | 19380.5 | 18814.3 | 12129.9 | 3124.1 |
| 57.5° | 14447.9 | 14386.3 | 15174.0 | 17860.1 | 21493.7 | 22909.2 | 25685.2 | 24028.3 | 23403.8 | 14736.0 | 3686.9 |
| 60°   | 12209.8 | 12106.6 | 12739.4 | 14447.9 | 19938.3 | 23380.5 | 24837.6 | 26599.4 | 26457.9 | 18364.7 | 4121.6 |
| 61°   | 10922.5 | 10879.2 | 11515.4 | 12980.8 | 18629.4 | 23260.6 | 24634.4 | 26707.7 | 26722.7 | 20081.6 | 4316.4 |
| 62.5° | 7800.2  | 7923.4  | 8895.9  | 10801.0 | 15603.6 | 22482.9 | 24661.1 | 26373.0 | 26521.2 | 22363.0 | 4821.0 |
| 65°   | 3467.1  | 3665.3  | 4421.3  | 5971.7  | 9074.1  | 18702.7 | 24424.6 | 25638.6 | 25565.3 | 22989.1 | 6559.5 |
| 67.5° | 2056.6  | 2086.6  | 2462.9  | 3383.8  | 4806.0  | 10059.9 | 21553.7 | 24667.7 | 24569.5 | 20013.3 | 8161.5 |
| 70°   | 1620.3  | 1635.3  | 1755.2  | 2123.2  | 2789.3  | 3853.4  | 12301.4 | 21342.2 | 21770.1 | 16228.1 | 7990.0 |
| 72.5° | 1537.0  | 1533.7  | 1550.4  | 1615.3  | 1756.9  | 1911.7  | 4762.7  | 14186.5 | 15057.4 | 11686.9 | 6699.4 |
| 75°   | 1517.1  | 1510.4  | 1493.8  | 1468.8  | 1272.3  | 1125.7  | 1475.4  | 6274.8  | 6779.3  | 7985.0  | 5044.1 |
| 77.5° | 1472.1  | 1473.8  | 1477.1  | 1408.8  | 1090.8  | 796.0   | 714.4   | 2013.3  | 2476.3  | 5067.4  | 3585.3 |
| 80°   | 995.8   | 1010.8  | 1035.8  | 1009.2  | 980.8   | 576.2   | 504.6   | 716.1   | 726.1   | 2844.3  | 2368.0 |
| 82.5° | 504.6   | 504.6   | 492.9   | 439.6   | 379.7   | 374.7   | 401.3   | 519.6   | 526.2   | 1438.8  | 1114.1 |
| 85°   | 304.7   | 321.4   | 328.1   | 298.1   | 273.1   | 251.5   | 306.4   | 413.0   | 428.0   | 557.9   | 259.8  |
| 87.5° | 68.3    | 69.9    | 76.6    | 101.6   | 148.2   | 201.5   | 284.8   | 378.0   | 384.7   | 358.0   | 31.6   |
| 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-SA6C-935-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 148.2  | 148.2 | 148.2 | 148.2 | 148.2 | 148.2 | 148.2 | 148.2 | 148.2 | 148.2 | 148.2 |
| 2.5°  | 149.9  | 146.5 | 144.9 | 139.9 | 134.9 | 129.9 | 126.6 | 124.9 | 126.6 | 128.2 | 128.2 |
| 5°    | 148.2  | 143.2 | 134.9 | 126.6 | 119.9 | 113.2 | 106.6 | 104.9 | 104.9 | 106.6 | 106.6 |
| 7.5°  | 148.2  | 139.9 | 128.2 | 118.2 | 108.2 | 98.3  | 93.3  | 89.9  | 91.6  | 91.6  | 91.6  |
| 10°   | 148.2  | 138.2 | 123.2 | 108.2 | 96.6  | 84.9  | 76.6  | 73.3  | 73.3  | 73.3  | 73.3  |
| 12.5° | 146.5  | 136.6 | 118.2 | 99.9  | 83.3  | 69.9  | 59.9  | 55.0  | 56.6  | 56.6  | 56.6  |
| 15°   | 143.2  | 131.6 | 111.6 | 84.9  | 66.6  | 53.3  | 43.3  | 38.3  | 40.0  | 43.3  | 45.0  |
| 17.5° | 138.2  | 126.6 | 99.9  | 71.6  | 53.3  | 40.0  | 30.0  | 26.6  | 28.3  | 33.3  | 33.3  |
| 20°   | 136.6  | 121.6 | 88.3  | 58.3  | 40.0  | 28.3  | 20.0  | 16.7  | 18.3  | 25.0  | 26.6  |
| 22.5° | 136.6  | 118.2 | 79.9  | 48.3  | 30.0  | 18.3  | 11.7  | 6.7   | 6.7   | 11.7  | 11.7  |
| 25°   | 138.2  | 116.6 | 73.3  | 40.0  | 21.6  | 13.3  | 6.7   | 3.3   | 6.7   | 18.3  | 21.6  |
| 27.5° | 141.5  | 114.9 | 69.9  | 33.3  | 16.7  | 11.7  | 5.0   | 11.7  | 20.0  | 20.0  | 20.0  |
| 30°   | 144.9  | 111.6 | 64.9  | 28.3  | 15.0  | 8.3   | 8.3   | 16.7  | 16.7  | 20.0  | 21.6  |
| 32.5° | 149.9  | 109.9 | 61.6  | 25.0  | 11.7  | 6.7   | 11.7  | 10.0  | 10.0  | 11.7  | 13.3  |
| 35°   | 159.9  | 111.6 | 58.3  | 25.0  | 11.7  | 8.3   | 10.0  | 5.0   | 3.3   | 3.3   | 3.3   |
| 37.5° | 173.2  | 113.2 | 53.3  | 21.6  | 10.0  | 10.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 194.8  | 118.2 | 50.0  | 20.0  | 8.3   | 8.3   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 231.5  | 128.2 | 48.3  | 18.3  | 8.3   | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 304.7  | 151.5 | 45.0  | 16.7  | 8.3   | 3.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 438.0  | 206.5 | 43.3  | 13.3  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 639.5  | 279.8 | 41.6  | 11.7  | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 816.0  | 294.8 | 28.3  | 10.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 836.0  | 203.2 | 21.6  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 666.1  | 131.6 | 18.3  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 504.6  | 99.9  | 16.7  | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 61°   | 484.6  | 89.9  | 16.7  | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 534.6  | 78.3  | 15.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 869.3  | 64.9  | 13.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1510.4 | 56.6  | 11.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 1908.4 | 53.3  | 10.0  | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1663.6 | 48.3  | 10.0  | 3.3   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1000.8 | 41.6  | 10.0  | 6.7   | 3.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 524.6  | 31.6  | 10.0  | 8.3   | 5.0   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 254.8  | 28.3  | 11.7  | 8.3   | 6.7   | 3.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 99.9   | 23.3  | 13.3  | 11.7  | 8.3   | 5.0   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 45.0   | 20.0  | 15.0  | 13.3  | 11.7  | 6.7   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 23.3   | 18.3  | 16.7  | 15.0  | 11.7  | 8.3   | 3.3   | 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: SP1-2407-184-15

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-935-U-5WQ

Data in this report applies to families of products including GSS-SB1A-935-U-5WQ

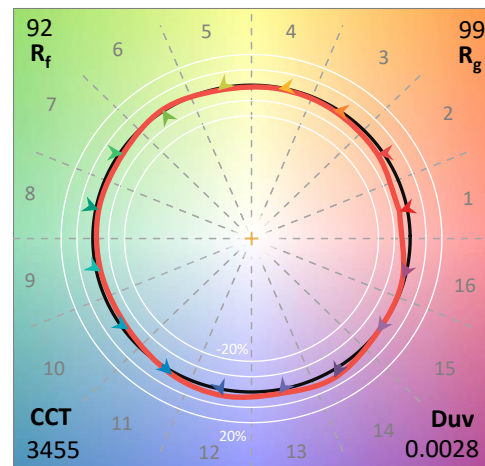
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-15  
 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-935-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI  
 3500K CCT 26 LEDS

### Spectral Parameters

CCT (K): 3455  
 CIE  $u'$ : 0.2356  
 CIE  $v'$ : 0.5159  
 Duv: 0.0028  
 CIE x: 0.4109  
 CIE y: 0.3999  
 CIE z: 0.1892  
 Peak Wavelength (nm): 616  
 Dominant Wavelength (nm): 579  
 Purity: 43.35383  
 R<sub>f</sub>: 92.3  
 R<sub>g</sub>: 98.5

CRI (Ra): 92.2  
 R1: 92.0  
 R2: 94.4  
 R3: 95.6  
 R4: 93.2  
 R5: 91.4  
 R6: 92.5  
 R7: 94.5  
 R8: 84.2  
 R9: 59.8  
 R10: 85.8  
 R11: 93.2  
 R12: 78.0  
 R13: 92.5  
 R14: 97.0  
 R15: 88.4



### Test Conditions

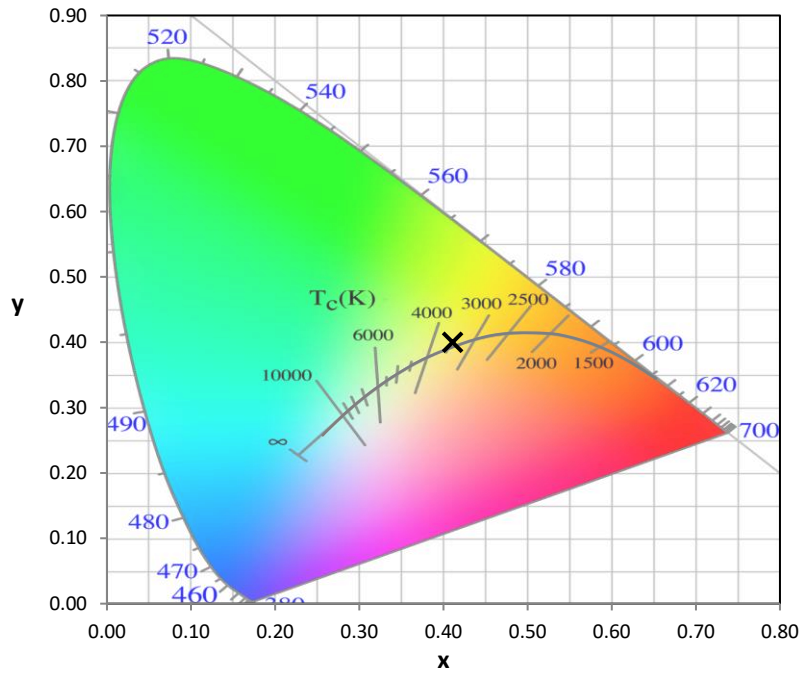
Stabilization Time: 20M  
 Operation Time: 1H 20M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-15

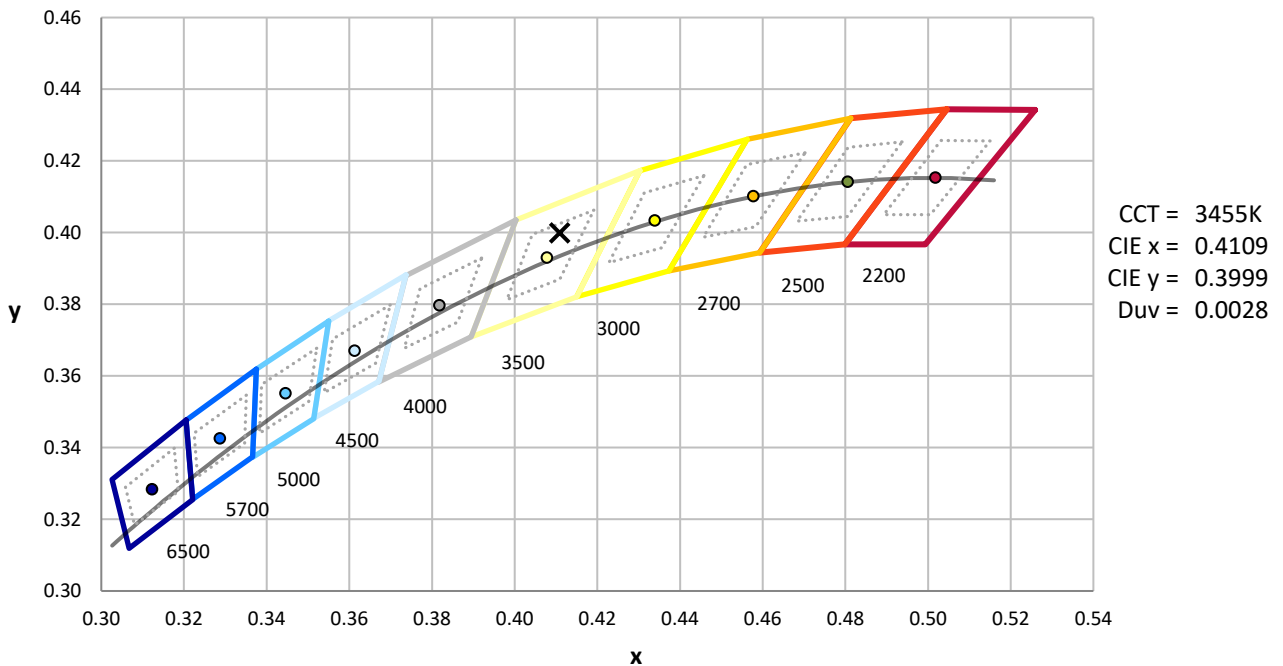
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



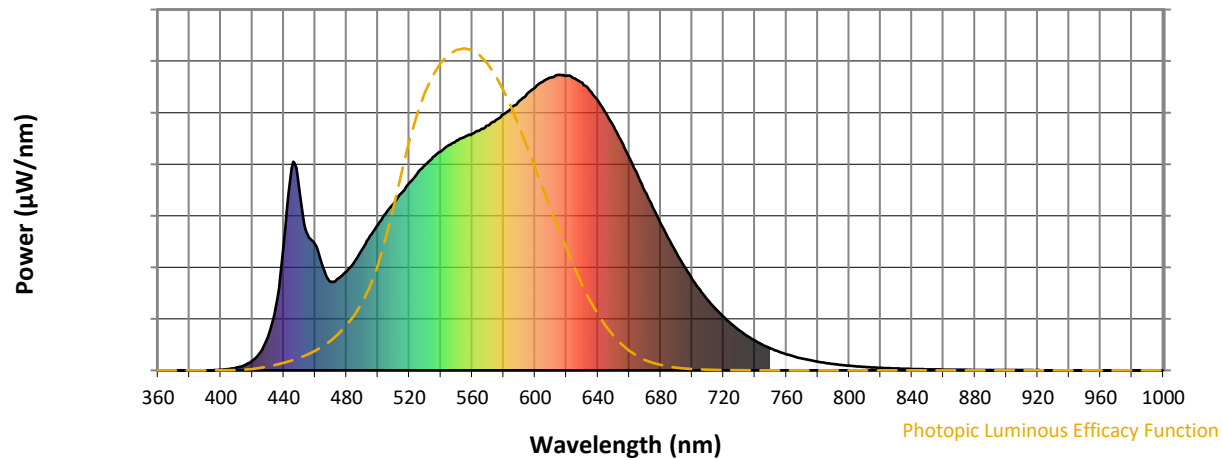
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3500K 4-step quadrangle

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### Photopic Flux vs. Wavelength

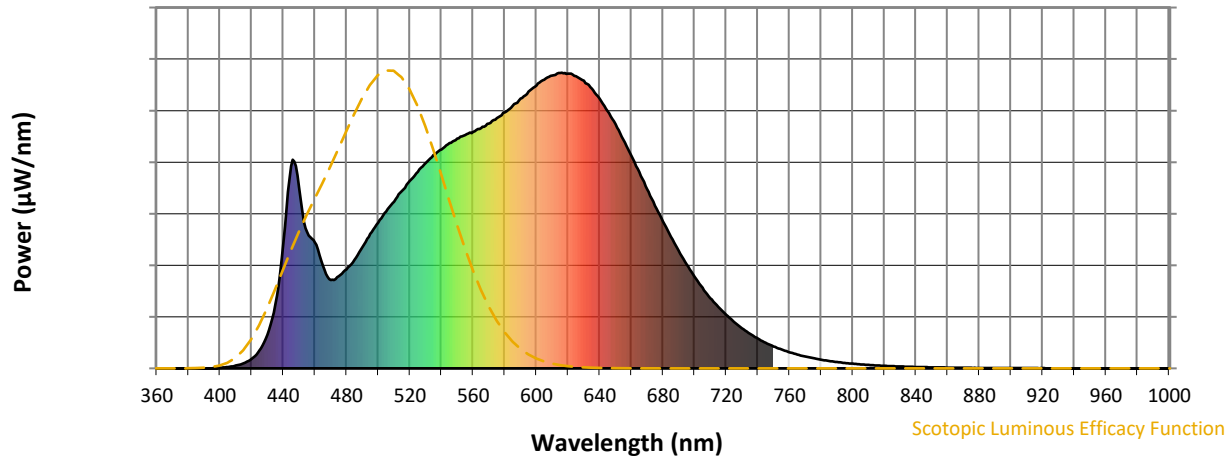


### Photopic Lumens: NR

| $\lambda$<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               | 410                                    | NR                             | 620               | 997                                    | NR                             | 750               | 74                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 454                                    | NR                             | 625               | 988                                    | NR                             | 755               | 64                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 493                                    | NR                             | 630               | 973                                    | NR                             | 760               | 54                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 530                                    | NR                             | 635               | 946                                    | NR                             | 765               | 47                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 564                                    | NR                             | 640               | 913                                    | NR                             | 770               | 40                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 599                                    | NR                             | 645               | 870                                    | NR                             | 775               | 34                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 634                                    | NR                             | 650               | 826                                    | NR                             | 780               | 29                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 0                                      | NR                             | 525               | 664                                    | NR                             | 655               | 774                                    | NR                             | 785               | 25                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 2                                      | NR                             | 530               | 695                                    | NR                             | 660               | 720                                    | NR                             | 790               | 21                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 4                                      | NR                             | 535               | 722                                    | NR                             | 665               | 664                                    | NR                             | 795               | 18                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 9                                      | NR                             | 540               | 741                                    | NR                             | 670               | 605                                    | NR                             | 800               | 16                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 17                                     | NR                             | 545               | 762                                    | NR                             | 675               | 550                                    | NR                             | 805               | 13                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 32                                     | NR                             | 550               | 777                                    | NR                             | 680               | 497                                    | NR                             | 810               | 12                                     | NR                             | 940               | 0                                      | NR                             |
| 425               | 61                                     | NR                             | 555               | 789                                    | NR                             | 685               | 445                                    | NR                             | 815               | 10                                     | NR                             | 945               | 0                                      | NR                             |
| 430               | 114                                    | NR                             | 560               | 800                                    | NR                             | 690               | 398                                    | NR                             | 820               | 9                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 218                                    | NR                             | 565               | 813                                    | NR                             | 695               | 352                                    | NR                             | 825               | 7                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 427                                    | NR                             | 570               | 828                                    | NR                             | 700               | 309                                    | NR                             | 830               | 6                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 684                                    | NR                             | 575               | 846                                    | NR                             | 705               | 273                                    | NR                             | 835               | 5                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 611                                    | NR                             | 580               | 866                                    | NR                             | 710               | 237                                    | NR                             | 840               | 5                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 461                                    | NR                             | 585               | 888                                    | NR                             | 715               | 208                                    | NR                             | 845               | 4                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 427                                    | NR                             | 590               | 913                                    | NR                             | 720               | 181                                    | NR                             | 850               | 4                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 349                                    | NR                             | 595               | 936                                    | NR                             | 725               | 157                                    | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 298                                    | NR                             | 600               | 957                                    | NR                             | 730               | 136                                    | NR                             | 860               | 3                                      | NR                             | 990               | 1                                      | NR                             |
| 475               | 312                                    | NR                             | 605               | 976                                    | NR                             | 735               | 117                                    | NR                             | 865               | 2                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 335                                    | NR                             | 610               | 990                                    | NR                             | 740               | 100                                    | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 367                                    | NR                             | 615               | 999                                    | NR                             | 745               | 86                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

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### Scotopic Flux vs. Wavelength



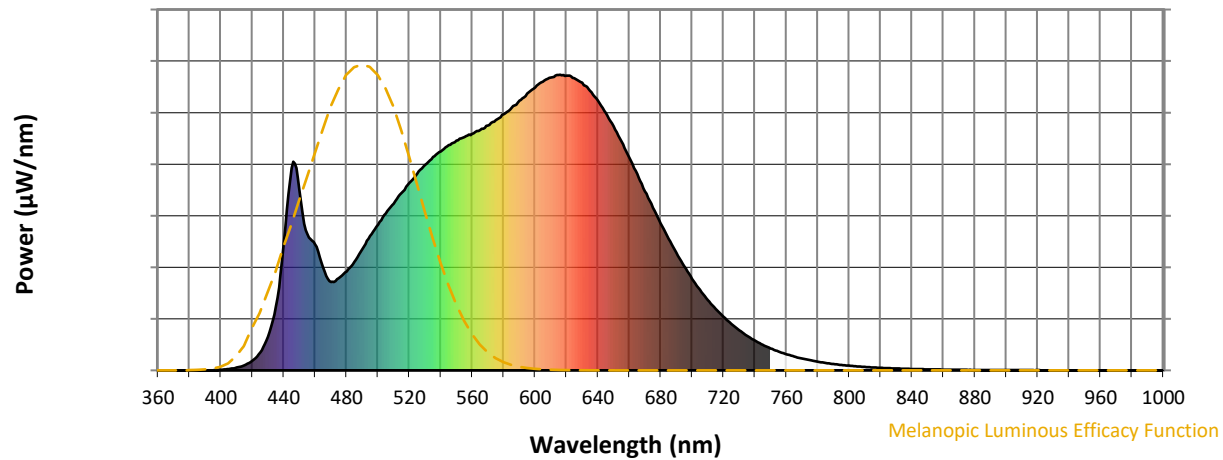
Scotopic Lumens: NR

S/P: 1.58

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 410                      | NR            | 620    | 997                      | NR            | 750    | 74                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 454                      | NR            | 625    | 988                      | NR            | 755    | 64                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 493                      | NR            | 630    | 973                      | NR            | 760    | 54                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 530                      | NR            | 635    | 946                      | NR            | 765    | 47                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 564                      | NR            | 640    | 913                      | NR            | 770    | 40                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 599                      | NR            | 645    | 870                      | NR            | 775    | 34                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 634                      | NR            | 650    | 826                      | NR            | 780    | 29                       | NR            | 910    | 1                        | NR            |
| 395    | 0                        | NR            | 525    | 664                      | NR            | 655    | 774                      | NR            | 785    | 25                       | NR            | 915    | 1                        | NR            |
| 400    | 2                        | NR            | 530    | 695                      | NR            | 660    | 720                      | NR            | 790    | 21                       | NR            | 920    | 1                        | NR            |
| 405    | 4                        | NR            | 535    | 722                      | NR            | 665    | 664                      | NR            | 795    | 18                       | NR            | 925    | 1                        | NR            |
| 410    | 9                        | NR            | 540    | 741                      | NR            | 670    | 605                      | NR            | 800    | 16                       | NR            | 930    | 0                        | NR            |
| 415    | 17                       | NR            | 545    | 762                      | NR            | 675    | 550                      | NR            | 805    | 13                       | NR            | 935    | 0                        | NR            |
| 420    | 32                       | NR            | 550    | 777                      | NR            | 680    | 497                      | NR            | 810    | 12                       | NR            | 940    | 0                        | NR            |
| 425    | 61                       | NR            | 555    | 789                      | NR            | 685    | 445                      | NR            | 815    | 10                       | NR            | 945    | 0                        | NR            |
| 430    | 114                      | NR            | 560    | 800                      | NR            | 690    | 398                      | NR            | 820    | 9                        | NR            | 950    | 0                        | NR            |
| 435    | 218                      | NR            | 565    | 813                      | NR            | 695    | 352                      | NR            | 825    | 7                        | NR            | 955    | 0                        | NR            |
| 440    | 427                      | NR            | 570    | 828                      | NR            | 700    | 309                      | NR            | 830    | 6                        | NR            | 960    | 0                        | NR            |
| 445    | 684                      | NR            | 575    | 846                      | NR            | 705    | 273                      | NR            | 835    | 5                        | NR            | 965    | 0                        | NR            |
| 450    | 611                      | NR            | 580    | 866                      | NR            | 710    | 237                      | NR            | 840    | 5                        | NR            | 970    | 0                        | NR            |
| 455    | 461                      | NR            | 585    | 888                      | NR            | 715    | 208                      | NR            | 845    | 4                        | NR            | 975    | 0                        | NR            |
| 460    | 427                      | NR            | 590    | 913                      | NR            | 720    | 181                      | NR            | 850    | 4                        | NR            | 980    | 0                        | NR            |
| 465    | 349                      | NR            | 595    | 936                      | NR            | 725    | 157                      | NR            | 855    | 3                        | NR            | 985    | 0                        | NR            |
| 470    | 298                      | NR            | 600    | 957                      | NR            | 730    | 136                      | NR            | 860    | 3                        | NR            | 990    | 1                        | NR            |
| 475    | 312                      | NR            | 605    | 976                      | NR            | 735    | 117                      | NR            | 865    | 2                        | NR            | 995    | 0                        | NR            |
| 480    | 335                      | NR            | 610    | 990                      | NR            | 740    | 100                      | NR            | 870    | 2                        | NR            | 1000   | 0                        | NR            |
| 485    | 367                      | NR            | 615    | 999                      | NR            | 745    | 86                       | NR            | 875    | 2                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.14

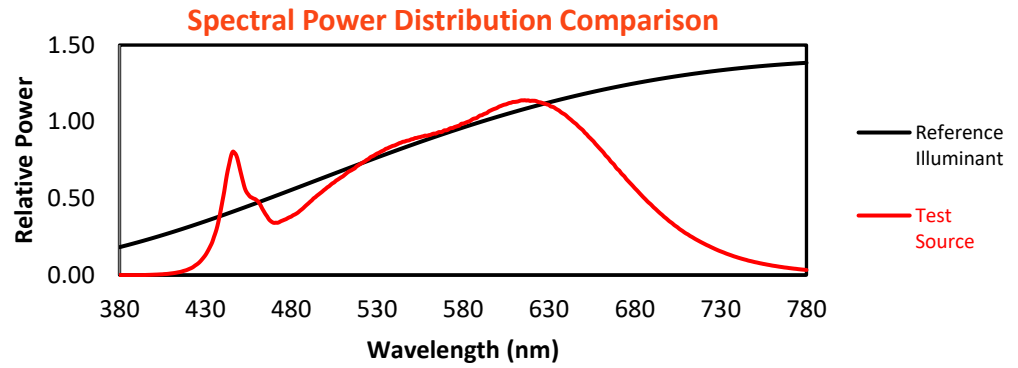
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | 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               | 410                                    | NR                             | 620               | 997                                    | NR                             | 750               | 74                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 454                                    | NR                             | 625               | 988                                    | NR                             | 755               | 64                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 493                                    | NR                             | 630               | 973                                    | NR                             | 760               | 54                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 530                                    | NR                             | 635               | 946                                    | NR                             | 765               | 47                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 564                                    | NR                             | 640               | 913                                    | NR                             | 770               | 40                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 599                                    | NR                             | 645               | 870                                    | NR                             | 775               | 34                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 634                                    | NR                             | 650               | 826                                    | NR                             | 780               | 29                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 0                                      | NR                             | 525               | 664                                    | NR                             | 655               | 774                                    | NR                             | 785               | 25                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 2                                      | NR                             | 530               | 695                                    | NR                             | 660               | 720                                    | NR                             | 790               | 21                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 4                                      | NR                             | 535               | 722                                    | NR                             | 665               | 664                                    | NR                             | 795               | 18                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 9                                      | NR                             | 540               | 741                                    | NR                             | 670               | 605                                    | NR                             | 800               | 16                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 17                                     | NR                             | 545               | 762                                    | NR                             | 675               | 550                                    | NR                             | 805               | 13                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 32                                     | NR                             | 550               | 777                                    | NR                             | 680               | 497                                    | NR                             | 810               | 12                                     | NR                             | 940               | 0                                      | NR                             |
| 425               | 61                                     | NR                             | 555               | 789                                    | NR                             | 685               | 445                                    | NR                             | 815               | 10                                     | NR                             | 945               | 0                                      | NR                             |
| 430               | 114                                    | NR                             | 560               | 800                                    | NR                             | 690               | 398                                    | NR                             | 820               | 9                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 218                                    | NR                             | 565               | 813                                    | NR                             | 695               | 352                                    | NR                             | 825               | 7                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 427                                    | NR                             | 570               | 828                                    | NR                             | 700               | 309                                    | NR                             | 830               | 6                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 684                                    | NR                             | 575               | 846                                    | NR                             | 705               | 273                                    | NR                             | 835               | 5                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 611                                    | NR                             | 580               | 866                                    | NR                             | 710               | 237                                    | NR                             | 840               | 5                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 461                                    | NR                             | 585               | 888                                    | NR                             | 715               | 208                                    | NR                             | 845               | 4                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 427                                    | NR                             | 590               | 913                                    | NR                             | 720               | 181                                    | NR                             | 850               | 4                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 349                                    | NR                             | 595               | 936                                    | NR                             | 725               | 157                                    | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 298                                    | NR                             | 600               | 957                                    | NR                             | 730               | 136                                    | NR                             | 860               | 3                                      | NR                             | 990               | 1                                      | NR                             |
| 475               | 312                                    | NR                             | 605               | 976                                    | NR                             | 735               | 117                                    | NR                             | 865               | 2                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 335                                    | NR                             | 610               | 990                                    | NR                             | 740               | 100                                    | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 367                                    | NR                             | 615               | 999                                    | NR                             | 745               | 86                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

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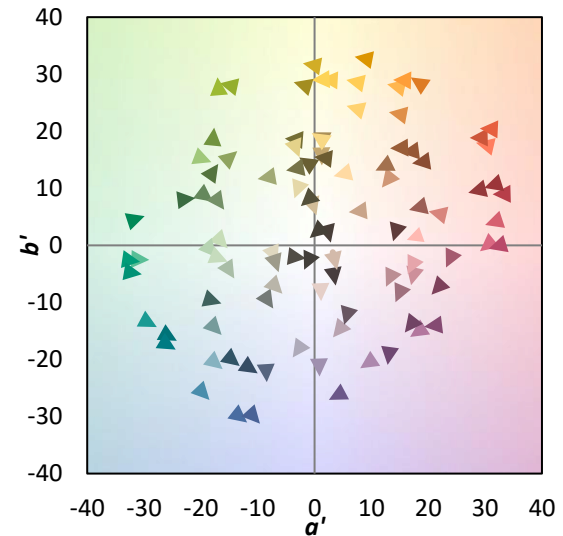
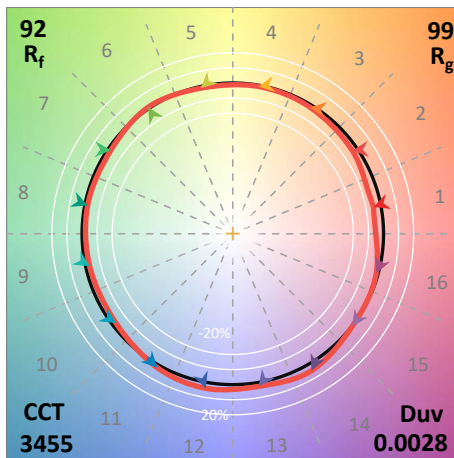
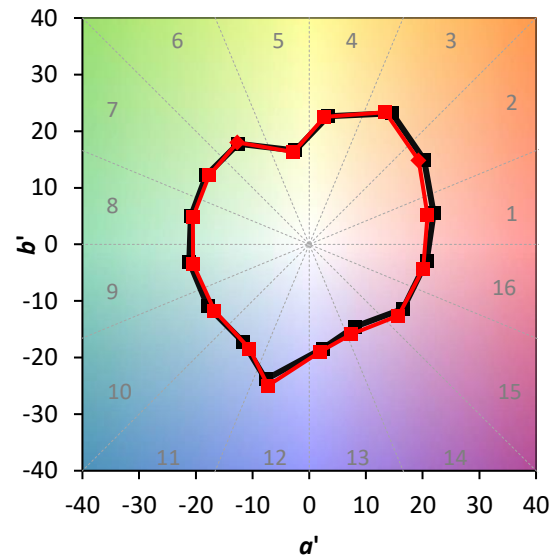
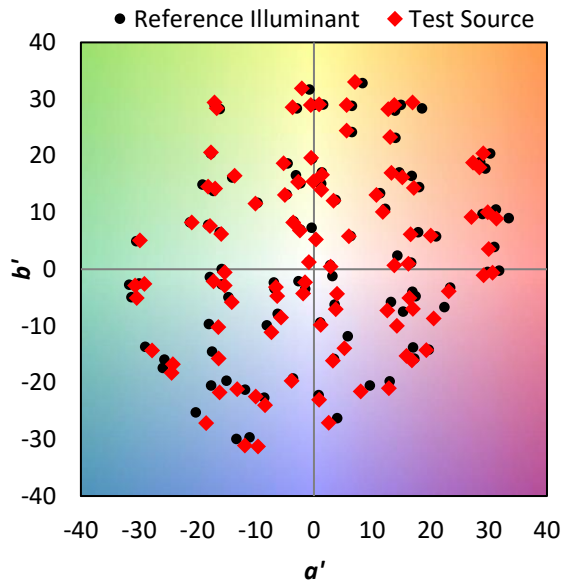
TM-30-18

### Summary

$R_f = 92.3$   
 $R_g = 98.5$   
 $CIE\ R_a = 92.2$   
 $R_9 = 59.8$

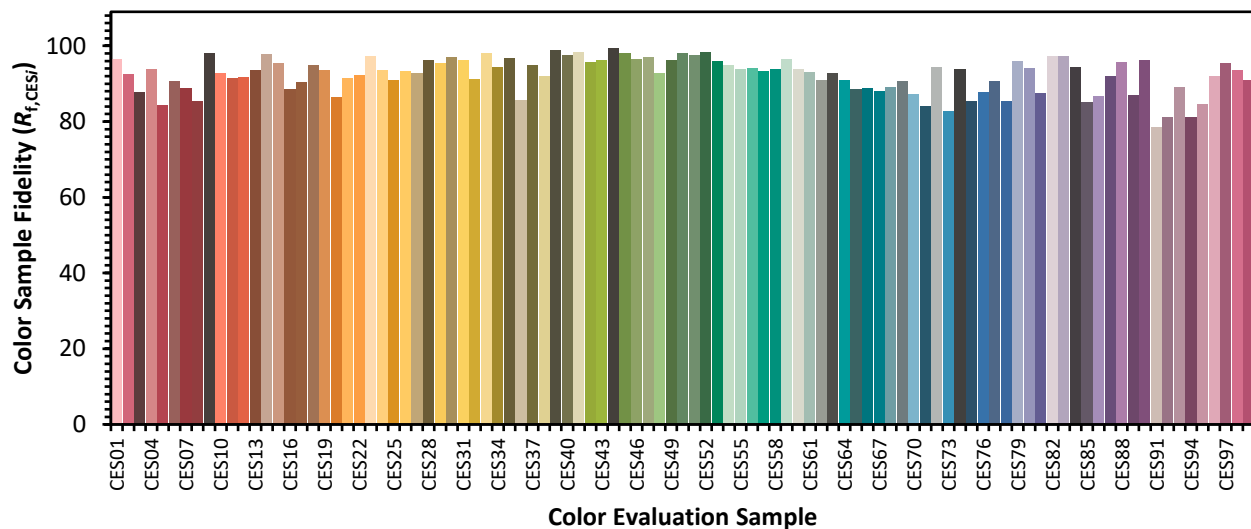


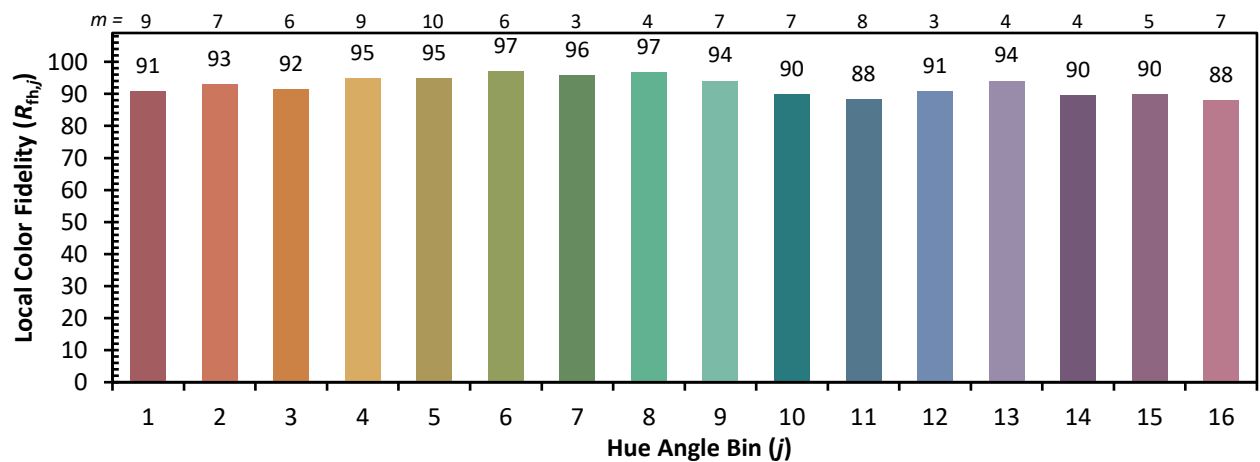
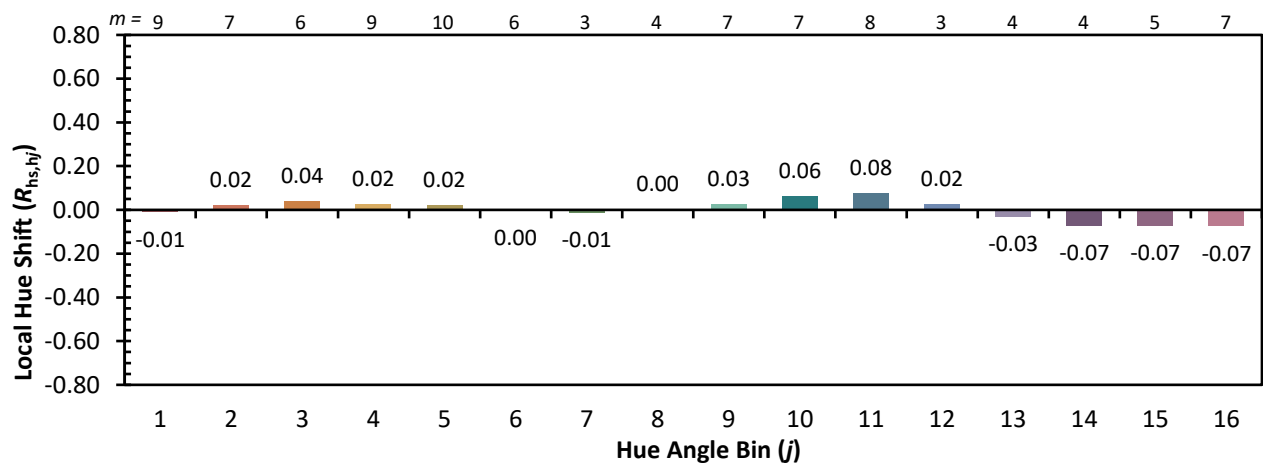
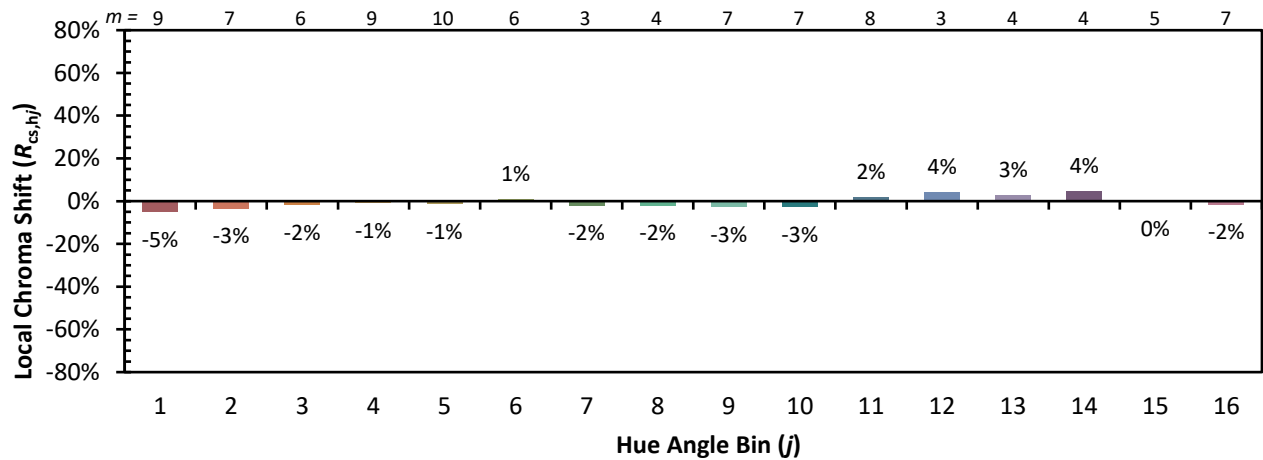
### Color Vector Graphics



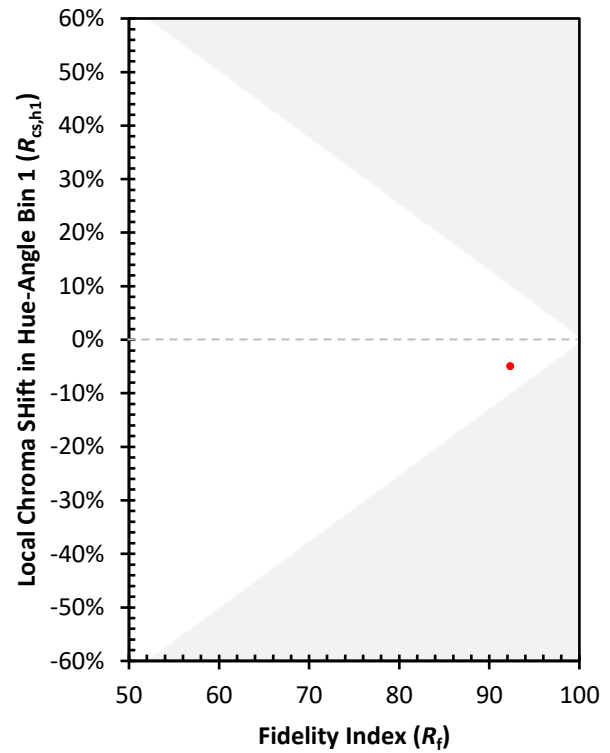
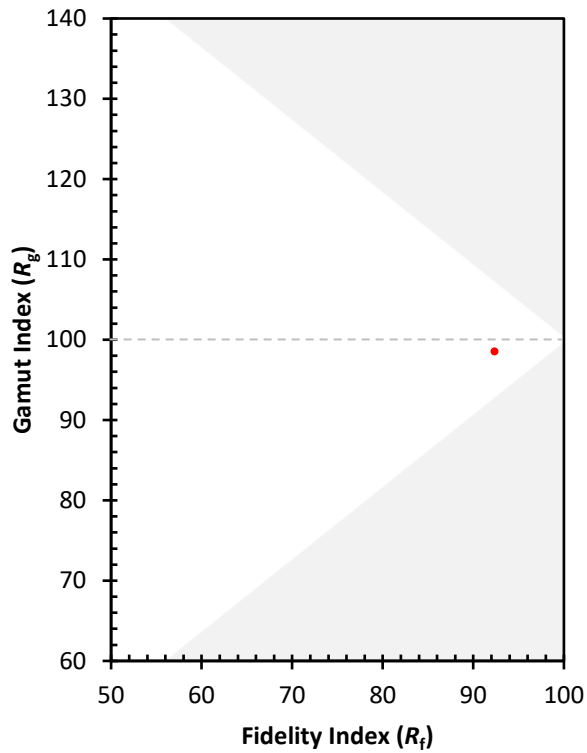
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 93 | CES51 = 97 | CES76 = 88 |
| CES02 = 62 | CES27 = 93 | CES52 = 98 | CES77 = 91 |
| CES03 = 31 | CES28 = 96 | CES53 = 96 | CES78 = 85 |
| CES04 = 70 | CES29 = 95 | CES54 = 95 | CES79 = 96 |
| CES05 = 50 | CES30 = 97 | CES55 = 94 | CES80 = 94 |
| CES06 = 51 | CES31 = 96 | CES56 = 94 | CES81 = 87 |
| CES07 = 42 | CES32 = 91 | CES57 = 93 | CES82 = 97 |
| CES08 = 41 | CES33 = 98 | CES58 = 94 | CES83 = 97 |
| CES09 = 29 | CES34 = 94 | CES59 = 96 | CES84 = 94 |
| CES10 = 75 | CES35 = 97 | CES60 = 94 | CES85 = 85 |
| CES11 = 58 | CES36 = 86 | CES61 = 93 | CES86 = 87 |
| CES12 = 64 | CES37 = 95 | CES62 = 91 | CES87 = 92 |
| CES13 = 43 | CES38 = 92 | CES63 = 93 | CES88 = 96 |
| CES14 = 74 | CES39 = 99 | CES64 = 91 | CES89 = 87 |
| CES15 = 71 | CES40 = 98 | CES65 = 89 | CES90 = 96 |
| CES16 = 47 | CES41 = 98 | CES66 = 89 | CES91 = 78 |
| CES17 = 49 | CES42 = 96 | CES67 = 88 | CES92 = 81 |
| CES18 = 56 | CES43 = 96 | CES68 = 89 | CES93 = 89 |
| CES19 = 71 | CES44 = 99 | CES69 = 91 | CES94 = 81 |
| CES20 = 66 | CES45 = 98 | CES70 = 87 | CES95 = 85 |
| CES21 = 86 | CES46 = 97 | CES71 = 84 | CES96 = 92 |
| CES22 = 78 | CES47 = 97 | CES72 = 95 | CES97 = 95 |
| CES23 = 91 | CES48 = 93 | CES73 = 83 | CES98 = 94 |
| CES24 = 90 | CES49 = 96 | CES74 = 94 | CES99 = 91 |
| CES25 = 71 | CES50 = 98 | CES75 = 85 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)