

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P1048291

Luminaire Tested: **GALN-SA5C-722-U-T4BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1048291  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA5C-722-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 5xLight Square PACKAGE  
70CRI 2200K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (70) 2200K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 20530.7 lumens  
Efficiency: N/A  
Efficacy: 87.0 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 236  
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

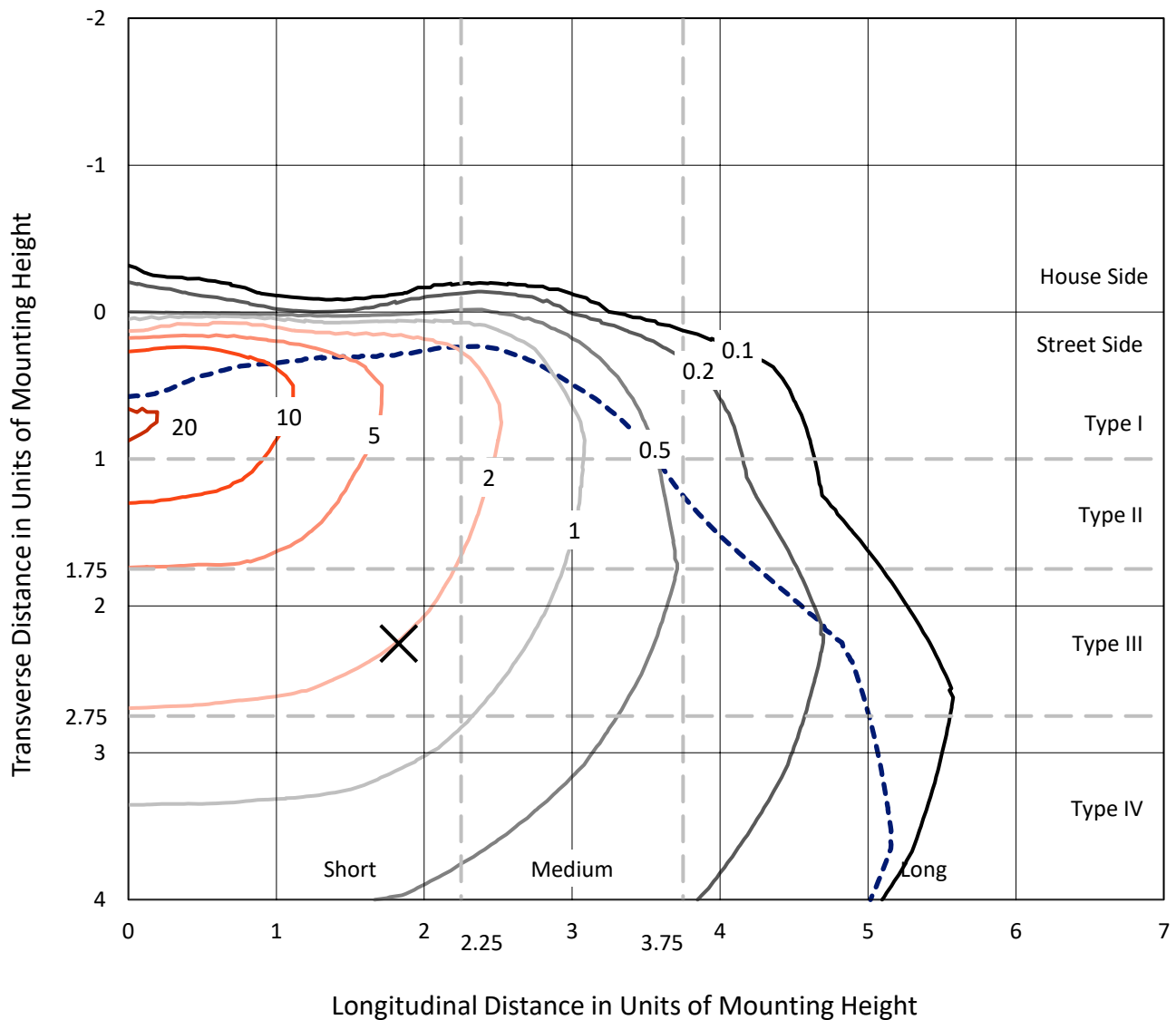


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

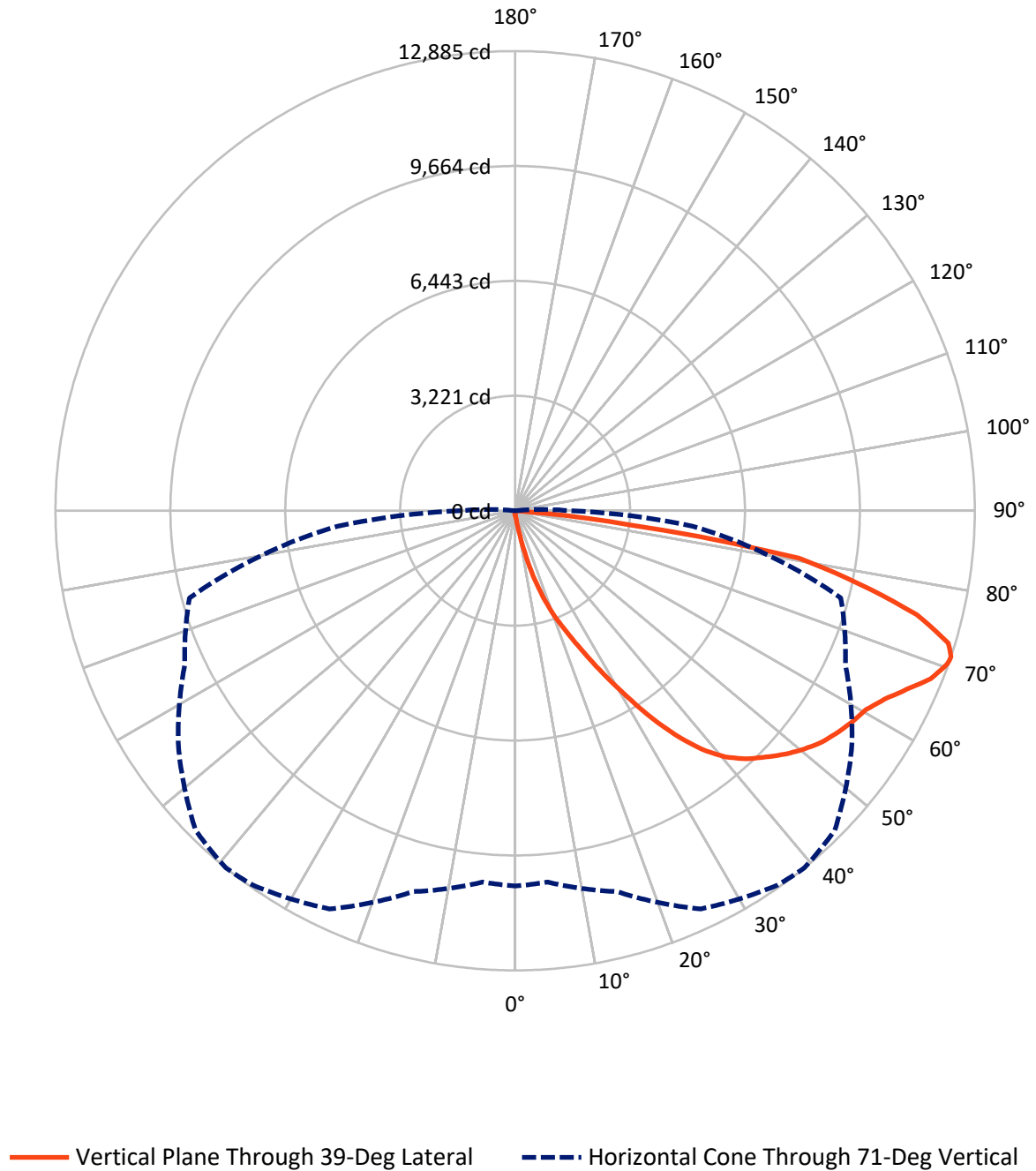


Based on 15 foot mounting height. Maximum calculated value = 21.1 fc  
 Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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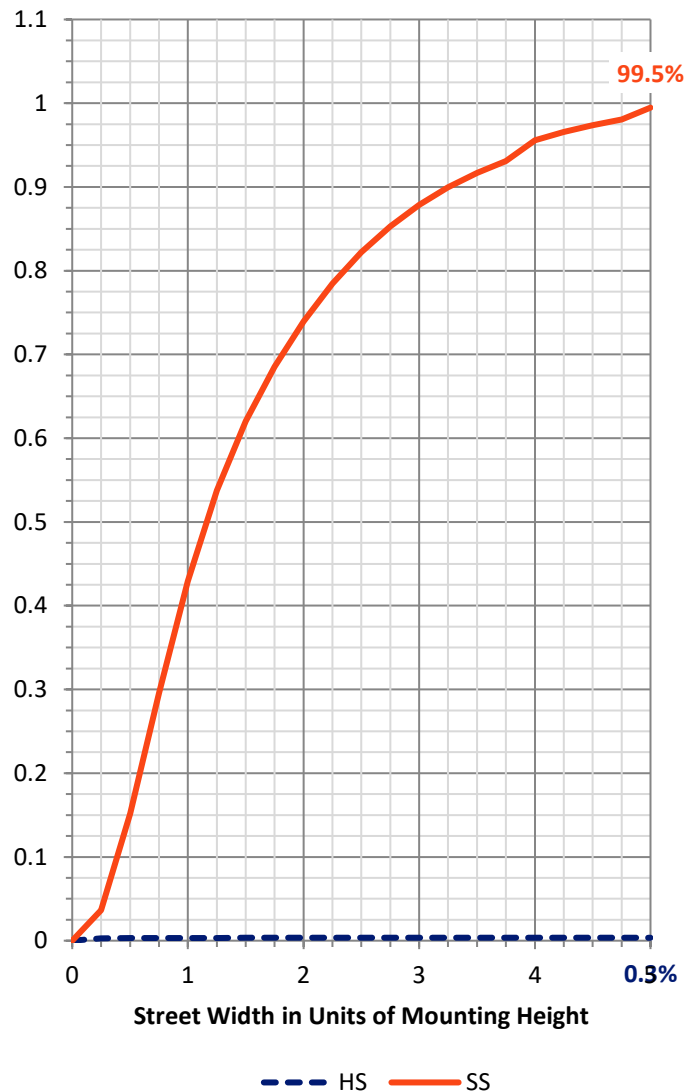
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 73.0     | 0.0    | 73.0    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 20457.7  | 0.0    | 20457.7 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 20530.7  | 0.0    | 20530.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 17.2    | 0.1       |
| 10°-20°   | 219.4   | 1.1       |
| 20°-30°   | 781.5   | 3.8       |
| 30°-40°   | 1883.4  | 9.2       |
| 40°-50°   | 3152.0  | 15.4      |
| 50°-60°   | 4048.3  | 19.7      |
| 60°-70°   | 5123.2  | 25.0      |
| 70°-80°   | 4567.5  | 22.2      |
| 80°-90°   | 738.3   | 3.6       |
| 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°    | 20530.7 | 100.0     |
| 0°-180°   | 20530.7 | 100.0     |



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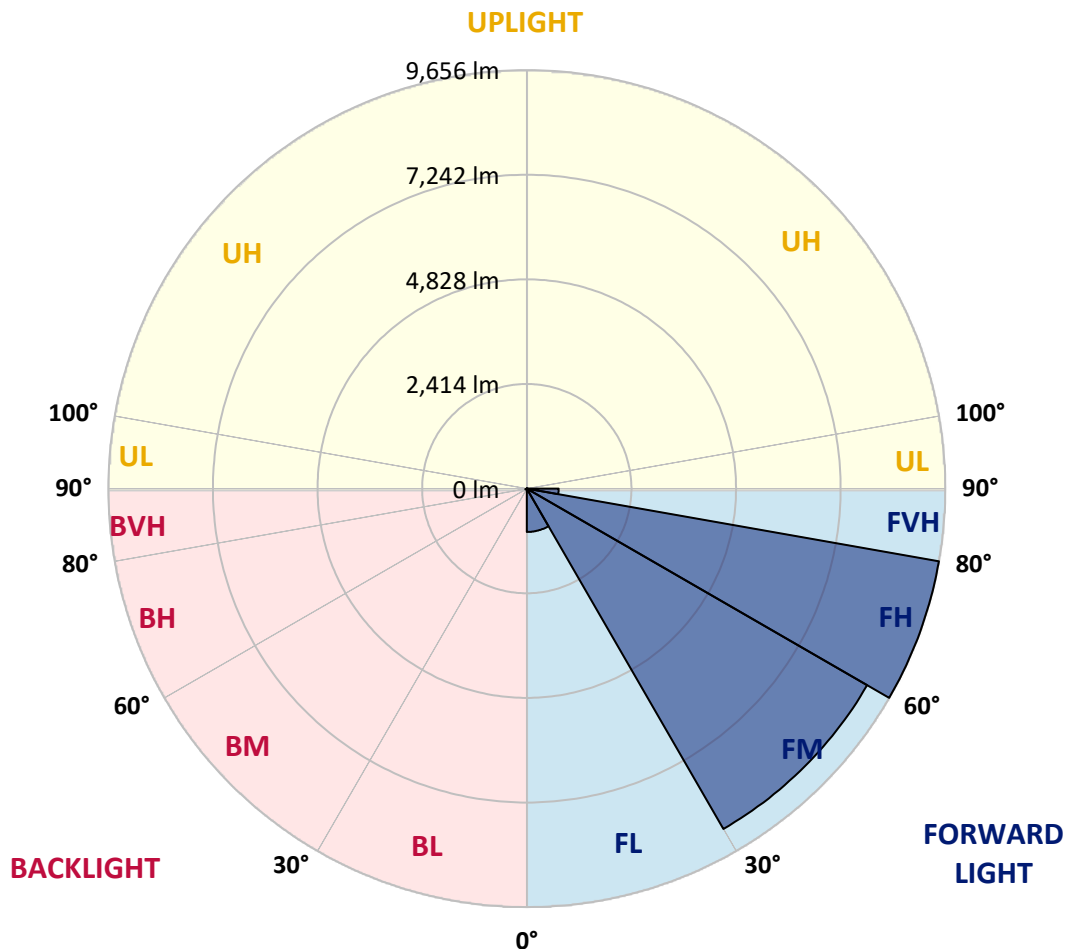
CATALOG NUMBER: GALN-SA5C-722-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|--------|-----------|-------------------------|------|----------|
|      |             |        |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1000.4 | 4.9       |                         |      |          |
| FM   | (30°-60°)   | 9066.8 | 44.2      |                         |      |          |
| FH   | (60°-80°)   | 9655.6 | 47.0      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 735.0  | 3.6       |                         |      | G4/750   |
| BL   | (0°-30°)    | 17.6   | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 16.9   | 0.1       | B0/220                  |      |          |
| BH   | (60°-80°)   | 35.1   | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 3.3    | 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 IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 39°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 112.6   | 112.6   | 112.6   | 112.6   | 112.6   | 112.6   | 112.6   | 112.6   | 112.6   | 112.6   | 112.6  |
| 2.5°  | 129.3   | 129.3   | 129.3   | 125.1   | 125.1   | 123.7   | 122.3   | 122.3   | 119.5   | 118.1   | 115.4  |
| 5°    | 196.0   | 191.8   | 182.1   | 176.5   | 165.4   | 158.4   | 151.5   | 141.8   | 132.0   | 125.1   | 116.7  |
| 7.5°  | 443.4   | 453.1   | 421.1   | 361.4   | 300.2   | 273.8   | 229.3   | 184.8   | 152.9   | 132.0   | 118.1  |
| 10°   | 1129.9  | 1124.4  | 1016.0  | 896.4   | 692.1   | 610.1   | 478.1   | 301.6   | 197.4   | 144.5   | 119.5  |
| 12.5° | 1922.1  | 1916.6  | 1788.7  | 1626.1  | 1356.5  | 1185.5  | 935.3   | 562.9   | 283.5   | 164.0   | 119.5  |
| 15°   | 2587.8  | 2565.6  | 2525.3  | 2364.1  | 2048.6  | 1905.4  | 1574.7  | 995.1   | 458.6   | 197.4   | 122.3  |
| 17.5° | 3028.4  | 3009.0  | 2971.4  | 2913.1  | 2712.9  | 2543.4  | 2277.9  | 1563.5  | 742.2   | 255.7   | 127.9  |
| 20°   | 3432.9  | 3419.0  | 3388.4  | 3377.3  | 3248.0  | 3157.7  | 2938.1  | 2216.8  | 1156.3  | 347.5   | 136.2  |
| 22.5° | 3988.8  | 3959.6  | 3972.1  | 3905.4  | 3778.9  | 3670.5  | 3535.7  | 2900.6  | 1662.2  | 500.3   | 151.5  |
| 25°   | 4669.8  | 4655.9  | 4621.1  | 4573.9  | 4398.8  | 4304.3  | 4097.2  | 3545.4  | 2227.9  | 700.5   | 168.2  |
| 27.5° | 5492.6  | 5477.3  | 5468.9  | 5360.5  | 5159.0  | 5056.2  | 4767.1  | 4154.2  | 2864.4  | 981.2   | 190.4  |
| 30°   | 6440.4  | 6447.4  | 6393.2  | 6254.2  | 6019.3  | 5874.8  | 5577.3  | 4792.1  | 3516.2  | 1310.6  | 214.0  |
| 32.5° | 7421.6  | 7407.7  | 7324.3  | 7160.3  | 6950.5  | 6815.7  | 6437.6  | 5491.2  | 4200.0  | 1745.6  | 241.8  |
| 35°   | 8479.3  | 8452.9  | 8233.3  | 8045.7  | 7866.4  | 7696.8  | 7352.1  | 6302.8  | 4883.8  | 2233.4  | 279.4  |
| 37.5° | 9546.7  | 9423.0  | 8982.4  | 8744.7  | 8621.0  | 8482.1  | 8161.0  | 7168.7  | 5563.4  | 2778.2  | 325.2  |
| 40°   | 10352.8 | 10256.9 | 9734.3  | 9296.5  | 9197.8  | 9079.7  | 8840.6  | 7916.4  | 6286.2  | 3363.4  | 380.8  |
| 42.5° | 10798.9 | 10746.1 | 10276.3 | 9844.1  | 9612.0  | 9507.8  | 9303.4  | 8569.6  | 7000.5  | 4009.6  | 461.4  |
| 45°   | 10989.3 | 10907.3 | 10593.2 | 10391.7 | 10022.0 | 9849.6  | 9606.4  | 9063.0  | 7746.9  | 4743.5  | 574.0  |
| 47.5° | 10930.9 | 10883.7 | 10658.5 | 10732.2 | 10463.9 | 10195.7 | 9838.5  | 9441.0  | 8384.8  | 5585.7  | 728.3  |
| 50°   | 10564.0 | 10523.7 | 10454.2 | 10853.1 | 10819.7 | 10502.9 | 10138.7 | 9739.9  | 8906.0  | 6454.3  | 967.3  |
| 52.5° | 9866.3  | 9849.6  | 10027.5 | 10758.6 | 11021.3 | 10773.9 | 10427.8 | 10003.9 | 9392.4  | 7361.9  | 1309.2 |
| 55°   | 8967.1  | 9035.2  | 9543.9  | 10611.3 | 11124.1 | 10974.0 | 10683.5 | 10251.3 | 9782.9  | 8173.5  | 1813.7 |
| 57.5° | 8597.4  | 8615.5  | 9250.6  | 10507.0 | 11170.0 | 11150.5 | 10932.3 | 10487.6 | 10141.5 | 8822.6  | 2583.7 |
| 60°   | 9029.7  | 9001.9  | 9336.8  | 10586.3 | 11261.7 | 11309.0 | 11153.3 | 10707.2 | 10452.8 | 9379.9  | 3609.4 |
| 62.5° | 9810.7  | 9795.4  | 9902.5  | 10924.0 | 11529.9 | 11625.8 | 11460.4 | 10865.6 | 10728.0 | 9746.8  | 4779.6 |
| 65°   | 10508.4 | 10476.5 | 10675.2 | 11523.0 | 12001.1 | 12069.2 | 11924.6 | 11136.6 | 10848.9 | 10013.6 | 5878.9 |
| 67.5° | 10810.0 | 10803.1 | 11122.7 | 12092.8 | 12495.9 | 12569.5 | 12443.1 | 11510.5 | 10821.1 | 10098.4 | 6364.0 |
| 70°   | 10672.4 | 10646.0 | 11157.5 | 12334.6 | 12775.2 | 12858.6 | 12736.3 | 11649.5 | 10519.5 | 9830.2  | 5645.4 |
| 71°   | 10520.9 | 10450.0 | 11053.2 | 12318.0 | 12814.1 | 12885.0 | 12671.0 | 11523.0 | 10216.6 | 9449.4  | 4993.6 |
| 72.5° | 10051.2 | 10063.7 | 10766.9 | 12144.2 | 12721.0 | 12700.2 | 12301.3 | 11069.9 | 9851.0  | 8584.9  | 4011.0 |
| 75°   | 8894.8  | 8968.5  | 9839.9  | 11414.6 | 11889.9 | 11624.4 | 11014.3 | 10204.1 | 9117.2  | 6155.5  | 2785.2 |
| 77.5° | 7268.8  | 7378.5  | 8336.1  | 10010.9 | 9876.1  | 9849.6  | 9824.6  | 8990.7  | 7785.8  | 3306.4  | 1937.4 |
| 80°   | 3470.4  | 3708.0  | 5028.4  | 7146.4  | 7763.5  | 8062.3  | 7874.7  | 7245.1  | 6020.7  | 1574.7  | 1157.7 |
| 82.5° | 226.5   | 223.8   | 316.9   | 600.4   | 2530.9  | 3271.6  | 5197.9  | 5178.5  | 4197.3  | 767.2   | 472.5  |
| 85°   | 107.0   | 109.8   | 120.9   | 137.6   | 159.8   | 175.1   | 241.8   | 1417.6  | 2008.3  | 365.5   | 102.8  |
| 87.5° | 62.5    | 63.9    | 75.1    | 95.9    | 125.1   | 139.0   | 165.4   | 212.6   | 261.3   | 201.5   | 22.2   |
| 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: GALN-SA5C-722-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 112.6  | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 | 112.6 |
| 2.5°  | 114.0  | 112.6 | 108.4 | 104.2 | 100.1 | 97.3  | 95.9  | 97.3  | 97.3  | 98.7  | 98.7  |
| 5°    | 114.0  | 109.8 | 102.8 | 94.5  | 88.9  | 83.4  | 80.6  | 79.2  | 80.6  | 80.6  | 80.6  |
| 7.5°  | 112.6  | 105.6 | 95.9  | 86.2  | 79.2  | 72.3  | 69.5  | 68.1  | 68.1  | 69.5  | 69.5  |
| 10°   | 109.8  | 102.8 | 90.3  | 79.2  | 70.9  | 62.5  | 58.4  | 54.2  | 54.2  | 54.2  | 55.6  |
| 12.5° | 108.4  | 98.7  | 83.4  | 72.3  | 61.2  | 51.4  | 43.1  | 38.9  | 40.3  | 40.3  | 40.3  |
| 15°   | 105.6  | 94.5  | 79.2  | 65.3  | 51.4  | 38.9  | 32.0  | 27.8  | 29.2  | 30.6  | 29.2  |
| 17.5° | 105.6  | 93.1  | 73.7  | 57.0  | 40.3  | 29.2  | 23.6  | 20.8  | 20.8  | 22.2  | 22.2  |
| 20°   | 105.6  | 90.3  | 69.5  | 48.6  | 30.6  | 22.2  | 16.7  | 15.3  | 15.3  | 18.1  | 19.5  |
| 22.5° | 108.4  | 90.3  | 63.9  | 40.3  | 25.0  | 16.7  | 12.5  | 11.1  | 12.5  | 15.3  | 16.7  |
| 25°   | 112.6  | 88.9  | 58.4  | 36.1  | 20.8  | 12.5  | 9.7   | 6.9   | 8.3   | 11.1  | 12.5  |
| 27.5° | 116.7  | 87.6  | 52.8  | 32.0  | 16.7  | 9.7   | 6.9   | 5.6   | 4.2   | 5.6   | 5.6   |
| 30°   | 120.9  | 87.6  | 47.3  | 26.4  | 13.9  | 6.9   | 4.2   | 2.8   | 1.4   | 0.0   | 0.0   |
| 32.5° | 123.7  | 84.8  | 43.1  | 20.8  | 11.1  | 5.6   | 2.8   | 1.4   | 0.0   | 0.0   | 0.0   |
| 35°   | 126.5  | 82.0  | 37.5  | 16.7  | 8.3   | 4.2   | 1.4   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 129.3  | 77.8  | 32.0  | 13.9  | 6.9   | 2.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 132.0  | 72.3  | 26.4  | 12.5  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 134.8  | 68.1  | 22.2  | 9.7   | 2.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 141.8  | 65.3  | 18.1  | 8.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 154.3  | 62.5  | 16.7  | 5.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 172.3  | 59.8  | 15.3  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 197.4  | 58.4  | 13.9  | 2.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 241.8  | 57.0  | 12.5  | 2.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 318.3  | 55.6  | 12.5  | 2.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 487.8  | 52.8  | 12.5  | 2.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 871.4  | 51.4  | 11.1  | 2.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1519.1 | 52.8  | 11.1  | 2.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2177.8 | 55.6  | 9.7   | 4.2   | 1.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 1863.7 | 48.6  | 9.7   | 5.6   | 2.8   | 1.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 71°   | 1519.1 | 43.1  | 9.7   | 5.6   | 2.8   | 1.4   | 1.4   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 977.0  | 33.4  | 8.3   | 5.6   | 2.8   | 2.8   | 1.4   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 412.8  | 27.8  | 8.3   | 5.6   | 4.2   | 2.8   | 2.8   | 1.4   | 0.0   | 0.0   | 0.0   |
| 77.5° | 176.5  | 20.8  | 8.3   | 6.9   | 5.6   | 4.2   | 4.2   | 2.8   | 1.4   | 0.0   | 0.0   |
| 80°   | 66.7   | 16.7  | 9.7   | 8.3   | 6.9   | 6.9   | 5.6   | 2.8   | 1.4   | 0.0   | 0.0   |
| 82.5° | 30.6   | 13.9  | 9.7   | 8.3   | 8.3   | 6.9   | 5.6   | 4.2   | 2.8   | 0.0   | 0.0   |
| 85°   | 19.5   | 12.5  | 9.7   | 8.3   | 8.3   | 6.9   | 6.9   | 4.2   | 2.8   | 0.0   | 0.0   |
| 87.5° | 15.3   | 12.5  | 9.7   | 9.7   | 8.3   | 8.3   | 5.6   | 4.2   | 1.4   | 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   |

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-2

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-722-U-5WQ

Data in this report applies to families of products including GSS-SB1A-722-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-2  
 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-722-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 2200K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 2160     | CRI (Ra): | 71.9 |      |       |
| CIE u':                   | 0.2927   | R1:       | 68.7 | R9:  | -17.8 |
| CIE v':                   | 0.5388   | R2:       | 82.6 | R10: | 60.5  |
| Duv:                      | 0.0015   | R3:       | 95.5 | R11: | 60.2  |
| CIE x:                    | 0.5130   | R4:       | 66.4 | R12: | 48.2  |
| CIE y:                    | 0.4197   | R5:       | 65.4 | R13: | 70.7  |
| CIE z:                    | 0.0674   | R6:       | 75.9 | R14: | 96.8  |
| Peak Wavelength (nm):     | 609      | R7:       | 77.2 | R15: | 61.8  |
| Dominant Wavelength (nm): | 587      | R8:       | 43.5 |      |       |
| Purity:                   | 79.96089 |           |      |      |       |
| Rf:                       | 70.6     |           |      |      |       |
| Rg:                       | 97.6     |           |      |      |       |



### Test Conditions

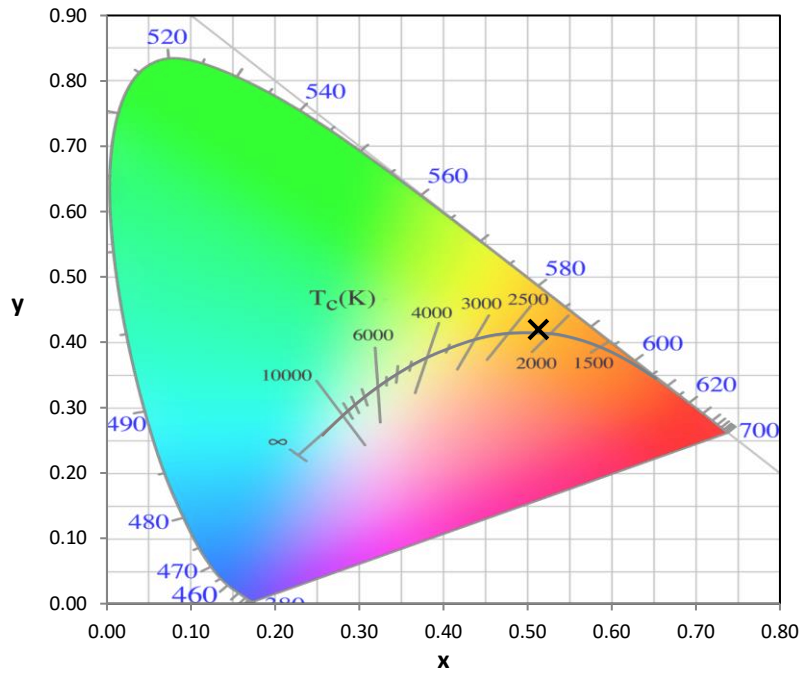
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

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| 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 2200K 7-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 27                          | NR               | 620       | 966                         | NR               | 750       | 46                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 42                          | NR               | 625       | 930                         | NR               | 755       | 39                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 67                          | NR               | 630       | 888                         | NR               | 760       | 34                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 101                         | NR               | 635       | 835                         | NR               | 765       | 30                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 139                         | NR               | 640       | 778                         | NR               | 770       | 26                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 183                         | NR               | 645       | 717                         | NR               | 775       | 22                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 224                         | NR               | 650       | 656                         | NR               | 780       | 19                          | NR               | 910       | 1                           | NR               |
| 395       | 0                           | NR               | 525       | 262                         | NR               | 655       | 595                         | NR               | 785       | 17                          | NR               | 915       | 1                           | NR               |
| 400       | 1                           | NR               | 530       | 299                         | NR               | 660       | 536                         | NR               | 790       | 15                          | NR               | 920       | 1                           | NR               |
| 405       | 3                           | NR               | 535       | 332                         | NR               | 665       | 480                         | NR               | 795       | 13                          | NR               | 925       | 1                           | NR               |
| 410       | 7                           | NR               | 540       | 365                         | NR               | 670       | 425                         | NR               | 800       | 11                          | NR               | 930       | 1                           | NR               |
| 415       | 17                          | NR               | 545       | 400                         | NR               | 675       | 376                         | NR               | 805       | 10                          | NR               | 935       | 0                           | NR               |
| 420       | 36                          | NR               | 550       | 437                         | NR               | 680       | 332                         | NR               | 810       | 8                           | NR               | 940       | 0                           | NR               |
| 425       | 67                          | NR               | 555       | 479                         | NR               | 685       | 291                         | NR               | 815       | 8                           | NR               | 945       | 0                           | NR               |
| 430       | 105                         | NR               | 560       | 525                         | NR               | 690       | 255                         | NR               | 820       | 7                           | NR               | 950       | 0                           | NR               |
| 435       | 141                         | NR               | 565       | 579                         | NR               | 695       | 221                         | NR               | 825       | 6                           | NR               | 955       | 0                           | NR               |
| 440       | 169                         | NR               | 570       | 639                         | NR               | 700       | 192                         | NR               | 830       | 5                           | NR               | 960       | 0                           | NR               |
| 445       | 173                         | NR               | 575       | 703                         | NR               | 705       | 167                         | NR               | 835       | 4                           | NR               | 965       | 0                           | NR               |
| 450       | 136                         | NR               | 580       | 769                         | NR               | 710       | 144                         | NR               | 840       | 4                           | NR               | 970       | 0                           | NR               |
| 455       | 80                          | NR               | 585       | 832                         | NR               | 715       | 125                         | NR               | 845       | 3                           | NR               | 975       | 0                           | NR               |
| 460       | 45                          | NR               | 590       | 890                         | NR               | 720       | 109                         | NR               | 850       | 3                           | NR               | 980       | 0                           | NR               |
| 465       | 32                          | NR               | 595       | 937                         | NR               | 725       | 94                          | NR               | 855       | 3                           | NR               | 985       | 0                           | NR               |
| 470       | 23                          | NR               | 600       | 972                         | NR               | 730       | 81                          | NR               | 860       | 2                           | NR               | 990       | 0                           | NR               |
| 475       | 18                          | NR               | 605       | 992                         | NR               | 735       | 70                          | NR               | 865       | 2                           | NR               | 995       | 0                           | NR               |
| 480       | 18                          | NR               | 610       | 998                         | NR               | 740       | 61                          | NR               | 870       | 2                           | NR               | 1000      | 0                           | NR               |
| 485       | 20                          | NR               | 615       | 990                         | NR               | 745       | 53                          | NR               | 875       | 2                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2407-184-2

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 0.8

| $\lambda$<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               | 27                                   | NR                             | 620               | 966                                  | NR                             | 750               | 46                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 42                                   | NR                             | 625               | 930                                  | NR                             | 755               | 39                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 67                                   | NR                             | 630               | 888                                  | NR                             | 760               | 34                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 101                                  | NR                             | 635               | 835                                  | NR                             | 765               | 30                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 139                                  | NR                             | 640               | 778                                  | NR                             | 770               | 26                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 183                                  | NR                             | 645               | 717                                  | NR                             | 775               | 22                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 224                                  | NR                             | 650               | 656                                  | NR                             | 780               | 19                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 262                                  | NR                             | 655               | 595                                  | NR                             | 785               | 17                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 1                                    | NR                             | 530               | 299                                  | NR                             | 660               | 536                                  | NR                             | 790               | 15                                   | NR                             | 920               | 1                                    | NR                             |
| 405               | 3                                    | NR                             | 535               | 332                                  | NR                             | 665               | 480                                  | NR                             | 795               | 13                                   | NR                             | 925               | 1                                    | NR                             |
| 410               | 7                                    | NR                             | 540               | 365                                  | NR                             | 670               | 425                                  | NR                             | 800               | 11                                   | NR                             | 930               | 1                                    | NR                             |
| 415               | 17                                   | NR                             | 545               | 400                                  | NR                             | 675               | 376                                  | NR                             | 805               | 10                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 36                                   | NR                             | 550               | 437                                  | NR                             | 680               | 332                                  | NR                             | 810               | 8                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 67                                   | NR                             | 555               | 479                                  | NR                             | 685               | 291                                  | NR                             | 815               | 8                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 105                                  | NR                             | 560               | 525                                  | NR                             | 690               | 255                                  | NR                             | 820               | 7                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 141                                  | NR                             | 565               | 579                                  | NR                             | 695               | 221                                  | NR                             | 825               | 6                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 169                                  | NR                             | 570               | 639                                  | NR                             | 700               | 192                                  | NR                             | 830               | 5                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 173                                  | NR                             | 575               | 703                                  | NR                             | 705               | 167                                  | NR                             | 835               | 4                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 136                                  | NR                             | 580               | 769                                  | NR                             | 710               | 144                                  | NR                             | 840               | 4                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 80                                   | NR                             | 585               | 832                                  | NR                             | 715               | 125                                  | NR                             | 845               | 3                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 45                                   | NR                             | 590               | 890                                  | NR                             | 720               | 109                                  | NR                             | 850               | 3                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 32                                   | NR                             | 595               | 937                                  | NR                             | 725               | 94                                   | NR                             | 855               | 3                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 23                                   | NR                             | 600               | 972                                  | NR                             | 730               | 81                                   | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 18                                   | NR                             | 605               | 992                                  | NR                             | 735               | 70                                   | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 18                                   | NR                             | 610               | 998                                  | NR                             | 740               | 61                                   | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 20                                   | NR                             | 615               | 990                                  | NR                             | 745               | 53                                   | NR                             | 875               | 2                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 1.21

| $\lambda$<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               | 27                                     | NR                             | 620               | 966                                    | NR                             | 750               | 46                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 42                                     | NR                             | 625               | 930                                    | NR                             | 755               | 39                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 67                                     | NR                             | 630               | 888                                    | NR                             | 760               | 34                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 101                                    | NR                             | 635               | 835                                    | NR                             | 765               | 30                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 139                                    | NR                             | 640               | 778                                    | NR                             | 770               | 26                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 183                                    | NR                             | 645               | 717                                    | NR                             | 775               | 22                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 224                                    | NR                             | 650               | 656                                    | NR                             | 780               | 19                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 0                                      | NR                             | 525               | 262                                    | NR                             | 655               | 595                                    | NR                             | 785               | 17                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 1                                      | NR                             | 530               | 299                                    | NR                             | 660               | 536                                    | NR                             | 790               | 15                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 3                                      | NR                             | 535               | 332                                    | NR                             | 665               | 480                                    | NR                             | 795               | 13                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 7                                      | NR                             | 540               | 365                                    | NR                             | 670               | 425                                    | NR                             | 800               | 11                                     | NR                             | 930               | 1                                      | NR                             |
| 415               | 17                                     | NR                             | 545               | 400                                    | NR                             | 675               | 376                                    | NR                             | 805               | 10                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 36                                     | NR                             | 550               | 437                                    | NR                             | 680               | 332                                    | NR                             | 810               | 8                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 67                                     | NR                             | 555               | 479                                    | NR                             | 685               | 291                                    | NR                             | 815               | 8                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 105                                    | NR                             | 560               | 525                                    | NR                             | 690               | 255                                    | NR                             | 820               | 7                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 141                                    | NR                             | 565               | 579                                    | NR                             | 695               | 221                                    | NR                             | 825               | 6                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 169                                    | NR                             | 570               | 639                                    | NR                             | 700               | 192                                    | NR                             | 830               | 5                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 173                                    | NR                             | 575               | 703                                    | NR                             | 705               | 167                                    | NR                             | 835               | 4                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 136                                    | NR                             | 580               | 769                                    | NR                             | 710               | 144                                    | NR                             | 840               | 4                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 80                                     | NR                             | 585               | 832                                    | NR                             | 715               | 125                                    | NR                             | 845               | 3                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 45                                     | NR                             | 590               | 890                                    | NR                             | 720               | 109                                    | NR                             | 850               | 3                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 32                                     | NR                             | 595               | 937                                    | NR                             | 725               | 94                                     | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 23                                     | NR                             | 600               | 972                                    | NR                             | 730               | 81                                     | NR                             | 860               | 2                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 18                                     | NR                             | 605               | 992                                    | NR                             | 735               | 70                                     | NR                             | 865               | 2                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 18                                     | NR                             | 610               | 998                                    | NR                             | 740               | 61                                     | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 20                                     | NR                             | 615               | 990                                    | NR                             | 745               | 53                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

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TM-30-18

### Summary

$R_f = 70.6$   
 $R_g = 97.6$   
 $CIE R_a = 71.9$   
 $R_g = -17.8$



### Color Vector Graphics

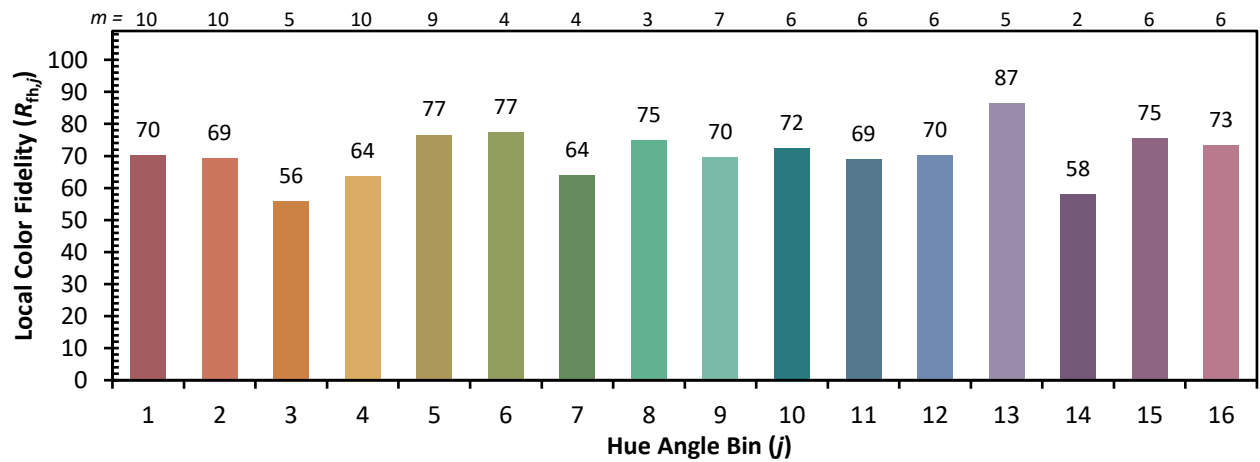
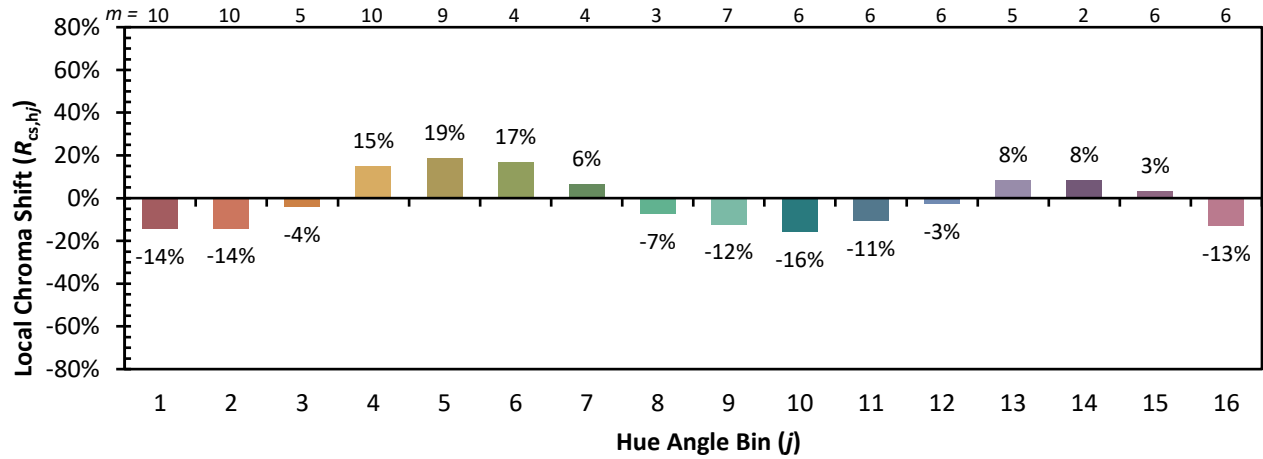


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 60 | CES51 = 74 | CES76 = 58 |
| CES02 = 65 | CES27 = 77 | CES52 = 77 | CES77 = 82 |
| CES03 = 32 | CES28 = 85 | CES53 = 65 | CES78 = 65 |
| CES04 = 72 | CES29 = 50 | CES54 = 77 | CES79 = 86 |
| CES05 = 52 | CES30 = 49 | CES55 = 74 | CES80 = 85 |
| CES06 = 53 | CES31 = 55 | CES56 = 64 | CES81 = 61 |
| CES07 = 44 | CES32 = 55 | CES57 = 60 | CES82 = 93 |
| CES08 = 43 | CES33 = 55 | CES58 = 64 | CES83 = 83 |
| CES09 = 29 | CES34 = 75 | CES59 = 84 | CES84 = 93 |
| CES10 = 79 | CES35 = 88 | CES60 = 89 | CES85 = 81 |
| CES11 = 62 | CES36 = 78 | CES61 = 84 | CES86 = 55 |
| CES12 = 68 | CES37 = 82 | CES62 = 68 | CES87 = 79 |
| CES13 = 45 | CES38 = 54 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 86 | CES65 = 66 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 89 |
| CES17 = 51 | CES42 = 83 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 68 | CES68 = 71 | CES93 = 78 |
| CES19 = 74 | CES44 = 98 | CES69 = 81 | CES94 = 52 |
| CES20 = 68 | CES45 = 76 | CES70 = 65 | CES95 = 76 |
| CES21 = 89 | CES46 = 68 | CES71 = 64 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 88 | CES97 = 76 |
| CES23 = 92 | CES48 = 47 | CES73 = 59 | CES98 = 71 |
| CES24 = 92 | CES49 = 65 | CES74 = 85 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)