

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: P1047074

Luminaire Tested: **GALN-SA7B-722-U-T3BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047074  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA7B-722-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 7xLight Square PACKAGE  
70CRI 2200K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (98) 2200K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 23945.2 lumens  
Efficiency: N/A  
Efficacy: 96.0 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G4

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

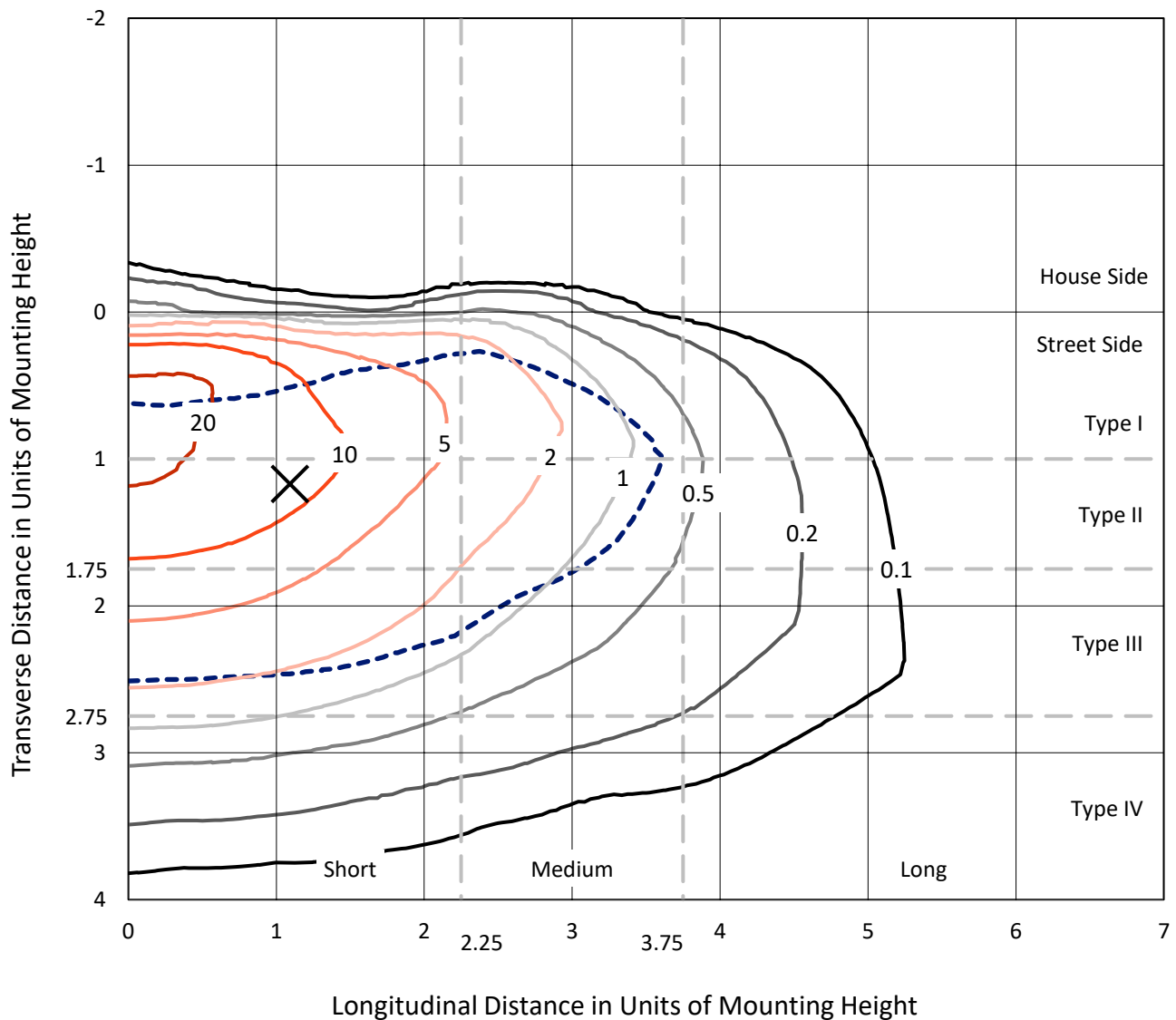


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 --- 1/2 Max cd

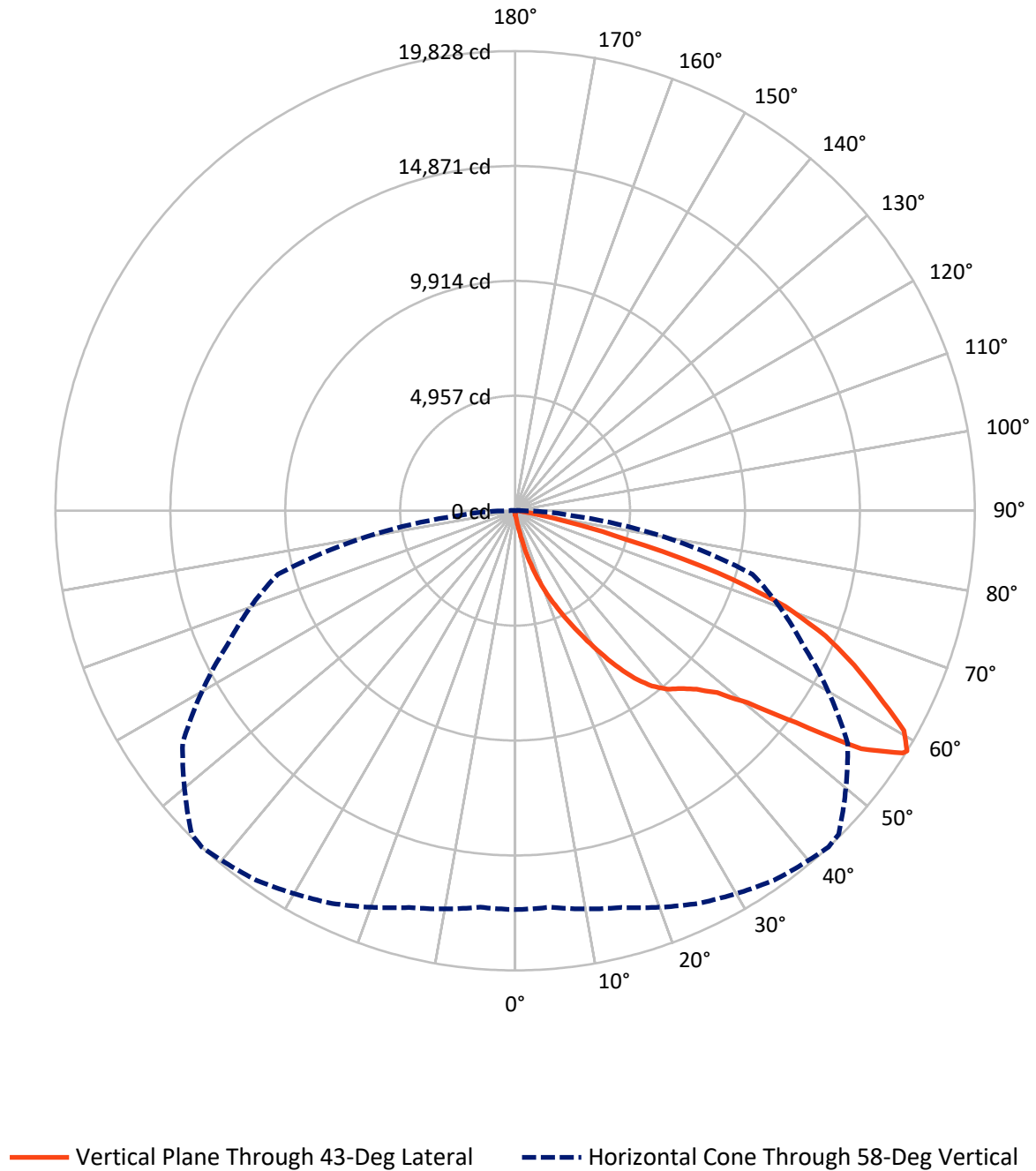


Based on 15 foot mounting height. Maximum calculated value = 26.9 fc  
 Type III - Short - N/A

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CATALOG NUMBER: GALN-SA7B-722-U-T3BC

## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA7B-722-U-T3BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 87.4     | 0.0    | 87.4    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 23857.8  | 0.0    | 23857.8 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 23945.2  | 0.0    | 23945.2 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 22.9    | 0.1       |
| 10°-20°   | 275.2   | 1.1       |
| 20°-30°   | 992.1   | 4.1       |
| 30°-40°   | 2269.9  | 9.5       |
| 40°-50°   | 3828.4  | 16.0      |
| 50°-60°   | 6317.7  | 26.4      |
| 60°-70°   | 7060.9  | 29.5      |
| 70°-80°   | 2915.3  | 12.2      |
| 80°-90°   | 262.8   | 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°    | 23945.2 | 100.0     |
| 0°-180°   | 23945.2 | 100.0     |



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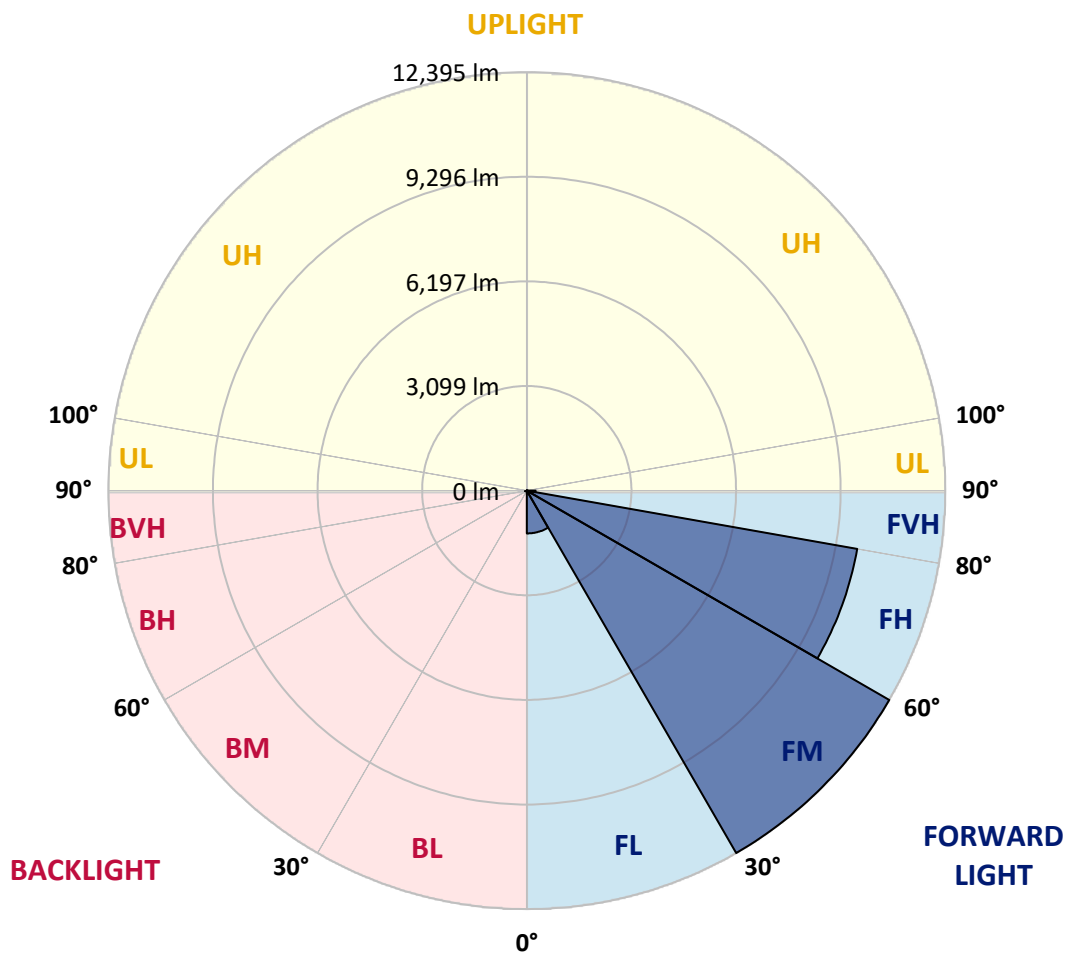
CATALOG NUMBER: GALN-SA7B-722-U-T3BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1267.5  | 5.3       |                         |      |          |
| FM   | (30°-60°)   | 12395.0 | 51.8      |                         |      |          |
| FH   | (60°-80°)   | 9936.1  | 41.5      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 259.2   | 1.1       |                         |      | G3/500   |
| BL   | (0°-30°)    | 22.8    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 21.0    | 0.1       | B0/220                  |      |          |
| BH   | (60°-80°)   | 40.1    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 3.6     | 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 III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 156.6   | 156.6   | 156.6   | 156.6   | 156.6   | 156.6   | 156.6   | 156.6   | 156.6   | 156.6   | 156.6  |
| 2.5°  | 187.9   | 194.1   | 187.9   | 187.9   | 187.9   | 181.6   | 181.6   | 175.4   | 175.4   | 169.1   | 162.8  |
| 5°    | 275.6   | 275.6   | 256.8   | 244.2   | 231.7   | 225.5   | 219.2   | 206.7   | 194.1   | 181.6   | 169.1  |
| 7.5°  | 613.7   | 613.7   | 557.4   | 482.2   | 382.0   | 325.7   | 313.1   | 256.8   | 219.2   | 194.1   | 169.1  |
| 10°   | 1465.5  | 1465.5  | 1340.2  | 1133.5  | 876.8   | 651.3   | 582.4   | 369.5   | 263.0   | 206.7   | 175.4  |
| 12.5° | 2436.2  | 2467.5  | 2310.9  | 2047.9  | 1665.9  | 1271.3  | 1133.5  | 676.4   | 350.7   | 225.5   | 175.4  |
| 15°   | 3306.7  | 3231.5  | 3187.7  | 2937.2  | 2574.0  | 2104.3  | 1928.9  | 1139.8  | 507.3   | 256.8   | 175.4  |
| 17.5° | 3895.4  | 3895.4  | 3832.7  | 3663.7  | 3331.7  | 2918.4  | 2774.4  | 1841.2  | 820.4   | 294.3   | 181.6  |
| 20°   | 4584.3  | 4584.3  | 4471.5  | 4352.5  | 4058.2  | 3707.5  | 3569.7  | 2617.8  | 1271.3  | 375.8   | 181.6  |
| 22.5° | 5417.2  | 5429.7  | 5304.5  | 5091.5  | 4809.7  | 4421.4  | 4302.4  | 3338.0  | 1841.2  | 501.0   | 187.9  |
| 25°   | 6431.7  | 6444.3  | 6262.7  | 6062.3  | 5630.1  | 5210.5  | 5028.9  | 4164.7  | 2536.4  | 701.4   | 187.9  |
| 27.5° | 7552.8  | 7640.4  | 7371.1  | 7026.7  | 6569.5  | 6043.5  | 5905.7  | 4909.9  | 3225.3  | 989.5   | 200.4  |
| 30°   | 8949.3  | 8949.3  | 8592.4  | 8110.1  | 7615.4  | 6964.1  | 6788.7  | 5692.8  | 3958.0  | 1371.5  | 212.9  |
| 32.5° | 10151.8 | 10057.8 | 9600.7  | 9093.4  | 8567.3  | 7959.8  | 7772.0  | 6513.2  | 4709.5  | 1847.5  | 238.0  |
| 35°   | 11072.4 | 10991.0 | 10427.3 | 9882.5  | 9425.3  | 8867.9  | 8642.5  | 7402.5  | 5504.9  | 2386.1  | 275.6  |
| 37.5° | 11861.5 | 11830.2 | 11066.1 | 10383.5 | 10082.9 | 9594.4  | 9394.0  | 8241.7  | 6287.7  | 2968.5  | 319.4  |
| 40°   | 12725.7 | 12625.5 | 11811.4 | 10965.9 | 10515.0 | 10120.5 | 9938.8  | 8918.0  | 7039.2  | 3651.1  | 382.0  |
| 42.5° | 13464.7 | 13345.7 | 12613.0 | 11786.3 | 11016.0 | 10483.7 | 10308.3 | 9487.9  | 7772.0  | 4333.8  | 463.4  |
| 45°   | 14285.1 | 14222.5 | 13483.5 | 12857.2 | 11830.2 | 10978.4 | 10746.7 | 9945.1  | 8442.1  | 5147.9  | 569.9  |
| 47.5° | 15518.9 | 15406.1 | 14717.2 | 14203.7 | 13013.8 | 11730.0 | 11398.0 | 10414.8 | 9087.1  | 5949.5  | 732.7  |
| 50°   | 16953.0 | 16877.9 | 16470.8 | 16063.7 | 14880.1 | 13013.8 | 12619.3 | 11091.2 | 9807.3  | 6901.4  | 945.7  |
| 52.5° | 18124.1 | 18111.6 | 18161.7 | 18168.0 | 17272.4 | 15174.4 | 14585.7 | 12180.9 | 10634.0 | 7840.8  | 1246.3 |
| 55°   | 18099.1 | 18155.4 | 18706.6 | 19339.1 | 19408.0 | 18124.1 | 17554.2 | 14015.8 | 11711.2 | 8999.4  | 1665.9 |
| 57.5° | 17422.7 | 17378.9 | 17961.3 | 18913.2 | 19583.3 | 19721.1 | 19627.2 | 16865.3 | 13333.2 | 10396.0 | 2310.9 |
| 58°   | 17203.5 | 17165.9 | 17717.1 | 18687.8 | 19458.1 | 19827.6 | 19733.6 | 17510.4 | 13696.4 | 10596.4 | 2486.3 |
| 60°   | 16408.2 | 16414.4 | 16740.1 | 17623.1 | 18393.4 | 19270.2 | 19357.9 | 19351.6 | 15506.3 | 11936.6 | 3369.3 |
| 62.5° | 15356.0 | 15305.9 | 15606.5 | 16326.7 | 17003.1 | 17591.8 | 17742.1 | 19476.9 | 18155.4 | 13640.1 | 5054.0 |
| 65°   | 13903.1 | 13827.9 | 14147.3 | 14961.5 | 15688.0 | 16070.0 | 16076.2 | 17798.5 | 19401.7 | 15468.8 | 7458.8 |
| 67.5° | 11203.9 | 11141.3 | 11780.1 | 12825.9 | 13946.9 | 14447.9 | 14673.4 | 15443.7 | 18349.6 | 16708.8 | 8836.6 |
| 70°   | 6863.9  | 6995.4  | 7884.7  | 9525.5  | 11441.9 | 12362.5 | 12700.7 | 12938.6 | 15625.3 | 16520.9 | 7389.9 |
| 72.5° | 3168.9  | 3012.3  | 3770.1  | 4916.2  | 7101.9  | 9149.7  | 9500.5  | 10433.6 | 12387.5 | 14341.5 | 5511.1 |
| 75°   | 1478.0  | 1421.6  | 1597.0  | 2148.1  | 3219.0  | 4941.2  | 5580.0  | 8329.3  | 9500.5  | 9976.4  | 3976.8 |
| 77.5° | 757.8   | 764.0   | 908.1   | 977.0   | 1327.7  | 2285.9  | 2624.1  | 5479.8  | 6964.1  | 5567.5  | 2667.9 |
| 80°   | 331.9   | 344.4   | 350.7   | 382.0   | 538.6   | 883.0   | 995.8   | 2542.6  | 4759.6  | 2837.0  | 1459.2 |
| 82.5° | 212.9   | 219.2   | 219.2   | 219.2   | 256.8   | 350.7   | 400.8   | 1020.8  | 2373.5  | 1409.1  | 450.9  |
| 85°   | 112.7   | 112.7   | 125.3   | 156.6   | 181.6   | 212.9   | 225.5   | 325.7   | 782.8   | 419.6   | 106.5  |
| 87.5° | 62.6    | 68.9    | 75.2    | 93.9    | 119.0   | 144.0   | 156.6   | 225.5   | 300.6   | 288.1   | 25.1   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |



REPORT NUMBER: P1047074

CATALOG NUMBER: GALN-SA7B-722-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 156.6  | 156.6 | 156.6 | 156.6 | 156.6 | 156.6 | 156.6 | 156.6 | 156.6 | 156.6 | 156.6 |
| 2.5°  | 162.8  | 156.6 | 150.3 | 144.0 | 137.8 | 131.5 | 131.5 | 131.5 | 131.5 | 131.5 | 131.5 |
| 5°    | 156.6  | 150.3 | 144.0 | 131.5 | 119.0 | 112.7 | 106.5 | 100.2 | 100.2 | 100.2 | 100.2 |
| 7.5°  | 156.6  | 150.3 | 131.5 | 119.0 | 106.5 | 93.9  | 81.4  | 81.4  | 81.4  | 81.4  | 81.4  |
| 10°   | 156.6  | 144.0 | 125.3 | 106.5 | 87.7  | 75.2  | 68.9  | 62.6  | 62.6  | 62.6  | 62.6  |
| 12.5° | 156.6  | 137.8 | 119.0 | 93.9  | 75.2  | 62.6  | 56.4  | 50.1  | 50.1  | 50.1  | 50.1  |
| 15°   | 156.6  | 137.8 | 112.7 | 87.7  | 68.9  | 50.1  | 43.8  | 37.6  | 37.6  | 37.6  | 37.6  |
| 17.5° | 150.3  | 131.5 | 106.5 | 75.2  | 56.4  | 37.6  | 31.3  | 25.1  | 25.1  | 31.3  | 31.3  |
| 20°   | 144.0  | 125.3 | 93.9  | 62.6  | 43.8  | 31.3  | 18.8  | 18.8  | 18.8  | 18.8  | 18.8  |
| 22.5° | 144.0  | 125.3 | 87.7  | 56.4  | 37.6  | 18.8  | 12.5  | 12.5  | 12.5  | 12.5  | 18.8  |
| 25°   | 144.0  | 119.0 | 75.2  | 43.8  | 25.1  | 12.5  | 6.3   | 6.3   | 6.3   | 6.3   | 6.3   |
| 27.5° | 144.0  | 119.0 | 68.9  | 37.6  | 18.8  | 12.5  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 137.8  | 112.7 | 62.6  | 31.3  | 12.5  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 137.8  | 106.5 | 50.1  | 25.1  | 12.5  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 144.0  | 100.2 | 43.8  | 18.8  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 6.3   |
| 37.5° | 150.3  | 93.9  | 37.6  | 12.5  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 156.6  | 87.7  | 37.6  | 12.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 169.1  | 87.7  | 31.3  | 12.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 181.6  | 87.7  | 25.1  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 206.7  | 93.9  | 25.1  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 225.5  | 100.2 | 18.8  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 250.5  | 93.9  | 18.8  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 281.8  | 93.9  | 18.8  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 306.9  | 87.7  | 18.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 319.4  | 81.4  | 12.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 382.0  | 75.2  | 12.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 595.0  | 62.6  | 12.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1208.7 | 56.4  | 12.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2254.6 | 50.1  | 12.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2523.9 | 56.4  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1590.7 | 43.8  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 839.2  | 43.8  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 419.6  | 43.8  | 6.3   | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 194.1  | 31.3  | 6.3   | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 81.4   | 18.8  | 12.5  | 6.3   | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 37.6   | 18.8  | 12.5  | 12.5  | 6.3   | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 18.8   | 18.8  | 18.8  | 12.5  | 12.5  | 6.3   | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-2

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

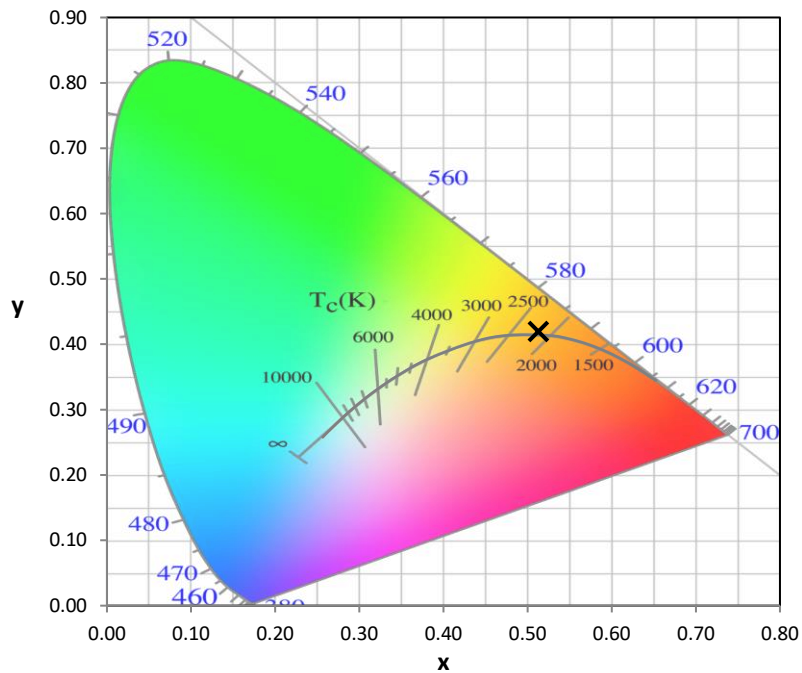
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-2

| 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

REPORT NUMBER: SP1-2407-184-2

### 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               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



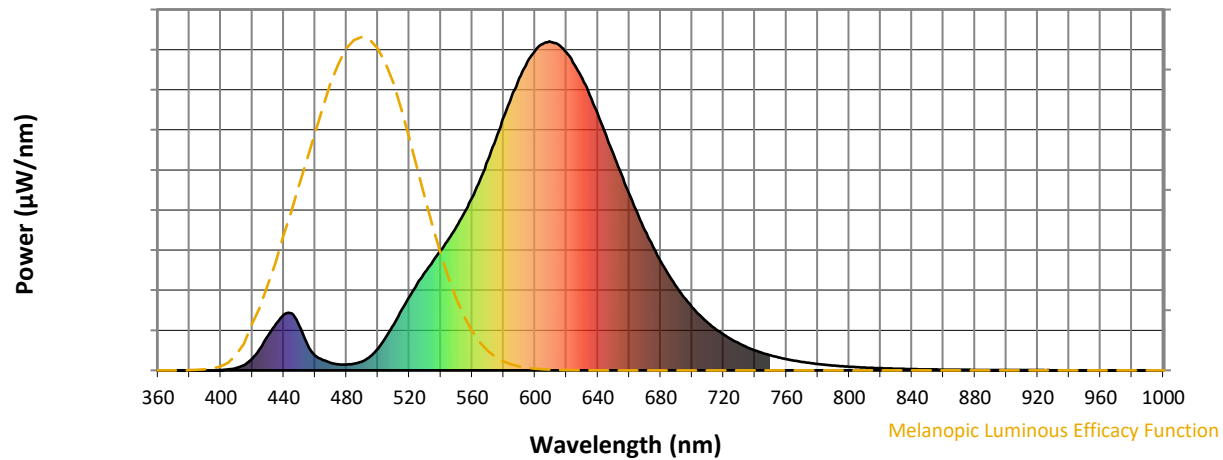
Scotopic Lumens: NR

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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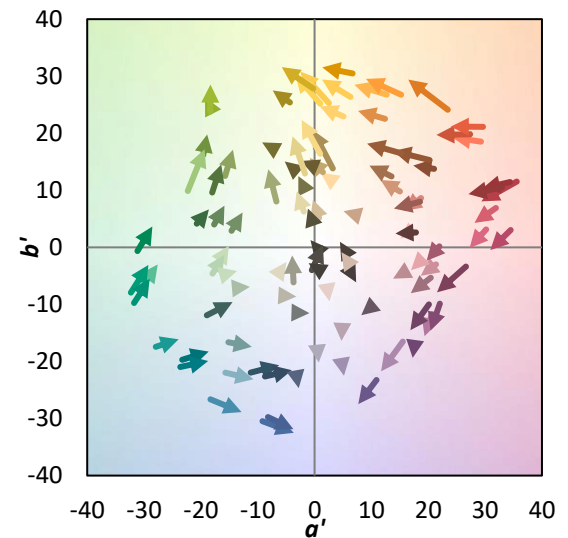
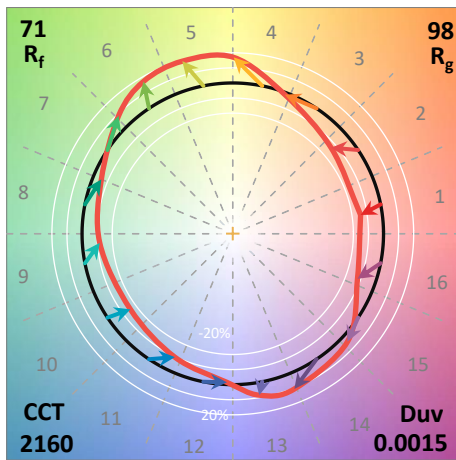
TM-30-18

### 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)