

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: P1063539

Luminaire Tested: **GLAN-SA7C-827-U-T2BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1063539  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA7C-827-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 7xLight Square PACKAGE  
80CRI 2700K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (98) 2700K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 33171.9 lumens  
Efficiency: N/A  
Efficacy: 100.5 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 330  
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

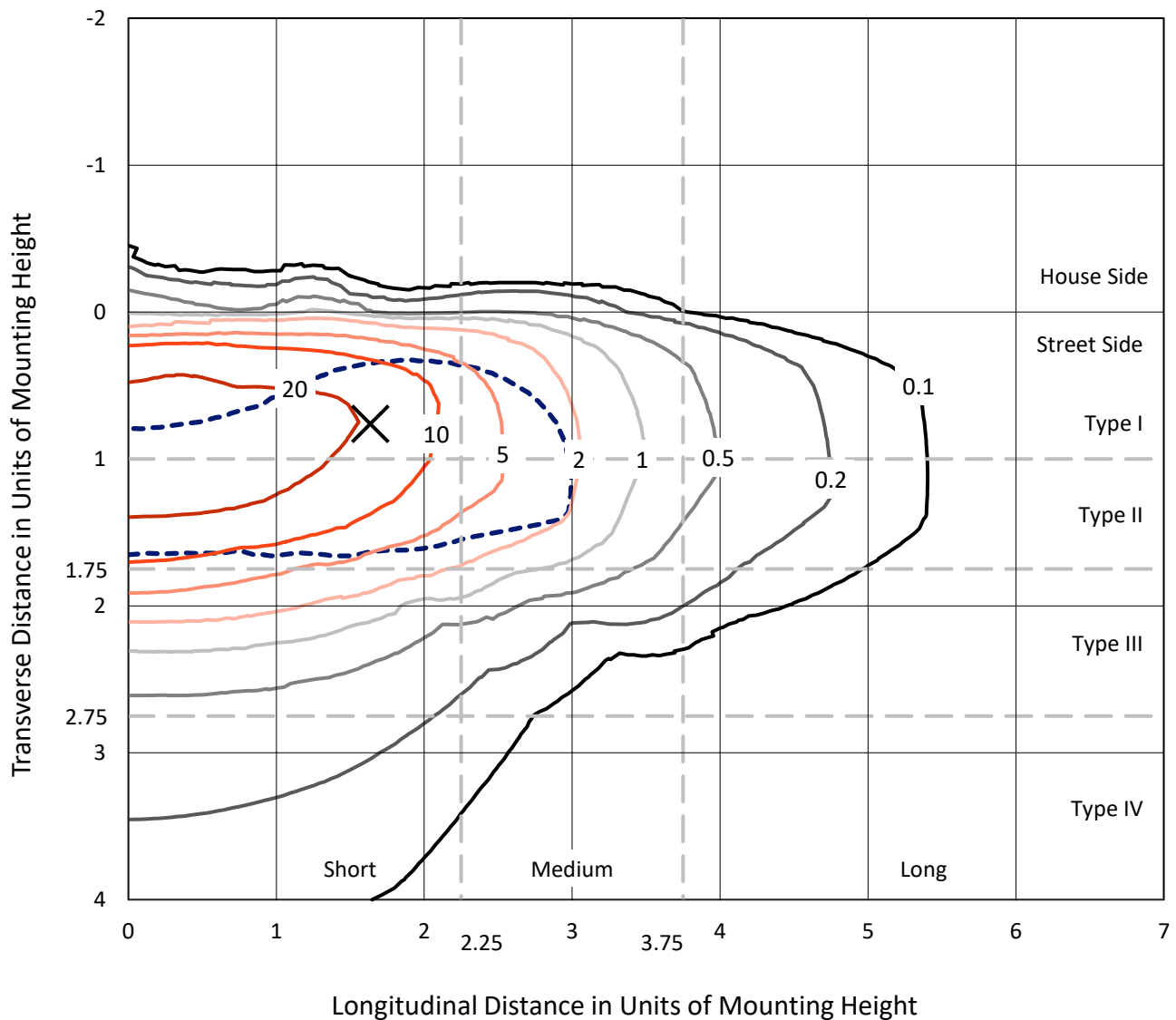


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## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

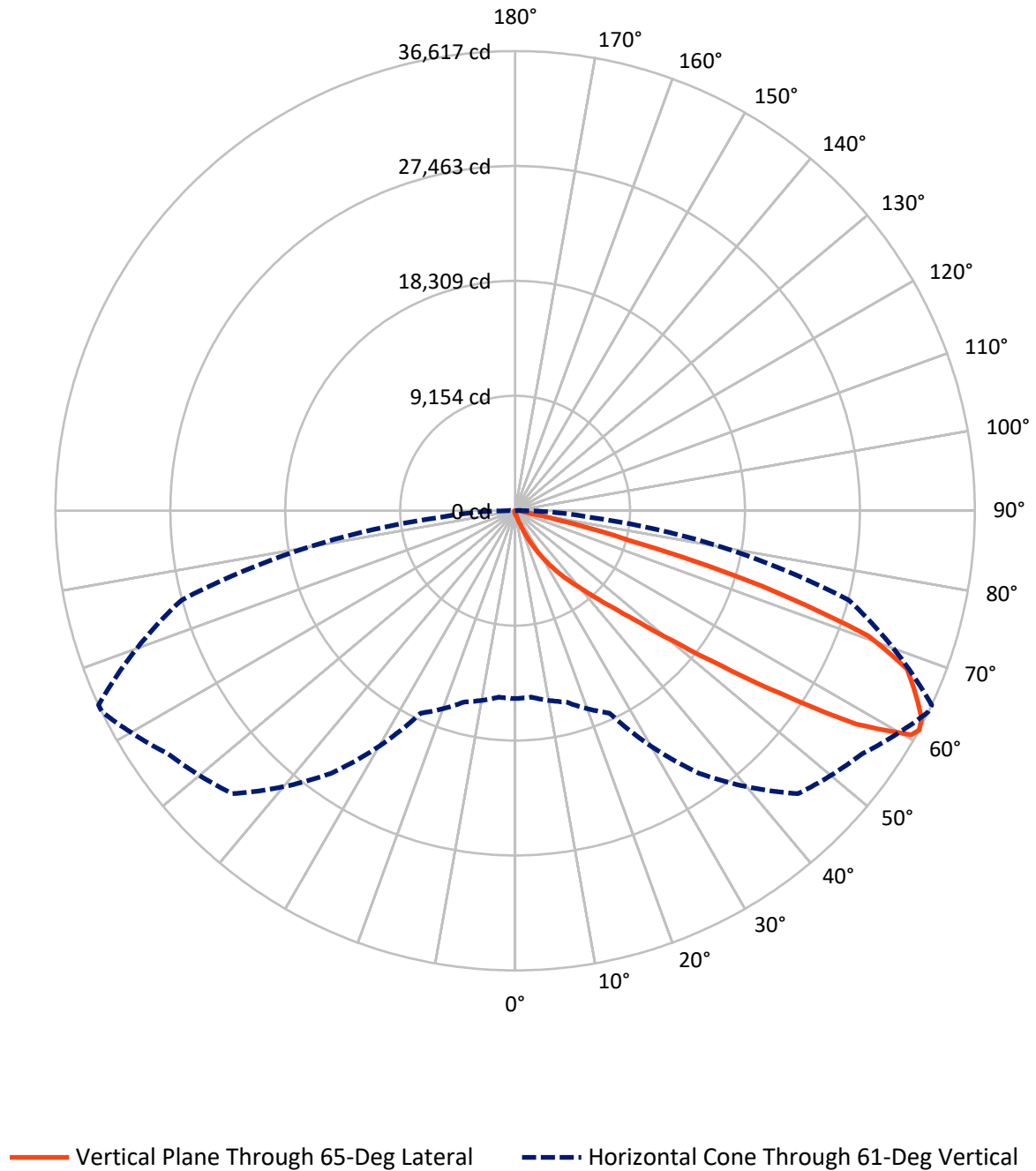


Based on 15 foot mounting height. Maximum calculated value = 43.9 fc  
 Type II - Short - N/A

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CATALOG NUMBER: GLAN-SA7C-827-U-T2BC

## Luminous Intensity Polar Plot



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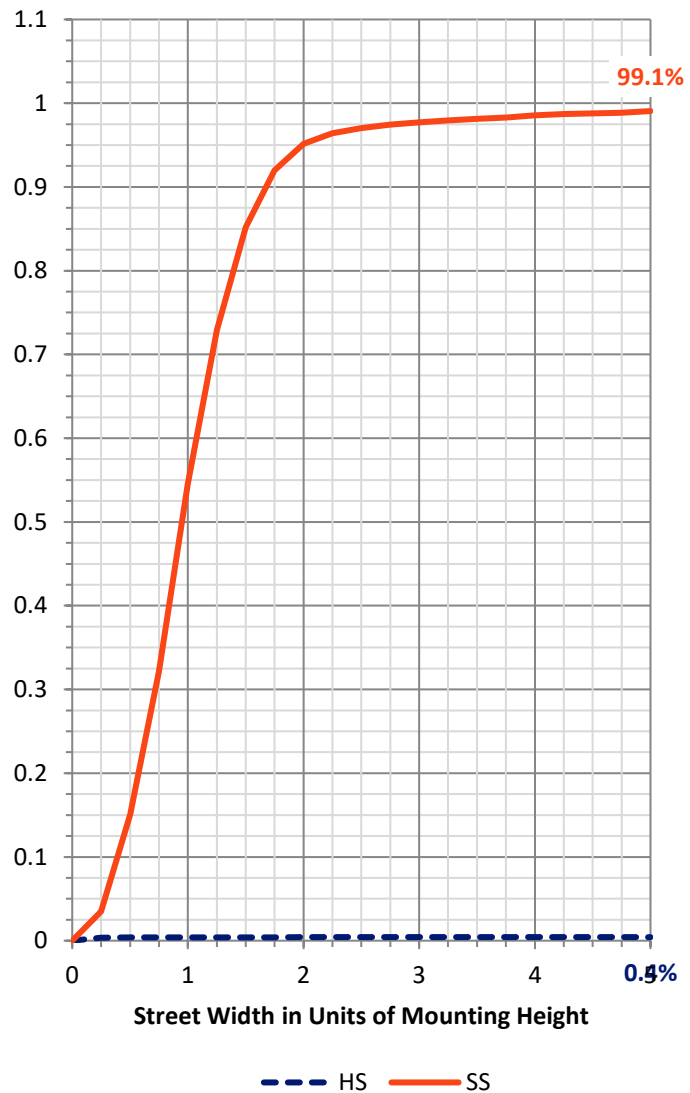
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 141.6    | 0.0    | 141.6   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 33030.3  | 0.0    | 33030.3 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 33171.9  | 0.0    | 33171.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 25.8    | 0.1       |
| 10°-20°   | 272.8   | 0.8       |
| 20°-30°   | 978.9   | 3.0       |
| 30°-40°   | 2606.4  | 7.9       |
| 40°-50°   | 6846.9  | 20.6      |
| 50°-60°   | 10607.1 | 32.0      |
| 60°-70°   | 8893.9  | 26.8      |
| 70°-80°   | 2617.3  | 7.9       |
| 80°-90°   | 322.9   | 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°    | 33171.9 | 100.0     |
| 0°-180°   | 33171.9 | 100.0     |



REPORT NUMBER: P1063539

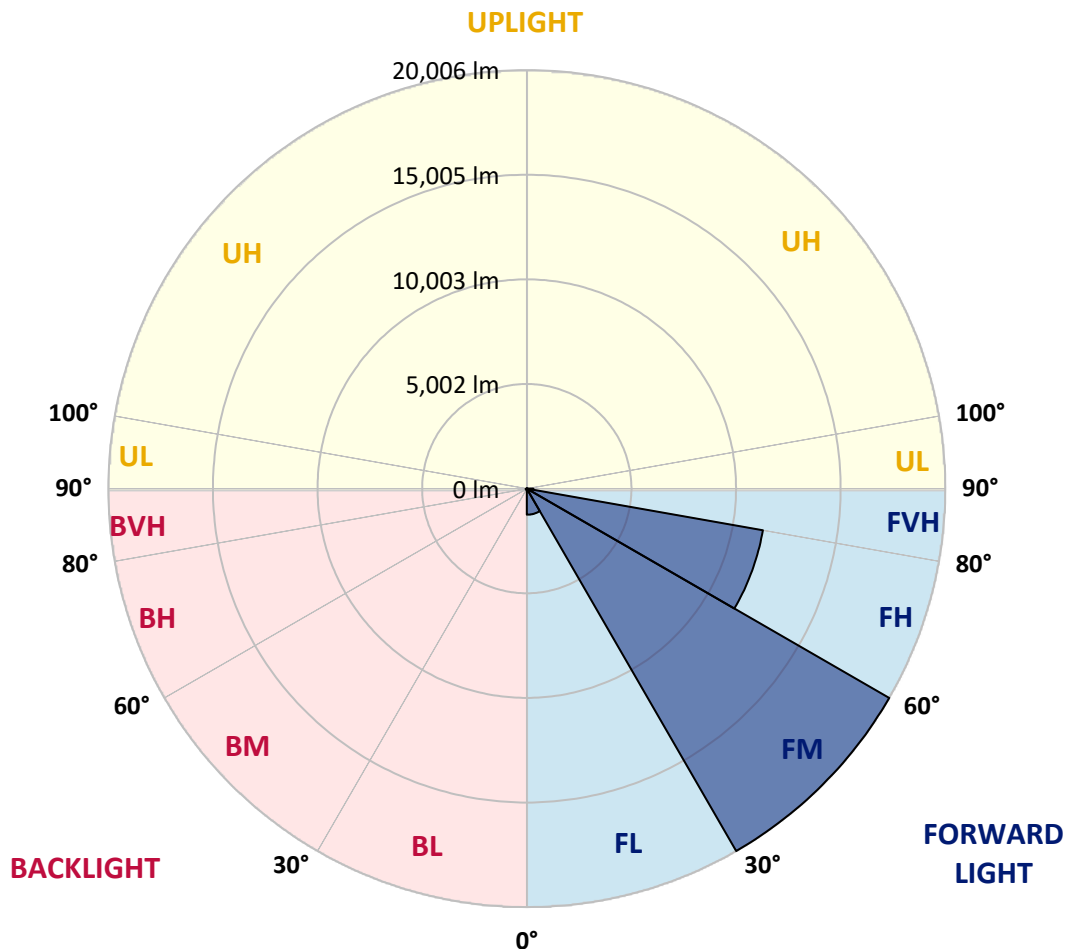
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1245.8  | 3.8       |                         |      |          |
| FM   | (30°-60°)   | 20006.4 | 60.3      |                         |      |          |
| FH   | (60°-80°)   | 11461.3 | 34.6      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 316.9   | 1.0       |                         |      | G3/500   |
| BL   | (0°-30°)    | 31.8    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 53.9    | 0.2       | B0/220                  |      |          |
| BH   | (60°-80°)   | 50.0    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 6.0     | 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°    | 203.1   | 203.1   | 203.1   | 203.1   | 203.1   | 203.1   | 203.1   | 203.1   | 203.1   | 203.1   | 203.1   |
| 2.5°  | 246.4   | 248.7   | 244.2   | 235.0   | 228.2   | 228.2   | 225.9   | 219.1   | 219.1   | 212.2   | 207.7   |
| 5°    | 344.6   | 340.0   | 330.9   | 312.6   | 296.6   | 280.7   | 264.7   | 248.7   | 246.4   | 225.9   | 212.2   |
| 7.5°  | 563.6   | 568.2   | 538.5   | 481.5   | 433.6   | 371.9   | 314.9   | 280.7   | 276.1   | 241.9   | 214.5   |
| 10°   | 1236.8  | 1202.5  | 1134.1  | 912.7   | 750.7   | 565.9   | 419.9   | 326.3   | 321.7   | 260.1   | 219.1   |
| 12.5° | 2254.5  | 2227.1  | 2101.6  | 1873.4  | 1455.8  | 1013.2  | 613.8   | 403.9   | 390.2   | 276.1   | 221.3   |
| 15°   | 3249.4  | 3206.0  | 3137.6  | 2907.1  | 2418.8  | 1816.4  | 1004.0  | 552.2   | 515.7   | 298.9   | 219.1   |
| 17.5° | 3883.7  | 3890.6  | 3829.0  | 3730.9  | 3416.0  | 2688.0  | 1734.2  | 823.8   | 753.0   | 340.0   | 214.5   |
| 20°   | 4438.2  | 4422.3  | 4456.5  | 4404.0  | 4182.7  | 3653.3  | 2523.8  | 1305.2  | 1184.3  | 406.2   | 216.8   |
| 22.5° | 5077.2  | 5116.0  | 5141.1  | 5129.6  | 4885.5  | 4433.7  | 3420.5  | 1953.3  | 1800.4  | 527.1   | 223.6   |
| 25°   | 5932.9  | 5928.3  | 5930.6  | 5900.9  | 5663.6  | 5161.6  | 4319.6  | 2758.8  | 2603.6  | 723.4   | 239.6   |
| 27.5° | 6829.6  | 6857.0  | 6868.4  | 6761.2  | 6450.9  | 5958.0  | 5152.5  | 3639.6  | 3457.0  | 1038.3  | 260.1   |
| 30°   | 8055.0  | 8032.2  | 7979.7  | 7760.6  | 7384.1  | 6772.6  | 5973.9  | 4563.7  | 4372.1  | 1478.7  | 292.1   |
| 32.5° | 9707.1  | 9682.0  | 9417.3  | 8933.5  | 8369.9  | 7621.5  | 6800.0  | 5490.2  | 5257.4  | 2028.6  | 335.4   |
| 35°   | 12429.4 | 12468.2 | 11817.8 | 10565.1 | 9554.2  | 8641.5  | 7715.0  | 6412.1  | 6206.7  | 2706.3  | 394.8   |
| 37.5° | 16598.3 | 16386.1 | 15503.0 | 13289.6 | 11112.7 | 9914.7  | 8589.0  | 7343.1  | 7165.1  | 3541.5  | 472.3   |
| 40°   | 20648.7 | 20438.7 | 20183.2 | 18086.1 | 13821.3 | 11318.1 | 9812.1  | 8436.1  | 8205.6  | 4483.9  | 586.4   |
| 42.5° | 24906.6 | 24790.3 | 24778.9 | 23197.5 | 18763.8 | 13524.7 | 11283.9 | 9716.2  | 9520.0  | 5517.6  | 773.6   |
| 45°   | 27923.3 | 27806.9 | 28051.1 | 28327.2 | 25495.4 | 18252.7 | 13846.4 | 11379.7 | 11094.5 | 6772.6  | 1072.5  |
| 47.5° | 28329.4 | 28334.0 | 28986.6 | 29851.5 | 30497.2 | 25566.1 | 17260.1 | 13584.0 | 13237.1 | 8568.4  | 1574.5  |
| 50°   | 26978.6 | 27031.1 | 28069.3 | 29616.4 | 31355.2 | 31702.1 | 23279.7 | 16783.2 | 16269.8 | 10697.4 | 2286.4  |
| 52.5° | 24406.9 | 24466.2 | 25912.9 | 28457.2 | 30565.7 | 33176.1 | 30367.2 | 20968.1 | 20377.1 | 13353.5 | 3290.5  |
| 55°   | 22090.8 | 22127.3 | 23786.2 | 27001.4 | 29614.1 | 32375.2 | 34574.9 | 26556.4 | 25780.6 | 16621.2 | 4280.8  |
| 57.5° | 19797.5 | 19713.1 | 20792.4 | 24473.1 | 29452.1 | 31391.7 | 35195.6 | 32925.1 | 32069.4 | 20192.3 | 5052.1  |
| 60°   | 16730.7 | 16589.2 | 17456.3 | 19797.5 | 27320.9 | 32037.5 | 34034.1 | 36448.4 | 36254.4 | 25164.5 | 5647.6  |
| 61°   | 14966.8 | 14907.5 | 15779.1 | 17787.2 | 25527.3 | 31873.2 | 33755.7 | 36596.7 | 36617.2 | 27517.1 | 5914.6  |
| 62.5° | 10688.3 | 10857.1 | 12189.8 | 14800.2 | 21381.1 | 30807.6 | 33792.3 | 36138.0 | 36341.1 | 30643.3 | 6606.0  |
| 65°   | 4750.9  | 5022.4  | 6058.4  | 8182.8  | 12433.9 | 25627.7 | 33468.2 | 35131.7 | 35031.3 | 31501.3 | 8988.3  |
| 67.5° | 2818.1  | 2859.2  | 3374.9  | 4636.8  | 6585.5  | 13784.8 | 29534.3 | 33801.4 | 33666.7 | 27423.5 | 11183.5 |
| 70°   | 2220.3  | 2240.8  | 2405.1  | 2909.4  | 3822.1  | 5280.3  | 16856.2 | 29244.5 | 29830.9 | 22236.8 | 10948.4 |
| 72.5° | 2106.2  | 2101.6  | 2124.4  | 2213.4  | 2407.4  | 2619.6  | 6526.2  | 19439.3 | 20632.7 | 16014.2 | 9180.0  |
| 75°   | 2078.8  | 2069.7  | 2046.8  | 2012.6  | 1743.4  | 1542.5  | 2021.7  | 8598.1  | 9289.5  | 10941.6 | 6911.8  |
| 77.5° | 2017.2  | 2019.5  | 2024.0  | 1930.5  | 1494.6  | 1090.7  | 978.9   | 2758.8  | 3393.1  | 6943.7  | 4912.9  |
| 80°   | 1364.6  | 1385.1  | 1419.3  | 1382.8  | 1344.0  | 789.5   | 691.4   | 981.2   | 994.9   | 3897.4  | 3244.8  |
| 82.5° | 691.4   | 691.4   | 675.4   | 602.4   | 520.3   | 513.4   | 549.9   | 711.9   | 721.1   | 1971.5  | 1526.6  |
| 85°   | 417.6   | 440.4   | 449.5   | 408.5   | 374.2   | 344.6   | 419.9   | 565.9   | 586.4   | 764.4   | 356.0   |
| 87.5° | 93.6    | 95.8    | 105.0   | 139.2   | 203.1   | 276.1   | 390.2   | 518.0   | 527.1   | 490.6   | 43.4    |
| 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-SA7C-827-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 203.1  | 203.1 | 203.1 | 203.1 | 203.1 | 203.1 | 203.1 | 203.1 | 203.1 | 203.1 | 203.1 |
| 2.5°  | 205.4  | 200.8 | 198.5 | 191.7 | 184.8 | 178.0 | 173.4 | 171.1 | 173.4 | 175.7 | 175.7 |
| 5°    | 203.1  | 196.2 | 184.8 | 173.4 | 164.3 | 155.2 | 146.0 | 143.8 | 143.8 | 146.0 | 146.0 |
| 7.5°  | 203.1  | 191.7 | 175.7 | 162.0 | 148.3 | 134.6 | 127.8 | 123.2 | 125.5 | 125.5 | 125.5 |
| 10°   | 203.1  | 189.4 | 168.9 | 148.3 | 132.3 | 116.4 | 105.0 | 100.4 | 100.4 | 100.4 | 100.4 |
| 12.5° | 200.8  | 187.1 | 162.0 | 136.9 | 114.1 | 95.8  | 82.1  | 75.3  | 77.6  | 77.6  | 77.6  |
| 15°   | 196.2  | 180.3 | 152.9 | 116.4 | 91.3  | 73.0  | 59.3  | 52.5  | 54.8  | 59.3  | 61.6  |
| 17.5° | 189.4  | 173.4 | 136.9 | 98.1  | 73.0  | 54.8  | 41.1  | 36.5  | 38.8  | 45.6  | 45.6  |
| 20°   | 187.1  | 166.6 | 120.9 | 79.9  | 54.8  | 38.8  | 27.4  | 22.8  | 25.1  | 34.2  | 36.5  |
| 22.5° | 187.1  | 162.0 | 109.5 | 66.2  | 41.1  | 25.1  | 16.0  | 9.1   | 9.1   | 16.0  | 16.0  |
| 25°   | 189.4  | 159.7 | 100.4 | 54.8  | 29.7  | 18.3  | 9.1   | 4.6   | 9.1   | 25.1  | 29.7  |
| 27.5° | 194.0  | 157.4 | 95.8  | 45.6  | 22.8  | 16.0  | 6.8   | 16.0  | 27.4  | 27.4  | 27.4  |
| 30°   | 198.5  | 152.9 | 89.0  | 38.8  | 20.5  | 11.4  | 11.4  | 22.8  | 22.8  | 27.4  | 29.7  |
| 32.5° | 205.4  | 150.6 | 84.4  | 34.2  | 16.0  | 9.1   | 16.0  | 13.7  | 13.7  | 16.0  | 18.3  |
| 35°   | 219.1  | 152.9 | 79.9  | 34.2  | 16.0  | 11.4  | 13.7  | 6.8   | 4.6   | 4.6   | 4.6   |
| 37.5° | 237.3  | 155.2 | 73.0  | 29.7  | 13.7  | 13.7  | 6.8   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 267.0  | 162.0 | 68.5  | 27.4  | 11.4  | 11.4  | 2.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 317.2  | 175.7 | 66.2  | 25.1  | 11.4  | 9.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 417.6  | 207.7 | 61.6  | 22.8  | 11.4  | 4.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 600.1  | 283.0 | 59.3  | 18.3  | 6.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 876.2  | 383.4 | 57.0  | 16.0  | 2.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 1118.1 | 403.9 | 38.8  | 13.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 1145.5 | 278.4 | 29.7  | 9.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 912.7  | 180.3 | 25.1  | 6.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 691.4  | 136.9 | 22.8  | 2.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 61°   | 664.0  | 123.2 | 22.8  | 2.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 732.5  | 107.2 | 20.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1191.1 | 89.0  | 18.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2069.7 | 77.6  | 16.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2615.0 | 73.0  | 13.7  | 2.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 2279.6 | 66.2  | 13.7  | 4.6   | 2.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1371.4 | 57.0  | 13.7  | 9.1   | 4.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 718.8  | 43.4  | 13.7  | 11.4  | 6.8   | 2.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 349.1  | 38.8  | 16.0  | 11.4  | 9.1   | 4.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 136.9  | 31.9  | 18.3  | 16.0  | 11.4  | 6.8   | 2.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 61.6   | 27.4  | 20.5  | 18.3  | 16.0  | 9.1   | 2.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 31.9   | 25.1  | 22.8  | 20.5  | 16.0  | 11.4  | 4.6   | 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: SP1-2407-184-8

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-827-U-5WQ

Data in this report applies to families of products including GSS-SB1A-827-U-5WQ

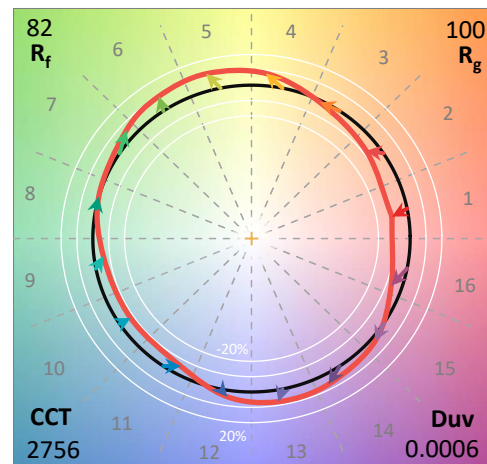
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-8  
 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-827-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI  
 2700K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2756  
 CIE  $u'$ : 0.2599  
 CIE  $v'$ : 0.5271  
 Duv: 0.0006  
 CIE x: 0.4563  
 CIE y: 0.4112  
 CIE z: 0.1325  
 Peak Wavelength (nm): 609  
 Dominant Wavelength (nm): 583  
 Purity: 60.41121  
 R<sub>f</sub>: 82.2  
 R<sub>g</sub>: 99.9

CRI (Ra): 82.9  
 R1: 81.6  
 R2: 88.8  
 R3: 96.0  
 R4: 83.4  
 R5: 81.4  
 R6: 87.0  
 R7: 84.0  
 R8: 60.8  
 R9: 10.8  
 R10: 74.8  
 R11: 84.3  
 R12: 72.1  
 R13: 82.9  
 R14: 97.3  
 R15: 73.7



### Test Conditions

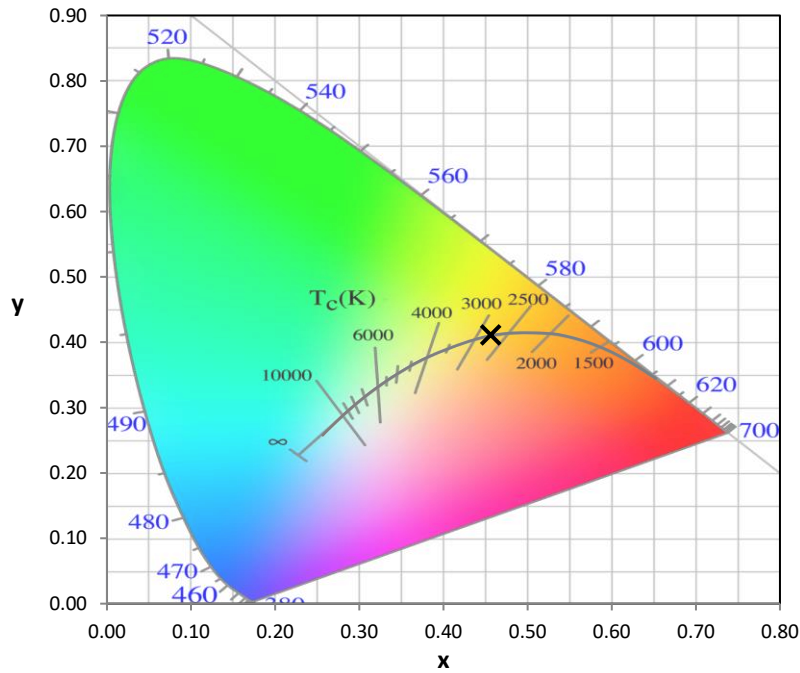
Stabilization Time: 29M  
 Operation Time: 1H 29M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-8

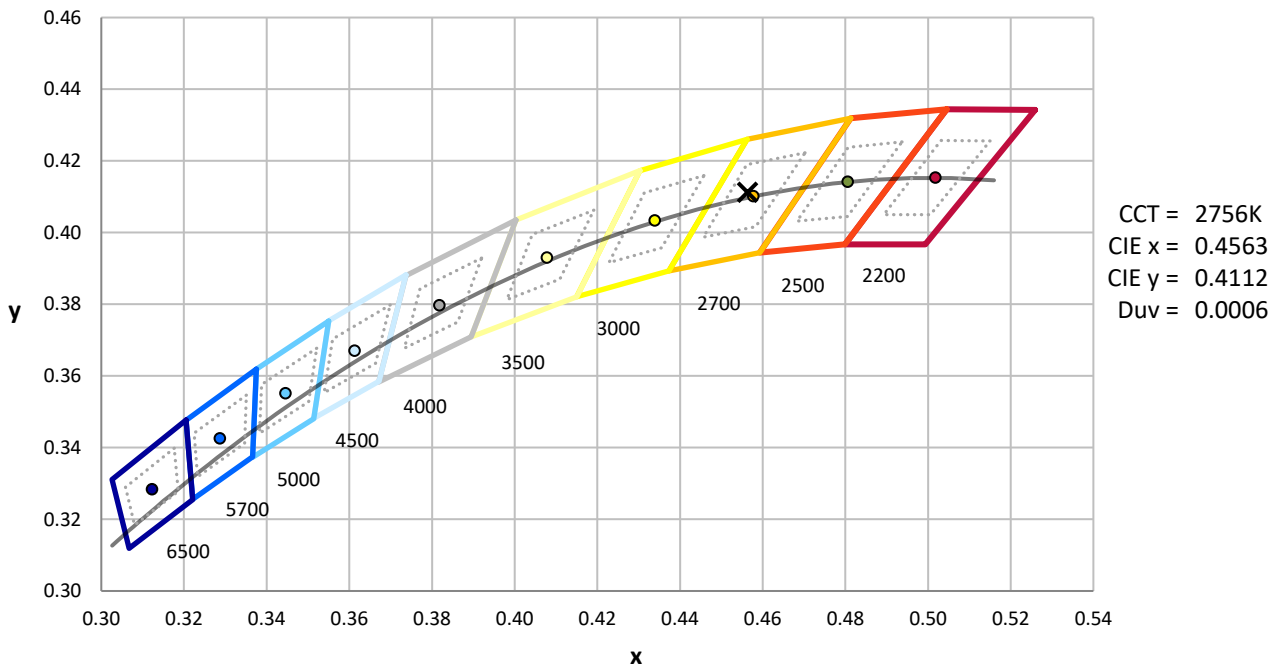
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



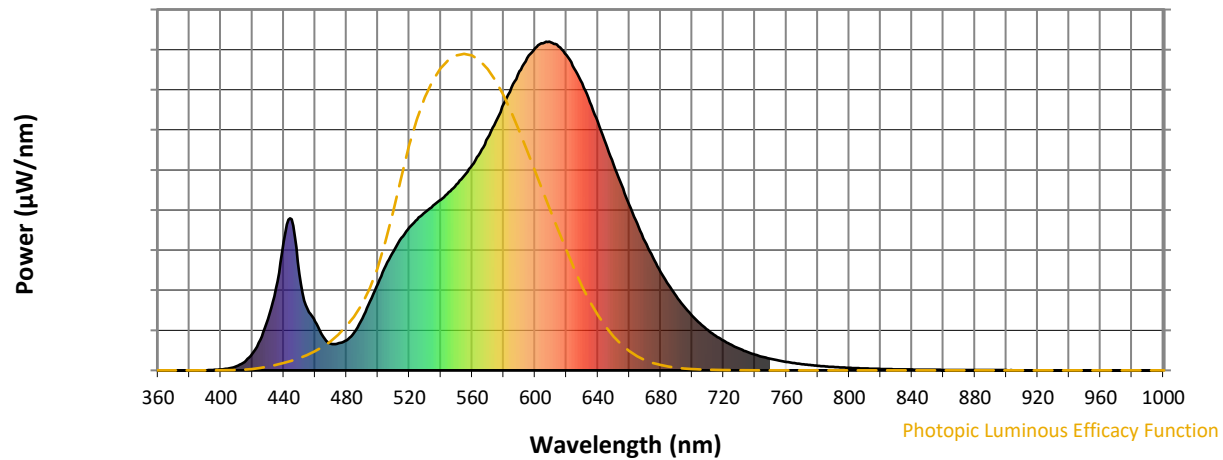
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 2700K 4-step quadrangle

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### Photopic Flux vs. Wavelength

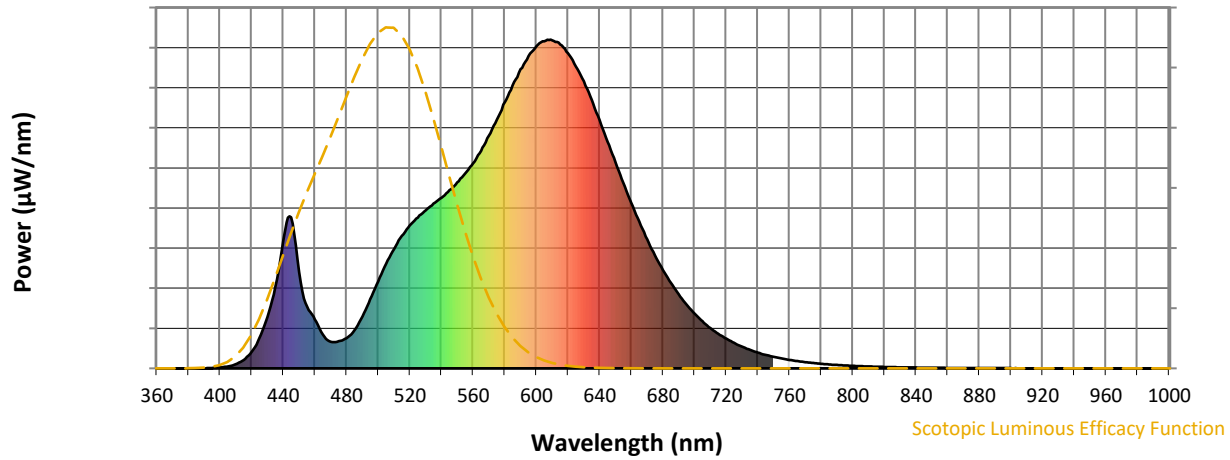


### Photopic Lumens: NR

| λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 158                      | NR            | 620    | 959                      | NR            | 750    | 35                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 211                      | NR            | 625    | 918                      | NR            | 755    | 30                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 264                      | NR            | 630    | 873                      | NR            | 760    | 26                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 318                      | NR            | 635    | 816                      | NR            | 765    | 22                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 363                      | NR            | 640    | 755                      | NR            | 770    | 19                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 403                      | NR            | 645    | 689                      | NR            | 775    | 16                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 435                      | NR            | 650    | 626                      | NR            | 780    | 14                       | NR            | 910    | 0                        | NR            |
| 395    | 1                        | NR            | 525    | 459                      | NR            | 655    | 564                      | NR            | 785    | 12                       | NR            | 915    | 0                        | NR            |
| 400    | 3                        | NR            | 530    | 481                      | NR            | 660    | 503                      | NR            | 790    | 10                       | NR            | 920    | 0                        | NR            |
| 405    | 6                        | NR            | 535    | 501                      | NR            | 665    | 447                      | NR            | 795    | 9                        | NR            | 925    | 0                        | NR            |
| 410    | 13                       | NR            | 540    | 519                      | NR            | 670    | 392                      | NR            | 800    | 8                        | NR            | 930    | 0                        | NR            |
| 415    | 26                       | NR            | 545    | 542                      | NR            | 675    | 343                      | NR            | 805    | 7                        | NR            | 935    | 0                        | NR            |
| 420    | 51                       | NR            | 550    | 565                      | NR            | 680    | 299                      | NR            | 810    | 6                        | NR            | 940    | 0                        | NR            |
| 425    | 93                       | NR            | 555    | 593                      | NR            | 685    | 260                      | NR            | 815    | 5                        | NR            | 945    | 0                        | NR            |
| 430    | 156                      | NR            | 560    | 624                      | NR            | 690    | 225                      | NR            | 820    | 4                        | NR            | 950    | 0                        | NR            |
| 435    | 250                      | NR            | 565    | 662                      | NR            | 695    | 194                      | NR            | 825    | 4                        | NR            | 955    | 0                        | NR            |
| 440    | 391                      | NR            | 570    | 707                      | NR            | 700    | 166                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 460                      | NR            | 575    | 756                      | NR            | 705    | 143                      | NR            | 835    | 3                        | NR            | 965    | 0                        | NR            |
| 450    | 293                      | NR            | 580    | 810                      | NR            | 710    | 122                      | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 188                      | NR            | 585    | 860                      | NR            | 715    | 105                      | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 149                      | NR            | 590    | 910                      | NR            | 720    | 90                       | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 103                      | NR            | 595    | 950                      | NR            | 725    | 77                       | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 80                       | NR            | 600    | 980                      | NR            | 730    | 66                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 82                       | NR            | 605    | 995                      | NR            | 735    | 56                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 92                       | NR            | 610    | 998                      | NR            | 740    | 48                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 116                      | NR            | 615    | 985                      | NR            | 745    | 41                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



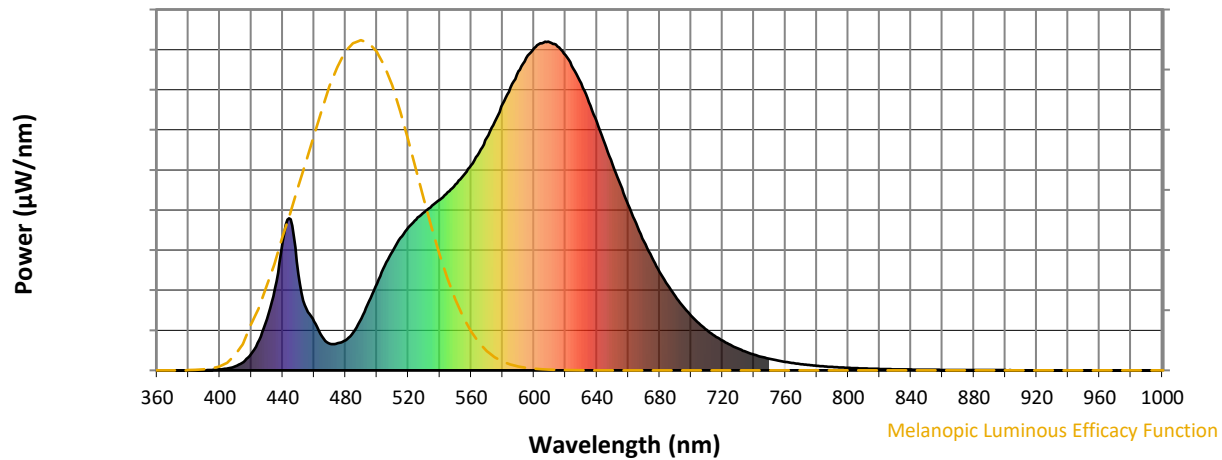
Scotopic Lumens: NR

S/P: 1.2

| 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       | 158                         | NR               | 620       | 959                         | NR               | 750       | 35                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 211                         | NR               | 625       | 918                         | NR               | 755       | 30                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 264                         | NR               | 630       | 873                         | NR               | 760       | 26                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 318                         | NR               | 635       | 816                         | NR               | 765       | 22                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 363                         | NR               | 640       | 755                         | NR               | 770       | 19                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 403                         | NR               | 645       | 689                         | NR               | 775       | 16                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 435                         | NR               | 650       | 626                         | NR               | 780       | 14                          | NR               | 910       | 0                           | NR               |
| 395       | 1                           | NR               | 525       | 459                         | NR               | 655       | 564                         | NR               | 785       | 12                          | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 481                         | NR               | 660       | 503                         | NR               | 790       | 10                          | NR               | 920       | 0                           | NR               |
| 405       | 6                           | NR               | 535       | 501                         | NR               | 665       | 447                         | NR               | 795       | 9                           | NR               | 925       | 0                           | NR               |
| 410       | 13                          | NR               | 540       | 519                         | NR               | 670       | 392                         | NR               | 800       | 8                           | NR               | 930       | 0                           | NR               |
| 415       | 26                          | NR               | 545       | 542                         | NR               | 675       | 343                         | NR               | 805       | 7                           | NR               | 935       | 0                           | NR               |
| 420       | 51                          | NR               | 550       | 565                         | NR               | 680       | 299                         | NR               | 810       | 6                           | NR               | 940       | 0                           | NR               |
| 425       | 93                          | NR               | 555       | 593                         | NR               | 685       | 260                         | NR               | 815       | 5                           | NR               | 945       | 0                           | NR               |
| 430       | 156                         | NR               | 560       | 624                         | NR               | 690       | 225                         | NR               | 820       | 4                           | NR               | 950       | 0                           | NR               |
| 435       | 250                         | NR               | 565       | 662                         | NR               | 695       | 194                         | NR               | 825       | 4                           | NR               | 955       | 0                           | NR               |
| 440       | 391                         | NR               | 570       | 707                         | NR               | 700       | 166                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 460                         | NR               | 575       | 756                         | NR               | 705       | 143                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 293                         | NR               | 580       | 810                         | NR               | 710       | 122                         | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 188                         | NR               | 585       | 860                         | NR               | 715       | 105                         | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 149                         | NR               | 590       | 910                         | NR               | 720       | 90                          | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 103                         | NR               | 595       | 950                         | NR               | 725       | 77                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 80                          | NR               | 600       | 980                         | NR               | 730       | 66                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 82                          | NR               | 605       | 995                         | NR               | 735       | 56                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 92                          | NR               | 610       | 998                         | NR               | 740       | 48                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 116                         | NR               | 615       | 985                         | NR               | 745       | 41                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.16

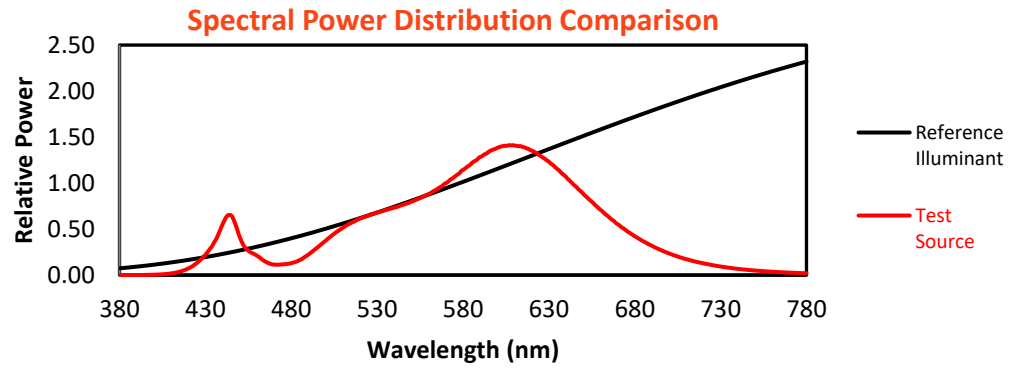
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 158                                  | NR                             | 620               | 959                                  | NR                             | 750               | 35                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 211                                  | NR                             | 625               | 918                                  | NR                             | 755               | 30                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 264                                  | NR                             | 630               | 873                                  | NR                             | 760               | 26                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 318                                  | NR                             | 635               | 816                                  | NR                             | 765               | 22                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 363                                  | NR                             | 640               | 755                                  | NR                             | 770               | 19                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 403                                  | NR                             | 645               | 689                                  | NR                             | 775               | 16                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 435                                  | NR                             | 650               | 626                                  | NR                             | 780               | 14                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 459                                  | NR                             | 655               | 564                                  | NR                             | 785               | 12                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 481                                  | NR                             | 660               | 503                                  | NR                             | 790               | 10                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 501                                  | NR                             | 665               | 447                                  | NR                             | 795               | 9                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 13                                   | NR                             | 540               | 519                                  | NR                             | 670               | 392                                  | NR                             | 800               | 8                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 26                                   | NR                             | 545               | 542                                  | NR                             | 675               | 343                                  | NR                             | 805               | 7                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 51                                   | NR                             | 550               | 565                                  | NR                             | 680               | 299                                  | NR                             | 810               | 6                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 93                                   | NR                             | 555               | 593                                  | NR                             | 685               | 260                                  | NR                             | 815               | 5                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 156                                  | NR                             | 560               | 624                                  | NR                             | 690               | 225                                  | NR                             | 820               | 4                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 250                                  | NR                             | 565               | 662                                  | NR                             | 695               | 194                                  | NR                             | 825               | 4                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 391                                  | NR                             | 570               | 707                                  | NR                             | 700               | 166                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 460                                  | NR                             | 575               | 756                                  | NR                             | 705               | 143                                  | NR                             | 835               | 3                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 293                                  | NR                             | 580               | 810                                  | NR                             | 710               | 122                                  | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 188                                  | NR                             | 585               | 860                                  | NR                             | 715               | 105                                  | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 149                                  | NR                             | 590               | 910                                  | NR                             | 720               | 90                                   | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 103                                  | NR                             | 595               | 950                                  | NR                             | 725               | 77                                   | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 80                                   | NR                             | 600               | 980                                  | NR                             | 730               | 66                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 82                                   | NR                             | 605               | 995                                  | NR                             | 735               | 56                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 92                                   | NR                             | 610               | 998                                  | NR                             | 740               | 48                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 116                                  | NR                             | 615               | 985                                  | NR                             | 745               | 41                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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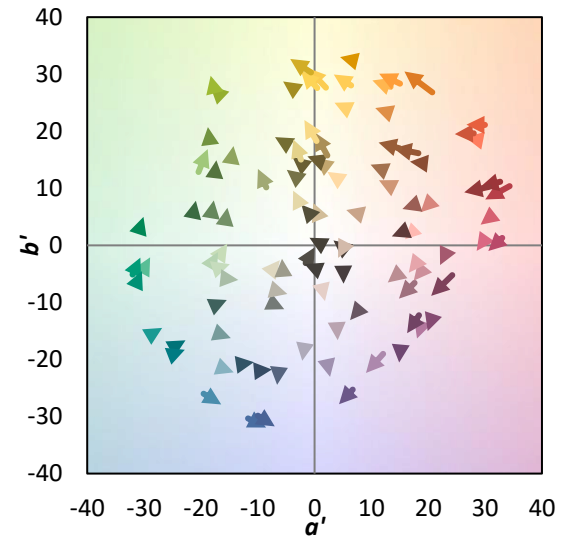
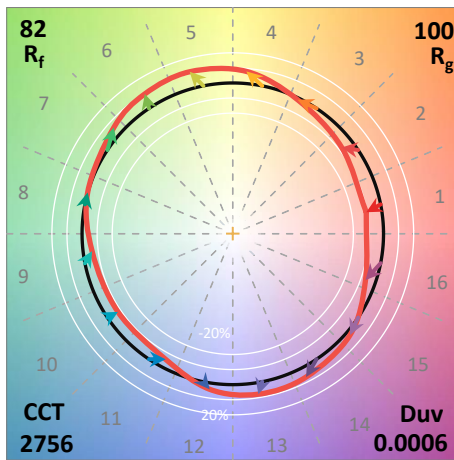
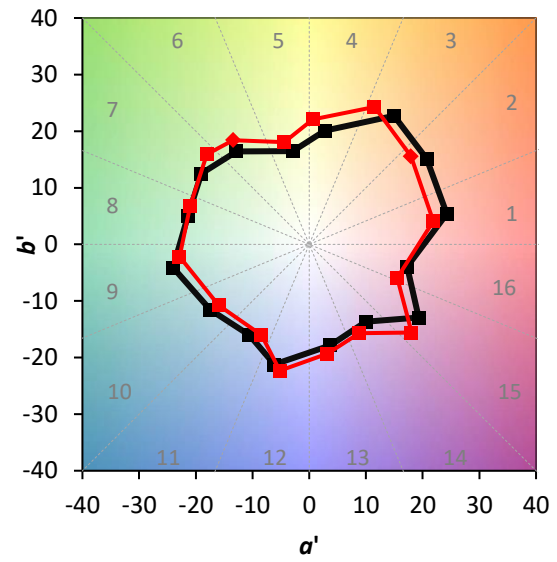
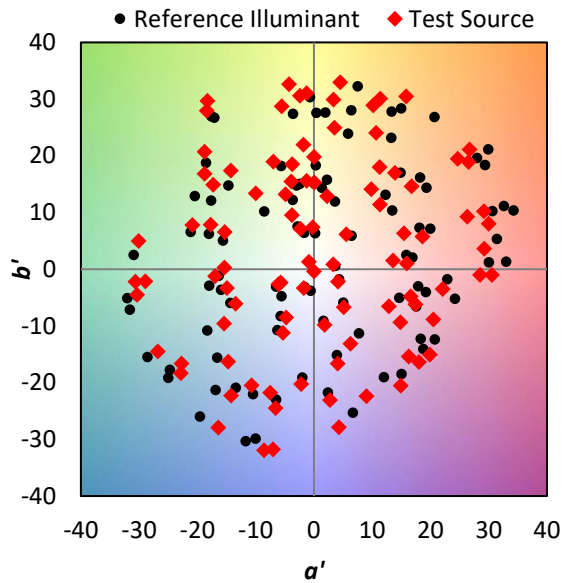
TM-30-18

### Summary

$R_f = 82.2$   
 $R_g = 99.9$   
 $CIE R_a = 82.9$   
 $R_9 = 10.8$



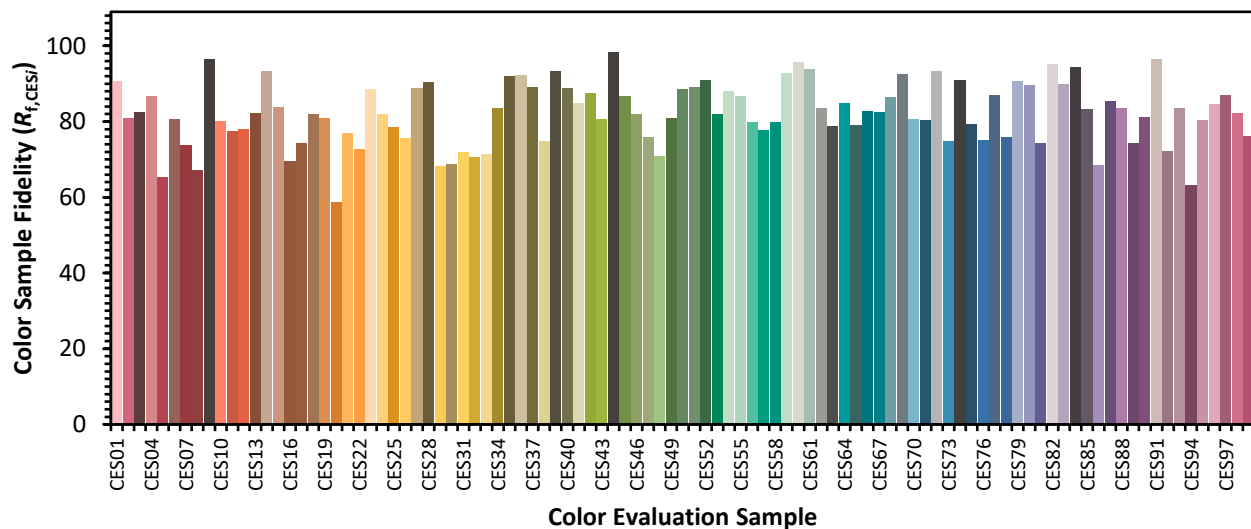
### Color Vector Graphics



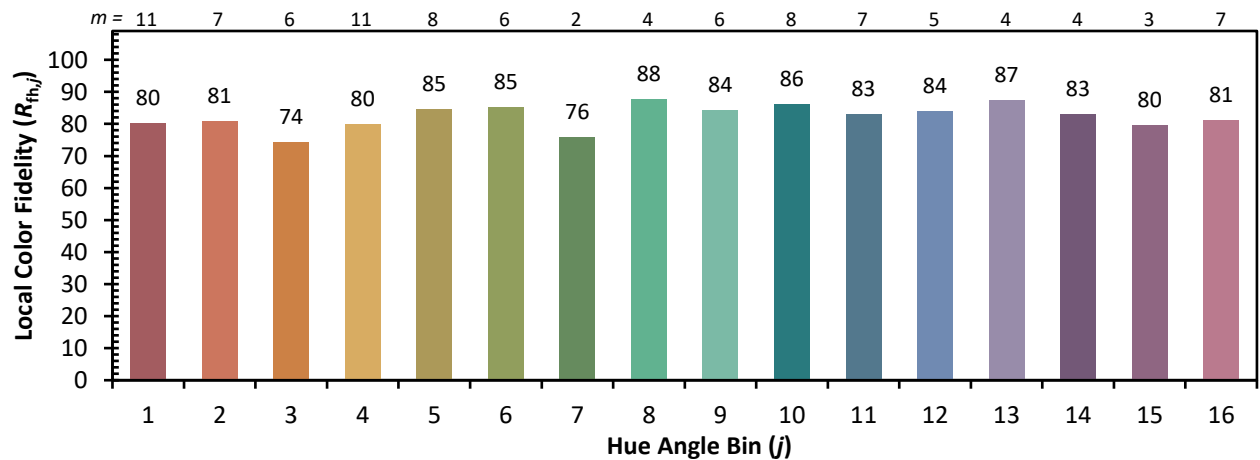
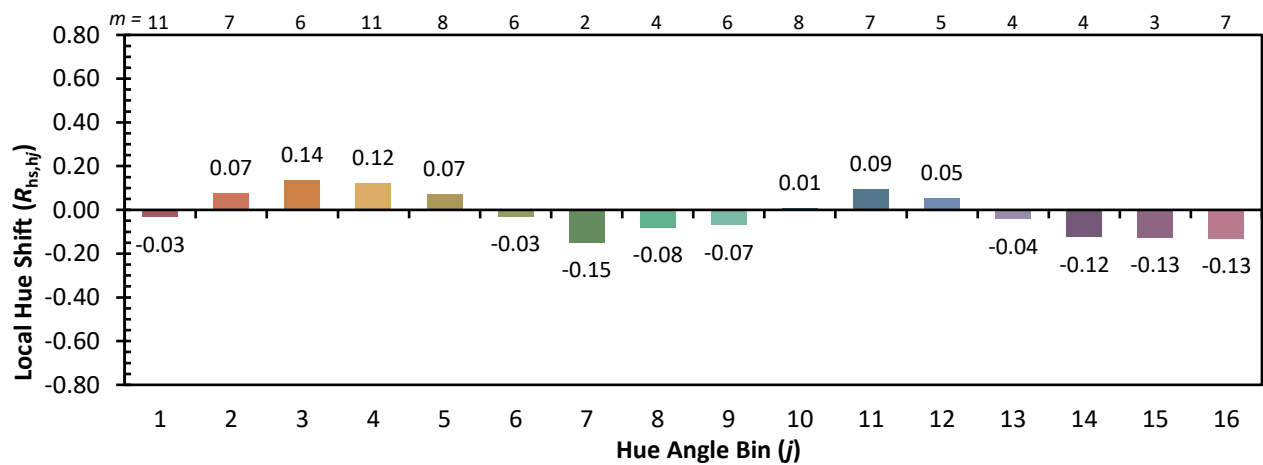
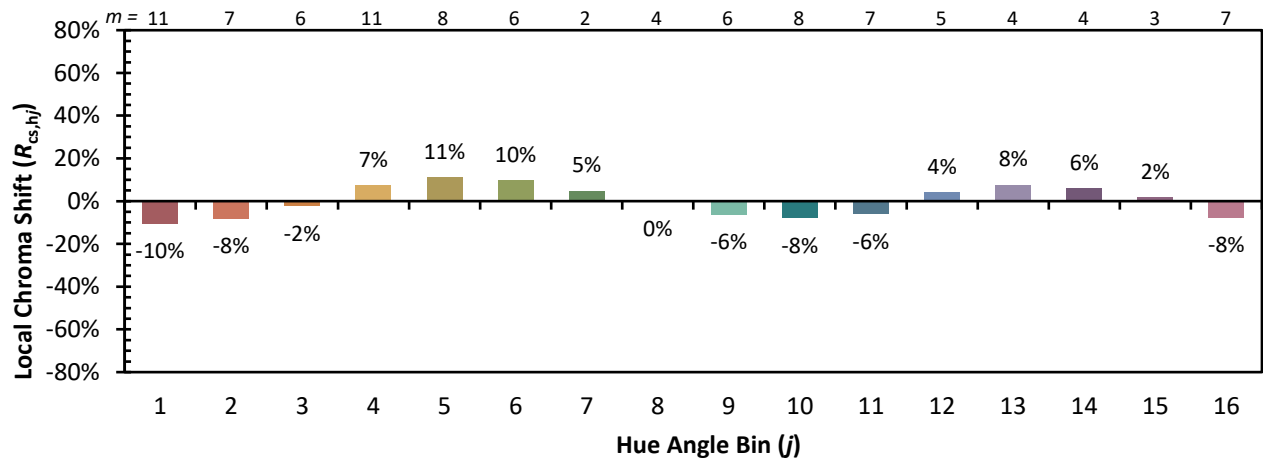


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

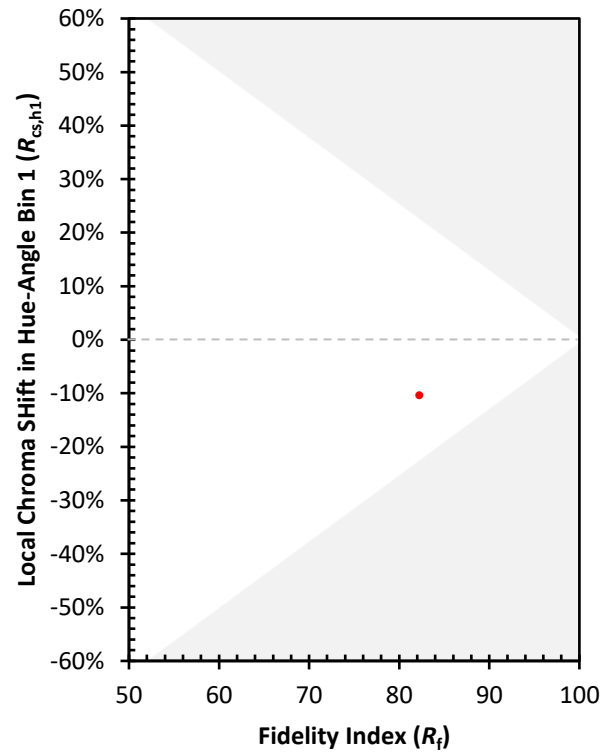
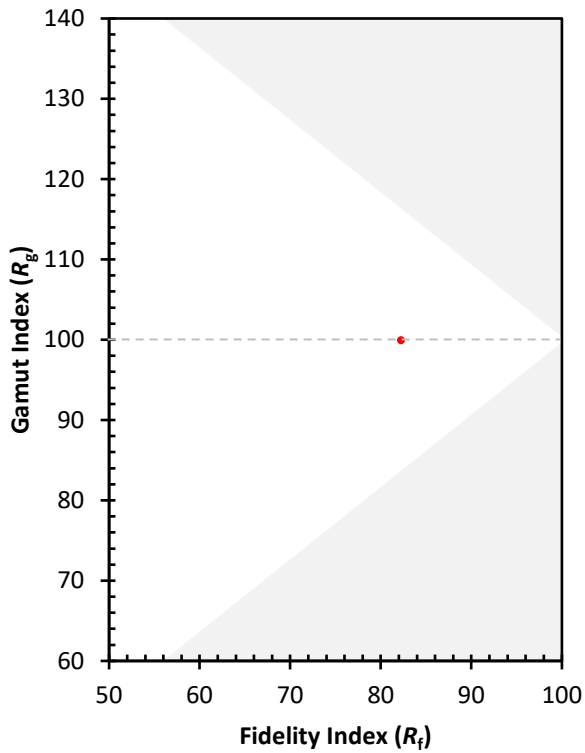
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 76 | CES51 = 89 | CES76 = 75 |
| CES02 = 63 | CES27 = 89 | CES52 = 91 | CES77 = 87 |
| CES03 = 31 | CES28 = 90 | CES53 = 82 | CES78 = 76 |
| CES04 = 71 | CES29 = 68 | CES54 = 88 | CES79 = 91 |
| CES05 = 50 | CES30 = 69 | CES55 = 87 | CES80 = 90 |
| CES06 = 52 | CES31 = 72 | CES56 = 80 | CES81 = 74 |
| CES07 = 43 | CES32 = 71 | CES57 = 78 | CES82 = 95 |
| CES08 = 42 | CES33 = 71 | CES58 = 80 | CES83 = 90 |
| CES09 = 29 | CES34 = 84 | CES59 = 93 | CES84 = 94 |
| CES10 = 77 | CES35 = 92 | CES60 = 96 | CES85 = 83 |
| CES11 = 59 | CES36 = 92 | CES61 = 94 | CES86 = 69 |
| CES12 = 66 | CES37 = 89 | CES62 = 84 | CES87 = 85 |
| CES13 = 44 | CES38 = 75 | CES63 = 79 | CES88 = 84 |
| CES14 = 74 | CES39 = 93 | CES64 = 85 | CES89 = 74 |
| CES15 = 72 | CES40 = 89 | CES65 = 79 | CES90 = 81 |
| CES16 = 48 | CES41 = 85 | CES66 = 83 | CES91 = 96 |
| CES17 = 50 | CES42 = 88 | CES67 = 82 | CES92 = 72 |
| CES18 = 57 | CES43 = 81 | CES68 = 86 | CES93 = 84 |
| CES19 = 73 | CES44 = 98 | CES69 = 92 | CES94 = 63 |
| CES20 = 67 | CES45 = 87 | CES70 = 81 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 81 | CES96 = 85 |
| CES22 = 79 | CES47 = 76 | CES72 = 93 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 75 | CES98 = 82 |
| CES24 = 91 | CES49 = 81 | CES74 = 91 | CES99 = 76 |
| CES25 = 72 | CES50 = 88 | CES75 = 79 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)