

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

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Peachtree City, GA 30269

Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: STREETWORKS

Report Number: P1456932

Luminaire Tested: GLAN-SB7B-740-U-T4LG

Issue Date: 05/20/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1456932  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 5/21/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: STREETWORKS  
Catalog Number: GLAN-SB7B-740-U-T4LG  
Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 450mA 7xLight Square  
PACKAGE 70CRI 4000K FIXTURE w/ TYPE IV LOW GLARE  
Light Source: (182) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

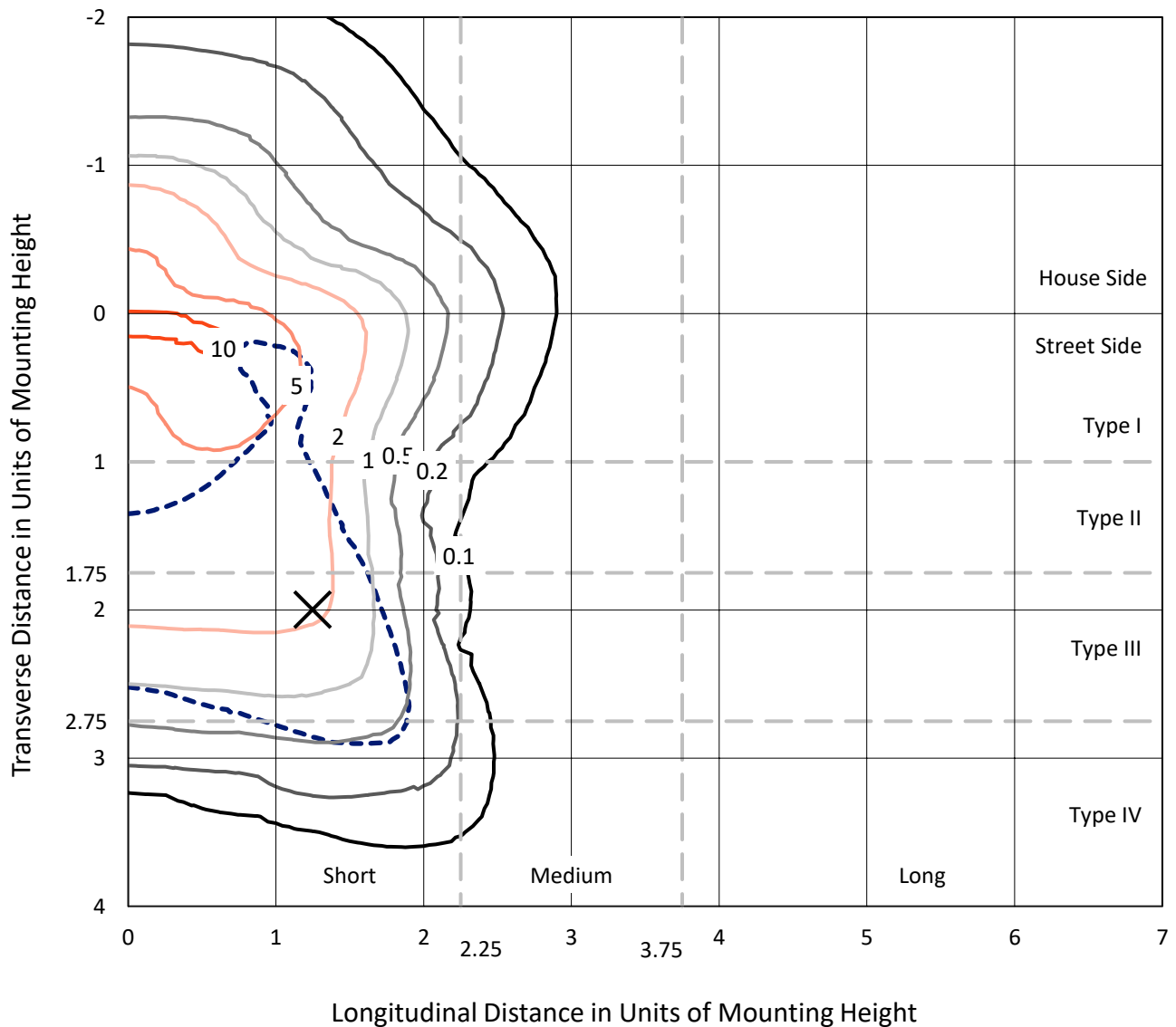
Lumens per Lamp: N/A  
Luminaire Lumens: 41463.5 lumens  
Efficiency: N/A  
Efficacy: 161.5 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B4 - U0 - G4  
  
Input Watts (W): 256.7  
Input Voltage (V): 120  
Input Current (Ain): 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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CATALOG NUMBER: GLAN-SB7B-740-U-T4LG

### Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

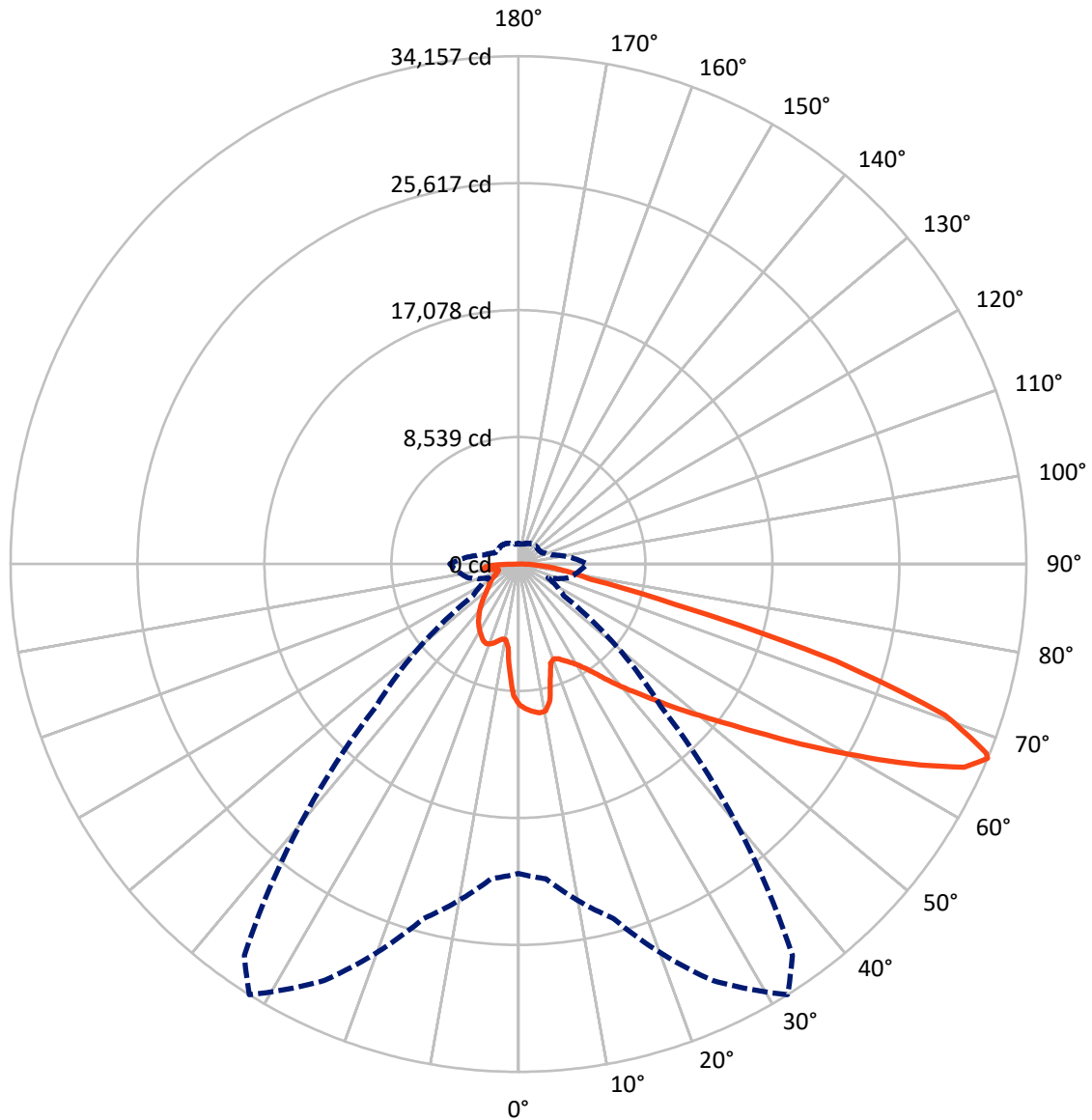


Based on 30 foot mounting height. Maximum calculated value = 11.4 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 32-Deg Lateral      - - - Horizontal Cone Through 67-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 9816.3   | 0.0    | 9816.3  |
|                    | % Fixture | 23.7     | 0.0    | 23.7    |
| <b>Street Side</b> | Lumens    | 31647.2  | 0.0    | 31647.2 |
|                    | % Fixture | 76.3     | 0.0    | 76.3    |
| <b>Total</b>       | Lumens    | 41463.5  | 0.0    | 41463.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 827.8   | 2.0       |
| 10°-20°   | 2197.8  | 5.3       |
| 20°-30°   | 3589.1  | 8.7       |
| 30°-40°   | 5289.9  | 12.8      |
| 40°-50°   | 7295.1  | 17.6      |
| 50°-60°   | 9215.9  | 22.2      |
| 60°-70°   | 8919.4  | 21.5      |
| 70°-80°   | 3183.3  | 7.7       |
| 80°-90°   | 945.3   | 2.3       |
| 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°    | 41463.5 | 100.0     |
| 0°-180°   | 41463.5 | 100.0     |



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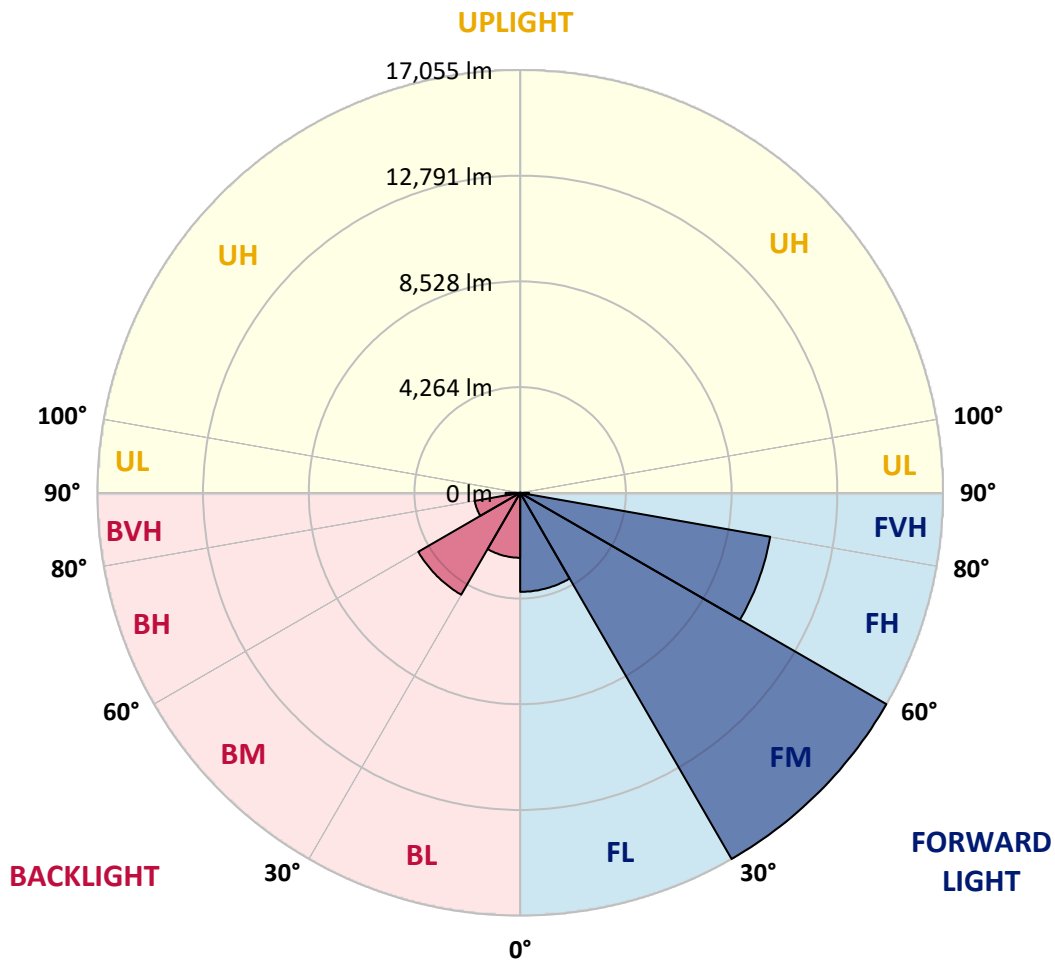
CATALOG NUMBER: GLAN-SB7B-740-U-T4LG

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 3995.1  | 9.6       |                         |      |          |
| FM   | (30°-60°)   | 17055.2 | 41.1      |                         |      |          |
| FH   | (60°-80°)   | 10240.6 | 24.7      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 356.2   | 0.9       |                         |      | G3/500   |
| BL   | (0°-30°)    | 2619.5  | 6.3       | B4/5000                 |      |          |
| BM   | (30°-60°)   | 4745.7  | 11.4      | B3/5000                 |      |          |
| BH   | (60°-80°)   | 1862.0  | 4.5       | B3/2500                 |      | G3/2500  |
| BVH  | (80°-90°)   | 589.1   | 1.4       |                         |      | G4/750   |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B4-U0-G4**

Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 32°     | 35°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 9473.6  | 9473.6  | 9473.6  | 9473.6  | 9473.6  | 9473.6  | 9473.6  | 9473.6  | 9473.6  | 9473.6  | 9473.6  |
| 2.5°  | 9832.6  | 9805.0  | 9777.4  | 9795.8  | 9759.0  | 9749.8  | 9703.7  | 9685.3  | 9630.1  | 9620.9  | 9519.6  |
| 5°    | 10035.2 | 9979.9  | 9970.7  | 9989.2  | 9952.3  | 9952.3  | 9915.5  | 9887.9  | 9805.0  | 9759.0  | 9611.7  |
| 7.5°  | 10035.2 | 10026.0 | 10044.4 | 10108.8 | 10118.0 | 10118.0 | 10118.0 | 10127.3 | 10044.4 | 9979.9  | 9749.8  |
| 10°   | 9464.4  | 9372.3  | 9574.9  | 9897.1  | 10053.6 | 10145.7 | 10311.4 | 10412.7 | 10348.2 | 10302.2 | 9989.2  |
| 12.5° | 7761.2  | 7770.4  | 8092.6  | 8783.1  | 9409.1  | 9676.1  | 10366.6 | 10734.9 | 10762.5 | 10688.9 | 10293.0 |
| 15°   | 6582.7  | 6628.7  | 6794.5  | 7291.6  | 8009.7  | 8405.6  | 10044.4 | 11020.3 | 11241.3 | 11167.6 | 10661.2 |
| 17.5° | 6223.7  | 6251.3  | 6324.9  | 6610.3  | 7015.4  | 7337.7  | 9169.8  | 11204.4 | 11821.3 | 11729.2 | 11075.5 |
| 20°   | 6168.4  | 6186.8  | 6278.9  | 6518.3  | 6794.5  | 6978.6  | 8276.7  | 11057.1 | 12364.5 | 12327.6 | 11453.0 |
| 22.5° | 6177.6  | 6196.0  | 6315.7  | 6647.2  | 6932.6  | 7089.1  | 7991.3  | 10716.5 | 12935.3 | 12972.1 | 11839.7 |
| 25°   | 6196.0  | 6205.2  | 6389.4  | 6831.3  | 7190.3  | 7383.7  | 8175.5  | 10412.7 | 13414.0 | 13727.0 | 12263.2 |
| 27.5° | 6297.3  | 6324.9  | 6573.5  | 7070.7  | 7494.2  | 7715.1  | 8608.2  | 10513.9 | 13938.8 | 14583.2 | 12769.5 |
| 30°   | 6573.5  | 6591.9  | 6895.7  | 7411.3  | 7871.6  | 8101.8  | 9123.7  | 10919.0 | 14583.2 | 15467.1 | 13266.7 |
| 32.5° | 7006.2  | 7024.6  | 7374.5  | 7908.5  | 8405.6  | 8681.8  | 9795.8  | 11692.4 | 15301.4 | 16396.9 | 13763.9 |
| 35°   | 7604.6  | 7613.9  | 8009.7  | 8580.5  | 9105.3  | 9418.3  | 10578.4 | 12567.0 | 16047.1 | 17188.7 | 14132.1 |
| 37.5° | 8313.6  | 8378.0  | 8783.1  | 9381.5  | 9998.4  | 10283.8 | 11499.0 | 13588.9 | 16710.0 | 17860.8 | 14343.9 |
| 40°   | 9289.5  | 9307.9  | 9703.7  | 10283.8 | 10937.4 | 11213.6 | 12419.7 | 14555.6 | 17437.3 | 18256.7 | 14537.2 |
| 42.5° | 10293.0 | 10449.5 | 10780.9 | 11425.4 | 11913.3 | 12134.3 | 13469.2 | 15439.5 | 18017.3 | 18275.1 | 14454.4 |
| 45°   | 11637.1 | 11756.8 | 12088.3 | 12659.1 | 13147.0 | 13404.8 | 14601.7 | 16249.6 | 18311.9 | 18118.6 | 14270.2 |
| 47.5° | 13174.6 | 13248.3 | 13515.3 | 14030.8 | 14574.0 | 14758.2 | 15780.1 | 16710.0 | 18422.4 | 18008.1 | 14187.4 |
| 50°   | 14988.3 | 14988.3 | 15181.7 | 15623.6 | 16120.7 | 16378.5 | 16866.5 | 16986.2 | 18744.6 | 17814.8 | 14399.1 |
| 52.5° | 16516.6 | 16590.3 | 16848.1 | 17474.1 | 17971.3 | 18265.9 | 17713.5 | 17409.7 | 18091.0 | 16737.6 | 14463.6 |
| 55°   | 17980.5 | 18063.3 | 18643.4 | 19425.9 | 20272.9 | 20595.2 | 18772.2 | 17197.9 | 15890.6 | 15163.3 | 14021.6 |
| 57.5° | 19379.9 | 19554.8 | 20282.1 | 21810.4 | 23090.1 | 23062.5 | 20116.4 | 15301.4 | 12972.1 | 13423.2 | 13054.9 |
| 60°   | 21331.7 | 21515.8 | 22675.8 | 24600.0 | 26165.1 | 25511.5 | 20134.8 | 12732.7 | 10108.8 | 10716.5 | 11241.3 |
| 62.5° | 22961.2 | 23274.3 | 24977.5 | 28181.4 | 29617.6 | 28595.7 | 18468.4 | 9749.8  | 6711.6  | 7475.8  | 8691.0  |
| 65°   | 22813.9 | 23228.2 | 25870.5 | 30814.5 | 32959.6 | 32011.3 | 16028.7 | 6168.4  | 3461.7  | 5109.7  | 6085.6  |
| 67°   | 20806.9 | 21258.0 | 24682.9 | 30906.5 | 34156.5 | 32131.0 | 13533.7 | 3728.7  | 2200.4  | 3544.5  | 4225.8  |
| 67.5° | 19656.1 | 20319.0 | 24093.7 | 30731.6 | 33935.5 | 31624.6 | 12410.5 | 3121.0  | 2071.5  | 3296.0  | 3848.4  |
| 70°   | 12088.3 | 13156.2 | 18081.8 | 27168.7 | 30418.6 | 26469.0 | 6895.7  | 1767.7  | 1684.8  | 2209.6  | 2660.7  |
| 72.5° | 3636.6  | 3958.8  | 6978.6  | 17428.1 | 22326.0 | 19619.3 | 3102.6  | 1362.6  | 1509.9  | 1776.9  | 2053.1  |
| 75°   | 1767.7  | 1887.4  | 2881.7  | 7125.9  | 10873.0 | 10817.7 | 1730.8  | 1169.2  | 1399.4  | 1491.5  | 1620.4  |
| 77.5° | 1132.4  | 1206.1  | 1795.3  | 3986.5  | 4980.8  | 4437.6  | 1252.1  | 1021.9  | 1242.9  | 1224.5  | 1206.1  |
| 80°   | 708.9   | 745.7   | 1150.8  | 2310.9  | 3673.4  | 3065.8  | 920.7   | 837.8   | 1068.0  | 948.3   | 856.2   |
| 82.5° | 460.3   | 506.4   | 736.5   | 1408.6  | 2623.9  | 2283.2  | 607.6   | 598.4   | 883.8   | 754.9   | 662.9   |
| 85°   | 303.8   | 340.6   | 469.5   | 828.6   | 1555.9  | 1629.6  | 395.9   | 414.3   | 681.3   | 570.8   | 506.4   |
| 87.5° | 110.5   | 138.1   | 239.4   | 368.3   | 727.3   | 902.2   | 165.7   | 156.5   | 331.4   | 267.0   | 211.8   |
| 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: P1456932

CATALOG NUMBER: GLAN-SB7B-740-U-T4LG

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 9473.6  | 9473.6 | 9473.6 | 9473.6 | 9473.6 | 9473.6 | 9473.6 | 9473.6 | 9473.6 | 9473.6 | 9473.6 |
| 2.5°  | 9501.2  | 9473.6 | 9344.7 | 9234.2 | 9151.4 | 9040.9 | 8921.2 | 8783.1 | 8691.0 | 8709.4 | 8681.8 |
| 5°    | 9547.2  | 9473.6 | 9225.0 | 8847.5 | 8479.3 | 8018.9 | 7429.7 | 7079.9 | 6812.9 | 6674.8 | 6711.6 |
| 7.5°  | 9648.5  | 9519.6 | 8994.8 | 8230.7 | 7273.2 | 6334.1 | 5754.1 | 5422.7 | 5266.2 | 5201.7 | 5192.5 |
| 10°   | 9823.4  | 9602.5 | 8700.2 | 7273.2 | 6021.1 | 5385.9 | 5174.1 | 5082.0 | 5063.6 | 5063.6 | 5054.4 |
| 12.5° | 10035.2 | 9685.3 | 8203.1 | 6343.3 | 5422.7 | 5192.5 | 5155.7 | 5164.9 | 5192.5 | 5220.1 | 5174.1 |
| 15°   | 10293.0 | 9722.2 | 7586.2 | 5781.7 | 5303.0 | 5247.8 | 5303.0 | 5367.4 | 5413.5 | 5450.3 | 5404.3 |
| 17.5° | 10550.8 | 9685.3 | 7006.2 | 5514.7 | 5321.4 | 5395.1 | 5505.5 | 5606.8 | 5634.4 | 5689.7 | 5652.8 |
| 20°   | 10734.9 | 9556.4 | 6509.1 | 5413.5 | 5367.4 | 5533.2 | 5671.3 | 5781.7 | 5837.0 | 5873.8 | 5837.0 |
| 22.5° | 10873.0 | 9390.7 | 6150.0 | 5312.2 | 5367.4 | 5570.0 | 5735.7 | 5864.6 | 5929.0 | 5965.9 | 5919.8 |
| 25°   | 10992.7 | 9160.6 | 5873.8 | 5164.9 | 5257.0 | 5450.3 | 5634.4 | 5763.3 | 5855.4 | 5910.6 | 5883.0 |
| 27.5° | 11140.0 | 8976.4 | 5616.0 | 4943.9 | 5026.8 | 5210.9 | 5404.3 | 5560.8 | 5735.7 | 5827.8 | 5809.4 |
| 30°   | 11305.7 | 8884.4 | 5367.4 | 4704.6 | 4759.8 | 4943.9 | 5174.1 | 5385.9 | 5625.2 | 5744.9 | 5744.9 |
| 32.5° | 11499.0 | 8819.9 | 5137.3 | 4474.4 | 4520.4 | 4723.0 | 4943.9 | 5137.3 | 5395.1 | 5588.4 | 5579.2 |
| 35°   | 11581.9 | 8746.3 | 4953.1 | 4262.7 | 4354.7 | 4520.4 | 4695.4 | 4824.3 | 5091.2 | 5321.4 | 5339.8 |
| 37.5° | 11664.8 | 8718.6 | 4861.1 | 4096.9 | 4170.6 | 4299.5 | 4391.5 | 4456.0 | 4704.6 | 4943.9 | 4953.1 |
| 40°   | 11766.0 | 8847.5 | 4925.5 | 3986.5 | 3922.0 | 4050.9 | 4096.9 | 4133.8 | 4262.7 | 4419.2 | 4419.2 |
| 42.5° | 11701.6 | 8939.6 | 5072.8 | 3885.2 | 3618.2 | 3765.5 | 3783.9 | 3774.7 | 3783.9 | 3793.1 | 3783.9 |
| 45°   | 11535.9 | 8847.5 | 5072.8 | 3728.7 | 3296.0 | 3452.5 | 3443.3 | 3397.2 | 3323.6 | 3130.2 | 3102.6 |
| 47.5° | 11499.0 | 8792.3 | 4879.5 | 3470.9 | 2973.7 | 3102.6 | 3121.0 | 3029.0 | 2817.2 | 2614.7 | 2550.2 |
| 50°   | 11655.5 | 8893.6 | 4575.7 | 3157.9 | 2697.5 | 2808.0 | 2854.0 | 2697.5 | 2458.2 | 2246.4 | 2209.6 |
| 52.5° | 11885.7 | 9022.5 | 4133.8 | 2817.2 | 2467.4 | 2577.8 | 2633.1 | 2458.2 | 2209.6 | 2043.9 | 2025.5 |
| 55°   | 11858.1 | 9022.5 | 3636.6 | 2504.2 | 2292.4 | 2375.3 | 2467.4 | 2283.2 | 2089.9 | 1997.8 | 1988.6 |
| 57.5° | 11259.7 | 8681.8 | 3268.3 | 2283.2 | 2126.7 | 2200.4 | 2320.1 | 2145.1 | 1961.0 | 1979.4 | 2007.0 |
| 60°   | 10090.4 | 7798.0 | 2992.1 | 2135.9 | 1979.4 | 2053.1 | 2182.0 | 1979.4 | 1740.0 | 1675.6 | 1675.6 |
| 62.5° | 8313.6  | 6426.2 | 2771.2 | 1988.6 | 1841.3 | 1933.4 | 1997.8 | 1730.8 | 1574.3 | 1500.7 | 1500.7 |
| 65°   | 6232.9  | 4971.6 | 2541.0 | 1868.9 | 1721.6 | 1822.9 | 1749.3 | 1620.4 | 1463.8 | 1408.6 | 1417.8 |
| 67°   | 4621.7  | 3857.6 | 2347.7 | 1767.7 | 1648.0 | 1694.0 | 1638.8 | 1546.7 | 1390.2 | 1344.2 | 1390.2 |
| 67.5° | 4152.2  | 3664.2 | 2301.6 | 1740.0 | 1629.6 | 1666.4 | 1611.2 | 1537.5 | 1371.8 | 1325.7 | 1371.8 |
| 70°   | 2854.0  | 2817.2 | 2053.1 | 1611.2 | 1528.3 | 1491.5 | 1519.1 | 1427.0 | 1288.9 | 1270.5 | 1316.5 |
| 72.5° | 2172.8  | 2246.4 | 1841.3 | 1500.7 | 1417.8 | 1371.8 | 1436.2 | 1344.2 | 1206.1 | 1233.7 | 1279.7 |
| 75°   | 1703.2  | 1813.7 | 1648.0 | 1344.2 | 1288.9 | 1298.1 | 1427.0 | 1390.2 | 1279.7 | 1307.3 | 1316.5 |
| 77.5° | 1261.3  | 1463.8 | 1408.6 | 1169.2 | 1123.2 | 1252.1 | 1611.2 | 1721.6 | 1528.3 | 1482.3 | 1417.8 |
| 80°   | 920.7   | 1049.6 | 1187.7 | 966.7  | 939.1  | 1206.1 | 1988.6 | 2200.4 | 1887.4 | 1703.2 | 1657.2 |
| 82.5° | 681.3   | 736.5  | 975.9  | 773.4  | 681.3  | 1077.2 | 2209.6 | 2587.1 | 2246.4 | 1896.6 | 1841.3 |
| 85°   | 487.9   | 570.8  | 773.4  | 570.8  | 451.1  | 883.8  | 2163.5 | 2531.8 | 2228.0 | 1795.3 | 1749.3 |
| 87.5° | 174.9   | 248.6  | 331.4  | 257.8  | 230.2  | 607.6  | 1786.1 | 1822.9 | 1390.2 | 635.3  | 644.5  |
| 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: SP1-2407-184-1

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-740-U-5WQ

Data in this report applies to families of products including GSS-SB1A-740-U-5WQ

**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-1  
 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-740-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 4000K CCT 26 LEDS

**Spectral Parameters**

CCT (K): 3949  
 CIE u': 0.2248  
 CIE v': 0.5053  
 Duv: 0.0022  
 CIE x: 0.3844  
 CIE y: 0.3840  
 CIE z: 0.2316  
 Peak Wavelength (nm): 440  
 Dominant Wavelength (nm): 578  
 Purity: 30.60026  
 Rf: 71.8  
 Rg: 96.5

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 70.7 |      |       |
| R1:       | 68.0 | R9:  | -36.7 |
| R2:       | 76.0 | R10: | 45.1  |
| R3:       | 84.3 | R11: | 70.7  |
| R4:       | 72.0 | R12: | 47.1  |
| R5:       | 68.6 | R13: | 68.5  |
| R6:       | 68.3 | R14: | 91.1  |
| R7:       | 77.9 | R15: | 58.7  |
| R8:       | 50.3 |      |       |



**Test Conditions**

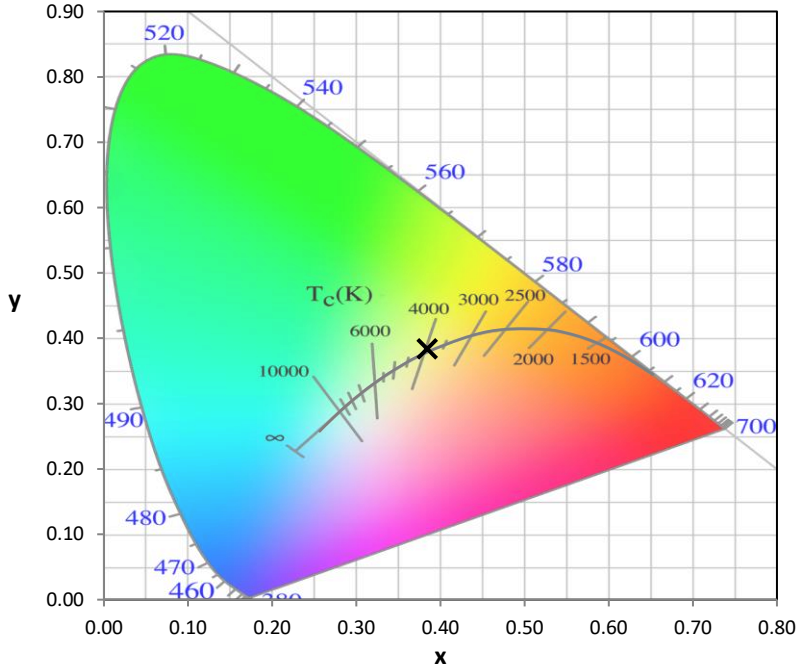
Stabilization Time: 34M  
 Operation Time: 1H 34M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-1

| 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 4000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

| 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    | 139                      | NR            | 620    | 607                      | NR            | 750    | 15                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 198                      | NR            | 625    | 554                      | NR            | 755    | 13                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 267                      | NR            | 630    | 504                      | NR            | 760    | 11                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 452                      | NR            | 765    | 10                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 410                      | NR            | 640    | 403                      | NR            | 770    | 8                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 470                      | NR            | 645    | 357                      | NR            | 775    | 7                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 516                      | NR            | 650    | 314                      | NR            | 780    | 6                        | NR            | 910    | 0                        | NR            |
| 395    | 7                        | NR            | 525    | 550                      | NR            | 655    | 275                      | NR            | 785    | 5                        | NR            | 915    | 0                        | NR            |
| 400    | 10                       | NR            | 530    | 578                      | NR            | 660    | 240                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 17                       | NR            | 535    | 601                      | NR            | 665    | 208                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 35                       | NR            | 540    | 620                      | NR            | 670    | 179                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 70                       | NR            | 545    | 641                      | NR            | 675    | 155                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 147                      | NR            | 550    | 664                      | NR            | 680    | 133                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 285                      | NR            | 555    | 689                      | NR            | 685    | 114                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 487                      | NR            | 560    | 715                      | NR            | 690    | 98                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 787                      | NR            | 565    | 743                      | NR            | 695    | 84                       | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 1000                     | NR            | 570    | 771                      | NR            | 700    | 72                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 783                      | NR            | 575    | 794                      | NR            | 705    | 61                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 417                      | NR            | 580    | 811                      | NR            | 710    | 52                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 261                      | NR            | 585    | 817                      | NR            | 715    | 45                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 167                      | NR            | 590    | 815                      | NR            | 720    | 39                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 104                      | NR            | 595    | 801                      | NR            | 725    | 33                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 79                       | NR            | 600    | 777                      | NR            | 730    | 28                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 73                       | NR            | 605    | 744                      | NR            | 735    | 24                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 704                      | NR            | 740    | 21                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 98                       | NR            | 615    | 657                      | NR            | 745    | 18                       | NR            | 875    | 1                        | NR            |        |                          |               |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.47**

| 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    | 139                      | NR            | 620    | 607                      | NR            | 750    | 15                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 198                      | NR            | 625    | 554                      | NR            | 755    | 13                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 267                      | NR            | 630    | 504                      | NR            | 760    | 11                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 452                      | NR            | 765    | 10                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 410                      | NR            | 640    | 403                      | NR            | 770    | 8                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 470                      | NR            | 645    | 357                      | NR            | 775    | 7                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 516                      | NR            | 650    | 314                      | NR            | 780    | 6                        | NR            | 910    | 0                        | NR            |
| 395    | 7                        | NR            | 525    | 550                      | NR            | 655    | 275                      | NR            | 785    | 5                        | NR            | 915    | 0                        | NR            |
| 400    | 10                       | NR            | 530    | 578                      | NR            | 660    | 240                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 17                       | NR            | 535    | 601                      | NR            | 665    | 208                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 35                       | NR            | 540    | 620                      | NR            | 670    | 179                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 70                       | NR            | 545    | 641                      | NR            | 675    | 155                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 147                      | NR            | 550    | 664                      | NR            | 680    | 133                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 285                      | NR            | 555    | 689                      | NR            | 685    | 114                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 487                      | NR            | 560    | 715                      | NR            | 690    | 98                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 787                      | NR            | 565    | 743                      | NR            | 695    | 84                       | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 1000                     | NR            | 570    | 771                      | NR            | 700    | 72                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 783                      | NR            | 575    | 794                      | NR            | 705    | 61                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 417                      | NR            | 580    | 811                      | NR            | 710    | 52                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 261                      | NR            | 585    | 817                      | NR            | 715    | 45                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 167                      | NR            | 590    | 815                      | NR            | 720    | 39                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 104                      | NR            | 595    | 801                      | NR            | 725    | 33                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 79                       | NR            | 600    | 777                      | NR            | 730    | 28                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 73                       | NR            | 605    | 744                      | NR            | 735    | 24                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 704                      | NR            | 740    | 21                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 98                       | NR            | 615    | 657                      | NR            | 745    | 18                       | NR            | 875    | 1                        | NR            |        |                          |               |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: NR**

**M/P: 2.78**

| 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    | 139                      | NR            | 620    | 607                      | NR            | 750    | 15                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 198                      | NR            | 625    | 554                      | NR            | 755    | 13                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 267                      | NR            | 630    | 504                      | NR            | 760    | 11                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 452                      | NR            | 765    | 10                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 410                      | NR            | 640    | 403                      | NR            | 770    | 8                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 470                      | NR            | 645    | 357                      | NR            | 775    | 7                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 516                      | NR            | 650    | 314                      | NR            | 780    | 6                        | NR            | 910    | 0                        | NR            |
| 395    | 7                        | NR            | 525    | 550                      | NR            | 655    | 275                      | NR            | 785    | 5                        | NR            | 915    | 0                        | NR            |
| 400    | 10                       | NR            | 530    | 578                      | NR            | 660    | 240                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 17                       | NR            | 535    | 601                      | NR            | 665    | 208                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 35                       | NR            | 540    | 620                      | NR            | 670    | 179                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 70                       | NR            | 545    | 641                      | NR            | 675    | 155                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 147                      | NR            | 550    | 664                      | NR            | 680    | 133                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 285                      | NR            | 555    | 689                      | NR            | 685    | 114                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 487                      | NR            | 560    | 715                      | NR            | 690    | 98                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 787                      | NR            | 565    | 743                      | NR            | 695    | 84                       | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 1000                     | NR            | 570    | 771                      | NR            | 700    | 72                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 783                      | NR            | 575    | 794                      | NR            | 705    | 61                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 417                      | NR            | 580    | 811                      | NR            | 710    | 52                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 261                      | NR            | 585    | 817                      | NR            | 715    | 45                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 167                      | NR            | 590    | 815                      | NR            | 720    | 39                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 104                      | NR            | 595    | 801                      | NR            | 725    | 33                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 79                       | NR            | 600    | 777                      | NR            | 730    | 28                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 73                       | NR            | 605    | 744                      | NR            | 735    | 24                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 704                      | NR            | 740    | 21                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 98                       | NR            | 615    | 657                      | NR            | 745    | 18                       | NR            | 875    | 1                        | NR            |        |                          |               |

**Summary**

$R_f = 71.8$   
 $R_g = 96.5$   
 $CIE R_a = 70.7$   
 $R_9 = -36.7$



**Color Vector Graphics**



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 56 | CES51 = 86 | CES76 = 48 |
| CES02 = 61 | CES27 = 79 | CES52 = 88 | CES77 = 71 |
| CES03 = 30 | CES28 = 80 | CES53 = 73 | CES78 = 52 |
| CES04 = 70 | CES29 = 49 | CES54 = 79 | CES79 = 79 |
| CES05 = 47 | CES30 = 53 | CES55 = 77 | CES80 = 77 |
| CES06 = 50 | CES31 = 55 | CES56 = 67 | CES81 = 75 |
| CES07 = 40 | CES32 = 53 | CES57 = 64 | CES82 = 90 |
| CES08 = 39 | CES33 = 59 | CES58 = 67 | CES83 = 84 |
| CES09 = 29 | CES34 = 67 | CES59 = 87 | CES84 = 89 |
| CES10 = 74 | CES35 = 82 | CES60 = 91 | CES85 = 86 |
| CES11 = 57 | CES36 = 86 | CES61 = 87 | CES86 = 71 |
| CES12 = 63 | CES37 = 76 | CES62 = 76 | CES87 = 78 |
| CES13 = 42 | CES38 = 62 | CES63 = 73 | CES88 = 76 |
| CES14 = 74 | CES39 = 91 | CES64 = 71 | CES89 = 72 |
| CES15 = 71 | CES40 = 84 | CES65 = 64 | CES90 = 72 |
| CES16 = 46 | CES41 = 81 | CES66 = 67 | CES91 = 97 |
| CES17 = 49 | CES42 = 76 | CES67 = 65 | CES92 = 66 |
| CES18 = 56 | CES43 = 71 | CES68 = 72 | CES93 = 81 |
| CES19 = 72 | CES44 = 98 | CES69 = 82 | CES94 = 55 |
| CES20 = 65 | CES45 = 80 | CES70 = 61 | CES95 = 73 |
| CES21 = 86 | CES46 = 76 | CES71 = 59 | CES96 = 78 |
| CES22 = 78 | CES47 = 71 | CES72 = 86 | CES97 = 83 |
| CES23 = 92 | CES48 = 61 | CES73 = 52 | CES98 = 72 |
| CES24 = 91 | CES49 = 76 | CES74 = 93 | CES99 = 60 |
| CES25 = 72 | CES50 = 84 | CES75 = 56 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)