

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



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

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: STREETWORKS

Report Number: P1458143

Luminaire Tested: **GLAN-SB4A-727-U-T3LG-HSS**

Issue Date: 05/20/2026

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.

Report Generated By 670245763



**Test Information**

Test Method: LM-79-08  
Report Number: P1458143  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 05/20/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SB4A-727-U-T3LG-HSS  
Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 350mA 4xLight Square PACKAGE 70CRI 2700K FIXTURE w/ TYPE III LOW GLARE WITH HOUSE SIDE SHIELD  
Light Source: (104) 2700K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER  
Luminaire Equipment: 

| <u>Sample No.</u> | <u>Condition</u> | <u>Description</u> |
|-------------------|------------------|--------------------|
| a                 | good             | reflector          |
| b                 | good             | lens               |
| c                 | good             | housing            |
| d                 | good             | cord               |

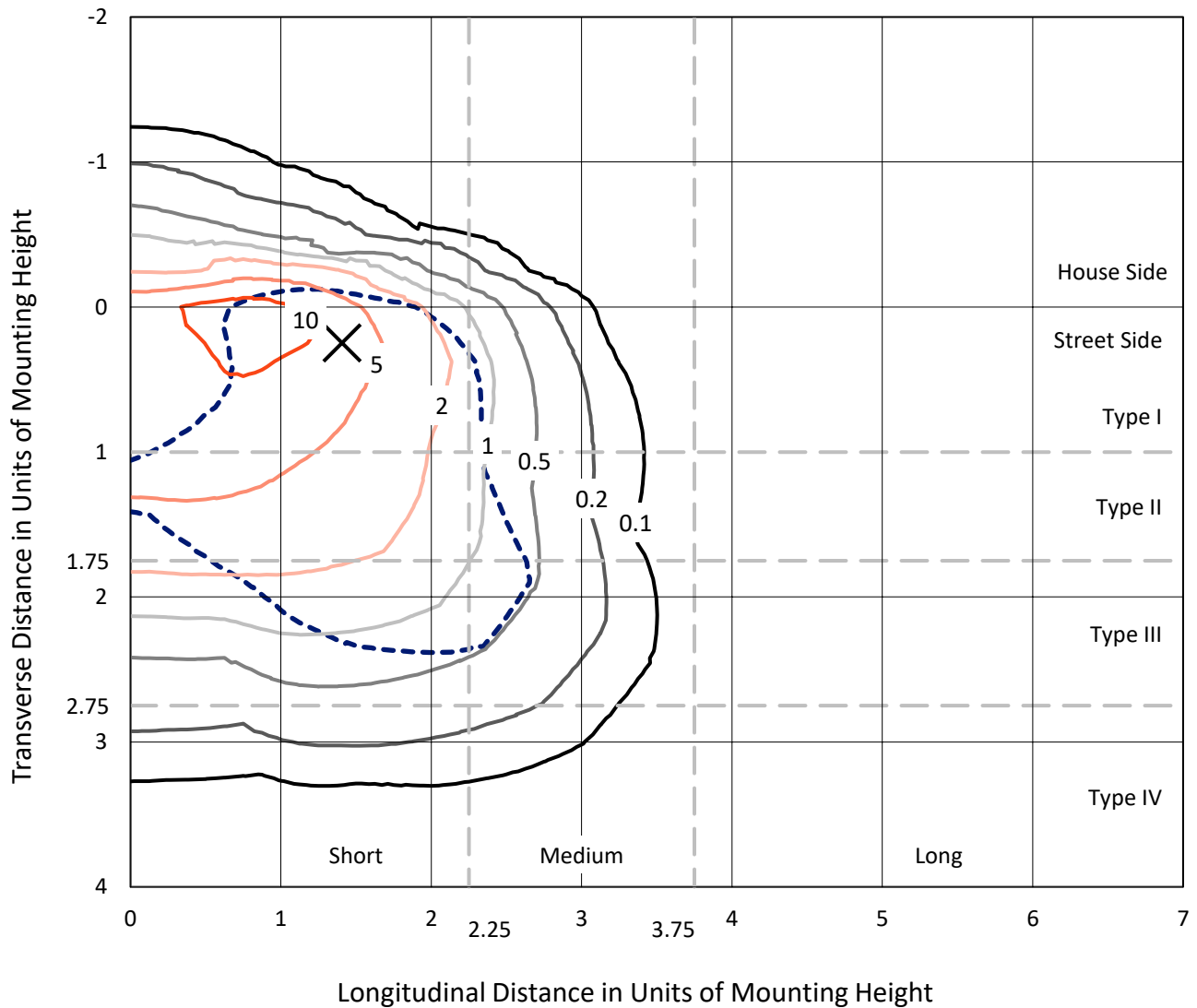
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12749.3 lumens  
Efficiency: N/A  
Efficacy: 111.8 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B1 - U0 - G2  
  
Input Watts (W): 114  
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

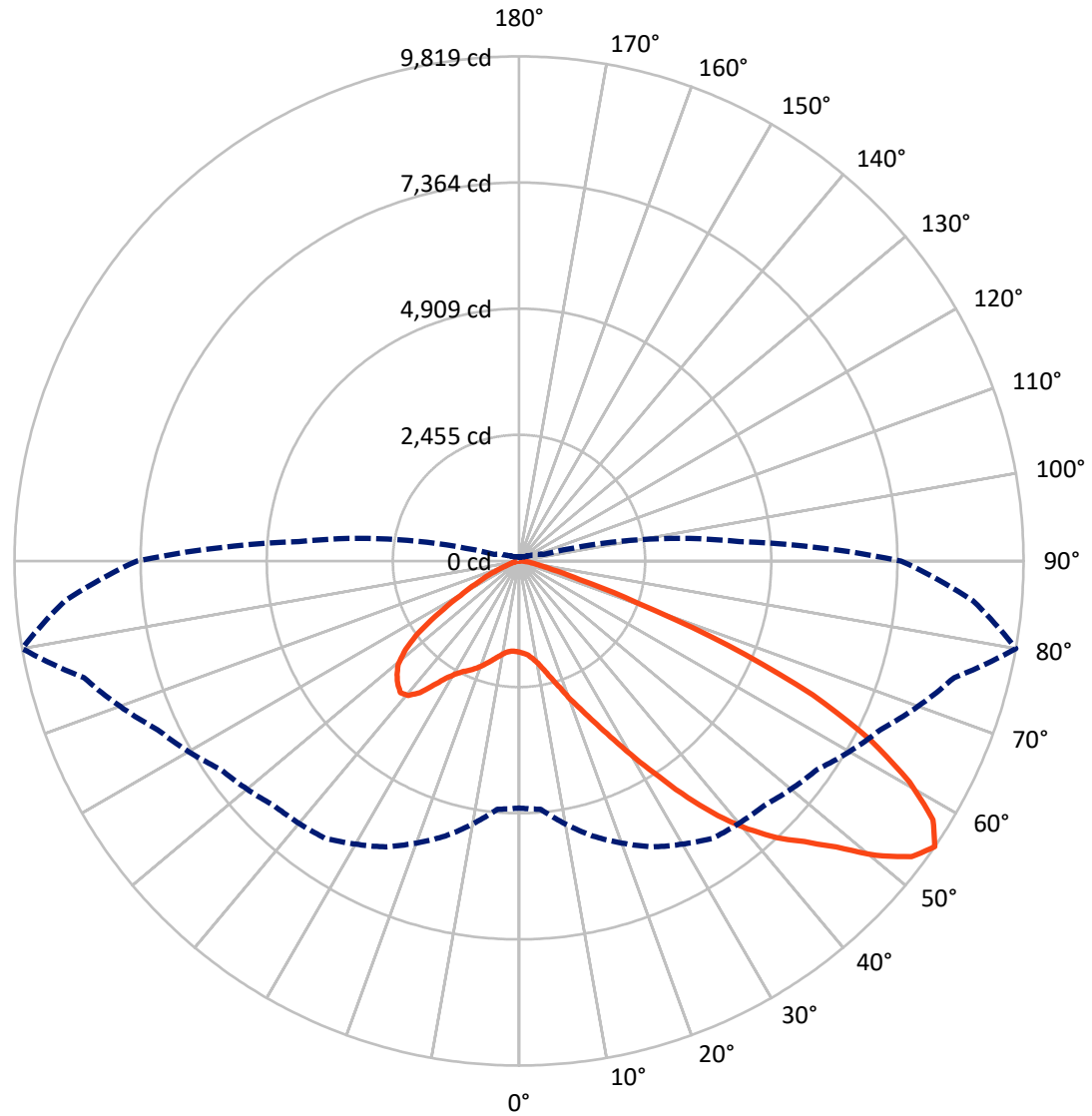
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 14 fc  
 Type III - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 80-Deg Lateral    - - - Horizontal Cone Through 55-Deg Vertical

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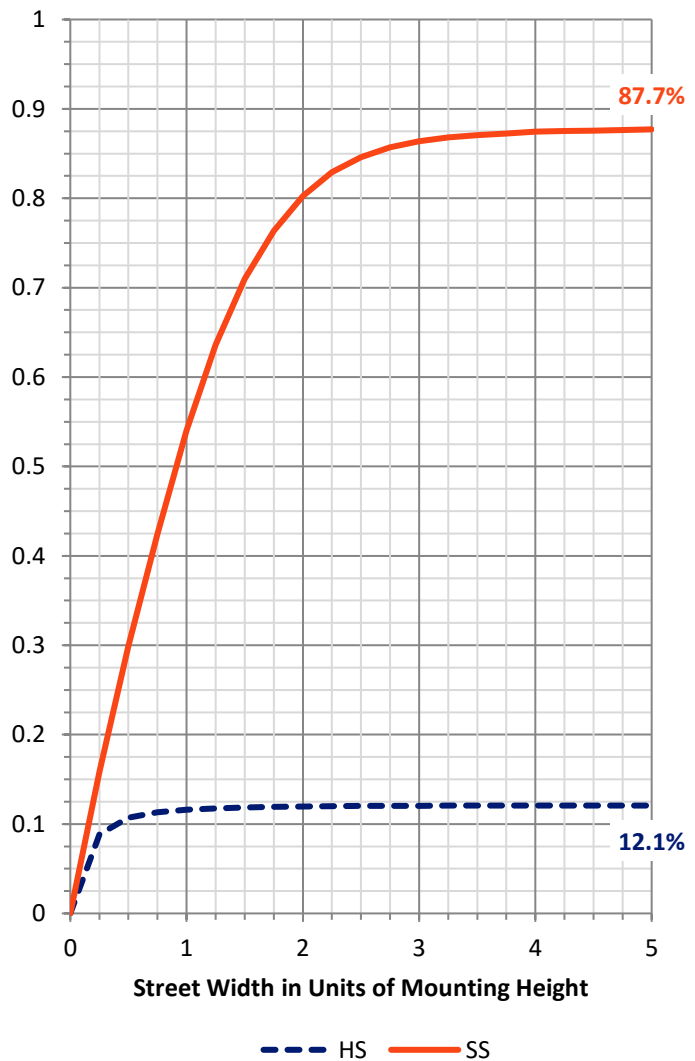
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 1549.8   | 0.0    | 1549.8  |
|                    | % Fixture | 12.2     | 0.0    | 12.2    |
| <b>Street Side</b> | Lumens    | 11199.5  | 0.0    | 11199.5 |
|                    | % Fixture | 87.8     | 0.0    | 87.8    |
| <b>Total</b>       | Lumens    | 12749.3  | 0.0    | 12749.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 149.0   | 1.2       |
| 10°-20°   | 392.9   | 3.1       |
| 20°-30°   | 769.2   | 6.0       |
| 30°-40°   | 1564.9  | 12.3      |
| 40°-50°   | 2638.2  | 20.7      |
| 50°-60°   | 3370.9  | 26.4      |
| 60°-70°   | 2877.9  | 22.6      |
| 70°-80°   | 919.7   | 7.2       |
| 80°-90°   | 66.4    | 0.5       |
| 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°    | 12749.3 | 100.0     |
| 0°-180°   | 12749.3 | 100.0     |

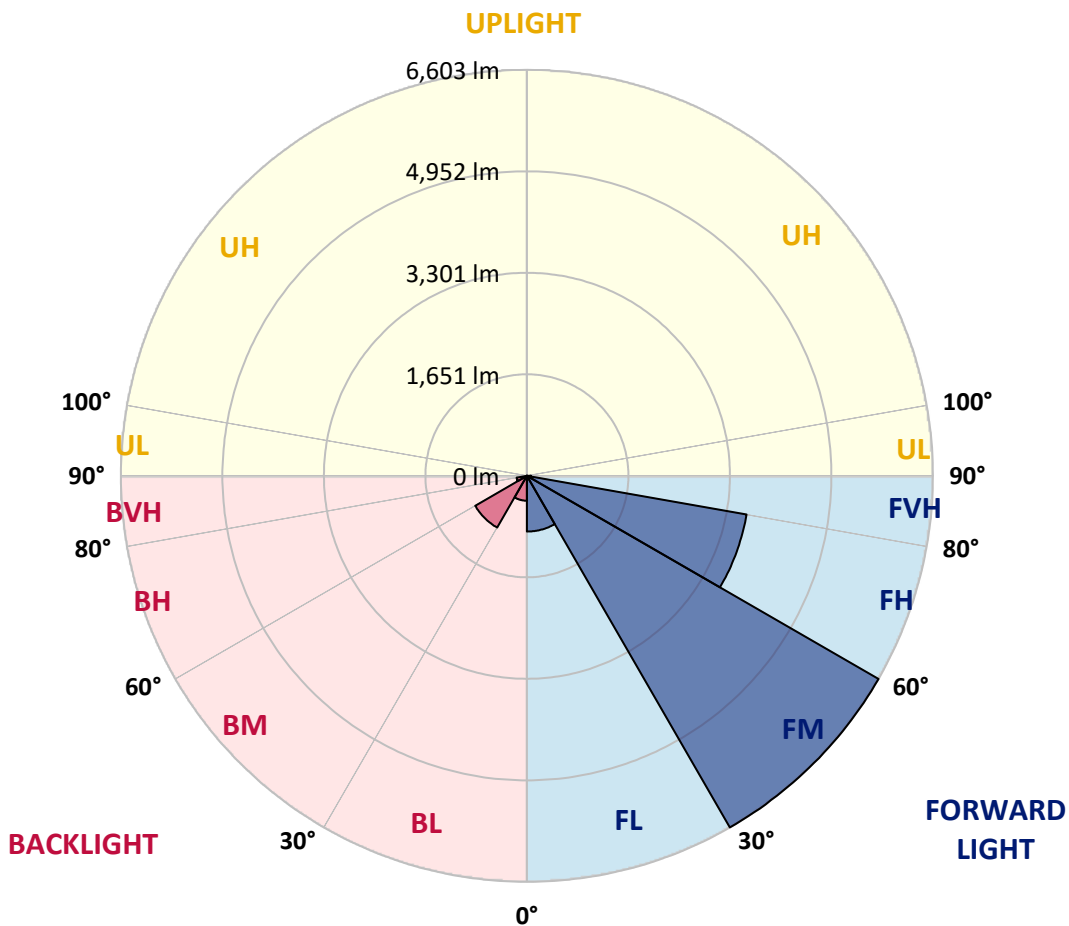


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 906.5  | 7.1       |                         |      |         |
| FM (30°-60°)   | 6602.8 | 51.8      |                         |      |         |
| FH (60°-80°)   | 3627.3 | 28.5      |                         |      | G2/5000 |
| FVH (80°-90°)  | 62.9   | 0.5       |                         |      | G1/100  |
| BL (0°-30°)    | 404.7  | 3.2       | B1/500                  |      |         |
| BM (30°-60°)   | 971.3  | 7.6       | B1/1000                 |      |         |
| BH (60°-80°)   | 170.3  | 1.3       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 3.5    | 0.0       |                         |      | G0/10   |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G2**  
 Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 80°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 |
| 2.5°  | 1786.8 | 1790.5 | 1786.8 | 1790.5 | 1797.7 | 1794.1 | 1808.6 | 1804.9 | 1804.9 | 1801.3 | 1786.8 |
| 5°    | 1685.3 | 1689.0 | 1696.2 | 1714.3 | 1739.7 | 1765.1 | 1797.7 | 1819.4 | 1841.2 | 1837.6 | 1823.1 |
| 7.5°  | 1486.0 | 1493.3 | 1522.2 | 1558.5 | 1641.9 | 1718.0 | 1801.3 | 1855.7 | 1902.8 | 1917.3 | 1906.4 |
| 10°   | 1373.6 | 1380.9 | 1399.0 | 1435.3 | 1511.4 | 1638.2 | 1801.3 | 1913.7 | 1997.0 | 2026.0 | 2029.7 |
| 12.5° | 1362.8 | 1366.4 | 1380.9 | 1420.8 | 1486.0 | 1594.7 | 1797.7 | 1989.8 | 2131.1 | 2174.6 | 2189.1 |
| 15°   | 1370.0 | 1377.3 | 1391.8 | 1424.4 | 1500.5 | 1623.7 | 1826.7 | 2109.4 | 2308.7 | 2370.4 | 2374.0 |
| 17.5° | 1399.0 | 1406.3 | 1424.4 | 1460.6 | 1544.0 | 1699.8 | 1917.3 | 2232.6 | 2522.6 | 2591.4 | 2631.3 |
| 20°   | 1457.0 | 1460.6 | 1482.4 | 1529.5 | 1623.7 | 1794.1 | 2051.4 | 2399.4 | 2779.9 | 2881.4 | 2910.4 |
| 22.5° | 1533.1 | 1544.0 | 1573.0 | 1631.0 | 1750.6 | 1924.6 | 2236.3 | 2602.3 | 3062.6 | 3167.7 | 3218.5 |
| 25°   | 1616.5 | 1631.0 | 1674.5 | 1768.7 | 1920.9 | 2123.9 | 2464.6 | 2870.5 | 3396.1 | 3522.9 | 3591.8 |
| 27.5° | 1786.8 | 1790.5 | 1819.4 | 1939.1 | 2134.8 | 2384.9 | 2754.5 | 3214.8 | 3787.5 | 3936.1 | 4012.2 |
| 30°   | 2160.1 | 2163.8 | 2138.4 | 2171.0 | 2370.4 | 2692.9 | 3095.2 | 3617.1 | 4244.2 | 4450.8 | 4512.4 |
| 32.5° | 2616.8 | 2634.9 | 2631.3 | 2609.6 | 2700.2 | 3001.0 | 3501.2 | 4099.2 | 4780.6 | 4998.0 | 5056.0 |
| 35°   | 3135.1 | 3178.6 | 3167.7 | 3160.5 | 3171.3 | 3396.1 | 3965.1 | 4632.0 | 5389.5 | 5654.1 | 5701.2 |
| 37.5° | 3642.5 | 3653.4 | 3704.1 | 3765.7 | 3773.0 | 3928.8 | 4501.5 | 5197.4 | 5954.9 | 6292.0 | 6364.4 |
| 40°   | 4034.0 | 4070.2 | 4197.1 | 4320.3 | 4447.1 | 4570.4 | 4943.7 | 5654.1 | 6404.3 | 6857.4 | 6890.0 |
| 42.5° | 4338.4 | 4425.4 | 4610.2 | 4802.3 | 5059.7 | 5197.4 | 5364.1 | 5976.6 | 6770.4 | 7361.1 | 7346.7 |
| 45°   | 4708.1 | 4744.3 | 5005.3 | 5259.0 | 5520.0 | 5730.2 | 5726.5 | 6248.5 | 7056.7 | 7792.5 | 7701.8 |
| 47.5° | 4958.2 | 5001.7 | 5356.9 | 5654.1 | 5922.3 | 6027.4 | 6049.1 | 6542.0 | 7451.8 | 8314.4 | 8100.5 |
| 50°   | 5092.3 | 5168.4 | 5556.2 | 5933.1 | 6223.1 | 6255.7 | 6353.6 | 6926.2 | 7970.0 | 9006.6 | 8604.3 |
| 52.5° | 5106.8 | 5179.3 | 5625.1 | 6110.7 | 6426.1 | 6491.3 | 6658.0 | 7361.1 | 8473.8 | 9561.2 | 8894.3 |
| 55°   | 4805.9 | 4849.4 | 5541.7 | 6139.7 | 6585.5 | 6737.8 | 7078.4 | 7763.5 | 8767.4 | 9818.5 | 8868.9 |
| 57.5° | 4523.2 | 4566.7 | 5168.4 | 6089.0 | 6748.6 | 7060.3 | 7527.9 | 8038.9 | 8539.1 | 9499.5 | 8303.5 |
| 60°   | 4280.4 | 4302.2 | 4849.4 | 5853.4 | 6810.2 | 7375.6 | 7915.7 | 7767.1 | 7948.3 | 8734.8 | 7335.8 |
| 62.5° | 3823.7 | 3838.2 | 4487.0 | 5429.3 | 6687.0 | 7618.5 | 8049.8 | 7190.8 | 7299.5 | 7680.1 | 6197.7 |
| 65°   | 2888.6 | 2943.0 | 3537.4 | 5110.4 | 6484.0 | 7730.8 | 7738.1 | 6487.7 | 6375.3 | 6284.7 | 4874.8 |
| 67.5° | 1960.8 | 2022.4 | 2381.2 | 4595.7 | 6154.2 | 7778.0 | 7132.8 | 5577.9 | 4856.7 | 4389.1 | 3193.1 |
| 70°   | 1565.7 | 1565.7 | 1689.0 | 3693.3 | 5371.4 | 7176.3 | 6382.6 | 4211.5 | 3084.4 | 2424.7 | 1710.7 |
| 72.5° | 1029.3 | 1033.0 | 1148.9 | 2345.0 | 3809.2 | 5472.8 | 5204.6 | 2435.6 | 1602.0 | 1235.9 | 844.5  |
| 75°   | 373.3  | 373.3  | 503.8  | 938.7  | 2015.2 | 3258.3 | 3171.3 | 1163.4 | 869.9  | 674.1  | 511.0  |
| 77.5° | 199.3  | 206.6  | 242.8  | 387.8  | 772.0  | 1326.5 | 1239.5 | 594.4  | 492.9  | 420.4  | 318.9  |
| 80°   | 134.1  | 137.7  | 163.1  | 239.2  | 373.3  | 511.0  | 398.7  | 333.4  | 333.4  | 282.7  | 213.8  |
| 82.5° | 72.5   | 76.1   | 108.7  | 155.8  | 199.3  | 239.2  | 192.1  | 195.7  | 235.6  | 192.1  | 123.2  |
| 85°   | 50.7   | 50.7   | 83.4   | 112.4  | 112.4  | 116.0  | 83.4   | 123.2  | 137.7  | 119.6  | 83.4   |
| 87.5° | 29.0   | 29.0   | 47.1   | 54.4   | 54.4   | 50.7   | 25.4   | 43.5   | 54.4   | 61.6   | 36.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



REPORT NUMBER: P1458143

CATALOG NUMBER: GLAN-SB4A-727-U-T3LG-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 | 1776.0 |
| 2.5°  | 1783.2 | 1772.3 | 1750.6 | 1707.1 | 1685.3 | 1656.3 | 1631.0 | 1598.4 | 1591.1 | 1587.5 | 1573.0 |
| 5°    | 1812.2 | 1790.5 | 1725.2 | 1631.0 | 1551.2 | 1475.1 | 1399.0 | 1355.5 | 1319.3 | 1301.2 | 1297.5 |
| 7.5°  | 1884.7 | 1841.2 | 1721.6 | 1554.9 | 1406.3 | 1275.8 | 1163.4 | 1065.6 | 1014.8 | 971.3  | 975.0  |
| 10°   | 1993.4 | 1924.6 | 1728.8 | 1482.4 | 1261.3 | 1051.1 | 888.0  | 746.6  | 645.1  | 598.0  | 594.4  |
| 12.5° | 2138.4 | 2040.5 | 1754.2 | 1409.9 | 1083.7 | 790.1  | 583.5  | 500.2  | 478.4  | 474.8  | 471.2  |
| 15°   | 2316.0 | 2178.3 | 1779.6 | 1315.7 | 844.5  | 547.3  | 474.8  | 456.7  | 453.0  | 449.4  | 449.4  |
| 17.5° | 2529.8 | 2337.7 | 1794.1 | 1156.2 | 616.1  | 471.2  | 445.8  | 434.9  | 431.3  | 427.7  | 427.7  |
| 20°   | 2798.0 | 2515.3 | 1812.2 | 953.2  | 521.9  | 453.0  | 424.1  | 409.6  | 405.9  | 405.9  | 402.3  |
| 22.5° | 3062.6 | 2714.7 | 1797.7 | 775.6  | 503.8  | 431.3  | 398.7  | 384.2  | 376.9  | 376.9  | 373.3  |
| 25°   | 3367.1 | 2917.6 | 1754.2 | 699.5  | 500.2  | 413.2  | 373.3  | 351.6  | 340.7  | 337.1  | 337.1  |
| 27.5° | 3715.0 | 3149.6 | 1685.3 | 703.1  | 500.2  | 398.7  | 340.7  | 311.7  | 304.4  | 297.2  | 297.2  |
| 30°   | 4113.7 | 3432.3 | 1634.6 | 750.3  | 507.4  | 384.2  | 311.7  | 275.5  | 264.6  | 257.3  | 261.0  |
| 32.5° | 4570.4 | 3747.6 | 1631.0 | 826.4  | 518.3  | 362.4  | 279.1  | 239.2  | 228.3  | 224.7  | 228.3  |
| 35°   | 5088.7 | 4139.1 | 1714.3 | 884.4  | 489.3  | 315.3  | 239.2  | 206.6  | 195.7  | 195.7  | 199.3  |
| 37.5° | 5664.9 | 4588.5 | 1826.7 | 869.9  | 395.1  | 250.1  | 206.6  | 181.2  | 170.3  | 174.0  | 177.6  |
| 40°   | 6190.5 | 4940.1 | 1844.8 | 743.0  | 297.2  | 213.8  | 177.6  | 159.5  | 152.2  | 155.8  | 159.5  |
| 42.5° | 6589.2 | 5222.8 | 1670.8 | 576.3  | 250.1  | 181.2  | 152.2  | 137.7  | 134.1  | 141.4  | 141.4  |
| 45°   | 6911.7 | 5335.1 | 1395.4 | 427.7  | 221.1  | 155.8  | 134.1  | 126.9  | 119.6  | 123.2  | 123.2  |
| 47.5° | 7248.8 | 5353.2 | 1138.1 | 344.3  | 195.7  | 141.4  | 123.2  | 116.0  | 108.7  | 108.7  | 108.7  |
| 50°   | 7575.0 | 5309.7 | 869.9  | 304.4  | 181.2  | 126.9  | 112.4  | 105.1  | 97.9   | 94.2   | 94.2   |
| 52.5° | 7654.7 | 4961.8 | 637.9  | 282.7  | 166.7  | 119.6  | 105.1  | 97.9   | 90.6   | 87.0   | 87.0   |
| 55°   | 7433.6 | 4302.2 | 500.2  | 253.7  | 152.2  | 108.7  | 97.9   | 90.6   | 79.7   | 76.1   | 76.1   |
| 57.5° | 6705.1 | 3280.1 | 398.7  | 217.5  | 137.7  | 105.1  | 90.6   | 83.4   | 72.5   | 68.9   | 68.9   |
| 60°   | 5759.2 | 2326.9 | 322.6  | 177.6  | 126.9  | 94.2   | 83.4   | 72.5   | 65.2   | 58.0   | 58.0   |
| 62.5° | 4711.7 | 1670.8 | 261.0  | 148.6  | 119.6  | 83.4   | 76.1   | 65.2   | 50.7   | 39.9   | 39.9   |
| 65°   | 3613.5 | 1199.7 | 203.0  | 119.6  | 108.7  | 72.5   | 65.2   | 54.4   | 39.9   | 29.0   | 29.0   |
| 67.5° | 2337.7 | 775.6  | 152.2  | 105.1  | 83.4   | 61.6   | 50.7   | 43.5   | 36.2   | 25.4   | 21.7   |
| 70°   | 1232.3 | 453.0  | 112.4  | 90.6   | 61.6   | 47.1   | 43.5   | 36.2   | 29.0   | 18.1   | 18.1   |
| 72.5° | 637.9  | 297.2  | 83.4   | 79.7   | 47.1   | 32.6   | 36.2   | 29.0   | 21.7   | 10.9   | 10.9   |
| 75°   | 409.6  | 199.3  | 61.6   | 65.2   | 29.0   | 25.4   | 25.4   | 18.1   | 10.9   | 7.2    | 3.6    |
| 77.5° | 264.6  | 134.1  | 43.5   | 54.4   | 18.1   | 14.5   | 14.5   | 7.2    | 3.6    | 0.0    | 0.0    |
| 80°   | 155.8  | 83.4   | 29.0   | 36.2   | 7.2    | 7.2    | 3.6    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 79.7   | 43.5   | 14.5   | 14.5   | 3.6    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 50.7   | 21.7   | 3.6    | 3.6    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 25.4   | 7.2    | 3.6    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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



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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-3

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-727-U-5WQ

Data in this report applies to families of products including GSS-SB1A-727-U-5WQ

**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-727-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 2700K CCT 26 LEDS

**Spectral Parameters**

CCT (K): 2672  
 CIE u': 0.2638  
 CIE v': 0.5276  
 Duv: -0.0002  
 CIE x: 0.4619  
 CIE y: 0.4106  
 CIE z: 0.1275  
 Peak Wavelength (nm): 601  
 Dominant Wavelength (nm): 584  
 Purity: 61.88407  
 Rf: 67.9  
 Rg: 98.6

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 71.1 |      |       |
| R1:       | 68.3 | R9:  | -27.8 |
| R2:       | 79.8 | R10: | 54.4  |
| R3:       | 91.2 | R11: | 65.8  |
| R4:       | 69.4 | R12: | 45.6  |
| R5:       | 66.5 | R13: | 69.8  |
| R6:       | 72.6 | R14: | 94.5  |
| R7:       | 77.0 | R15: | 60.1  |
| R8:       | 44.1 |      |       |



**Test Conditions**

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

REPORT NUMBER: SP1-2407-184-3

| 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 2700K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

| $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360               | 0                           | NR                      | 490               | 52                          | NR                      | 620               | 888                         | NR                      | 750               | 27                          | NR                      | 880               | 1                           | NR                      |
| 365               | 0                           | NR                      | 495               | 87                          | NR                      | 625               | 834                         | NR                      | 755               | 23                          | NR                      | 885               | 1                           | NR                      |
| 370               | 0                           | NR                      | 500               | 135                         | NR                      | 630               | 776                         | NR                      | 760               | 20                          | NR                      | 890               | 1                           | NR                      |
| 375               | 0                           | NR                      | 505               | 196                         | NR                      | 635               | 712                         | NR                      | 765               | 17                          | NR                      | 895               | 0                           | NR                      |
| 380               | 0                           | NR                      | 510               | 258                         | NR                      | 640               | 648                         | NR                      | 770               | 15                          | NR                      | 900               | 0                           | NR                      |
| 385               | 1                           | NR                      | 515               | 317                         | NR                      | 645               | 583                         | NR                      | 775               | 12                          | NR                      | 905               | 0                           | NR                      |
| 390               | 2                           | NR                      | 520               | 368                         | NR                      | 650               | 523                         | NR                      | 780               | 11                          | NR                      | 910               | 0                           | NR                      |
| 395               | 4                           | NR                      | 525               | 408                         | NR                      | 655               | 465                         | NR                      | 785               | 9                           | NR                      | 915               | 0                           | NR                      |
| 400               | 6                           | NR                      | 530               | 443                         | NR                      | 660               | 410                         | NR                      | 790               | 8                           | NR                      | 920               | 0                           | NR                      |
| 405               | 11                          | NR                      | 535               | 473                         | NR                      | 665               | 360                         | NR                      | 795               | 7                           | NR                      | 925               | 0                           | NR                      |
| 410               | 23                          | NR                      | 540               | 498                         | NR                      | 670               | 313                         | NR                      | 800               | 6                           | NR                      | 930               | 0                           | NR                      |
| 415               | 51                          | NR                      | 545               | 530                         | NR                      | 675               | 272                         | NR                      | 805               | 5                           | NR                      | 935               | 0                           | NR                      |
| 420               | 111                         | NR                      | 550               | 563                         | NR                      | 680               | 236                         | NR                      | 810               | 4                           | NR                      | 940               | 0                           | NR                      |
| 425               | 214                         | NR                      | 555               | 605                         | NR                      | 685               | 203                         | NR                      | 815               | 4                           | NR                      | 945               | 0                           | NR                      |
| 430               | 339                         | NR                      | 560               | 651                         | NR                      | 690               | 175                         | NR                      | 820               | 3                           | NR                      | 950               | 0                           | NR                      |
| 435               | 467                         | NR                      | 565               | 705                         | NR                      | 695               | 150                         | NR                      | 825               | 3                           | NR                      | 955               | 0                           | NR                      |
| 440               | 535                         | NR                      | 570               | 765                         | NR                      | 700               | 128                         | NR                      | 830               | 3                           | NR                      | 960               | 0                           | NR                      |
| 445               | 372                         | NR                      | 575               | 824                         | NR                      | 705               | 110                         | NR                      | 835               | 2                           | NR                      | 965               | 0                           | NR                      |
| 450               | 160                         | NR                      | 580               | 882                         | NR                      | 710               | 94                          | NR                      | 840               | 2                           | NR                      | 970               | 0                           | NR                      |
| 455               | 89                          | NR                      | 585               | 930                         | NR                      | 715               | 80                          | NR                      | 845               | 2                           | NR                      | 975               | 0                           | NR                      |
| 460               | 53                          | NR                      | 590               | 968                         | NR                      | 720               | 69                          | NR                      | 850               | 1                           | NR                      | 980               | 0                           | NR                      |
| 465               | 31                          | NR                      | 595               | 991                         | NR                      | 725               | 59                          | NR                      | 855               | 1                           | NR                      | 985               | 0                           | NR                      |
| 470               | 23                          | NR                      | 600               | 999                         | NR                      | 730               | 50                          | NR                      | 860               | 1                           | NR                      | 990               | 0                           | NR                      |
| 475               | 21                          | NR                      | 605               | 992                         | NR                      | 735               | 43                          | NR                      | 865               | 1                           | NR                      | 995               | 0                           | NR                      |
| 480               | 23                          | NR                      | 610               | 969                         | NR                      | 740               | 36                          | NR                      | 870               | 1                           | NR                      | 1000              | 0                           | NR                      |
| 485               | 32                          | NR                      | 615               | 935                         | NR                      | 745               | 31                          | NR                      | 875               | 1                           | NR                      |                   |                             |                         |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.02**

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 52                       | NR            | 620    | 888                      | NR            | 750    | 27                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 87                       | NR            | 625    | 834                      | NR            | 755    | 23                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 135                      | NR            | 630    | 776                      | NR            | 760    | 20                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 196                      | NR            | 635    | 712                      | NR            | 765    | 17                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 258                      | NR            | 640    | 648                      | NR            | 770    | 15                       | NR            | 900    | 0                        | NR            |
| 385    | 1                        | NR            | 515    | 317                      | NR            | 645    | 583                      | NR            | 775    | 12                       | NR            | 905    | 0                        | NR            |
| 390    | 2                        | NR            | 520    | 368                      | NR            | 650    | 523                      | NR            | 780    | 11                       | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 408                      | NR            | 655    | 465                      | NR            | 785    | 9                        | NR            | 915    | 0                        | NR            |
| 400    | 6                        | NR            | 530    | 443                      | NR            | 660    | 410                      | NR            | 790    | 8                        | NR            | 920    | 0                        | NR            |
| 405    | 11                       | NR            | 535    | 473                      | NR            | 665    | 360                      | NR            | 795    | 7                        | NR            | 925    | 0                        | NR            |
| 410    | 23                       | NR            | 540    | 498                      | NR            | 670    | 313                      | NR            | 800    | 6                        | NR            | 930    | 0                        | NR            |
| 415    | 51                       | NR            | 545    | 530                      | NR            | 675    | 272                      | NR            | 805    | 5                        | NR            | 935    | 0                        | NR            |
| 420    | 111                      | NR            | 550    | 563                      | NR            | 680    | 236                      | NR            | 810    | 4                        | NR            | 940    | 0                        | NR            |
| 425    | 214                      | NR            | 555    | 605                      | NR            | 685    | 203                      | NR            | 815    | 4                        | NR            | 945    | 0                        | NR            |
| 430    | 339                      | NR            | 560    | 651                      | NR            | 690    | 175                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 467                      | NR            | 565    | 705                      | NR            | 695    | 150                      | NR            | 825    | 3                        | NR            | 955    | 0                        | NR            |
| 440    | 535                      | NR            | 570    | 765                      | NR            | 700    | 128                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 372                      | NR            | 575    | 824                      | NR            | 705    | 110                      | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 160                      | NR            | 580    | 882                      | NR            | 710    | 94                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 89                       | NR            | 585    | 930                      | NR            | 715    | 80                       | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 53                       | NR            | 590    | 968                      | NR            | 720    | 69                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 31                       | NR            | 595    | 991                      | NR            | 725    | 59                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 23                       | NR            | 600    | 999                      | NR            | 730    | 50                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 21                       | NR            | 605    | 992                      | NR            | 735    | 43                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 23                       | NR            | 610    | 969                      | NR            | 740    | 36                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 32                       | NR            | 615    | 935                      | NR            | 745    | 31                       | NR            | 875    | 1                        | NR            |        |                          |               |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: NR**

**M/P: 1.71**

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 52                       | NR            | 620    | 888                      | NR            | 750    | 27                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 87                       | NR            | 625    | 834                      | NR            | 755    | 23                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 135                      | NR            | 630    | 776                      | NR            | 760    | 20                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 196                      | NR            | 635    | 712                      | NR            | 765    | 17                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 258                      | NR            | 640    | 648                      | NR            | 770    | 15                       | NR            | 900    | 0                        | NR            |
| 385    | 1                        | NR            | 515    | 317                      | NR            | 645    | 583                      | NR            | 775    | 12                       | NR            | 905    | 0                        | NR            |
| 390    | 2                        | NR            | 520    | 368                      | NR            | 650    | 523                      | NR            | 780    | 11                       | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 408                      | NR            | 655    | 465                      | NR            | 785    | 9                        | NR            | 915    | 0                        | NR            |
| 400    | 6                        | NR            | 530    | 443                      | NR            | 660    | 410                      | NR            | 790    | 8                        | NR            | 920    | 0                        | NR            |
| 405    | 11                       | NR            | 535    | 473                      | NR            | 665    | 360                      | NR            | 795    | 7                        | NR            | 925    | 0                        | NR            |
| 410    | 23                       | NR            | 540    | 498                      | NR            | 670    | 313                      | NR            | 800    | 6                        | NR            | 930    | 0                        | NR            |
| 415    | 51                       | NR            | 545    | 530                      | NR            | 675    | 272                      | NR            | 805    | 5                        | NR            | 935    | 0                        | NR            |
| 420    | 111                      | NR            | 550    | 563                      | NR            | 680    | 236                      | NR            | 810    | 4                        | NR            | 940    | 0                        | NR            |
| 425    | 214                      | NR            | 555    | 605                      | NR            | 685    | 203                      | NR            | 815    | 4                        | NR            | 945    | 0                        | NR            |
| 430    | 339                      | NR            | 560    | 651                      | NR            | 690    | 175                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 467                      | NR            | 565    | 705                      | NR            | 695    | 150                      | NR            | 825    | 3                        | NR            | 955    | 0                        | NR            |
| 440    | 535                      | NR            | 570    | 765                      | NR            | 700    | 128                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 372                      | NR            | 575    | 824                      | NR            | 705    | 110                      | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 160                      | NR            | 580    | 882                      | NR            | 710    | 94                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 89                       | NR            | 585    | 930                      | NR            | 715    | 80                       | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 53                       | NR            | 590    | 968                      | NR            | 720    | 69                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 31                       | NR            | 595    | 991                      | NR            | 725    | 59                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 23                       | NR            | 600    | 999                      | NR            | 730    | 50                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 21                       | NR            | 605    | 992                      | NR            | 735    | 43                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 23                       | NR            | 610    | 969                      | NR            | 740    | 36                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 32                       | NR            | 615    | 935                      | NR            | 745    | 31                       | NR            | 875    | 1                        | NR            |        |                          |               |

**Summary**

$R_f = 67.9$   
 $R_g = 98.6$   
 $CIE R_a = 71.1$   
 $R_9 = -27.8$



**Color Vector Graphics**



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 53 | CES51 = 75 | CES76 = 51 |
| CES02 = 63 | CES27 = 70 | CES52 = 80 | CES77 = 79 |
| CES03 = 31 | CES28 = 81 | CES53 = 64 | CES78 = 58 |
| CES04 = 71 | CES29 = 37 | CES54 = 73 | CES79 = 82 |
| CES05 = 50 | CES30 = 33 | CES55 = 69 | CES80 = 82 |
| CES06 = 52 | CES31 = 44 | CES56 = 60 | CES81 = 69 |
| CES07 = 42 | CES32 = 47 | CES57 = 54 | CES82 = 92 |
| CES08 = 41 | CES33 = 45 | CES58 = 59 | CES83 = 82 |
| CES09 = 29 | CES34 = 67 | CES59 = 85 | CES84 = 92 |
| CES10 = 77 | CES35 = 84 | CES60 = 86 | CES85 = 87 |
| CES11 = 60 | CES36 = 68 | CES61 = 86 | CES86 = 60 |
| CES12 = 66 | CES37 = 77 | CES62 = 59 | CES87 = 79 |
| CES13 = 44 | CES38 = 40 | CES63 = 66 | CES88 = 70 |
| CES14 = 74 | CES39 = 88 | CES64 = 69 | CES89 = 66 |
| CES15 = 72 | CES40 = 82 | CES65 = 64 | CES90 = 64 |
| CES16 = 48 | CES41 = 70 | CES66 = 65 | CES91 = 81 |
| CES17 = 51 | CES42 = 76 | CES67 = 64 | CES92 = 69 |
| CES18 = 57 | CES43 = 63 | CES68 = 73 | CES93 = 81 |
| CES19 = 73 | CES44 = 97 | CES69 = 83 | CES94 = 53 |
| CES20 = 67 | CES45 = 74 | CES70 = 64 | CES95 = 77 |
| CES21 = 88 | CES46 = 67 | CES71 = 60 | CES96 = 79 |
| CES22 = 80 | CES47 = 55 | CES72 = 87 | CES97 = 78 |
| CES23 = 92 | CES48 = 42 | CES73 = 57 | CES98 = 69 |
| CES24 = 92 | CES49 = 65 | CES74 = 84 | CES99 = 60 |
| CES25 = 73 | CES50 = 74 | CES75 = 60 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)