

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: P1048350

Luminaire Tested: **GALN-SA2B-730-U-T4BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1048350  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA2B-730-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 2xLight Square PACKAGE  
70CRI 3000K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (28) 3000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9016.9 lumens  
Efficiency: N/A  
Efficacy: 123.9 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

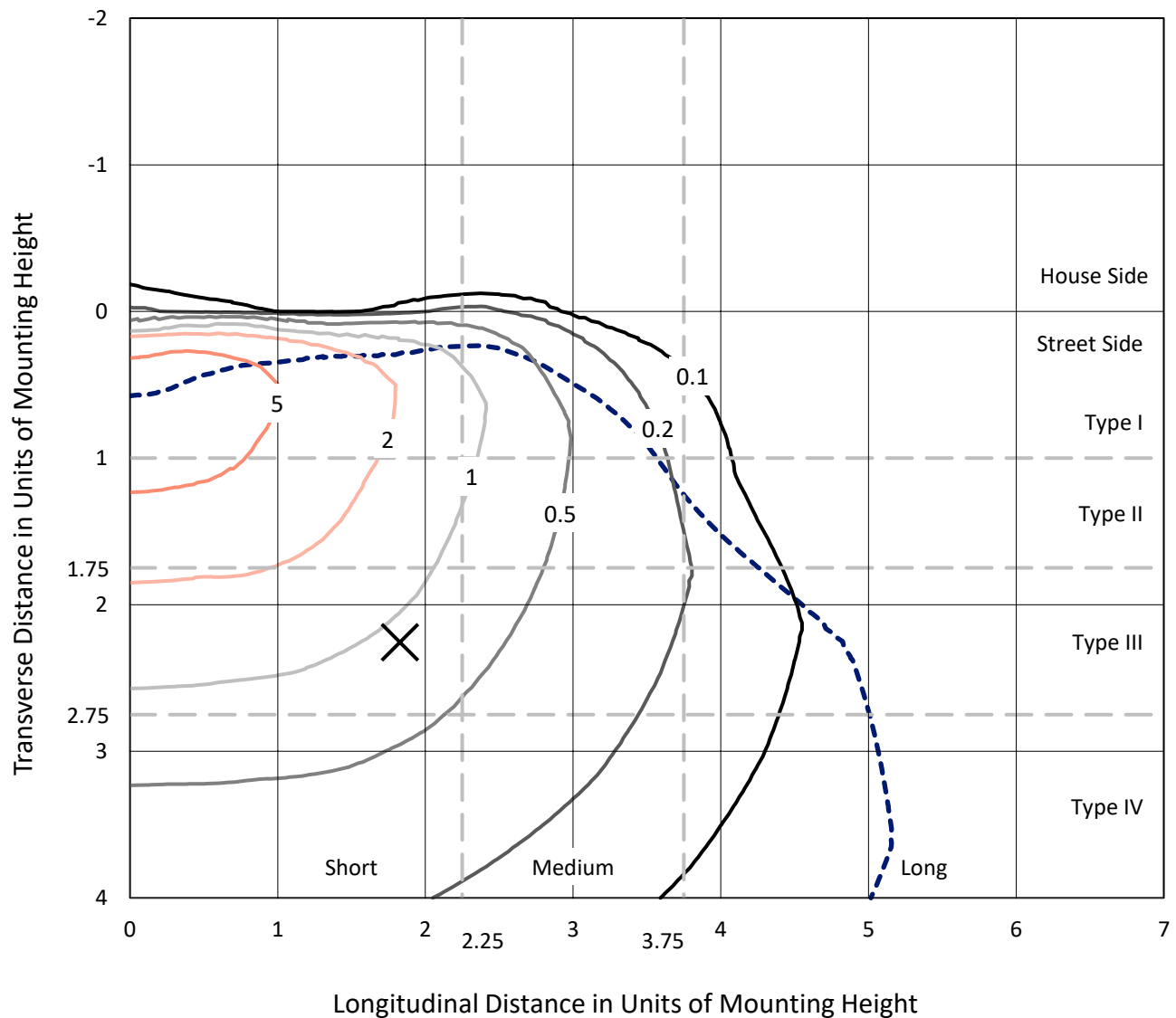


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

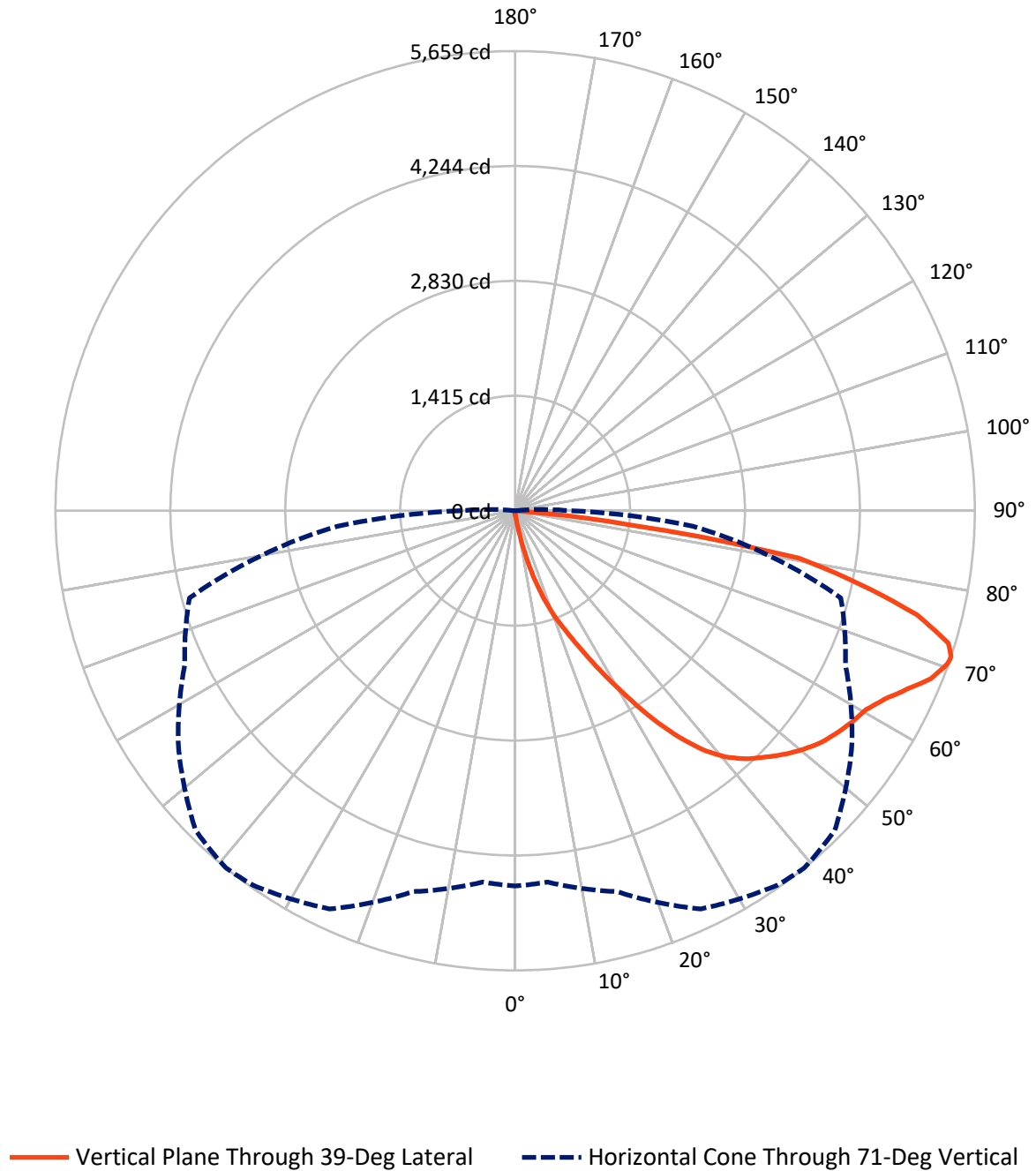


Based on 15 foot mounting height. Maximum calculated value = 9.3 fc  
 Type IV - Short - N/A

REPORT NUMBER: P1048350

CATALOG NUMBER: GALN-SA2B-730-U-T4BC

## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA2B-730-U-T4BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 32.0     | 0.0    | 32.0   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 8984.8   | 0.0    | 8984.8 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 9016.9   | 0.0    | 9016.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 7.5    | 0.1       |
| 10°-20°   | 96.4   | 1.1       |
| 20°-30°   | 343.2  | 3.8       |
| 30°-40°   | 827.2  | 9.2       |
| 40°-50°   | 1384.3 | 15.4      |
| 50°-60°   | 1778.0 | 19.7      |
| 60°-70°   | 2250.1 | 25.0      |
| 70°-80°   | 2006.0 | 22.2      |
| 80°-90°   | 324.3  | 3.6       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 9016.9 | 100.0     |
| 0°-180°   | 9016.9 | 100.0     |



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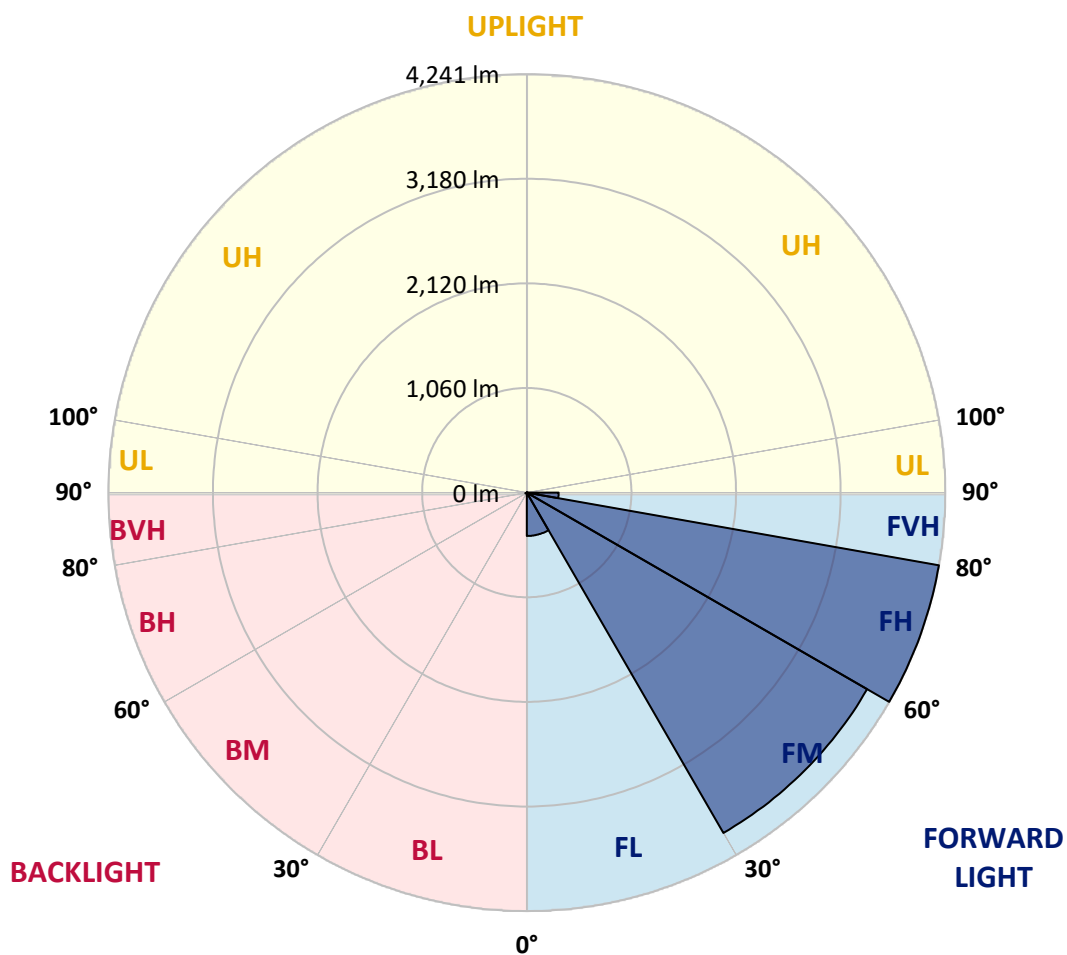
CATALOG NUMBER: GALN-SA2B-730-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 439.4  | 4.9       |                         |      |         |
| FM   | (30°-60°)   | 3982.0 | 44.2      |                         |      |         |
| FH   | (60°-80°)   | 4240.7 | 47.0      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 322.8  | 3.6       |                         |      | G3/500  |
| BL   | (0°-30°)    | 7.7    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 7.4    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 15.4   | 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-730-U-T4BC

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 39°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 49.4   | 49.4   | 49.4   | 49.4   | 49.4   | 49.4   | 49.4   | 49.4   | 49.4   | 49.4   | 49.4   |
| 2.5°  | 56.8   | 56.8   | 56.8   | 54.9   | 54.9   | 54.3   | 53.7   | 53.7   | 52.5   | 51.9   | 50.7   |
| 5°    | 86.1   | 84.2   | 80.0   | 77.5   | 72.6   | 69.6   | 66.5   | 62.3   | 58.0   | 54.9   | 51.3   |
| 7.5°  | 194.7  | 199.0  | 184.9  | 158.7  | 131.8  | 120.2  | 100.7  | 81.2   | 67.1   | 58.0   | 51.9   |
| 10°   | 496.3  | 493.8  | 446.2  | 393.7  | 304.0  | 268.0  | 210.0  | 132.5  | 86.7   | 63.5   | 52.5   |
| 12.5° | 844.2  | 841.7  | 785.6  | 714.2  | 595.7  | 520.7  | 410.8  | 247.2  | 124.5  | 72.0   | 52.5   |
| 15°   | 1136.6 | 1126.8 | 1109.1 | 1038.3 | 899.7  | 836.9  | 691.6  | 437.0  | 201.4  | 86.7   | 53.7   |
| 17.5° | 1330.1 | 1321.5 | 1305.0 | 1279.4 | 1191.5 | 1117.0 | 1000.4 | 686.7  | 326.0  | 112.3  | 56.2   |
| 20°   | 1507.7 | 1501.6 | 1488.1 | 1483.3 | 1426.5 | 1386.8 | 1290.4 | 973.6  | 507.8  | 152.6  | 59.8   |
| 22.5° | 1751.8 | 1739.0 | 1744.5 | 1715.2 | 1659.7 | 1612.1 | 1552.8 | 1273.9 | 730.0  | 219.7  | 66.5   |
| 25°   | 2050.9 | 2044.8 | 2029.6 | 2008.8 | 1931.9 | 1890.4 | 1799.4 | 1557.1 | 978.5  | 307.6  | 73.9   |
| 27.5° | 2412.3 | 2405.6 | 2401.9 | 2354.3 | 2265.8 | 2220.6 | 2093.7 | 1824.5 | 1258.0 | 430.9  | 83.6   |
| 30°   | 2828.6 | 2831.6 | 2807.8 | 2746.8 | 2643.6 | 2580.1 | 2449.5 | 2104.6 | 1544.3 | 575.6  | 94.0   |
| 32.5° | 3259.5 | 3253.4 | 3216.8 | 3144.8 | 3052.6 | 2993.4 | 2827.4 | 2411.7 | 1844.6 | 766.7  | 106.2  |
| 35°   | 3724.0 | 3712.4 | 3616.0 | 3533.6 | 3454.8 | 3380.4 | 3229.0 | 2768.1 | 2144.9 | 980.9  | 122.7  |
| 37.5° | 4192.8 | 4138.5 | 3945.0 | 3840.6 | 3786.3 | 3725.2 | 3584.2 | 3148.4 | 2443.4 | 1220.2 | 142.8  |
| 40°   | 4546.8 | 4504.7 | 4275.2 | 4082.9 | 4039.6 | 3987.7 | 3882.7 | 3476.8 | 2760.8 | 1477.2 | 167.2  |
| 42.5° | 4742.8 | 4719.6 | 4513.3 | 4323.4 | 4221.5 | 4175.7 | 4086.0 | 3763.7 | 3074.6 | 1761.0 | 202.7  |
| 45°   | 4826.4 | 4790.4 | 4652.4 | 4563.9 | 4401.6 | 4325.9 | 4219.1 | 3980.4 | 3402.3 | 2083.3 | 252.1  |
| 47.5° | 4800.8 | 4780.0 | 4681.1 | 4713.5 | 4595.7 | 4477.9 | 4321.0 | 4146.4 | 3682.5 | 2453.2 | 319.8  |
| 50°   | 4639.6 | 4621.9 | 4591.4 | 4766.6 | 4751.9 | 4612.8 | 4452.8 | 4277.7 | 3911.4 | 2834.7 | 424.8  |
| 52.5° | 4333.2 | 4325.9 | 4404.0 | 4725.1 | 4840.4 | 4731.8 | 4579.8 | 4393.6 | 4125.1 | 3233.3 | 575.0  |
| 55°   | 3938.3 | 3968.2 | 4191.6 | 4660.4 | 4885.6 | 4819.7 | 4692.1 | 4502.3 | 4296.6 | 3589.7 | 796.6  |
| 57.5° | 3775.9 | 3783.8 | 4062.8 | 4614.6 | 4905.7 | 4897.2 | 4801.4 | 4606.0 | 4454.1 | 3874.8 | 1134.7 |
| 60°   | 3965.7 | 3953.5 | 4100.6 | 4649.4 | 4946.0 | 4966.8 | 4898.4 | 4702.5 | 4590.8 | 4119.6 | 1585.2 |
| 62.5° | 4308.8 | 4302.1 | 4349.1 | 4797.7 | 5063.8 | 5106.0 | 5033.3 | 4772.1 | 4711.6 | 4280.7 | 2099.1 |
| 65°   | 4615.2 | 4601.2 | 4688.4 | 5060.8 | 5270.8 | 5300.7 | 5237.2 | 4891.1 | 4764.7 | 4397.9 | 2582.0 |
| 67.5° | 4747.7 | 4744.6 | 4885.0 | 5311.1 | 5488.1 | 5520.4 | 5464.9 | 5055.3 | 4752.5 | 4435.1 | 2795.0 |
| 70°   | 4687.2 | 4675.6 | 4900.3 | 5417.3 | 5610.8 | 5647.4 | 5593.7 | 5116.3 | 4620.1 | 4317.3 | 2479.4 |
| 71°   | 4620.7 | 4589.6 | 4854.5 | 5409.9 | 5627.8 | 5659.0 | 5565.0 | 5060.8 | 4487.0 | 4150.1 | 2193.2 |
| 72.5° | 4414.4 | 4419.9 | 4728.7 | 5333.6 | 5586.9 | 5577.8 | 5402.6 | 4861.8 | 4326.5 | 3770.4 | 1761.6 |
| 75°   | 3906.5 | 3938.9 | 4321.6 | 5013.2 | 5221.9 | 5105.3 | 4837.4 | 4481.5 | 4004.2 | 2703.4 | 1223.2 |
| 77.5° | 3192.4 | 3240.6 | 3661.2 | 4396.7 | 4337.5 | 4325.9 | 4314.9 | 3948.6 | 3419.4 | 1452.1 | 850.9  |
| 80°   | 1524.2 | 1628.5 | 2208.4 | 3138.7 | 3409.7 | 3540.9 | 3458.5 | 3182.0 | 2644.2 | 691.6  | 508.5  |
| 82.5° | 99.5   | 98.3   | 139.2  | 263.7  | 1111.5 | 1436.9 | 2282.9 | 2274.3 | 1843.4 | 336.9  | 207.5  |
| 85°   | 47.0   | 48.2   | 53.1   | 60.4   | 70.2   | 76.9   | 106.2  | 622.6  | 882.0  | 160.5  | 45.2   |
| 87.5° | 27.5   | 28.1   | 33.0   | 42.1   | 54.9   | 61.0   | 72.6   | 93.4   | 114.8  | 88.5   | 9.8    |
| 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-730-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 49.4  | 49.4 | 49.4 | 49.4 | 49.4 | 49.4 | 49.4 | 49.4 | 49.4 | 49.4 | 49.4 |
| 2.5°  | 50.1  | 49.4 | 47.6 | 45.8 | 43.9 | 42.7 | 42.1 | 42.7 | 42.7 | 43.3 | 43.3 |
| 5°    | 50.1  | 48.2 | 45.2 | 41.5 | 39.1 | 36.6 | 35.4 | 34.8 | 35.4 | 35.4 | 35.4 |
| 7.5°  | 49.4  | 46.4 | 42.1 | 37.8 | 34.8 | 31.7 | 30.5 | 29.9 | 29.9 | 30.5 | 30.5 |
| 10°   | 48.2  | 45.2 | 39.7 | 34.8 | 31.1 | 27.5 | 25.6 | 23.8 | 23.8 | 23.8 | 24.4 |
| 12.5° | 47.6  | 43.3 | 36.6 | 31.7 | 26.9 | 22.6 | 18.9 | 17.1 | 17.7 | 17.7 | 17.7 |
| 15°   | 46.4  | 41.5 | 34.8 | 28.7 | 22.6 | 17.1 | 14.0 | 12.2 | 12.8 | 13.4 | 12.8 |
| 17.5° | 46.4  | 40.9 | 32.4 | 25.0 | 17.7 | 12.8 | 10.4 | 9.2  | 9.2  | 9.8  | 9.8  |
| 20°   | 46.4  | 39.7 | 30.5 | 21.4 | 13.4 | 9.8  | 7.3  | 6.7  | 6.7  | 7.9  | 8.5  |
| 22.5° | 47.6  | 39.7 | 28.1 | 17.7 | 11.0 | 7.3  | 5.5  | 4.9  | 5.5  | 6.7  | 7.3  |
| 25°   | 49.4  | 39.1 | 25.6 | 15.9 | 9.2  | 5.5  | 4.3  | 3.1  | 3.7  | 4.9  | 5.5  |
| 27.5° | 51.3  | 38.5 | 23.2 | 14.0 | 7.3  | 4.3  | 3.1  | 2.4  | 1.8  | 2.4  | 2.4  |
| 30°   | 53.1  | 38.5 | 20.8 | 11.6 | 6.1  | 3.1  | 1.8  | 1.2  | 0.6  | 0.0  | 0.0  |
| 32.5° | 54.3  | 37.2 | 18.9 | 9.2  | 4.9  | 2.4  | 1.2  | 0.6  | 0.0  | 0.0  | 0.0  |
| 35°   | 55.5  | 36.0 | 16.5 | 7.3  | 3.7  | 1.8  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 56.8  | 34.2 | 14.0 | 6.1  | 3.1  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 58.0  | 31.7 | 11.6 | 5.5  | 1.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 59.2  | 29.9 | 9.8  | 4.3  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 62.3  | 28.7 | 7.9  | 3.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 67.8  | 27.5 | 7.3  | 2.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 75.7  | 26.2 | 6.7  | 1.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 86.7  | 25.6 | 6.1  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 106.2 | 25.0 | 5.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 139.8 | 24.4 | 5.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 214.2 | 23.2 | 5.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 382.7 | 22.6 | 4.9  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 667.2 | 23.2 | 4.9  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 956.5 | 24.4 | 4.3  | 1.8  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 818.5 | 21.4 | 4.3  | 2.4  | 1.2  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 71°   | 667.2 | 18.9 | 4.3  | 2.4  | 1.2  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 429.1 | 14.6 | 3.7  | 2.4  | 1.2  | 1.2  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 181.3 | 12.2 | 3.7  | 2.4  | 1.8  | 1.2  | 1.2  | 0.6  | 0.0  | 0.0  | 0.0  |
| 77.5° | 77.5  | 9.2  | 3.7  | 3.1  | 2.4  | 1.8  | 1.8  | 1.2  | 0.6  | 0.0  | 0.0  |
| 80°   | 29.3  | 7.3  | 4.3  | 3.7  | 3.1  | 3.1  | 2.4  | 1.2  | 0.6  | 0.0  | 0.0  |
| 82.5° | 13.4  | 6.1  | 4.3  | 3.7  | 3.7  | 3.1  | 2.4  | 1.8  | 1.2  | 0.0  | 0.0  |
| 85°   | 8.5   | 5.5  | 4.3  | 3.7  | 3.7  | 3.1  | 3.1  | 1.8  | 1.2  | 0.0  | 0.0  |
| 87.5° | 6.7   | 5.5  | 4.3  | 4.3  | 3.7  | 3.7  | 2.4  | 1.8  | 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: SP1-2407-184-4

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-730-U-5WQ

Data in this report applies to families of products including GSS-SB1A-730-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-4  
 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-730-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2985  
 CIE  $u'$ : 0.2504  
 CIE  $v'$ : 0.5243  
 Duv: 0.0019  
 CIE x: 0.4408  
 CIE y: 0.4101  
 CIE z: 0.1491  
 Peak Wavelength (nm): 595  
 Dominant Wavelength (nm): 582  
 Purity: 55.41818  
 R<sub>f</sub>: 73.8  
 R<sub>g</sub>: 94.4

CRI (Ra): 70.8  
 R1: 66.3  
 R2: 80.6  
 R3: 94.5  
 R4: 68.2  
 R5: 66.5  
 R6: 74.7  
 R7: 76.2  
 R8: 39.6  
 R9: -43.2  
 R10: 57.6  
 R11: 64.8  
 R12: 53.5  
 R13: 68.7  
 R14: 97.0  
 R15: 56.4



### Test Conditions

Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-4

| 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           |

REPORT NUMBER: SP1-2407-184-4

**CIE 1931 Chromaticity Diagram**



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



REPORT NUMBER: SP1-2407-184-4

### Photopic Flux vs. Wavelength

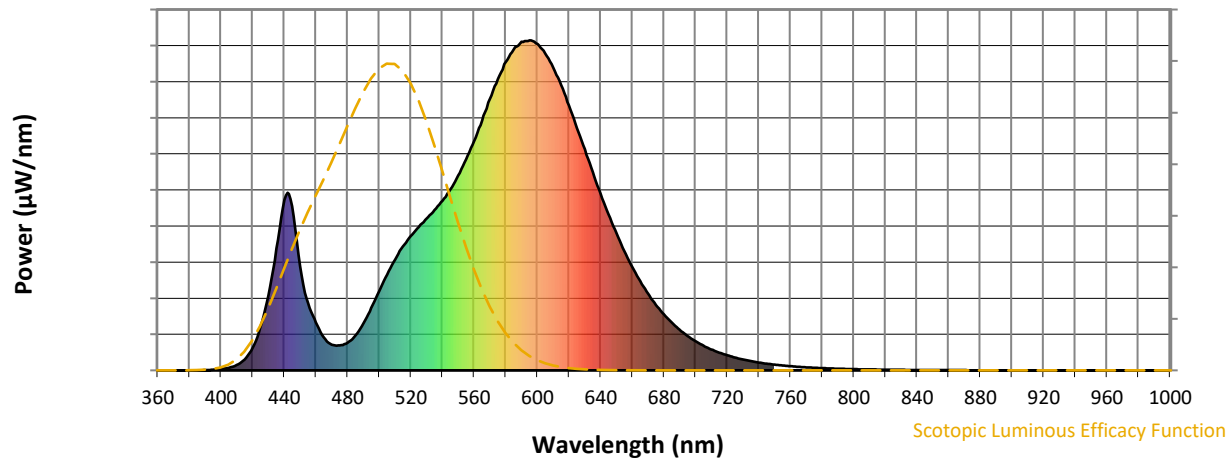


### Photopic Lumens: NR

| $\lambda$<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               | 142                           | NR                             | 620               | 803                           | NR                             | 750               | 17                            | NR                             | 880               | 0                             | NR                             |
| 365               | 0                             | NR                             | 495               | 189                           | NR                             | 625               | 734                           | NR                             | 755               | 15                            | NR                             | 885               | 0                             | NR                             |
| 370               | 0                             | NR                             | 500               | 240                           | NR                             | 630               | 670                           | NR                             | 760               | 13                            | NR                             | 890               | 0                             | NR                             |
| 375               | 0                             | NR                             | 505               | 290                           | NR                             | 635               | 600                           | NR                             | 765               | 11                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 335                           | NR                             | 640               | 535                           | NR                             | 770               | 9                             | NR                             | 900               | 0                             | NR                             |
| 385               | 0                             | NR                             | 515               | 375                           | NR                             | 645               | 473                           | NR                             | 775               | 8                             | NR                             | 905               | 0                             | NR                             |
| 390               | 1                             | NR                             | 520               | 408                           | NR                             | 650               | 415                           | NR                             | 780               | 7                             | NR                             | 910               | 0                             | NR                             |
| 395               | 2                             | NR                             | 525               | 434                           | NR                             | 655               | 362                           | NR                             | 785               | 6                             | NR                             | 915               | 0                             | NR                             |
| 400               | 4                             | NR                             | 530               | 461                           | NR                             | 660               | 313                           | NR                             | 790               | 5                             | NR                             | 920               | 0                             | NR                             |
| 405               | 8                             | NR                             | 535               | 486                           | NR                             | 665               | 271                           | NR                             | 795               | 4                             | NR                             | 925               | 0                             | NR                             |
| 410               | 16                            | NR                             | 540               | 514                           | NR                             | 670               | 231                           | NR                             | 800               | 4                             | NR                             | 930               | 0                             | NR                             |
| 415               | 33                            | NR                             | 545               | 549                           | NR                             | 675               | 198                           | NR                             | 805               | 3                             | NR                             | 935               | 0                             | NR                             |
| 420               | 69                            | NR                             | 550               | 591                           | NR                             | 680               | 169                           | NR                             | 810               | 3                             | NR                             | 940               | 0                             | NR                             |
| 425               | 131                           | NR                             | 555               | 640                           | NR                             | 685               | 144                           | NR                             | 815               | 2                             | NR                             | 945               | 0                             | NR                             |
| 430               | 227                           | NR                             | 560               | 695                           | NR                             | 690               | 123                           | NR                             | 820               | 2                             | NR                             | 950               | 0                             | NR                             |
| 435               | 369                           | NR                             | 565               | 757                           | NR                             | 695               | 104                           | NR                             | 825               | 2                             | NR                             | 955               | 0                             | NR                             |
| 440               | 517                           | NR                             | 570               | 822                           | NR                             | 700               | 88                            | NR                             | 830               | 2                             | NR                             | 960               | 0                             | NR                             |
| 445               | 498                           | NR                             | 575               | 882                           | NR                             | 705               | 75                            | NR                             | 835               | 1                             | NR                             | 965               | 0                             | NR                             |
| 450               | 315                           | NR                             | 580               | 935                           | NR                             | 710               | 63                            | NR                             | 840               | 1                             | NR                             | 970               | 0                             | NR                             |
| 455               | 204                           | NR                             | 585               | 972                           | NR                             | 715               | 54                            | NR                             | 845               | 1                             | NR                             | 975               | 0                             | NR                             |
| 460               | 145                           | NR                             | 590               | 996                           | NR                             | 720               | 46                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 100                           | NR                             | 595               | 1000                          | NR                             | 725               | 39                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 78                            | NR                             | 600               | 989                           | NR                             | 730               | 33                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 76                            | NR                             | 605               | 960                           | NR                             | 735               | 28                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 83                            | NR                             | 610               | 918                           | NR                             | 740               | 24                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 105                           | NR                             | 615               | 864                           | NR                             | 745               | 20                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.19

| 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       | 142                         | NR               | 620       | 803                         | NR               | 750       | 17                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 189                         | NR               | 625       | 734                         | NR               | 755       | 15                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 240                         | NR               | 630       | 670                         | NR               | 760       | 13                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 290                         | NR               | 635       | 600                         | NR               | 765       | 11                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 335                         | NR               | 640       | 535                         | NR               | 770       | 9                           | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 375                         | NR               | 645       | 473                         | NR               | 775       | 8                           | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 408                         | NR               | 650       | 415                         | NR               | 780       | 7                           | NR               | 910       | 0                           | NR               |
| 395       | 2                           | NR               | 525       | 434                         | NR               | 655       | 362                         | NR               | 785       | 6                           | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 461                         | NR               | 660       | 313                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 8                           | NR               | 535       | 486                         | NR               | 665       | 271                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 16                          | NR               | 540       | 514                         | NR               | 670       | 231                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 33                          | NR               | 545       | 549                         | NR               | 675       | 198                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 69                          | NR               | 550       | 591                         | NR               | 680       | 169                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 131                         | NR               | 555       | 640                         | NR               | 685       | 144                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 227                         | NR               | 560       | 695                         | NR               | 690       | 123                         | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 369                         | NR               | 565       | 757                         | NR               | 695       | 104                         | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 517                         | NR               | 570       | 822                         | NR               | 700       | 88                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 498                         | NR               | 575       | 882                         | NR               | 705       | 75                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 315                         | NR               | 580       | 935                         | NR               | 710       | 63                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 204                         | NR               | 585       | 972                         | NR               | 715       | 54                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 145                         | NR               | 590       | 996                         | NR               | 720       | 46                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 100                         | NR               | 595       | 1000                        | NR               | 725       | 39                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 78                          | NR               | 600       | 989                         | NR               | 730       | 33                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 76                          | NR               | 605       | 960                         | NR               | 735       | 28                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 83                          | NR               | 610       | 918                         | NR               | 740       | 24                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 105                         | NR               | 615       | 864                         | NR               | 745       | 20                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.13

| $\lambda$<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               | 142                                  | NR                             | 620               | 803                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 189                                  | NR                             | 625               | 734                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 240                                  | NR                             | 630               | 670                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 290                                  | NR                             | 635               | 600                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 335                                  | NR                             | 640               | 535                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 375                                  | NR                             | 645               | 473                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 408                                  | NR                             | 650               | 415                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 434                                  | NR                             | 655               | 362                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 461                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 486                                  | NR                             | 665               | 271                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 16                                   | NR                             | 540               | 514                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 33                                   | NR                             | 545               | 549                                  | NR                             | 675               | 198                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 69                                   | NR                             | 550               | 591                                  | NR                             | 680               | 169                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 640                                  | NR                             | 685               | 144                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 227                                  | NR                             | 560               | 695                                  | NR                             | 690               | 123                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 369                                  | NR                             | 565               | 757                                  | NR                             | 695               | 104                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 517                                  | NR                             | 570               | 822                                  | NR                             | 700               | 88                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 498                                  | NR                             | 575               | 882                                  | NR                             | 705               | 75                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 315                                  | NR                             | 580               | 935                                  | NR                             | 710               | 63                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 204                                  | NR                             | 585               | 972                                  | NR                             | 715               | 54                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 145                                  | NR                             | 590               | 996                                  | NR                             | 720               | 46                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 100                                  | NR                             | 595               | 1000                                 | NR                             | 725               | 39                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 78                                   | NR                             | 600               | 989                                  | NR                             | 730               | 33                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 76                                   | NR                             | 605               | 960                                  | NR                             | 735               | 28                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 83                                   | NR                             | 610               | 918                                  | NR                             | 740               | 24                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 105                                  | NR                             | 615               | 864                                  | NR                             | 745               | 20                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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TM-30-18

### Summary

$R_f = 73.8$   
 $R_g = 94.4$   
 $CIE R_a = 70.8$   
 $R_g = -43.2$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54 = 81 | CES79 = 86 |
| CES05 = 49 | CES30 = 61 | CES55 = 80 | CES80 = 86 |
| CES06 = 51 | CES31 = 63 | CES56 = 71 | CES81 = 70 |
| CES07 = 41 | CES32 = 61 | CES57 = 69 | CES82 = 94 |
| CES08 = 40 | CES33 = 65 | CES58 = 72 | CES83 = 88 |
| CES09 = 29 | CES34 = 77 | CES59 = 85 | CES84 = 90 |
| CES10 = 76 | CES35 = 88 | CES60 = 93 | CES85 = 80 |
| CES11 = 59 | CES36 = 89 | CES61 = 86 | CES86 = 60 |
| CES12 = 65 | CES37 = 85 | CES62 = 81 | CES87 = 78 |
| CES13 = 43 | CES38 = 69 | CES63 = 73 | CES88 = 75 |
| CES14 = 74 | CES39 = 93 | CES64 = 72 | CES89 = 66 |
| CES15 = 71 | CES40 = 89 | CES65 = 67 | CES90 = 72 |
| CES16 = 47 | CES41 = 83 | CES66 = 70 | CES91 = 95 |
| CES17 = 50 | CES42 = 87 | CES67 = 68 | CES92 = 59 |
| CES18 = 56 | CES43 = 77 | CES68 = 73 | CES93 = 76 |
| CES19 = 73 | CES44 = 99 | CES69 = 83 | CES94 = 48 |
| CES20 = 66 | CES45 = 83 | CES70 = 66 | CES95 = 70 |
| CES21 = 87 | CES46 = 77 | CES71 = 66 | CES96 = 76 |
| CES22 = 79 | CES47 = 74 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 62 | CES73 = 59 | CES98 = 73 |
| CES24 = 91 | CES49 = 77 | CES74 = 93 | CES99 = 60 |
| CES25 = 73 | CES50 = 85 | CES75 = 67 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)