

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: P1048386

Luminaire Tested: **GALN-SA2B-735-U-T4BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1048386  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA2B-735-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 2xLight Square PACKAGE  
70CRI 3500K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (28) 3500K CCT, 70 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9133.8 lumens  
Efficiency: N/A  
Efficacy: 125.5 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G3

Input Watts (W): 72.8  
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



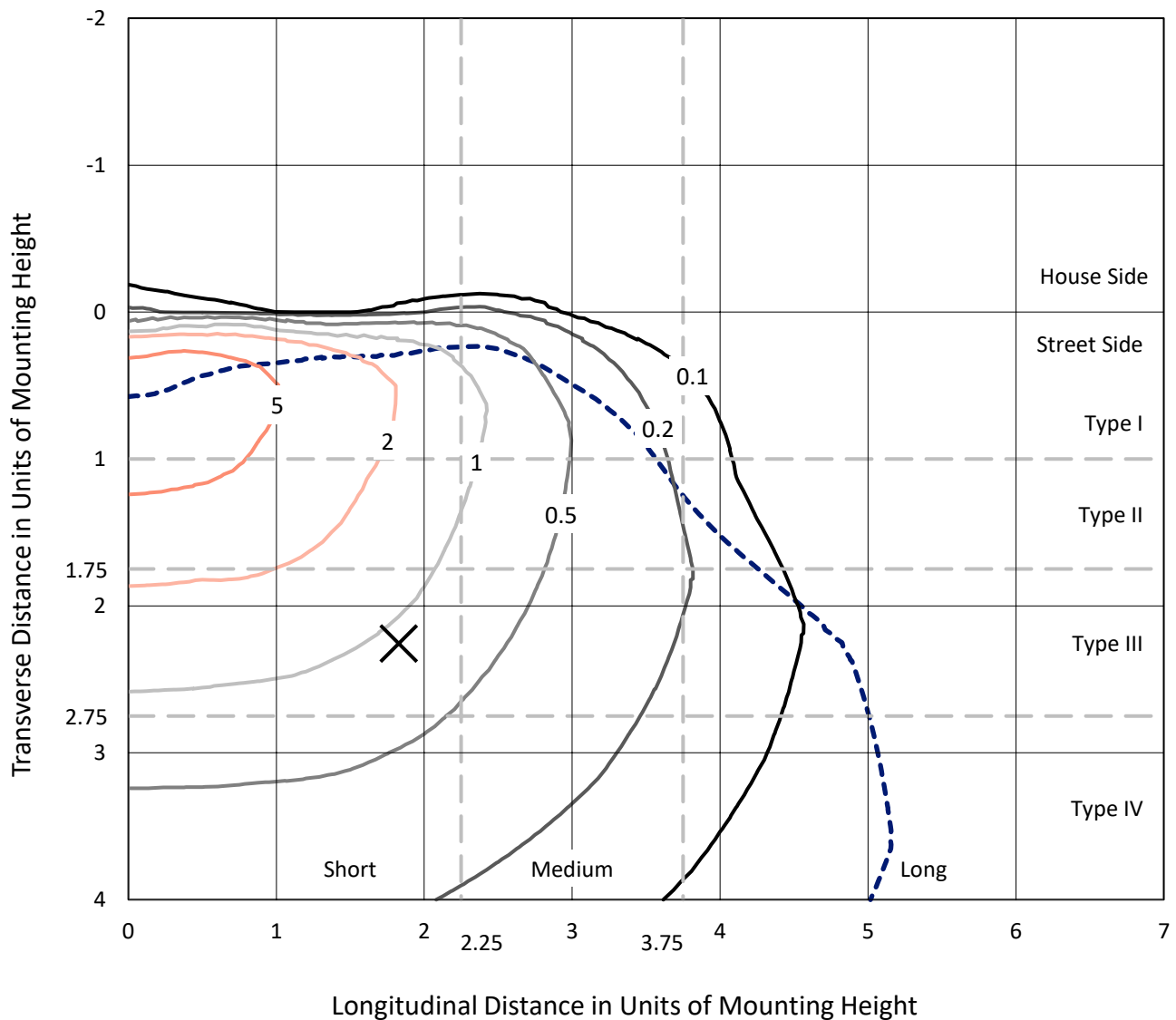
REPORT NUMBER: P1048386

CATALOG NUMBER: GALN-SA2B-735-U-T4BC

## Iso-Footcandle Lines of Horizontal Illumination

✗ Max cd

--- 1/2 Max cd

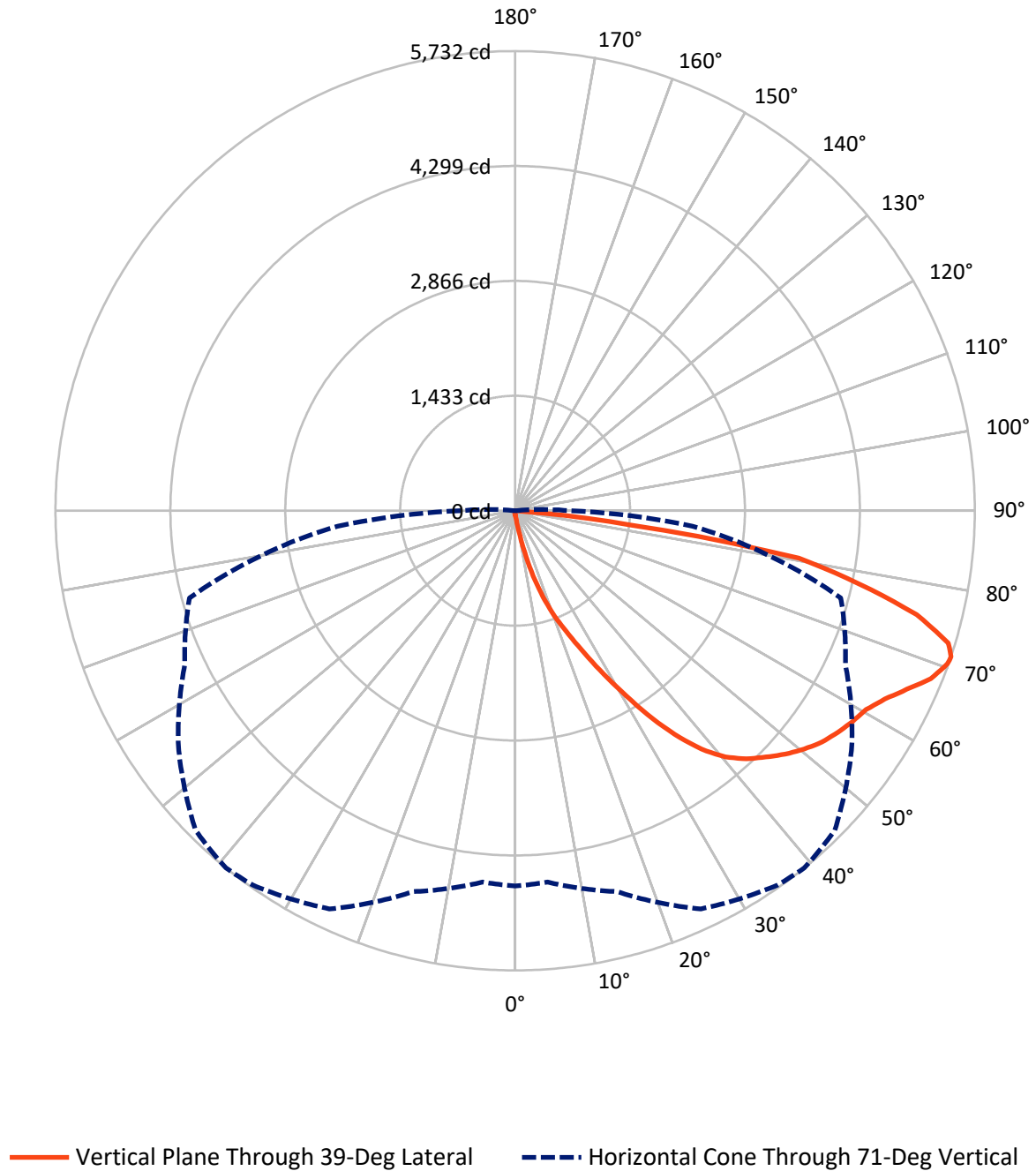


Based on 15 foot mounting height. Maximum calculated value = 9.4 fc  
Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA2B-735-U-T4BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 32.5     | 0.0    | 32.5   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 9101.4   | 0.0    | 9101.4 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 9133.8   | 0.0    | 9133.8 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 7.6    | 0.1       |
| 10°-20°   | 97.6   | 1.1       |
| 20°-30°   | 347.7  | 3.8       |
| 30°-40°   | 837.9  | 9.2       |
| 40°-50°   | 1402.3 | 15.4      |
| 50°-60°   | 1801.0 | 19.7      |
| 60°-70°   | 2279.2 | 25.0      |
| 70°-80°   | 2032.0 | 22.2      |
| 80°-90°   | 328.5  | 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°    | 9133.8 | 100.0     |
| 0°-180°   | 9133.8 | 100.0     |



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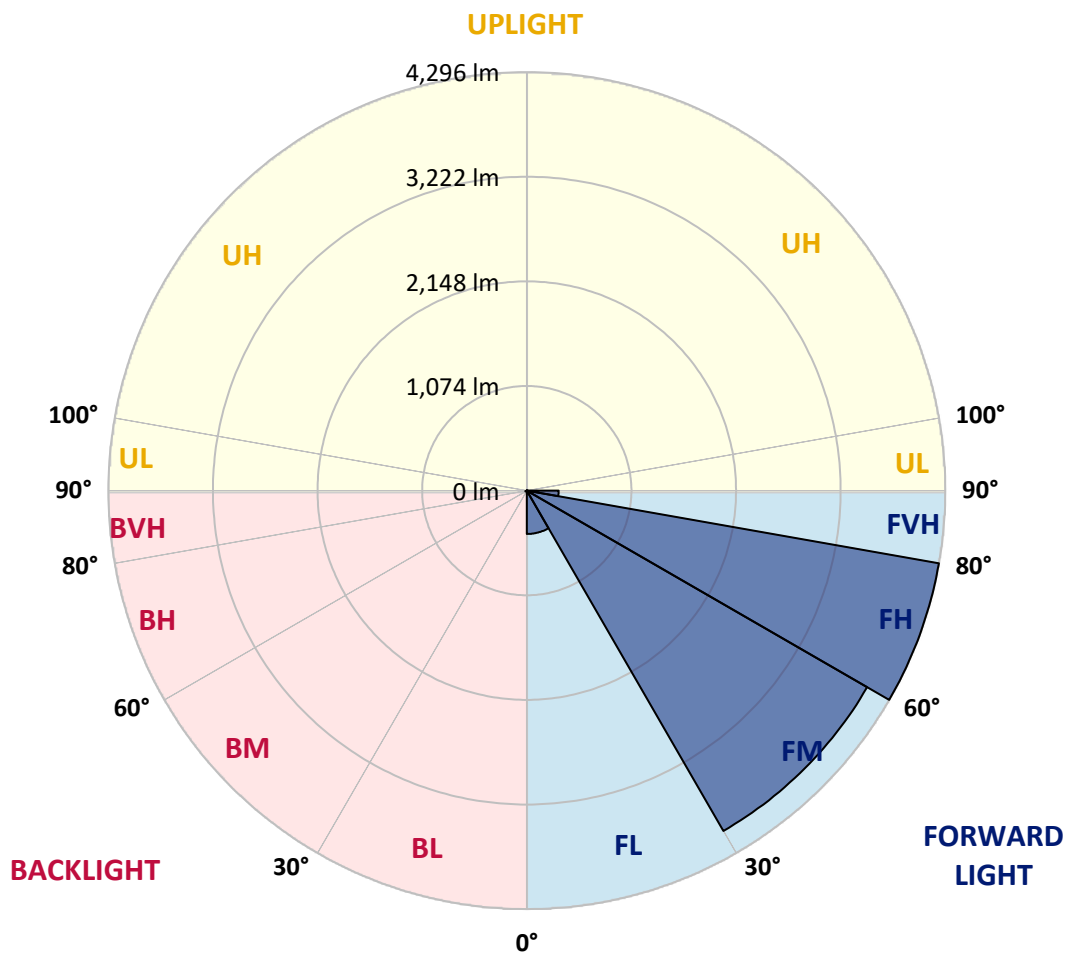
CATALOG NUMBER: GALN-SA2B-735-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 445.1  | 4.9       |                         |      |         |
| FM   | (30°-60°)   | 4033.7 | 44.2      |                         |      |         |
| FH   | (60°-80°)   | 4295.7 | 47.0      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 327.0  | 3.6       |                         |      | G3/500  |
| BL   | (0°-30°)    | 7.8    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 7.5    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 15.6   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 1.5    | 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-G3**

Type IV Short



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CATALOG NUMBER: GALN-SA2B-735-U-T4BC

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 39°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 50.1   | 50.1   | 50.1   | 50.1   | 50.1   | 50.1   | 50.1   | 50.1   | 50.1   | 50.1   | 50.1   |
| 2.5°  | 57.5   | 57.5   | 57.5   | 55.6   | 55.6   | 55.0   | 54.4   | 54.4   | 53.2   | 52.6   | 51.3   |
| 5°    | 87.2   | 85.3   | 81.0   | 78.5   | 73.6   | 70.5   | 67.4   | 63.1   | 58.7   | 55.6   | 51.9   |
| 7.5°  | 197.2  | 201.6  | 187.3  | 160.8  | 133.6  | 121.8  | 102.0  | 82.2   | 68.0   | 58.7   | 52.6   |
| 10°   | 502.7  | 500.2  | 452.0  | 398.8  | 307.9  | 271.4  | 212.7  | 134.2  | 87.8   | 64.3   | 53.2   |
| 12.5° | 855.1  | 852.7  | 795.8  | 723.4  | 603.5  | 527.4  | 416.1  | 250.4  | 126.1  | 73.0   | 53.2   |
| 15°   | 1151.3 | 1141.4 | 1123.5 | 1051.8 | 911.4  | 847.7  | 700.5  | 442.7  | 204.0  | 87.8   | 54.4   |
| 17.5° | 1347.3 | 1338.6 | 1322.0 | 1296.0 | 1206.9 | 1131.5 | 1013.4 | 695.6  | 330.2  | 113.8  | 56.9   |
| 20°   | 1527.2 | 1521.0 | 1507.4 | 1502.5 | 1445.0 | 1404.8 | 1307.1 | 986.2  | 514.4  | 154.6  | 60.6   |
| 22.5° | 1774.6 | 1761.6 | 1767.1 | 1737.5 | 1681.2 | 1633.0 | 1573.0 | 1290.4 | 739.5  | 222.6  | 67.4   |
| 25°   | 2077.5 | 2071.3 | 2055.9 | 2034.9 | 1957.0 | 1914.9 | 1822.8 | 1577.3 | 991.2  | 311.6  | 74.8   |
| 27.5° | 2443.6 | 2436.8 | 2433.1 | 2384.8 | 2295.2 | 2249.4 | 2120.8 | 1848.1 | 1274.3 | 436.5  | 84.7   |
| 30°   | 2865.3 | 2868.4 | 2844.2 | 2782.4 | 2677.9 | 2613.6 | 2481.3 | 2131.9 | 1564.3 | 583.1  | 95.2   |
| 32.5° | 3301.8 | 3295.6 | 3258.5 | 3185.5 | 3092.2 | 3032.2 | 2864.0 | 2443.0 | 1868.5 | 776.6  | 107.6  |
| 35°   | 3772.3 | 3760.6 | 3662.9 | 3579.4 | 3499.7 | 3424.2 | 3270.9 | 2804.0 | 2172.8 | 993.6  | 124.3  |
| 37.5° | 4247.2 | 4192.2 | 3996.2 | 3890.4 | 3835.4 | 3773.6 | 3630.7 | 3189.3 | 2475.1 | 1236.0 | 144.7  |
| 40°   | 4605.8 | 4563.1 | 4330.7 | 4135.9 | 4092.0 | 4039.4 | 3933.1 | 3521.9 | 2796.6 | 1496.3 | 169.4  |
| 42.5° | 4804.3 | 4780.8 | 4571.8 | 4379.5 | 4276.3 | 4229.9 | 4139.0 | 3812.5 | 3114.4 | 1783.8 | 205.3  |
| 45°   | 4889.0 | 4852.5 | 4712.8 | 4623.1 | 4458.7 | 4382.0 | 4273.8 | 4032.0 | 3446.5 | 2110.3 | 255.4  |
| 47.5° | 4863.0 | 4842.0 | 4741.8 | 4774.6 | 4655.3 | 4535.9 | 4377.0 | 4200.2 | 3730.3 | 2485.0 | 324.0  |
| 50°   | 4699.8 | 4681.9 | 4650.9 | 4828.4 | 4813.6 | 4672.6 | 4510.6 | 4333.1 | 3962.1 | 2871.4 | 430.3  |
| 52.5° | 4389.4 | 4382.0 | 4461.1 | 4786.4 | 4903.2 | 4793.2 | 4639.2 | 4450.6 | 4178.6 | 3275.2 | 582.5  |
| 55°   | 3989.4 | 4019.7 | 4246.0 | 4720.8 | 4949.0 | 4882.2 | 4753.0 | 4560.7 | 4352.3 | 3636.3 | 806.9  |
| 57.5° | 3824.9 | 3832.9 | 4115.5 | 4674.4 | 4969.4 | 4960.7 | 4863.6 | 4665.8 | 4511.8 | 3925.0 | 1149.4 |
| 60°   | 4017.2 | 4004.8 | 4153.8 | 4709.7 | 5010.2 | 5031.2 | 4962.0 | 4763.5 | 4650.3 | 4173.0 | 1605.8 |
| 62.5° | 4364.7 | 4357.9 | 4405.5 | 4859.9 | 5129.5 | 5172.2 | 5098.6 | 4834.0 | 4772.8 | 4336.2 | 2126.4 |
| 65°   | 4675.1 | 4660.8 | 4749.3 | 5126.4 | 5339.1 | 5369.4 | 5305.1 | 4954.5 | 4826.6 | 4454.9 | 2615.5 |
| 67.5° | 4809.2 | 4806.1 | 4948.4 | 5379.9 | 5559.3 | 5592.0 | 5535.8 | 5120.9 | 4814.2 | 4492.7 | 2831.3 |
| 70°   | 4748.0 | 4736.3 | 4963.8 | 5487.5 | 5683.5 | 5720.6 | 5666.2 | 5182.7 | 4680.0 | 4373.3 | 2511.6 |
| 71°   | 4680.6 | 4649.1 | 4917.4 | 5480.1 | 5700.8 | 5732.4 | 5637.2 | 5126.4 | 4545.2 | 4203.9 | 2221.6 |
| 72.5° | 4471.6 | 4477.2 | 4790.1 | 5402.8 | 5659.4 | 5650.1 | 5472.7 | 4924.9 | 4382.6 | 3819.3 | 1784.5 |
| 75°   | 3957.2 | 3990.0 | 4377.7 | 5078.2 | 5289.7 | 5171.6 | 4900.1 | 4539.7 | 4056.1 | 2738.5 | 1239.1 |
| 77.5° | 3233.8 | 3282.6 | 3708.6 | 4453.7 | 4393.7 | 4382.0 | 4370.9 | 3999.9 | 3463.8 | 1471.0 | 861.9  |
| 80°   | 1543.9 | 1649.7 | 2237.1 | 3179.4 | 3453.9 | 3586.8 | 3503.4 | 3223.3 | 2678.5 | 700.5  | 515.1  |
| 82.5° | 100.8  | 99.5   | 141.0  | 267.1  | 1125.9 | 1455.5 | 2312.5 | 2303.8 | 1867.3 | 341.3  | 210.2  |
| 85°   | 47.6   | 48.8   | 53.8   | 61.2   | 71.1   | 77.9   | 107.6  | 630.7  | 893.5  | 162.6  | 45.8   |
| 87.5° | 27.8   | 28.4   | 33.4   | 42.7   | 55.6   | 61.8   | 73.6   | 94.6   | 116.2  | 89.7   | 9.9    |
| 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-SA2B-735-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 50.1  | 50.1 | 50.1 | 50.1 | 50.1 | 50.1 | 50.1 | 50.1 | 50.1 | 50.1 | 50.1 |
| 2.5°  | 50.7  | 50.1 | 48.2 | 46.4 | 44.5 | 43.3 | 42.7 | 43.3 | 43.3 | 43.9 | 43.9 |
| 5°    | 50.7  | 48.8 | 45.8 | 42.0 | 39.6 | 37.1 | 35.9 | 35.2 | 35.9 | 35.9 | 35.9 |
| 7.5°  | 50.1  | 47.0 | 42.7 | 38.3 | 35.2 | 32.2 | 30.9 | 30.3 | 30.3 | 30.9 | 30.9 |
| 10°   | 48.8  | 45.8 | 40.2 | 35.2 | 31.5 | 27.8 | 26.0 | 24.1 | 24.1 | 24.1 | 24.7 |
| 12.5° | 48.2  | 43.9 | 37.1 | 32.2 | 27.2 | 22.9 | 19.2 | 17.3 | 17.9 | 17.9 | 17.9 |
| 15°   | 47.0  | 42.0 | 35.2 | 29.1 | 22.9 | 17.3 | 14.2 | 12.4 | 13.0 | 13.6 | 13.0 |
| 17.5° | 47.0  | 41.4 | 32.8 | 25.4 | 17.9 | 13.0 | 10.5 | 9.3  | 9.3  | 9.9  | 9.9  |
| 20°   | 47.0  | 40.2 | 30.9 | 21.6 | 13.6 | 9.9  | 7.4  | 6.8  | 6.8  | 8.0  | 8.7  |
| 22.5° | 48.2  | 40.2 | 28.4 | 17.9 | 11.1 | 7.4  | 5.6  | 4.9  | 5.6  | 6.8  | 7.4  |
| 25°   | 50.1  | 39.6 | 26.0 | 16.1 | 9.3  | 5.6  | 4.3  | 3.1  | 3.7  | 4.9  | 5.6  |
| 27.5° | 51.9  | 39.0 | 23.5 | 14.2 | 7.4  | 4.3  | 3.1  | 2.5  | 1.9  | 2.5  | 2.5  |
| 30°   | 53.8  | 39.0 | 21.0 | 11.7 | 6.2  | 3.1  | 1.9  | 1.2  | 0.6  | 0.0  | 0.0  |
| 32.5° | 55.0  | 37.7 | 19.2 | 9.3  | 4.9  | 2.5  | 1.2  | 0.6  | 0.0  | 0.0  | 0.0  |
| 35°   | 56.3  | 36.5 | 16.7 | 7.4  | 3.7  | 1.9  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 57.5  | 34.6 | 14.2 | 6.2  | 3.1  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 58.7  | 32.2 | 11.7 | 5.6  | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 60.0  | 30.3 | 9.9  | 4.3  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 63.1  | 29.1 | 8.0  | 3.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 68.6  | 27.8 | 7.4  | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 76.7  | 26.6 | 6.8  | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 87.8  | 26.0 | 6.2  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 107.6 | 25.4 | 5.6  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 141.6 | 24.7 | 5.6  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 217.0 | 23.5 | 5.6  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 387.7 | 22.9 | 4.9  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 675.8 | 23.5 | 4.9  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 968.9 | 24.7 | 4.3  | 1.9  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 829.2 | 21.6 | 4.3  | 2.5  | 1.2  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 71°   | 675.8 | 19.2 | 4.3  | 2.5  | 1.2  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 434.7 | 14.8 | 3.7  | 2.5  | 1.2  | 1.2  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 183.6 | 12.4 | 3.7  | 2.5  | 1.9  | 1.2  | 1.2  | 0.6  | 0.0  | 0.0  | 0.0  |
| 77.5° | 78.5  | 9.3  | 3.7  | 3.1  | 2.5  | 1.9  | 1.9  | 1.2  | 0.6  | 0.0  | 0.0  |
| 80°   | 29.7  | 7.4  | 4.3  | 3.7  | 3.1  | 3.1  | 2.5  | 1.2  | 0.6  | 0.0  | 0.0  |
| 82.5° | 13.6  | 6.2  | 4.3  | 3.7  | 3.7  | 3.1  | 2.5  | 1.9  | 1.2  | 0.0  | 0.0  |
| 85°   | 8.7   | 5.6  | 4.3  | 3.7  | 3.7  | 3.1  | 3.1  | 1.9  | 1.2  | 0.0  | 0.0  |
| 87.5° | 6.8   | 5.6  | 4.3  | 4.3  | 3.7  | 3.7  | 2.5  | 1.9  | 0.6  | 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: SP1-2407-184-5

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-735-U-5WQ

Data in this report applies to families of products including GSS-SB1A-735-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-5  
 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-735-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 3500K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 3369     | CRI (Ra): | 70.1 |      |       |
| CIE u':                   | 0.2386   | R1:       | 66.6 | R9:  | -40.2 |
| CIE v':                   | 0.5156   | R2:       | 77.6 | R10: | 49.1  |
| Duv:                      | 0.0013   | R3:       | 88.5 | R11: | 66.3  |
| CIE x:                    | 0.4143   | R4:       | 69.5 | R12: | 45.7  |
| CIE y:                    | 0.3980   | R5:       | 66.4 | R13: | 68.0  |
| CIE z:                    | 0.1877   | R6:       | 69.6 | R14: | 93.4  |
| Peak Wavelength (nm):     | 590      | R7:       | 77.5 | R15: | 57.6  |
| Dominant Wavelength (nm): | 580      | R8:       | 44.9 |      |       |
| Purity:                   | 43.80166 |           |      |      |       |
| Rf:                       | 71.4     |           |      |      |       |
| Rg:                       | 96       |           |      |      |       |



### 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 3500K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 0                             | NR                             | 490               | 119                           | NR                             | 620               | 778                           | NR                             | 750               | 19                            | NR                             | 880               | 1                             | NR                             |
| 365               | 0                             | NR                             | 495               | 173                           | NR                             | 625               | 711                           | NR                             | 755               | 16                            | NR                             | 885               | 0                             | NR                             |
| 370               | 0                             | NR                             | 500               | 239                           | NR                             | 630               | 648                           | NR                             | 760               | 14                            | NR                             | 890               | 0                             | NR                             |
| 375               | 0                             | NR                             | 505               | 313                           | NR                             | 635               | 582                           | NR                             | 765               | 12                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 383                           | NR                             | 640               | 520                           | NR                             | 770               | 11                            | NR                             | 900               | 0                             | NR                             |
| 385               | 0                             | NR                             | 515               | 448                           | NR                             | 645               | 460                           | NR                             | 775               | 9                             | NR                             | 905               | 0                             | NR                             |
| 390               | 2                             | NR                             | 520               | 500                           | NR                             | 650               | 406                           | NR                             | 780               | 8                             | NR                             | 910               | 0                             | NR                             |
| 395               | 4                             | NR                             | 525               | 539                           | NR                             | 655               | 355                           | NR                             | 785               | 7                             | NR                             | 915               | 0                             | NR                             |
| 400               | 6                             | NR                             | 530               | 575                           | NR                             | 660               | 309                           | NR                             | 790               | 6                             | NR                             | 920               | 0                             | NR                             |
| 405               | 11                            | NR                             | 535               | 606                           | NR                             | 665               | 269                           | NR                             | 795               | 5                             | NR                             | 925               | 0                             | NR                             |
| 410               | 22                            | NR                             | 540               | 633                           | NR                             | 670               | 231                           | NR                             | 800               | 4                             | NR                             | 930               | 0                             | NR                             |
| 415               | 45                            | NR                             | 545               | 666                           | NR                             | 675               | 199                           | NR                             | 805               | 4                             | NR                             | 935               | 0                             | NR                             |
| 420               | 96                            | NR                             | 550               | 701                           | NR                             | 680               | 171                           | NR                             | 810               | 3                             | NR                             | 940               | 0                             | NR                             |
| 425               | 193                           | NR                             | 555               | 743                           | NR                             | 685               | 147                           | NR                             | 815               | 3                             | NR                             | 945               | 0                             | NR                             |
| 430               | 341                           | NR                             | 560               | 788                           | NR                             | 690               | 126                           | NR                             | 820               | 3                             | NR                             | 950               | 0                             | NR                             |
| 435               | 547                           | NR                             | 565               | 837                           | NR                             | 695               | 107                           | NR                             | 825               | 2                             | NR                             | 955               | 0                             | NR                             |
| 440               | 799                           | NR                             | 570               | 887                           | NR                             | 700               | 92                            | NR                             | 830               | 2                             | NR                             | 960               | 0                             | NR                             |
| 445               | 831                           | NR                             | 575               | 931                           | NR                             | 705               | 78                            | NR                             | 835               | 2                             | NR                             | 965               | 0                             | NR                             |
| 450               | 461                           | NR                             | 580               | 967                           | NR                             | 710               | 67                            | NR                             | 840               | 2                             | NR                             | 970               | 0                             | NR                             |
| 455               | 256                           | NR                             | 585               | 990                           | NR                             | 715               | 57                            | NR                             | 845               | 1                             | NR                             | 975               | 0                             | NR                             |
| 460               | 176                           | NR                             | 590               | 1000                          | NR                             | 720               | 49                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 107                           | NR                             | 595               | 994                           | NR                             | 725               | 42                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 74                            | NR                             | 600               | 973                           | NR                             | 730               | 36                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 67                            | NR                             | 605               | 938                           | NR                             | 735               | 31                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 68                            | NR                             | 610               | 892                           | NR                             | 740               | 26                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 84                            | NR                             | 615               | 838                           | NR                             | 745               | 22                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

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### Scotopic Flux vs. Wavelength



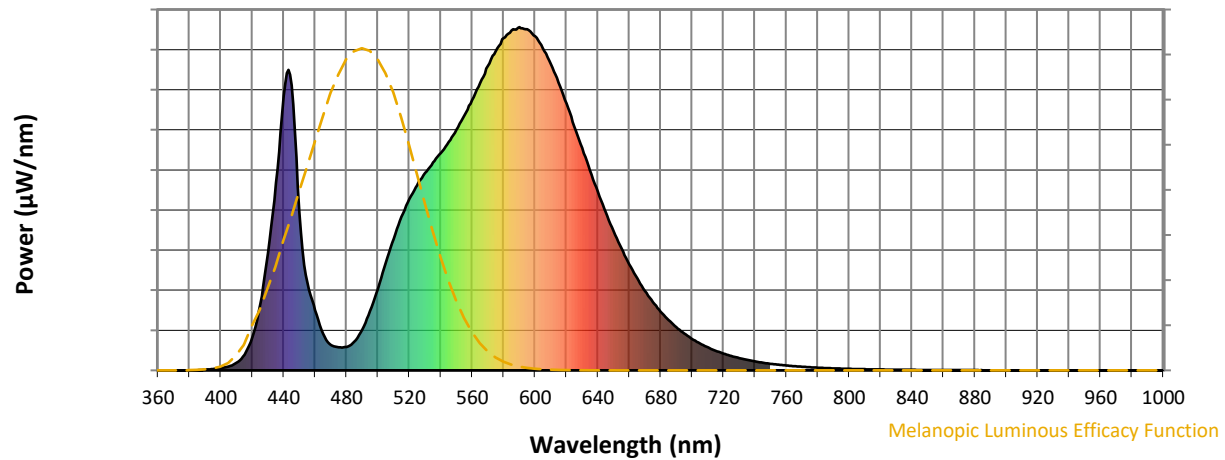
Scotopic Lumens: NR

S/P: 1.29

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 119                         | NR               | 620       | 778                         | NR               | 750       | 19                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 173                         | NR               | 625       | 711                         | NR               | 755       | 16                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 239                         | NR               | 630       | 648                         | NR               | 760       | 14                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 313                         | NR               | 635       | 582                         | NR               | 765       | 12                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 383                         | NR               | 640       | 520                         | NR               | 770       | 11                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 448                         | NR               | 645       | 460                         | NR               | 775       | 9                           | NR               | 905       | 0                           | NR               |
| 390       | 2                           | NR               | 520       | 500                         | NR               | 650       | 406                         | NR               | 780       | 8                           | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 539                         | NR               | 655       | 355                         | NR               | 785       | 7                           | NR               | 915       | 0                           | NR               |
| 400       | 6                           | NR               | 530       | 575                         | NR               | 660       | 309                         | NR               | 790       | 6                           | NR               | 920       | 0                           | NR               |
| 405       | 11                          | NR               | 535       | 606                         | NR               | 665       | 269                         | NR               | 795       | 5                           | NR               | 925       | 0                           | NR               |
| 410       | 22                          | NR               | 540       | 633                         | NR               | 670       | 231                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 45                          | NR               | 545       | 666                         | NR               | 675       | 199                         | NR               | 805       | 4                           | NR               | 935       | 0                           | NR               |
| 420       | 96                          | NR               | 550       | 701                         | NR               | 680       | 171                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 193                         | NR               | 555       | 743                         | NR               | 685       | 147                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 341                         | NR               | 560       | 788                         | NR               | 690       | 126                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 547                         | NR               | 565       | 837                         | NR               | 695       | 107                         | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 799                         | NR               | 570       | 887                         | NR               | 700       | 92                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 831                         | NR               | 575       | 931                         | NR               | 705       | 78                          | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 461                         | NR               | 580       | 967                         | NR               | 710       | 67                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 256                         | NR               | 585       | 990                         | NR               | 715       | 57                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 176                         | NR               | 590       | 1000                        | NR               | 720       | 49                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 107                         | NR               | 595       | 994                         | NR               | 725       | 42                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 74                          | NR               | 600       | 973                         | NR               | 730       | 36                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 67                          | NR               | 605       | 938                         | NR               | 735       | 31                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 68                          | NR               | 610       | 892                         | NR               | 740       | 26                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 84                          | NR               | 615       | 838                         | NR               | 745       | 22                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.36**

| $\lambda$<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               | 119                                  | NR                             | 620               | 778                                  | NR                             | 750               | 19                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 173                                  | NR                             | 625               | 711                                  | NR                             | 755               | 16                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 239                                  | NR                             | 630               | 648                                  | NR                             | 760               | 14                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 313                                  | NR                             | 635               | 582                                  | NR                             | 765               | 12                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 383                                  | NR                             | 640               | 520                                  | NR                             | 770               | 11                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 448                                  | NR                             | 645               | 460                                  | NR                             | 775               | 9                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 2                                    | NR                             | 520               | 500                                  | NR                             | 650               | 406                                  | NR                             | 780               | 8                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 539                                  | NR                             | 655               | 355                                  | NR                             | 785               | 7                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 6                                    | NR                             | 530               | 575                                  | NR                             | 660               | 309                                  | NR                             | 790               | 6                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 11                                   | NR                             | 535               | 606                                  | NR                             | 665               | 269                                  | NR                             | 795               | 5                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 22                                   | NR                             | 540               | 633                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 45                                   | NR                             | 545               | 666                                  | NR                             | 675               | 199                                  | NR                             | 805               | 4                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 96                                   | NR                             | 550               | 701                                  | NR                             | 680               | 171                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 193                                  | NR                             | 555               | 743                                  | NR                             | 685               | 147                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 341                                  | NR                             | 560               | 788                                  | NR                             | 690               | 126                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 547                                  | NR                             | 565               | 837                                  | NR                             | 695               | 107                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 799                                  | NR                             | 570               | 887                                  | NR                             | 700               | 92                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 831                                  | NR                             | 575               | 931                                  | NR                             | 705               | 78                                   | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 461                                  | NR                             | 580               | 967                                  | NR                             | 710               | 67                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 256                                  | NR                             | 585               | 990                                  | NR                             | 715               | 57                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 176                                  | NR                             | 590               | 1000                                 | NR                             | 720               | 49                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 107                                  | NR                             | 595               | 994                                  | NR                             | 725               | 42                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 74                                   | NR                             | 600               | 973                                  | NR                             | 730               | 36                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 67                                   | NR                             | 605               | 938                                  | NR                             | 735               | 31                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 68                                   | NR                             | 610               | 892                                  | NR                             | 740               | 26                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 84                                   | NR                             | 615               | 838                                  | NR                             | 745               | 22                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2407-184-5

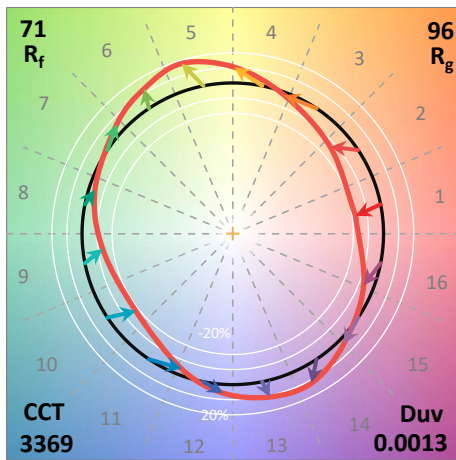
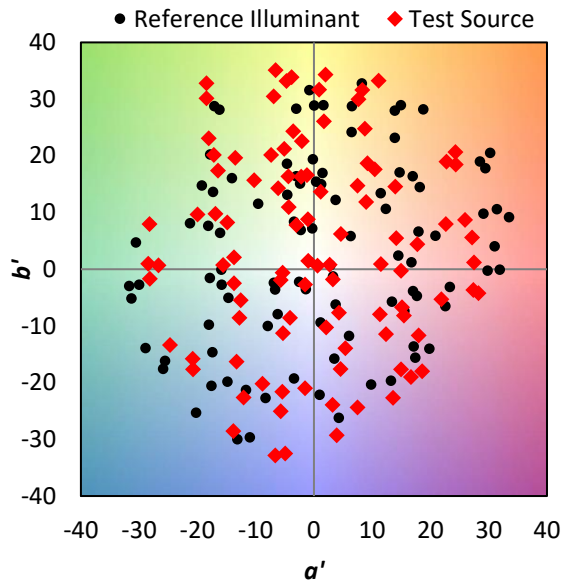
TM-30-18

### Summary

$R_f = 71.4$   
 $R_g = 96$   
 CIE  $R_a = 70.1$   
 $R_g = -40.2$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 57 | CES51 = 84 | CES76 = 50 |
| CES02 = 62 | CES27 = 80 | CES52 = 86 | CES77 = 74 |
| CES03 = 31 | CES28 = 81 | CES53 = 72 | CES78 = 54 |
| CES04 = 70 | CES29 = 50 | CES54 = 79 | CES79 = 81 |
| CES05 = 48 | CES30 = 55 | CES55 = 78 | CES80 = 79 |
| CES06 = 51 | CES31 = 56 | CES56 = 67 | CES81 = 74 |
| CES07 = 40 | CES32 = 54 | CES57 = 65 | CES82 = 91 |
| CES08 = 39 | CES33 = 60 | CES58 = 68 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 85 | CES84 = 89 |
| CES10 = 75 | CES35 = 83 | CES60 = 91 | CES85 = 83 |
| CES11 = 58 | CES36 = 88 | CES61 = 85 | CES86 = 66 |
| CES12 = 64 | CES37 = 78 | CES62 = 78 | CES87 = 77 |
| CES13 = 43 | CES38 = 64 | CES63 = 71 | CES88 = 75 |
| CES14 = 74 | CES39 = 92 | CES64 = 70 | CES89 = 68 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 72 |
| CES16 = 47 | CES41 = 81 | CES66 = 65 | CES91 = 95 |
| CES17 = 50 | CES42 = 79 | CES67 = 63 | CES92 = 62 |
| CES18 = 56 | CES43 = 71 | CES68 = 69 | CES93 = 78 |
| CES19 = 72 | CES44 = 98 | CES69 = 80 | CES94 = 51 |
| CES20 = 65 | CES45 = 80 | CES70 = 60 | CES95 = 70 |
| CES21 = 87 | CES46 = 75 | CES71 = 58 | CES96 = 76 |
| CES22 = 79 | CES47 = 71 | CES72 = 85 | CES97 = 82 |
| CES23 = 92 | CES48 = 61 | CES73 = 51 | CES98 = 72 |
| CES24 = 91 | CES49 = 74 | CES74 = 94 | CES99 = 60 |
| CES25 = 72 | CES50 = 83 | CES75 = 57 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)