

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: P1062674

Luminaire Tested: **GLAN-SA7B-740-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1062674  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA7B-740-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 7xLight Square PACKAGE  
70CRI 4000K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (98) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 32729.9 lumens  
Efficiency: N/A  
Efficacy: 131.2 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G5

Input Watts (W): 249.5  
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

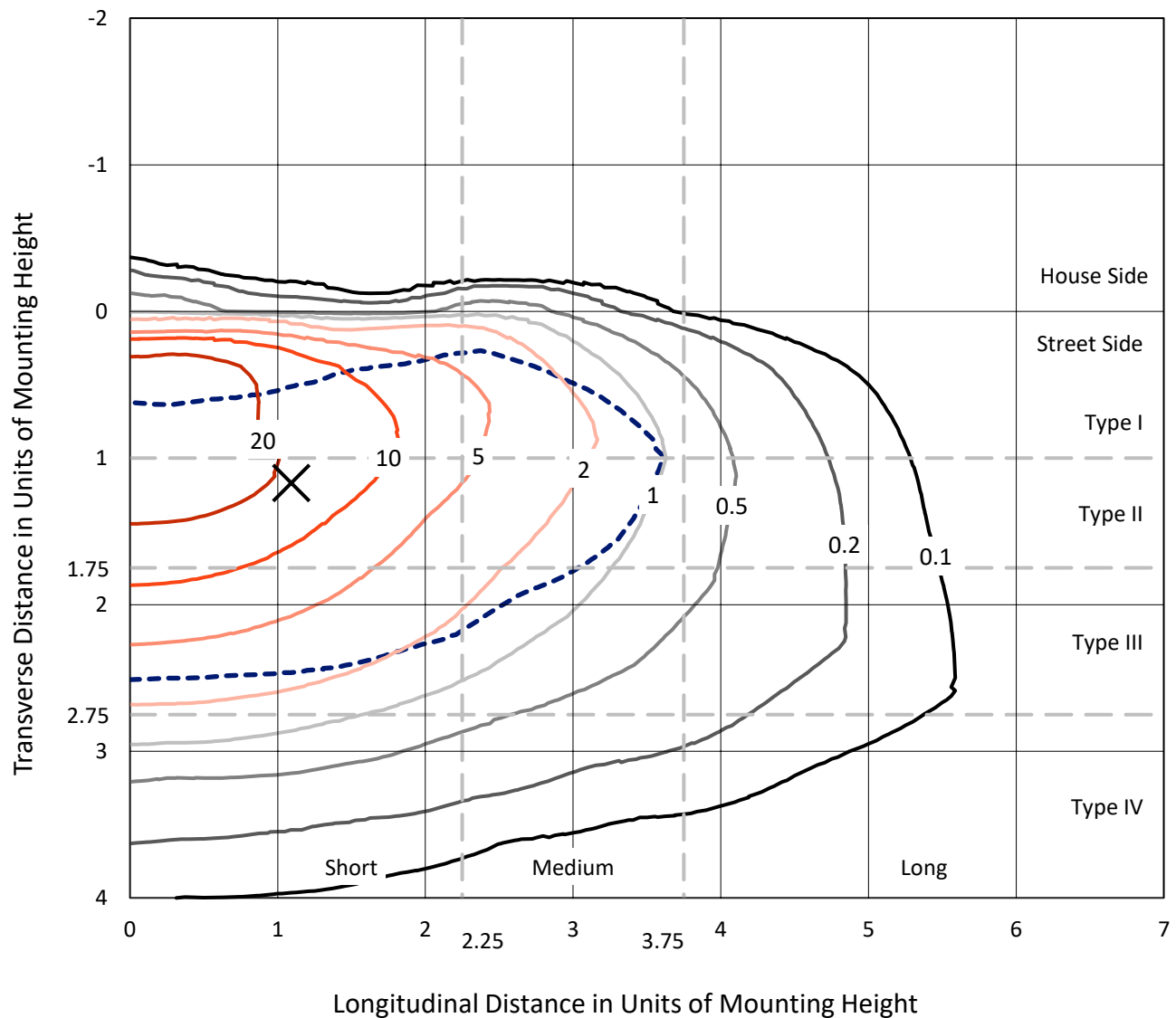


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## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

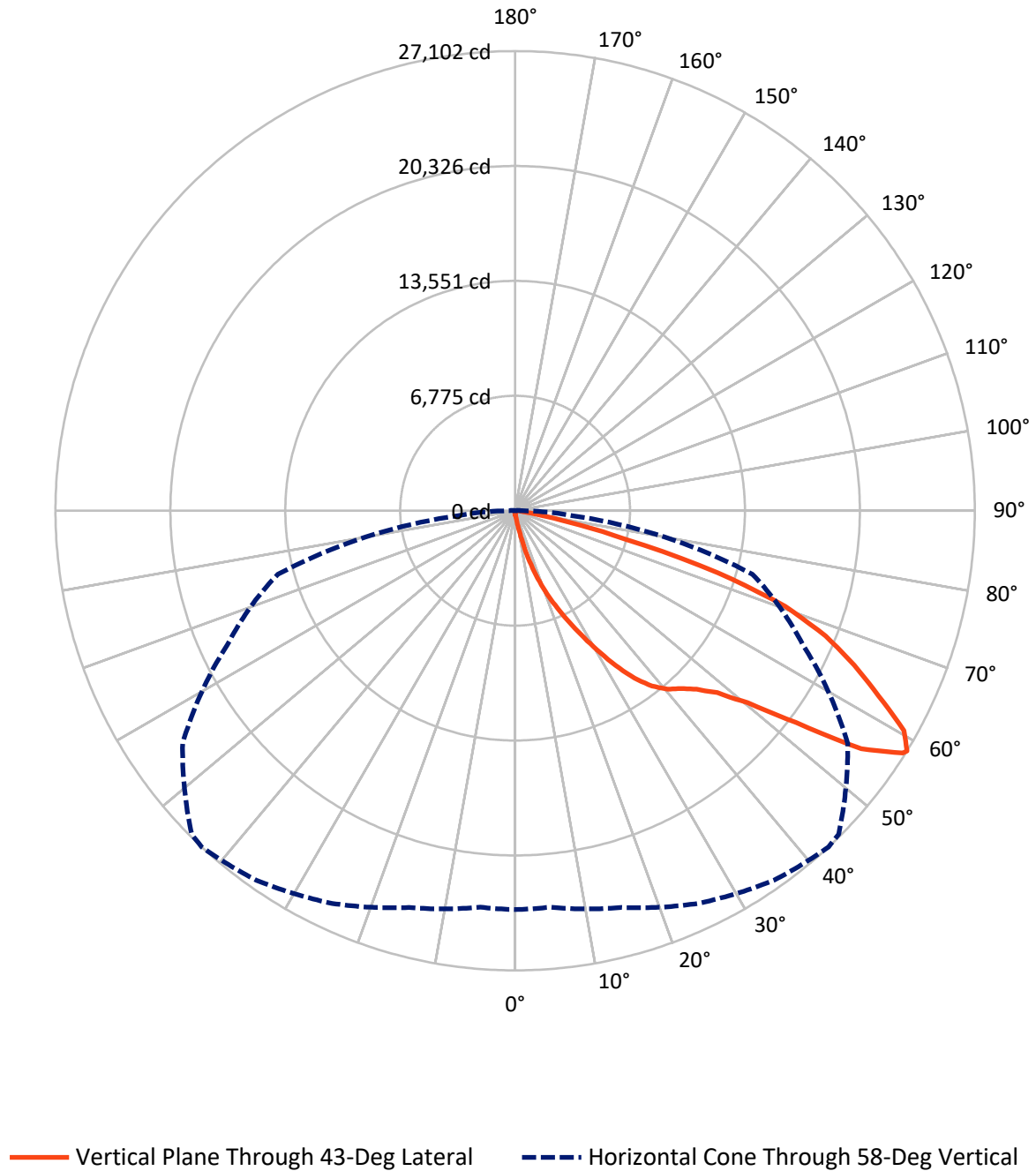


Based on 15 foot mounting height. Maximum calculated value = 36.7 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 119.5    | 0.0    | 119.5   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 32610.4  | 0.0    | 32610.4 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 32729.9  | 0.0    | 32729.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 31.4    | 0.1       |
| 10°-20°   | 376.2   | 1.1       |
| 20°-30°   | 1356.0  | 4.1       |
| 30°-40°   | 3102.6  | 9.5       |
| 40°-50°   | 5232.9  | 16.0      |
| 50°-60°   | 8635.5  | 26.4      |
| 60°-70°   | 9651.3  | 29.5      |
| 70°-80°   | 3984.9  | 12.2      |
| 80°-90°   | 359.2   | 1.1       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 32729.9 | 100.0     |
| 0°-180°   | 32729.9 | 100.0     |



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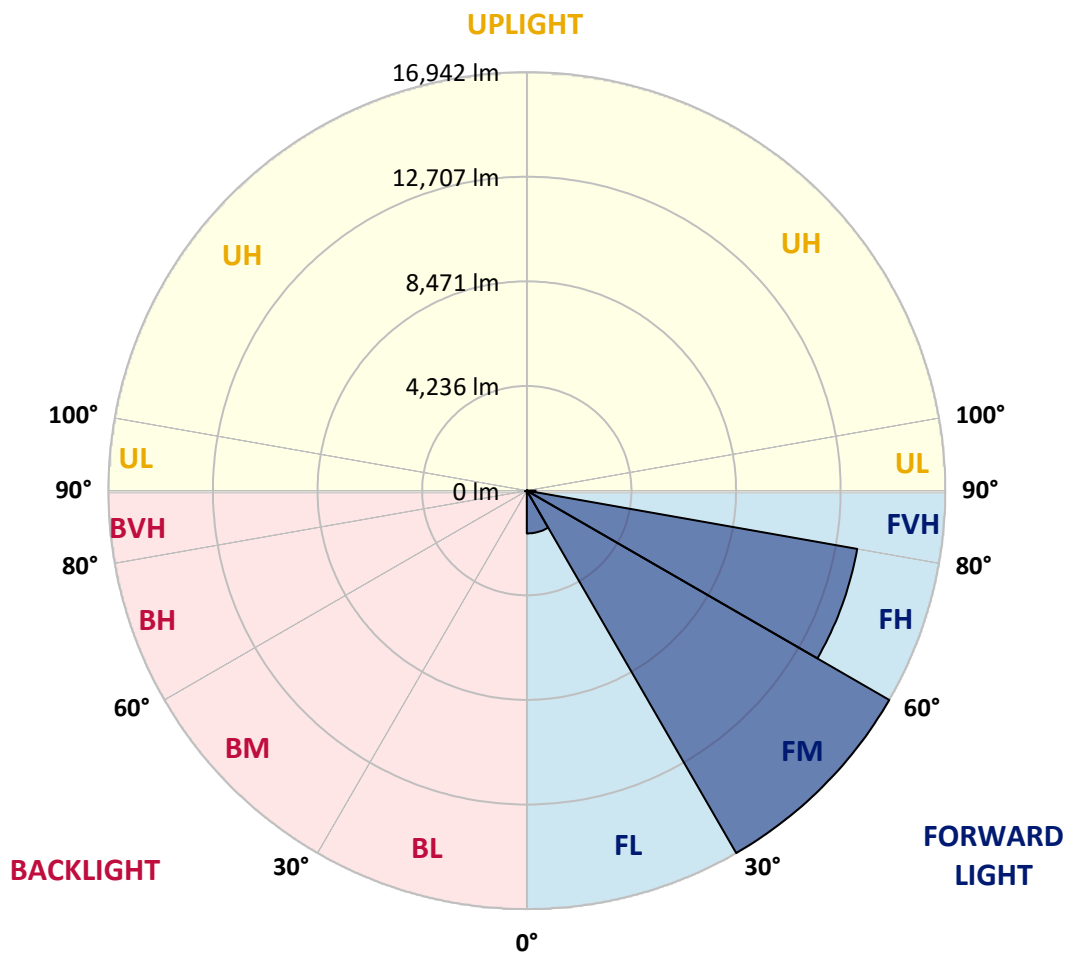
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|---------|-----------|-------------------------|------|--------|
|      |             |         |           | B                       | U    | G      |
| FL   | (0°-30°)    | 1732.5  | 5.3       |                         |      |        |
| FM   | (30°-60°)   | 16942.3 | 51.8      |                         |      |        |
| FH   | (60°-80°)   | 13581.4 | 41.5      |                         |      | G5     |
| FVH  | (80°-90°)   | 354.3   | 1.1       |                         |      | G3/500 |
| BL   | (0°-30°)    | 31.2    | 0.1       | B0/110                  |      |        |
| BM   | (30°-60°)   | 28.6    | 0.1       | B0/220                  |      |        |
| BH   | (60°-80°)   | 54.8    | 0.2       | B0/110                  |      | G0/110 |
| BVH  | (80°-90°)   | 4.9     | 0.0       |                         |      | G0/10  |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |        |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |        |

**BUG Rating: B0-U0-G5**

Type III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 214.0   | 214.0   | 214.0   | 214.0   | 214.0   | 214.0   | 214.0   | 214.0   | 214.0   | 214.0   | 214.0   |
| 2.5°  | 256.8   | 265.4   | 256.8   | 256.8   | 256.8   | 248.2   | 248.2   | 239.7   | 239.7   | 231.1   | 222.6   |
| 5°    | 376.6   | 376.6   | 351.0   | 333.8   | 316.7   | 308.2   | 299.6   | 282.5   | 265.4   | 248.2   | 231.1   |
| 7.5°  | 838.9   | 838.9   | 761.9   | 659.1   | 522.2   | 445.1   | 428.0   | 351.0   | 299.6   | 265.4   | 231.1   |
| 10°   | 2003.1  | 2003.1  | 1831.9  | 1549.4  | 1198.4  | 890.3   | 796.1   | 505.1   | 359.5   | 282.5   | 239.7   |
| 12.5° | 3329.9  | 3372.7  | 3158.7  | 2799.2  | 2277.0  | 1737.7  | 1549.4  | 924.5   | 479.4   | 308.2   | 239.7   |
| 15°   | 4519.8  | 4417.1  | 4357.2  | 4014.7  | 3518.3  | 2876.2  | 2636.5  | 1558.0  | 693.4   | 351.0   | 239.7   |
| 17.5° | 5324.5  | 5324.5  | 5238.9  | 5007.7  | 4554.0  | 3989.1  | 3792.2  | 2516.7  | 1121.4  | 402.3   | 248.2   |
| 20°   | 6266.1  | 6266.1  | 6112.0  | 5949.4  | 5547.0  | 5067.7  | 4879.3  | 3578.2  | 1737.7  | 513.6   | 248.2   |
| 22.5° | 7404.6  | 7421.7  | 7250.5  | 6959.5  | 6574.2  | 6043.5  | 5880.9  | 4562.6  | 2516.7  | 684.8   | 256.8   |
| 25°   | 8791.3  | 8808.5  | 8560.2  | 8286.3  | 7695.6  | 7122.1  | 6873.9  | 5692.5  | 3466.9  | 958.7   | 256.8   |
| 27.5° | 10323.6 | 10443.5 | 10075.4 | 9604.6  | 8979.7  | 8260.6  | 8072.3  | 6711.2  | 4408.5  | 1352.5  | 273.9   |
| 30°   | 12232.6 | 12232.6 | 11744.6 | 11085.5 | 10409.2 | 9519.0  | 9279.3  | 7781.2  | 5410.1  | 1874.7  | 291.0   |
| 32.5° | 13876.1 | 13747.7 | 13122.8 | 12429.4 | 11710.4 | 10880.0 | 10623.2 | 8902.6  | 6437.3  | 2525.3  | 325.3   |
| 35°   | 15134.5 | 15023.2 | 14252.8 | 13508.0 | 12883.1 | 12121.3 | 11813.1 | 10118.2 | 7524.4  | 3261.4  | 376.6   |
| 37.5° | 16213.1 | 16170.3 | 15125.9 | 14192.8 | 13782.0 | 13114.3 | 12840.3 | 11265.2 | 8594.5  | 4057.5  | 436.6   |
| 40°   | 17394.4 | 17257.4 | 16144.6 | 14988.9 | 14372.6 | 13833.3 | 13585.1 | 12189.8 | 9621.7  | 4990.6  | 522.2   |
| 42.5° | 18404.5 | 18241.8 | 17240.3 | 16110.3 | 15057.4 | 14329.8 | 14090.1 | 12968.7 | 10623.2 | 5923.7  | 633.5   |
| 45°   | 19525.9 | 19440.3 | 18430.2 | 17574.1 | 16170.3 | 15006.1 | 14689.3 | 13593.6 | 11539.2 | 7036.5  | 779.0   |
| 47.5° | 21212.2 | 21058.1 | 20116.5 | 19414.6 | 17788.1 | 16033.3 | 15579.6 | 14235.6 | 12420.9 | 8132.2  | 1001.5  |
| 50°   | 23172.5 | 23069.8 | 22513.4 | 21957.0 | 20339.1 | 17788.1 | 17248.8 | 15160.1 | 13405.3 | 9433.4  | 1292.6  |
| 52.5° | 24773.3 | 24756.2 | 24824.6 | 24833.2 | 23609.1 | 20741.4 | 19936.8 | 16649.6 | 14535.3 | 10717.4 | 1703.5  |
| 55°   | 24739.0 | 24816.1 | 25569.4 | 26434.0 | 26528.1 | 24773.3 | 23994.3 | 19157.8 | 16007.6 | 12301.0 | 2277.0  |
| 57.5° | 23814.5 | 23754.6 | 24550.7 | 25851.9 | 26767.8 | 26956.1 | 26827.7 | 23052.7 | 18224.7 | 14210.0 | 3158.7  |
| 58°   | 23514.9 | 23463.6 | 24216.9 | 25543.7 | 26596.6 | 27101.7 | 26973.3 | 23934.4 | 18721.2 | 14483.9 | 3398.4  |
| 60°   | 22427.8 | 22436.3 | 22881.5 | 24088.5 | 25141.4 | 26339.8 | 26459.6 | 26451.1 | 21195.1 | 16315.8 | 4605.4  |
| 62.5° | 20989.7 | 20921.2 | 21332.1 | 22316.5 | 23241.0 | 24045.7 | 24251.1 | 26622.3 | 24816.1 | 18644.2 | 6908.1  |
| 65°   | 19003.7 | 18901.0 | 19337.5 | 20450.4 | 21443.4 | 21965.5 | 21974.1 | 24328.1 | 26519.6 | 21143.7 | 10195.2 |
| 67.5° | 15314.2 | 15228.6 | 16101.8 | 17531.3 | 19063.6 | 19748.4 | 20056.6 | 21109.5 | 25081.4 | 22838.7 | 12078.5 |
| 70°   | 9382.0  | 9561.8  | 10777.3 | 13020.1 | 15639.5 | 16897.9 | 17360.1 | 17685.4 | 21357.7 | 22581.9 | 10101.1 |
| 72.5° | 4331.5  | 4117.5  | 5153.3  | 6719.8  | 9707.3  | 12506.5 | 12985.9 | 14261.3 | 16932.1 | 19602.9 | 7533.0  |
| 75°   | 2020.2  | 1943.2  | 2182.9  | 2936.2  | 4400.0  | 6754.0  | 7627.2  | 11385.1 | 12985.9 | 13636.4 | 5435.7  |
| 77.5° | 1035.8  | 1044.3  | 1241.2  | 1335.4  | 1814.8  | 3124.5  | 3586.7  | 7490.2  | 9519.0  | 7610.0  | 3646.7  |
| 80°   | 453.7   | 470.8   | 479.4   | 522.2   | 736.2   | 1207.0  | 1361.1  | 3475.4  | 6505.8  | 3877.8  | 1994.5  |
| 82.5° | 291.0   | 299.6   | 299.6   | 299.6   | 351.0   | 479.4   | 547.9   | 1395.3  | 3244.3  | 1926.0  | 616.3   |
| 85°   | 154.1   | 154.1   | 171.2   | 214.0   | 248.2   | 291.0   | 308.2   | 445.1   | 1070.0  | 573.5   | 145.5   |
| 87.5° | 85.6    | 94.2    | 102.7   | 128.4   | 162.6   | 196.9   | 214.0   | 308.2   | 410.9   | 393.8   | 34.2    |
| 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-SA7B-740-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 214.0  | 214.0 | 214.0 | 214.0 | 214.0 | 214.0 | 214.0 | 214.0 | 214.0 | 214.0 | 214.0 |
| 2.5°  | 222.6  | 214.0 | 205.4 | 196.9 | 188.3 | 179.8 | 179.8 | 179.8 | 179.8 | 179.8 | 179.8 |
| 5°    | 214.0  | 205.4 | 196.9 | 179.8 | 162.6 | 154.1 | 145.5 | 137.0 | 137.0 | 137.0 | 137.0 |
| 7.5°  | 214.0  | 205.4 | 179.8 | 162.6 | 145.5 | 128.4 | 111.3 | 111.3 | 111.3 | 111.3 | 111.3 |
| 10°   | 214.0  | 196.9 | 171.2 | 145.5 | 119.8 | 102.7 | 94.2  | 85.6  | 85.6  | 85.6  | 85.6  |
| 12.5° | 214.0  | 188.3 | 162.6 | 128.4 | 102.7 | 85.6  | 77.0  | 68.5  | 68.5  | 68.5  | 68.5  |
| 15°   | 214.0  | 188.3 | 154.1 | 119.8 | 94.2  | 68.5  | 59.9  | 51.4  | 51.4  | 51.4  | 51.4  |
| 17.5° | 205.4  | 179.8 | 145.5 | 102.7 | 77.0  | 51.4  | 42.8  | 34.2  | 34.2  | 42.8  | 42.8  |
| 20°   | 196.9  | 171.2 | 128.4 | 85.6  | 59.9  | 42.8  | 25.7  | 25.7  | 25.7  | 25.7  | 25.7  |
| 22.5° | 196.9  | 171.2 | 119.8 | 77.0  | 51.4  | 25.7  | 17.1  | 17.1  | 17.1  | 17.1  | 25.7  |
| 25°   | 196.9  | 162.6 | 102.7 | 59.9  | 34.2  | 17.1  | 8.6   | 8.6   | 8.6   | 8.6   | 8.6   |
| 27.5° | 196.9  | 162.6 | 94.2  | 51.4  | 25.7  | 17.1  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 188.3  | 154.1 | 85.6  | 42.8  | 17.1  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 188.3  | 145.5 | 68.5  | 34.2  | 17.1  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 196.9  | 137.0 | 59.9  | 25.7  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 8.6   |
| 37.5° | 205.4  | 128.4 | 51.4  | 17.1  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 214.0  | 119.8 | 51.4  | 17.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 231.1  | 119.8 | 42.8  | 17.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 248.2  | 119.8 | 34.2  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 282.5  | 128.4 | 34.2  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 308.2  | 137.0 | 25.7  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 342.4  | 128.4 | 25.7  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 385.2  | 128.4 | 25.7  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 419.5  | 119.8 | 25.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 436.6  | 111.3 | 17.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 522.2  | 102.7 | 17.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 813.2  | 85.6  | 17.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1652.1 | 77.0  | 17.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 3081.7 | 68.5  | 17.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 3449.8 | 77.0  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 2174.3 | 59.9  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1147.1 | 59.9  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 573.5  | 59.9  | 8.6   | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 265.4  | 42.8  | 8.6   | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 111.3  | 25.7  | 17.1  | 8.6   | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 51.4   | 25.7  | 17.1  | 17.1  | 8.6   | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 25.7   | 25.7  | 25.7  | 17.1  | 17.1  | 8.6   | 8.6   | 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: SP1-2407-184-1

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-740-U-5WQ

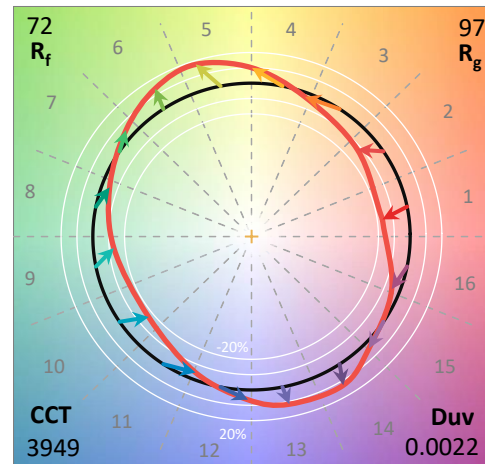
Data in this report applies to families of products including GSS-SB1A-740-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-1  
 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-740-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 4000K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 3949     | CRI (Ra): | 70.7 |      |       |
| CIE u':                   | 0.2248   | R1:       | 68.0 | R9:  | -36.7 |
| CIE v':                   | 0.5053   | R2:       | 76.0 | R10: | 45.1  |
| Duv:                      | 0.0022   | R3:       | 84.3 | R11: | 70.7  |
| CIE x:                    | 0.3844   | R4:       | 72.0 | R12: | 47.1  |
| CIE y:                    | 0.3840   | R5:       | 68.6 | R13: | 68.5  |
| CIE z:                    | 0.2316   | R6:       | 68.3 | R14: | 91.1  |
| Peak Wavelength (nm):     | 440      | R7:       | 77.9 | R15: | 58.7  |
| Dominant Wavelength (nm): | 578      | R8:       | 50.3 |      |       |
| Purity:                   | 30.60026 |           |      |      |       |
| Rf:                       | 71.8     |           |      |      |       |
| Rg:                       | 96.5     |           |      |      |       |



### Test Conditions

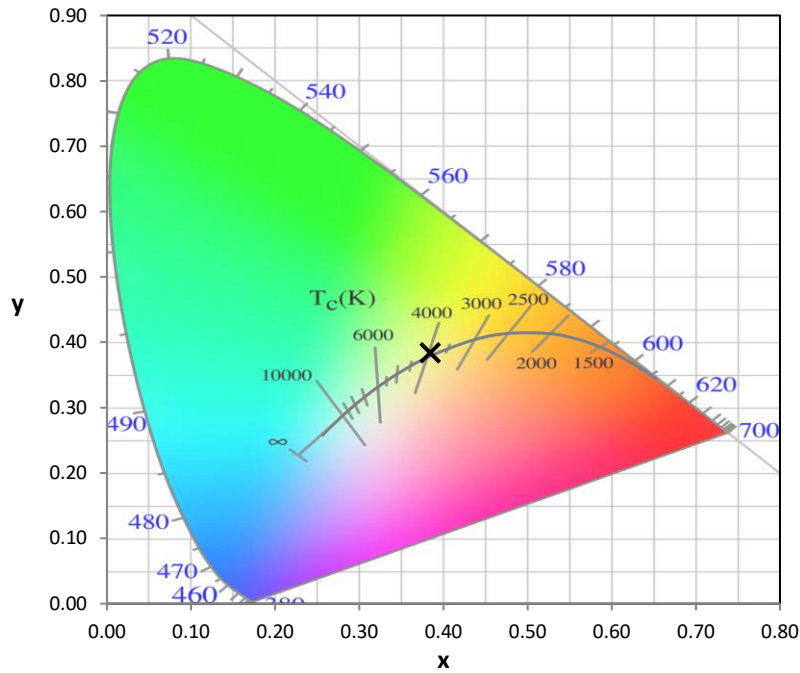
Stabilization Time: 34M  
 Operation Time: 1H 34M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-1

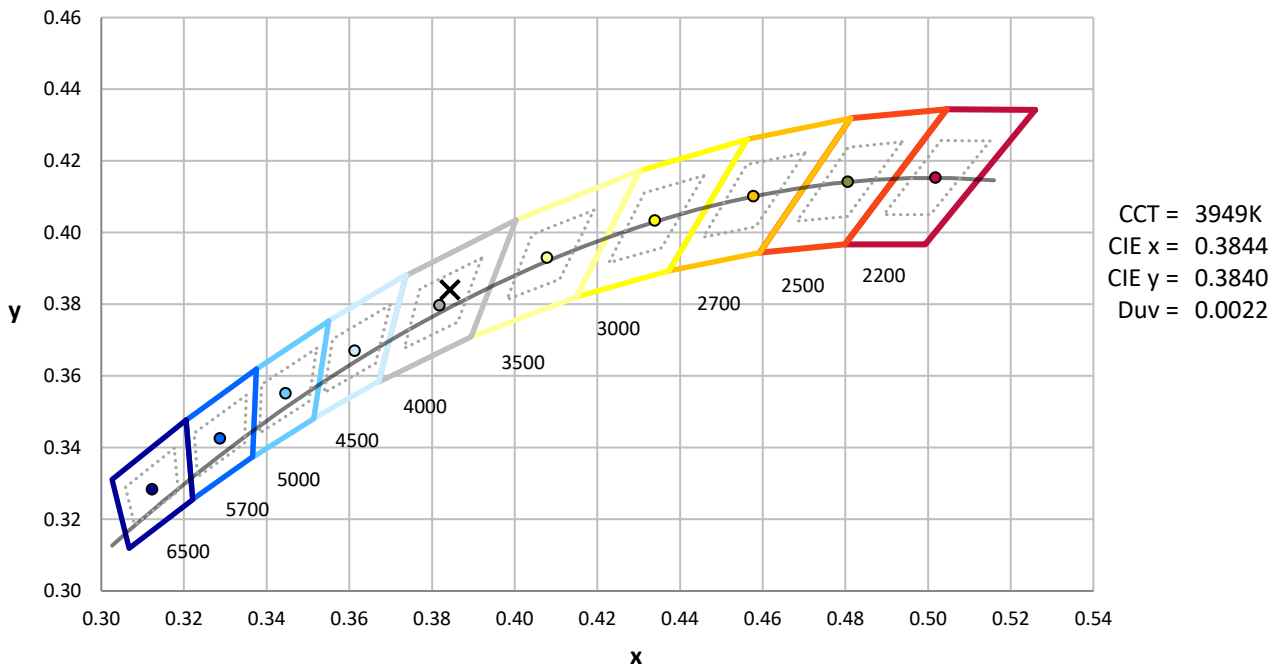
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



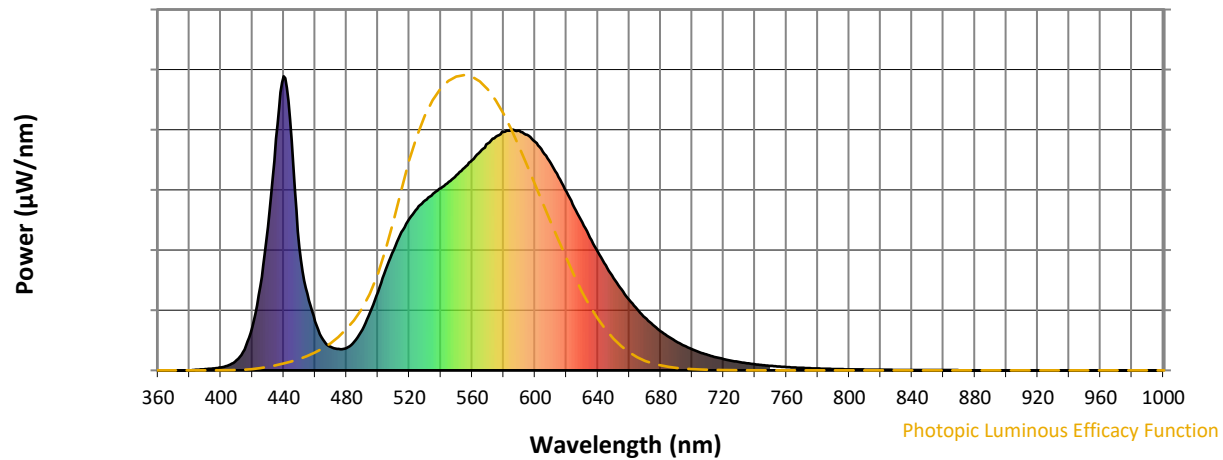
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 4000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

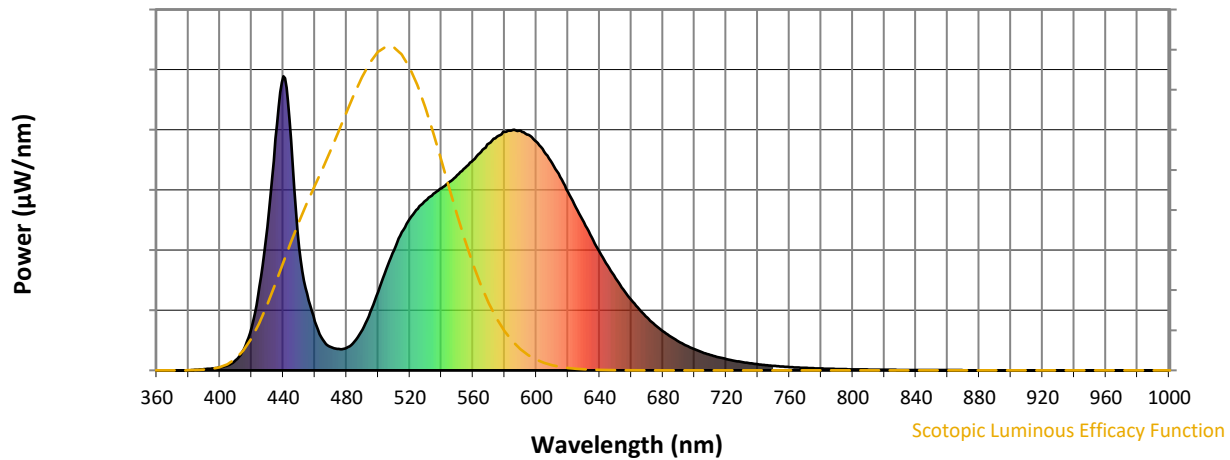


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 0                             | NR                             | 490               | 139                           | NR                             | 620               | 607                           | NR                             | 750               | 15                            | NR                             | 880               | 0                             | NR                             |
| 365               | 0                             | NR                             | 495               | 198                           | NR                             | 625               | 554                           | NR                             | 755               | 13                            | NR                             | 885               | 0                             | NR                             |
| 370               | 0                             | NR                             | 500               | 267                           | NR                             | 630               | 504                           | NR                             | 760               | 11                            | NR                             | 890               | 0                             | NR                             |
| 375               | 0                             | NR                             | 505               | 343                           | NR                             | 635               | 452                           | NR                             | 765               | 10                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 410                           | NR                             | 640               | 403                           | NR                             | 770               | 8                             | NR                             | 900               | 0                             | NR                             |
| 385               | 2                             | NR                             | 515               | 470                           | NR                             | 645               | 357                           | NR                             | 775               | 7                             | NR                             | 905               | 0                             | NR                             |
| 390               | 4                             | NR                             | 520               | 516                           | NR                             | 650               | 314                           | NR                             | 780               | 6                             | NR                             | 910               | 0                             | NR                             |
| 395               | 7                             | NR                             | 525               | 550                           | NR                             | 655               | 275                           | NR                             | 785               | 5                             | NR                             | 915               | 0                             | NR                             |
| 400               | 10                            | NR                             | 530               | 578                           | NR                             | 660               | 240                           | NR                             | 790               | 5                             | NR                             | 920               | 0                             | NR                             |
| 405               | 17                            | NR                             | 535               | 601                           | NR                             | 665               | 208                           | NR                             | 795               | 4                             | NR                             | 925               | 0                             | NR                             |
| 410               | 35                            | NR                             | 540               | 620                           | NR                             | 670               | 179                           | NR                             | 800               | 4                             | NR                             | 930               | 0                             | NR                             |
| 415               | 70                            | NR                             | 545               | 641                           | NR                             | 675               | 155                           | NR                             | 805               | 3                             | NR                             | 935               | 0                             | NR                             |
| 420               | 147                           | NR                             | 550               | 664                           | NR                             | 680               | 133                           | NR                             | 810               | 3                             | NR                             | 940               | 0                             | NR                             |
| 425               | 285                           | NR                             | 555               | 689                           | NR                             | 685               | 114                           | NR                             | 815               | 2                             | NR                             | 945               | 0                             | NR                             |
| 430               | 487                           | NR                             | 560               | 715                           | NR                             | 690               | 98                            | NR                             | 820               | 2                             | NR                             | 950               | 0                             | NR                             |
| 435               | 787                           | NR                             | 565               | 743                           | NR                             | 695               | 84                            | NR                             | 825               | 2                             | NR                             | 955               | 0                             | NR                             |
| 440               | 1000                          | NR                             | 570               | 771                           | NR                             | 700               | 72                            | NR                             | 830               | 2                             | NR                             | 960               | 0                             | NR                             |
| 445               | 783                           | NR                             | 575               | 794                           | NR                             | 705               | 61                            | NR                             | 835               | 1                             | NR                             | 965               | 0                             | NR                             |
| 450               | 417                           | NR                             | 580               | 811                           | NR                             | 710               | 52                            | NR                             | 840               | 1                             | NR                             | 970               | 0                             | NR                             |
| 455               | 261                           | NR                             | 585               | 817                           | NR                             | 715               | 45                            | NR                             | 845               | 1                             | NR                             | 975               | 0                             | NR                             |
| 460               | 167                           | NR                             | 590               | 815                           | NR                             | 720               | 39                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 104                           | NR                             | 595               | 801                           | NR                             | 725               | 33                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 79                            | NR                             | 600               | 777                           | NR                             | 730               | 28                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 73                            | NR                             | 605               | 744                           | NR                             | 735               | 24                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 76                            | NR                             | 610               | 704                           | NR                             | 740               | 21                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 98                            | NR                             | 615               | 657                           | NR                             | 745               | 18                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

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### Scotopic Flux vs. Wavelength



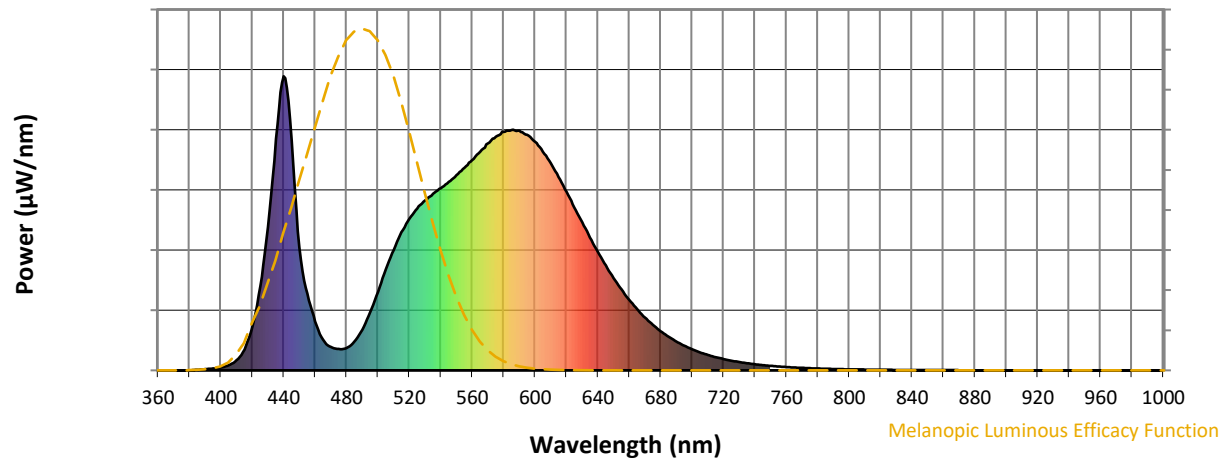
Scotopic Lumens: NR

S/P: 1.47

| 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       | 139                         | NR               | 620       | 607                         | NR               | 750       | 15                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 198                         | NR               | 625       | 554                         | NR               | 755       | 13                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 267                         | NR               | 630       | 504                         | NR               | 760       | 11                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 343                         | NR               | 635       | 452                         | NR               | 765       | 10                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 410                         | NR               | 640       | 403                         | NR               | 770       | 8                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 470                         | NR               | 645       | 357                         | NR               | 775       | 7                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 516                         | NR               | 650       | 314                         | NR               | 780       | 6                           | NR               | 910       | 0                           | NR               |
| 395       | 7                           | NR               | 525       | 550                         | NR               | 655       | 275                         | NR               | 785       | 5                           | NR               | 915       | 0                           | NR               |
| 400       | 10                          | NR               | 530       | 578                         | NR               | 660       | 240                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 17                          | NR               | 535       | 601                         | NR               | 665       | 208                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 35                          | NR               | 540       | 620                         | NR               | 670       | 179                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 70                          | NR               | 545       | 641                         | NR               | 675       | 155                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 147                         | NR               | 550       | 664                         | NR               | 680       | 133                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 285                         | NR               | 555       | 689                         | NR               | 685       | 114                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 487                         | NR               | 560       | 715                         | NR               | 690       | 98                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 787                         | NR               | 565       | 743                         | NR               | 695       | 84                          | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 1000                        | NR               | 570       | 771                         | NR               | 700       | 72                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 783                         | NR               | 575       | 794                         | NR               | 705       | 61                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 417                         | NR               | 580       | 811                         | NR               | 710       | 52                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 261                         | NR               | 585       | 817                         | NR               | 715       | 45                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 167                         | NR               | 590       | 815                         | NR               | 720       | 39                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 104                         | NR               | 595       | 801                         | NR               | 725       | 33                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 79                          | NR               | 600       | 777                         | NR               | 730       | 28                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 73                          | NR               | 605       | 744                         | NR               | 735       | 24                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 704                         | NR               | 740       | 21                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 98                          | NR               | 615       | 657                         | NR               | 745       | 18                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.78

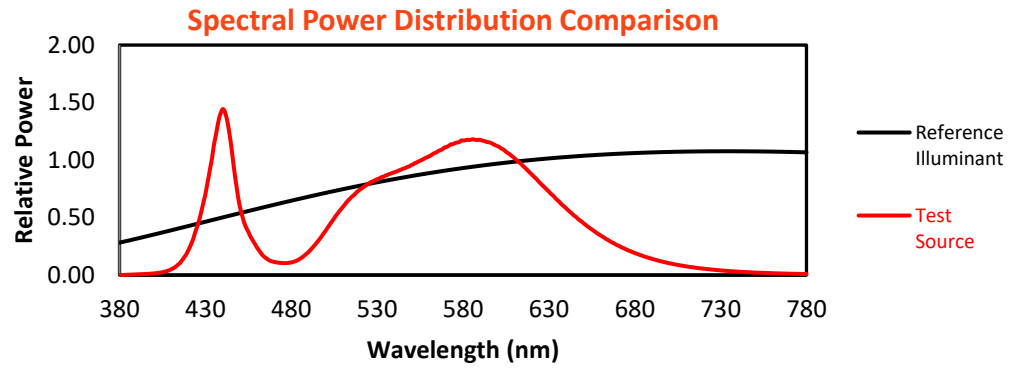
| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 139                      | NR            | 620    | 607                      | NR            | 750    | 15                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 198                      | NR            | 625    | 554                      | NR            | 755    | 13                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 267                      | NR            | 630    | 504                      | NR            | 760    | 11                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 452                      | NR            | 765    | 10                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 410                      | NR            | 640    | 403                      | NR            | 770    | 8                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 470                      | NR            | 645    | 357                      | NR            | 775    | 7                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 516                      | NR            | 650    | 314                      | NR            | 780    | 6                        | NR            | 910    | 0                        | NR            |
| 395    | 7                        | NR            | 525    | 550                      | NR            | 655    | 275                      | NR            | 785    | 5                        | NR            | 915    | 0                        | NR            |
| 400    | 10                       | NR            | 530    | 578                      | NR            | 660    | 240                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 17                       | NR            | 535    | 601                      | NR            | 665    | 208                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 35                       | NR            | 540    | 620                      | NR            | 670    | 179                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 70                       | NR            | 545    | 641                      | NR            | 675    | 155                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 147                      | NR            | 550    | 664                      | NR            | 680    | 133                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 285                      | NR            | 555    | 689                      | NR            | 685    | 114                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 487                      | NR            | 560    | 715                      | NR            | 690    | 98                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 787                      | NR            | 565    | 743                      | NR            | 695    | 84                       | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 1000                     | NR            | 570    | 771                      | NR            | 700    | 72                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 783                      | NR            | 575    | 794                      | NR            | 705    | 61                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 417                      | NR            | 580    | 811                      | NR            | 710    | 52                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 261                      | NR            | 585    | 817                      | NR            | 715    | 45                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 167                      | NR            | 590    | 815                      | NR            | 720    | 39                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 104                      | NR            | 595    | 801                      | NR            | 725    | 33                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 79                       | NR            | 600    | 777                      | NR            | 730    | 28                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 73                       | NR            | 605    | 744                      | NR            | 735    | 24                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 704                      | NR            | 740    | 21                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 98                       | NR            | 615    | 657                      | NR            | 745    | 18                       | NR            | 875    | 1                        | NR            |        |                          |               |

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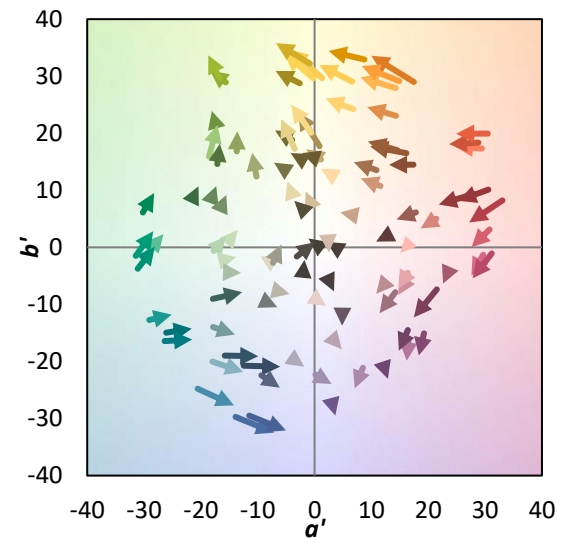
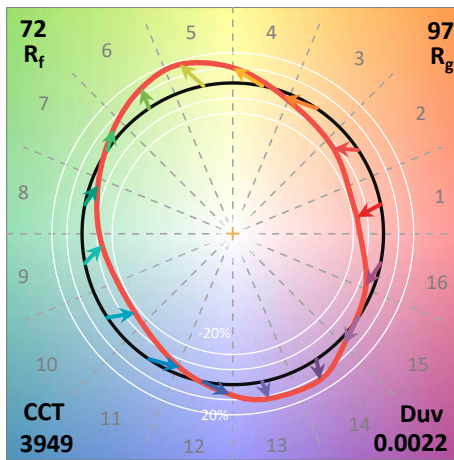
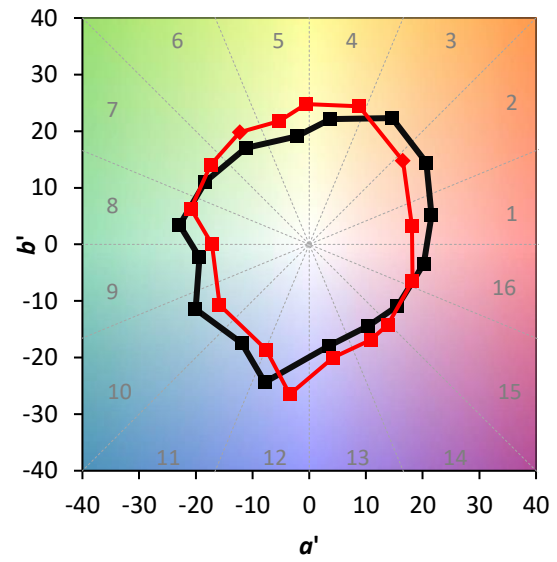
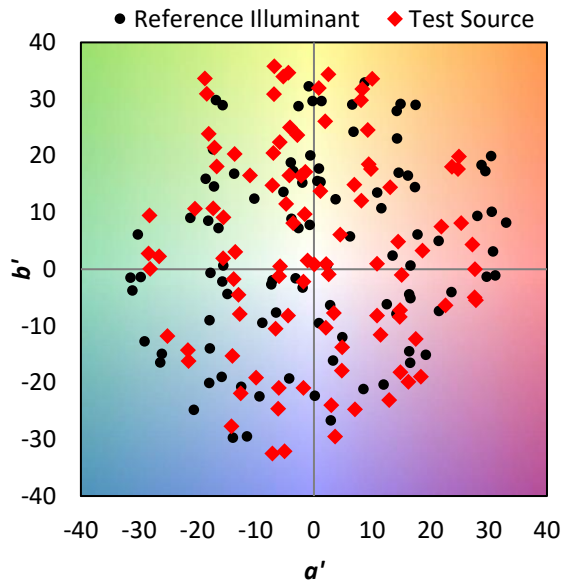
TM-30-18

### Summary

$R_f = 71.8$   
 $R_g = 96.5$   
 CIE  $R_a = 70.7$   
 $R_g = -36.7$



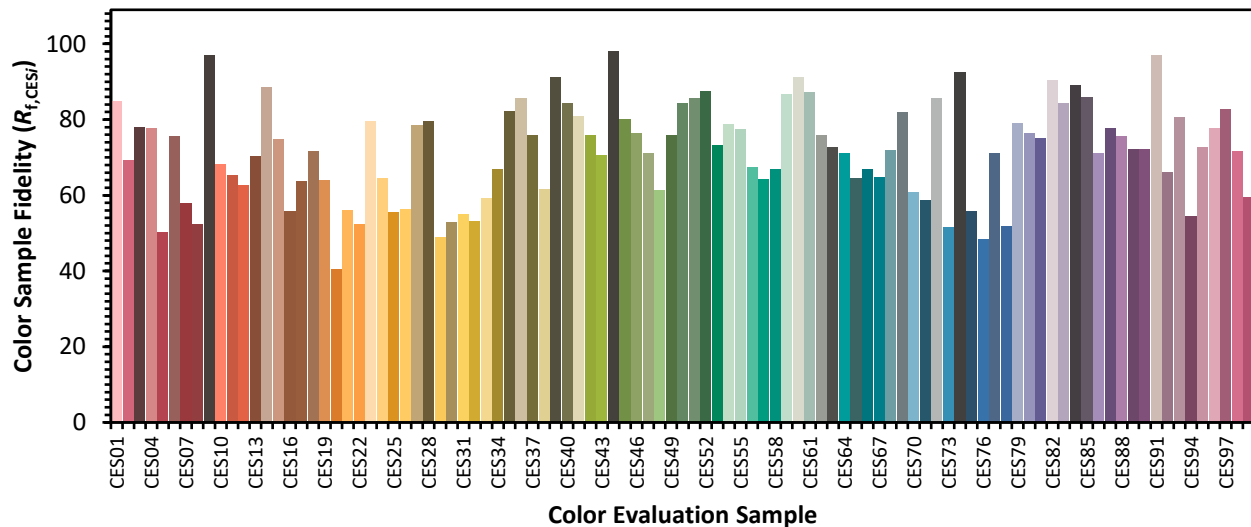
### Color Vector Graphics



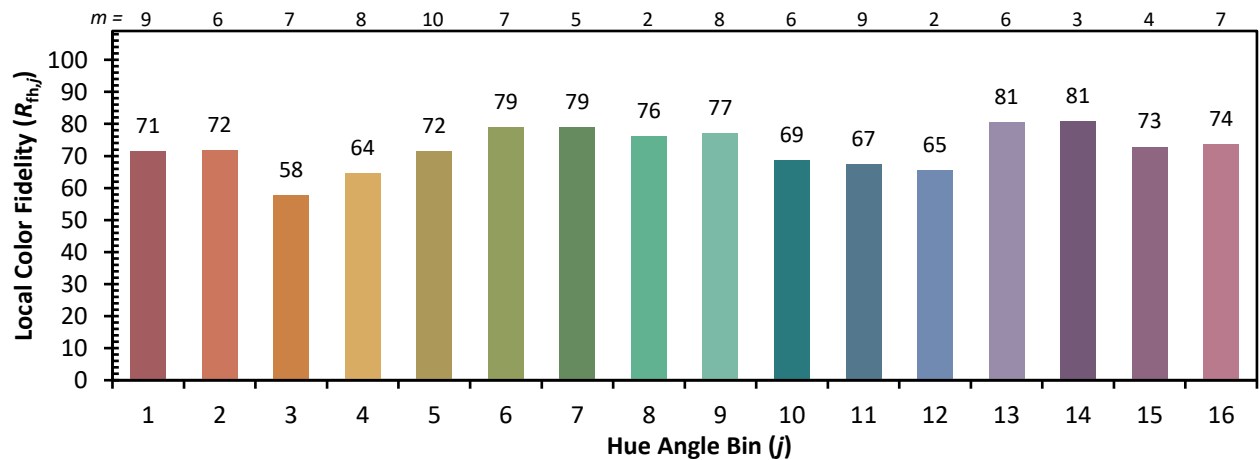
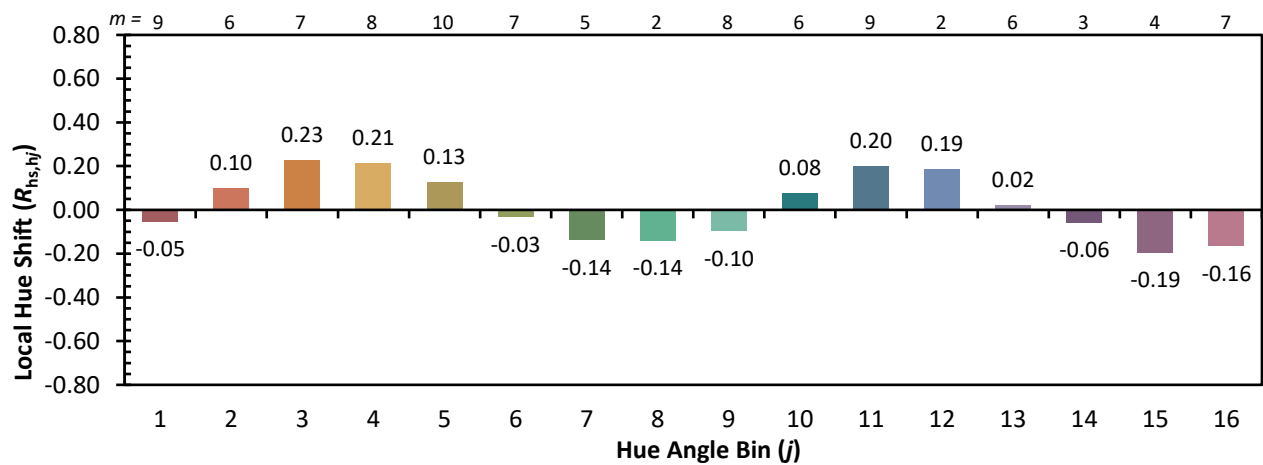
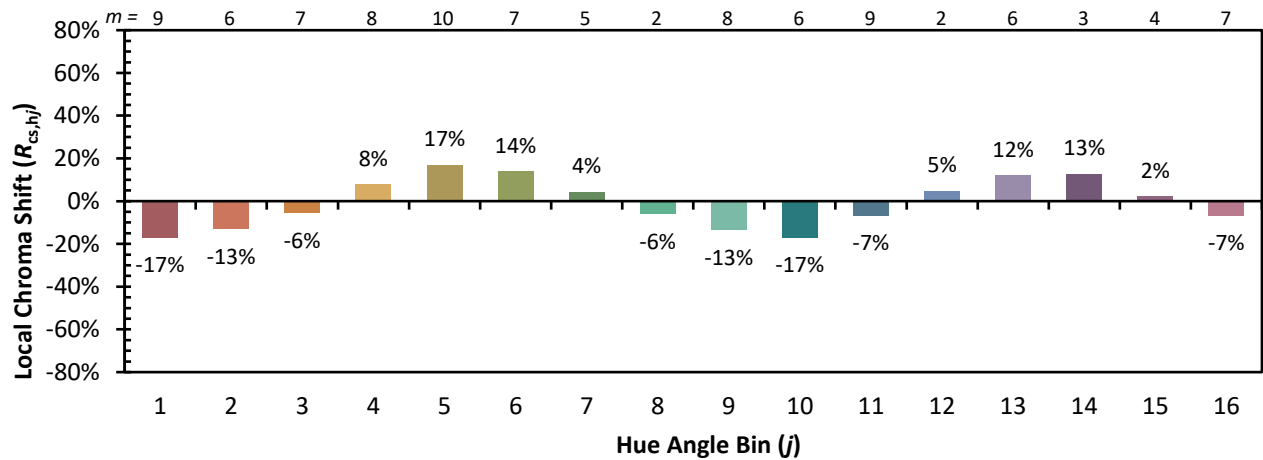


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

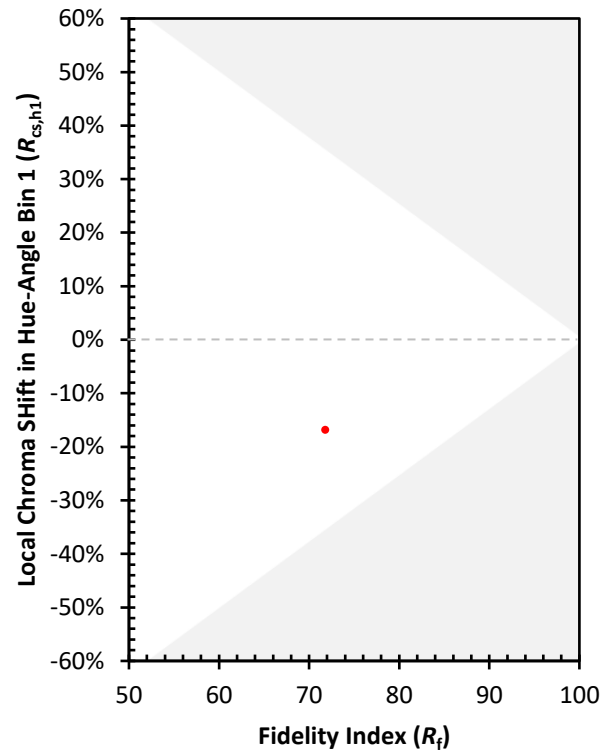
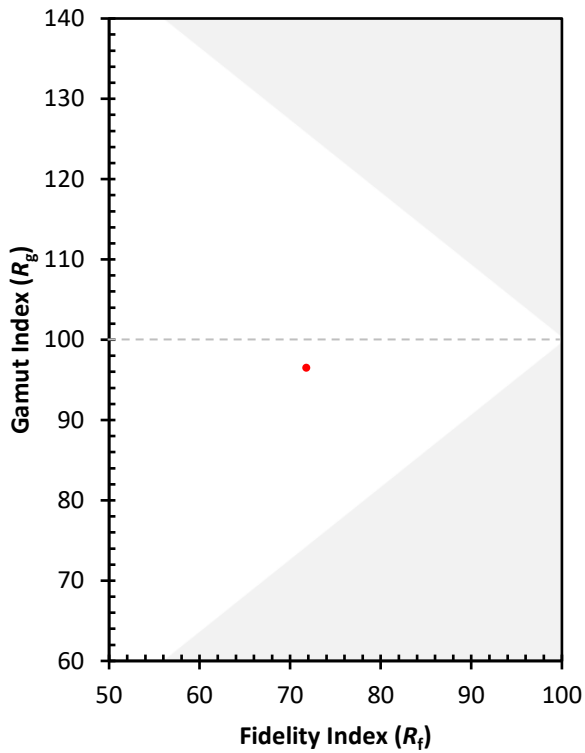
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 56 | CES51 = 86 | CES76 = 48 |
| CES02 = 61 | CES27 = 79 | CES52 = 88 | CES77 = 71 |
| CES03 = 30 | CES28 = 80 | CES53 = 73 | CES78 = 52 |
| CES04 = 70 | CES29 = 49 | CES54 = 79 | CES79 = 79 |
| CES05 = 47 | CES30 = 53 | CES55 = 77 | CES80 = 77 |
| CES06 = 50 | CES31 = 55 | CES56 = 67 | CES81 = 75 |
| CES07 = 40 | CES32 = 53 | CES57 = 64 | CES82 = 90 |
| CES08 = 39 | CES33 = 59 | CES58 = 67 | CES83 = 84 |
| CES09 = 29 | CES34 = 67 | CES59 = 87 | CES84 = 89 |
| CES10 = 74 | CES35 = 82 | CES60 = 91 | CES85 = 86 |
| CES11 = 57 | CES36 = 86 | CES61 = 87 | CES86 = 71 |
| CES12 = 63 | CES37 = 76 | CES62 = 76 | CES87 = 78 |
| CES13 = 42 | CES38 = 62 | CES63 = 73 | CES88 = 76 |
| CES14 = 74 | CES39 = 91 | CES64 = 71 | CES89 = 72 |
| CES15 = 71 | CES40 = 84 | CES65 = 64 | CES90 = 72 |
| CES16 = 46 | CES41 = 81 | CES66 = 67 | CES91 = 97 |
| CES17 = 49 | CES42 = 76 | CES67 = 65 | CES92 = 66 |
| CES18 = 56 | CES43 = 71 | CES68 = 72 | CES93 = 81 |
| CES19 = 72 | CES44 = 98 | CES69 = 82 | CES94 = 55 |
| CES20 = 65 | CES45 = 80 | CES70 = 61 | CES95 = 73 |
| CES21 = 86 | CES46 = 76 | CES71 = 59 | CES96 = 78 |
| CES22 = 78 | CES47 = 71 | CES72 = 86 | CES97 = 83 |
| CES23 = 92 | CES48 = 61 | CES73 = 52 | CES98 = 72 |
| CES24 = 91 | CES49 = 76 | CES74 = 93 | CES99 = 60 |
| CES25 = 72 | CES50 = 84 | CES75 = 56 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)