

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: P1063147

Luminaire Tested: **GLAN-SA8C-930-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1063147  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA8C-930-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 8xLight Square PACKAGE  
90CRI 3000K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (112) 3000K CCT, 90 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 31948.8 lumens  
Efficiency: N/A  
Efficacy: 85.7 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G5

Input Watts (W): 372.9  
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

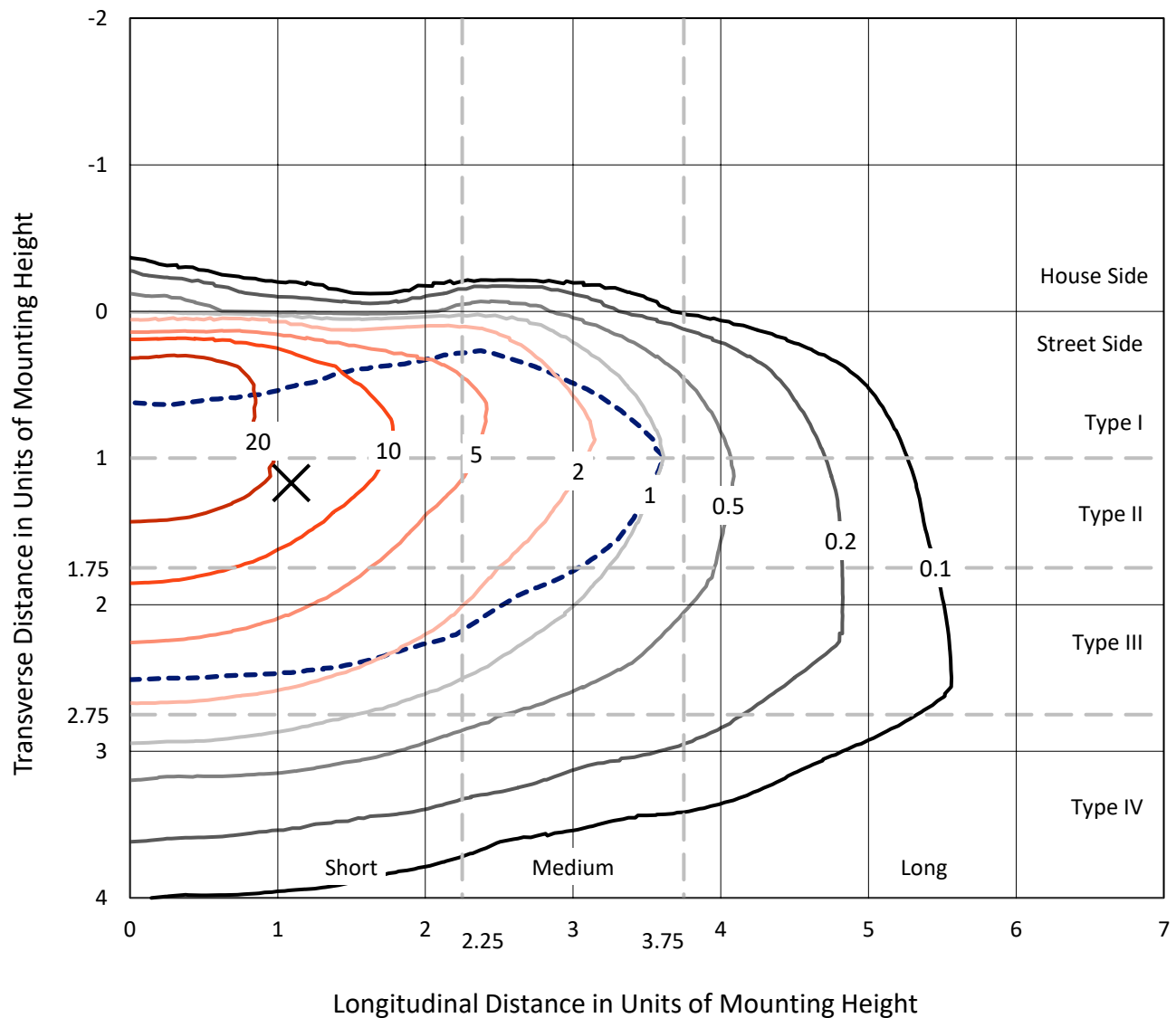


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

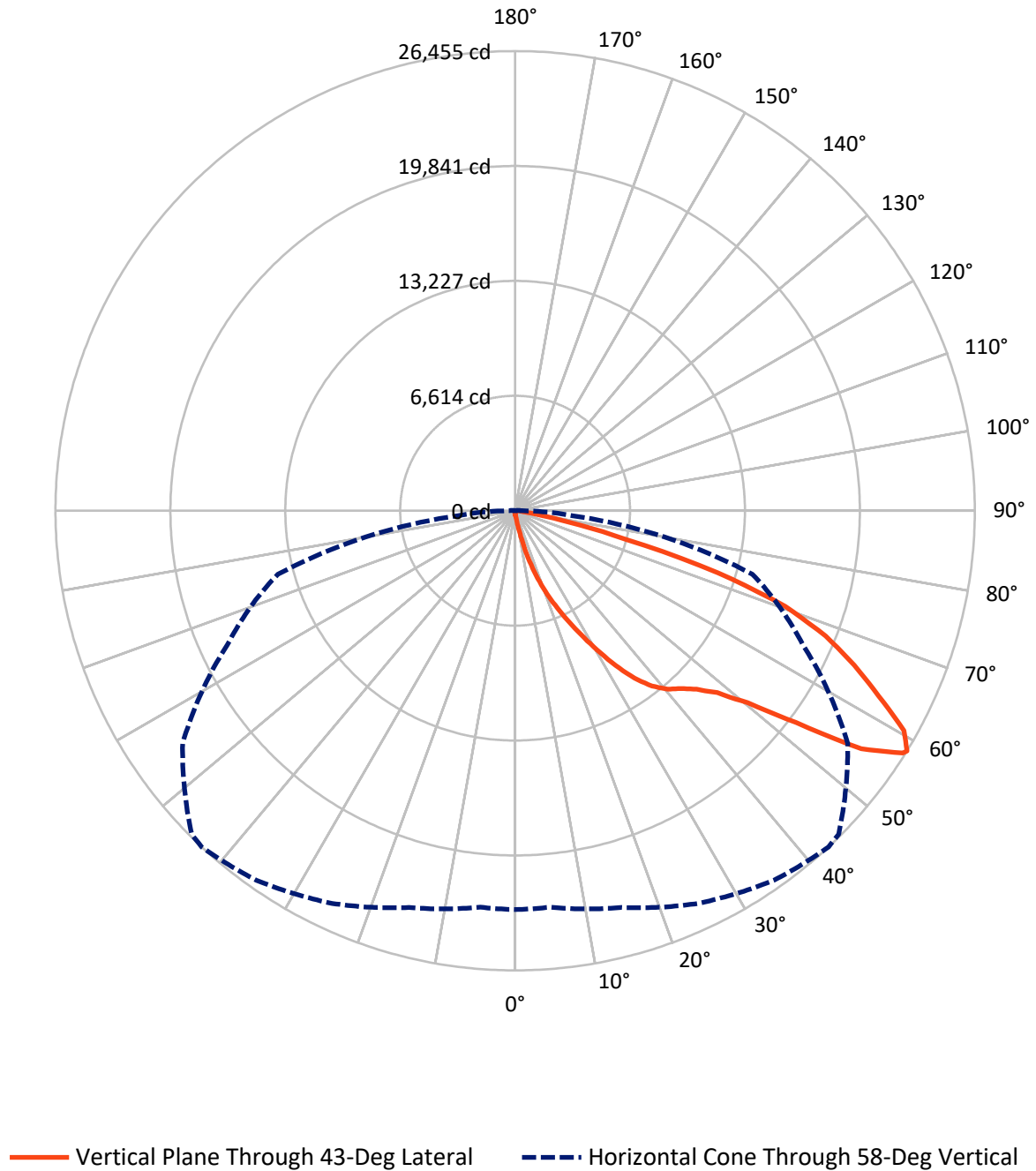


Based on 15 foot mounting height. Maximum calculated value = 35.8 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: GLAN-SA8C-930-U-T3BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 116.7    | 0.0    | 116.7   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 31832.1  | 0.0    | 31832.1 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 31948.8  | 0.0    | 31948.8 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 30.6    | 0.1       |
| 10°-20°   | 367.2   | 1.1       |
| 20°-30°   | 1323.7  | 4.1       |
| 30°-40°   | 3028.5  | 9.5       |
| 40°-50°   | 5108.0  | 16.0      |
| 50°-60°   | 8429.4  | 26.4      |
| 60°-70°   | 9421.0  | 29.5      |
| 70°-80°   | 3889.8  | 12.2      |
| 80°-90°   | 350.7   | 1.1       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 31948.8 | 100.0     |
| 0°-180°   | 31948.8 | 100.0     |



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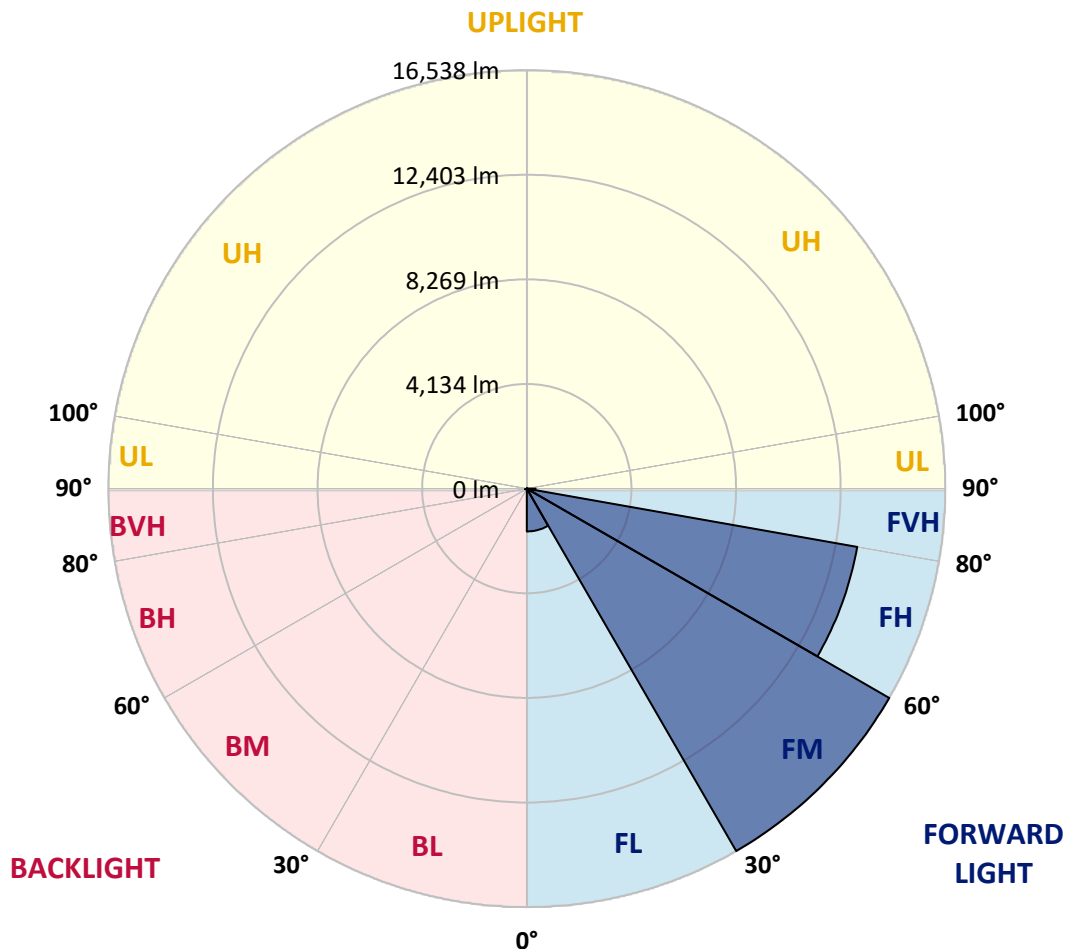
CATALOG NUMBER: GLAN-SA8C-930-U-T3BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|---------|-----------|-------------------------|------|--------|
|      |             |         |           | B                       | U    | G      |
| FL   | (0°-30°)    | 1691.1  | 5.3       |                         |      |        |
| FM   | (30°-60°)   | 16537.9 | 51.8      |                         |      |        |
| FH   | (60°-80°)   | 13257.3 | 41.5      |                         |      | G5     |
| FVH  | (80°-90°)   | 345.9   | 1.1       |                         |      | G3/500 |
| BL   | (0°-30°)    | 30.4    | 0.1       | B0/110                  |      |        |
| BM   | (30°-60°)   | 28.0    | 0.1       | B0/220                  |      |        |
| BH   | (60°-80°)   | 53.5    | 0.2       | B0/110                  |      | G0/110 |
| BVH  | (80°-90°)   | 4.8     | 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-G5**

Type III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 208.9   | 208.9   | 208.9   | 208.9   | 208.9   | 208.9   | 208.9   | 208.9   | 208.9   | 208.9   | 208.9   |
| 2.5°  | 250.7   | 259.0   | 250.7   | 250.7   | 250.7   | 242.3   | 242.3   | 234.0   | 234.0   | 225.6   | 217.3   |
| 5°    | 367.7   | 367.7   | 342.6   | 325.9   | 309.2   | 300.8   | 292.5   | 275.7   | 259.0   | 242.3   | 225.6   |
| 7.5°  | 818.9   | 818.9   | 743.7   | 643.4   | 509.7   | 434.5   | 417.8   | 342.6   | 292.5   | 259.0   | 225.6   |
| 10°   | 1955.3  | 1955.3  | 1788.2  | 1512.4  | 1169.8  | 869.0   | 777.1   | 493.0   | 350.9   | 275.7   | 234.0   |
| 12.5° | 3250.5  | 3292.2  | 3083.3  | 2732.4  | 2222.7  | 1696.3  | 1512.4  | 902.4   | 467.9   | 300.8   | 234.0   |
| 15°   | 4411.9  | 4311.7  | 4253.2  | 3918.9  | 3434.3  | 2807.6  | 2573.6  | 1520.8  | 676.8   | 342.6   | 234.0   |
| 17.5° | 5197.4  | 5197.4  | 5113.8  | 4888.2  | 4445.3  | 3893.9  | 3701.7  | 2456.6  | 1094.6  | 392.7   | 242.3   |
| 20°   | 6116.5  | 6116.5  | 5966.1  | 5807.4  | 5414.6  | 4946.7  | 4762.9  | 3492.8  | 1696.3  | 501.4   | 242.3   |
| 22.5° | 7227.9  | 7244.6  | 7077.5  | 6793.4  | 6417.3  | 5899.3  | 5740.5  | 4453.7  | 2456.6  | 668.5   | 250.7   |
| 25°   | 8581.5  | 8598.2  | 8355.9  | 8088.5  | 7512.0  | 6952.1  | 6709.8  | 5556.7  | 3384.1  | 935.9   | 250.7   |
| 27.5° | 10077.2 | 10194.2 | 9834.9  | 9375.3  | 8765.4  | 8063.5  | 7879.6  | 6551.0  | 4303.3  | 1320.2  | 267.4   |
| 30°   | 11940.6 | 11940.6 | 11464.3 | 10820.9 | 10160.8 | 9291.8  | 9057.8  | 7595.5  | 5280.9  | 1829.9  | 284.1   |
| 32.5° | 13544.9 | 13419.6 | 12809.6 | 12132.8 | 11430.9 | 10620.4 | 10369.7 | 8690.2  | 6283.7  | 2465.0  | 317.5   |
| 35°   | 14773.3 | 14664.6 | 13912.6 | 13185.6 | 12575.7 | 11832.0 | 11531.2 | 9876.7  | 7344.9  | 3183.6  | 367.7   |
| 37.5° | 15826.1 | 15784.3 | 14764.9 | 13854.1 | 13453.0 | 12801.3 | 12533.9 | 10996.4 | 8389.3  | 3960.7  | 426.2   |
| 40°   | 16979.2 | 16845.5 | 15759.3 | 14631.2 | 14029.6 | 13503.2 | 13260.8 | 11898.8 | 9392.1  | 4871.5  | 509.7   |
| 42.5° | 17965.2 | 17806.5 | 16828.8 | 15725.8 | 14698.1 | 13987.8 | 13753.8 | 12659.2 | 10369.7 | 5782.3  | 618.3   |
| 45°   | 19059.9 | 18976.3 | 17990.3 | 17154.7 | 15784.3 | 14647.9 | 14338.8 | 13269.2 | 11263.8 | 6868.6  | 760.4   |
| 47.5° | 20706.0 | 20555.6 | 19636.4 | 18951.2 | 17363.6 | 15650.6 | 15207.8 | 13895.9 | 12124.4 | 7938.1  | 977.6   |
| 50°   | 22619.5 | 22519.2 | 21976.1 | 21432.9 | 19853.7 | 17363.6 | 16837.2 | 14798.3 | 13085.4 | 9208.2  | 1261.7  |
| 52.5° | 24182.0 | 24165.3 | 24232.2 | 24240.5 | 23045.6 | 20246.4 | 19460.9 | 16252.3 | 14188.4 | 10461.6 | 1662.8  |
| 55°   | 24148.6 | 24223.8 | 24959.1 | 25803.1 | 25895.0 | 24182.0 | 23421.6 | 18700.6 | 15625.6 | 12007.5 | 2222.7  |
| 57.5° | 23246.2 | 23187.7 | 23964.8 | 25234.9 | 26129.0 | 26312.8 | 26187.5 | 22502.5 | 17789.8 | 13870.8 | 3083.3  |
| 58°   | 22953.7 | 22903.6 | 23638.9 | 24934.1 | 25961.8 | 26454.8 | 26329.5 | 23363.2 | 18274.4 | 14138.2 | 3317.3  |
| 60°   | 21892.5 | 21900.9 | 22335.4 | 23513.6 | 24541.3 | 25711.2 | 25828.2 | 25819.8 | 20689.3 | 15926.4 | 4495.5  |
| 62.5° | 20488.7 | 20421.9 | 20823.0 | 21783.9 | 22686.3 | 23471.8 | 23672.3 | 25986.9 | 24223.8 | 18199.2 | 6743.2  |
| 65°   | 18550.1 | 18449.9 | 18876.0 | 19962.3 | 20931.6 | 21441.3 | 21449.6 | 23747.5 | 25886.6 | 20639.1 | 9951.9  |
| 67.5° | 14948.7 | 14865.2 | 15717.5 | 17112.9 | 18608.6 | 19277.1 | 19577.9 | 20605.7 | 24482.8 | 22293.6 | 11790.2 |
| 70°   | 9158.1  | 9333.6  | 10520.1 | 12709.4 | 15266.3 | 16494.6 | 16945.8 | 17263.3 | 20848.0 | 22042.9 | 9860.0  |
| 72.5° | 4228.1  | 4019.2  | 5030.3  | 6559.4  | 9475.6  | 12208.0 | 12675.9 | 13921.0 | 16528.0 | 19135.1 | 7353.2  |
| 75°   | 1972.0  | 1896.8  | 2130.8  | 2866.1  | 4294.9  | 6592.8  | 7445.1  | 11113.4 | 12675.9 | 13311.0 | 5306.0  |
| 77.5° | 1011.1  | 1019.4  | 1211.6  | 1303.5  | 1771.5  | 3049.9  | 3501.1  | 7311.4  | 9291.8  | 7428.4  | 3559.6  |
| 80°   | 442.9   | 459.6   | 467.9   | 509.7   | 718.6   | 1178.2  | 1328.6  | 3392.5  | 6350.5  | 3785.2  | 1946.9  |
| 82.5° | 284.1   | 292.5   | 292.5   | 292.5   | 342.6   | 467.9   | 534.8   | 1362.0  | 3166.9  | 1880.1  | 601.6   |
| 85°   | 150.4   | 150.4   | 167.1   | 208.9   | 242.3   | 284.1   | 300.8   | 434.5   | 1044.5  | 559.8   | 142.1   |
| 87.5° | 83.6    | 91.9    | 100.3   | 125.3   | 158.8   | 192.2   | 208.9   | 300.8   | 401.1   | 384.4   | 33.4    |
| 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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**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 208.9  | 208.9 | 208.9 | 208.9 | 208.9 | 208.9 | 208.9 | 208.9 | 208.9 | 208.9 | 208.9 |
| 2.5°  | 217.3  | 208.9 | 200.5 | 192.2 | 183.8 | 175.5 | 175.5 | 175.5 | 175.5 | 175.5 | 175.5 |
| 5°    | 208.9  | 200.5 | 192.2 | 175.5 | 158.8 | 150.4 | 142.1 | 133.7 | 133.7 | 133.7 | 133.7 |
| 7.5°  | 208.9  | 200.5 | 175.5 | 158.8 | 142.1 | 125.3 | 108.6 | 108.6 | 108.6 | 108.6 | 108.6 |
| 10°   | 208.9  | 192.2 | 167.1 | 142.1 | 117.0 | 100.3 | 91.9  | 83.6  | 83.6  | 83.6  | 83.6  |
| 12.5° | 208.9  | 183.8 | 158.8 | 125.3 | 100.3 | 83.6  | 75.2  | 66.8  | 66.8  | 66.8  | 66.8  |
| 15°   | 208.9  | 183.8 | 150.4 | 117.0 | 91.9  | 66.8  | 58.5  | 50.1  | 50.1  | 50.1  | 50.1  |
| 17.5° | 200.5  | 175.5 | 142.1 | 100.3 | 75.2  | 50.1  | 41.8  | 33.4  | 33.4  | 41.8  | 41.8  |
| 20°   | 192.2  | 167.1 | 125.3 | 83.6  | 58.5  | 41.8  | 25.1  | 25.1  | 25.1  | 25.1  | 25.1  |
| 22.5° | 192.2  | 167.1 | 117.0 | 75.2  | 50.1  | 25.1  | 16.7  | 16.7  | 16.7  | 16.7  | 25.1  |
| 25°   | 192.2  | 158.8 | 100.3 | 58.5  | 33.4  | 16.7  | 8.4   | 8.4   | 8.4   | 8.4   | 8.4   |
| 27.5° | 192.2  | 158.8 | 91.9  | 50.1  | 25.1  | 16.7  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 183.8  | 150.4 | 83.6  | 41.8  | 16.7  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 183.8  | 142.1 | 66.8  | 33.4  | 16.7  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 192.2  | 133.7 | 58.5  | 25.1  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 8.4   |
| 37.5° | 200.5  | 125.3 | 50.1  | 16.7  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 208.9  | 117.0 | 50.1  | 16.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 225.6  | 117.0 | 41.8  | 16.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 242.3  | 117.0 | 33.4  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 275.7  | 125.3 | 33.4  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 300.8  | 133.7 | 25.1  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 334.2  | 125.3 | 25.1  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 376.0  | 125.3 | 25.1  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 409.4  | 117.0 | 25.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 426.2  | 108.6 | 16.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 509.7  | 100.3 | 16.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 793.8  | 83.6  | 16.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1612.7 | 75.2  | 16.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 3008.1 | 66.8  | 16.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 3367.4 | 75.2  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 2122.4 | 58.5  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1119.7 | 58.5  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 559.8  | 58.5  | 8.4   | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 259.0  | 41.8  | 8.4   | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 108.6  | 25.1  | 16.7  | 8.4   | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 50.1   | 25.1  | 16.7  | 16.7  | 8.4   | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 25.1   | 25.1  | 25.1  | 16.7  | 16.7  | 8.4   | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-14

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-930-U-5WQ

Data in this report applies to families of products including GSS-SB1A-930-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-14  
 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-930-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2993  
 CIE  $u'$ : 0.2501  
 CIE  $v'$ : 0.5245  
 Duv: 0.0021  
 CIE x: 0.4406  
 CIE y: 0.4107  
 CIE z: 0.1487  
 Peak Wavelength (nm): 621  
 Dominant Wavelength (nm): 582  
 Purity: 55.53327  
 R<sub>f</sub>: 92.6  
 R<sub>g</sub>: 98.5

CRI (Ra): 92.4  
 R1: 92.2  
 R2: 95.2  
 R3: 97.0  
 R4: 93.1  
 R5: 91.7  
 R6: 94.2  
 R7: 93.3  
 R8: 82.3  
 R9: 58.2  
 R10: 87.7  
 R11: 93.5  
 R12: 81.7  
 R13: 92.9  
 R14: 97.6  
 R15: 88.1



### Test Conditions

Stabilization Time: 20M  
 Operation Time: 1H 20M  
 Sphere Temperature (°C): 25.2

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| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/18/2024        | 12/18/2024           |
| Power Meter                    | INXT2011004           | 2/8/2024         | 2/8/2025             |
| AC Power Source                | IN0063                | 10/24/2023       | 10/24/2024           |
| DC Power Source                | IN0208                | 10/24/2023       | 10/24/2024           |
| Sphere Thermometer             | IN0085                | 10/24/2023       | 10/24/2024           |
| Room Thermometer               | IN0046                | 10/24/2023       | 10/24/2024           |

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**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<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               | 310                                    | NR                             | 620               | 998                                    | NR                             | 750               | 77                                     | NR                             | 880               | 2                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 347                                    | NR                             | 625               | 993                                    | NR                             | 755               | 66                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 379                                    | NR                             | 630               | 983                                    | NR                             | 760               | 56                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 412                                    | NR                             | 635               | 960                                    | NR                             | 765               | 48                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 442                                    | NR                             | 640               | 930                                    | NR                             | 770               | 41                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 475                                    | NR                             | 645               | 889                                    | NR                             | 775               | 35                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 506                                    | NR                             | 650               | 846                                    | NR                             | 780               | 30                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 0                                      | NR                             | 525               | 535                                    | NR                             | 655               | 794                                    | NR                             | 785               | 26                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 1                                      | NR                             | 530               | 565                                    | NR                             | 660               | 740                                    | NR                             | 790               | 22                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 2                                      | NR                             | 535               | 592                                    | NR                             | 665               | 684                                    | NR                             | 795               | 19                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 6                                      | NR                             | 540               | 615                                    | NR                             | 670               | 624                                    | NR                             | 800               | 16                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 10                                     | NR                             | 545               | 638                                    | NR                             | 675               | 567                                    | NR                             | 805               | 14                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 20                                     | NR                             | 550               | 658                                    | NR                             | 680               | 513                                    | NR                             | 810               | 12                                     | NR                             | 940               | 0                                      | NR                             |
| 425               | 38                                     | NR                             | 555               | 678                                    | NR                             | 685               | 459                                    | NR                             | 815               | 10                                     | NR                             | 945               | 0                                      | NR                             |
| 430               | 70                                     | NR                             | 560               | 695                                    | NR                             | 690               | 412                                    | NR                             | 820               | 9                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 136                                    | NR                             | 565               | 716                                    | NR                             | 695               | 363                                    | NR                             | 825               | 8                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 262                                    | NR                             | 570               | 740                                    | NR                             | 700               | 320                                    | NR                             | 830               | 7                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 424                                    | NR                             | 575               | 765                                    | NR                             | 705               | 281                                    | NR                             | 835               | 6                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 406                                    | NR                             | 580               | 796                                    | NR                             | 710               | 245                                    | NR                             | 840               | 5                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 313                                    | NR                             | 585               | 827                                    | NR                             | 715               | 215                                    | NR                             | 845               | 4                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 294                                    | NR                             | 590               | 861                                    | NR                             | 720               | 188                                    | NR                             | 850               | 4                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 250                                    | NR                             | 595               | 894                                    | NR                             | 725               | 162                                    | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 217                                    | NR                             | 600               | 927                                    | NR                             | 730               | 140                                    | NR                             | 860               | 3                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 228                                    | NR                             | 605               | 954                                    | NR                             | 735               | 121                                    | NR                             | 865               | 2                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 249                                    | NR                             | 610               | 976                                    | NR                             | 740               | 104                                    | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 276                                    | NR                             | 615               | 992                                    | NR                             | 745               | 89                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP1-2407-184-14

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.39

| 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       | 310                         | NR               | 620       | 998                         | NR               | 750       | 77                          | NR               | 880       | 2                           | NR               |
| 365       | 0                           | NR               | 495       | 347                         | NR               | 625       | 993                         | NR               | 755       | 66                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 379                         | NR               | 630       | 983                         | NR               | 760       | 56                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 412                         | NR               | 635       | 960                         | NR               | 765       | 48                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 442                         | NR               | 640       | 930                         | NR               | 770       | 41                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 475                         | NR               | 645       | 889                         | NR               | 775       | 35                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 506                         | NR               | 650       | 846                         | NR               | 780       | 30                          | NR               | 910       | 1                           | NR               |
| 395       | 0                           | NR               | 525       | 535                         | NR               | 655       | 794                         | NR               | 785       | 26                          | NR               | 915       | 1                           | NR               |
| 400       | 1                           | NR               | 530       | 565                         | NR               | 660       | 740                         | NR               | 790       | 22                          | NR               | 920       | 1                           | NR               |
| 405       | 2                           | NR               | 535       | 592                         | NR               | 665       | 684                         | NR               | 795       | 19                          | NR               | 925       | 1                           | NR               |
| 410       | 6                           | NR               | 540       | 615                         | NR               | 670       | 624                         | NR               | 800       | 16                          | NR               | 930       | 0                           | NR               |
| 415       | 10                          | NR               | 545       | 638                         | NR               | 675       | 567                         | NR               | 805       | 14                          | NR               | 935       | 0                           | NR               |
| 420       | 20                          | NR               | 550       | 658                         | NR               | 680       | 513                         | NR               | 810       | 12                          | NR               | 940       | 0                           | NR               |
| 425       | 38                          | NR               | 555       | 678                         | NR               | 685       | 459                         | NR               | 815       | 10                          | NR               | 945       | 0                           | NR               |
| 430       | 70                          | NR               | 560       | 695                         | NR               | 690       | 412                         | NR               | 820       | 9                           | NR               | 950       | 0                           | NR               |
| 435       | 136                         | NR               | 565       | 716                         | NR               | 695       | 363                         | NR               | 825       | 8                           | NR               | 955       | 0                           | NR               |
| 440       | 262                         | NR               | 570       | 740                         | NR               | 700       | 320                         | NR               | 830       | 7                           | NR               | 960       | 0                           | NR               |
| 445       | 424                         | NR               | 575       | 765                         | NR               | 705       | 281                         | NR               | 835       | 6                           | NR               | 965       | 0                           | NR               |
| 450       | 406                         | NR               | 580       | 796                         | NR               | 710       | 245                         | NR               | 840       | 5                           | NR               | 970       | 0                           | NR               |
| 455       | 313                         | NR               | 585       | 827                         | NR               | 715       | 215                         | NR               | 845       | 4                           | NR               | 975       | 0                           | NR               |
| 460       | 294                         | NR               | 590       | 861                         | NR               | 720       | 188                         | NR               | 850       | 4                           | NR               | 980       | 0                           | NR               |
| 465       | 250                         | NR               | 595       | 894                         | NR               | 725       | 162                         | NR               | 855       | 3                           | NR               | 985       | 0                           | NR               |
| 470       | 217                         | NR               | 600       | 927                         | NR               | 730       | 140                         | NR               | 860       | 3                           | NR               | 990       | 0                           | NR               |
| 475       | 228                         | NR               | 605       | 954                         | NR               | 735       | 121                         | NR               | 865       | 2                           | NR               | 995       | 0                           | NR               |
| 480       | 249                         | NR               | 610       | 976                         | NR               | 740       | 104                         | NR               | 870       | 2                           | NR               | 1000      | 0                           | NR               |
| 485       | 276                         | NR               | 615       | 992                         | NR               | 745       | 89                          | NR               | 875       | 2                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.69

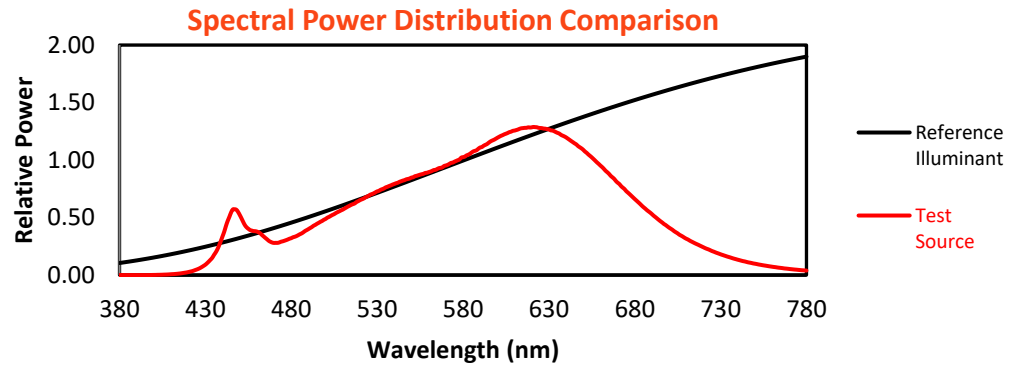
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | 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               | 310                                    | NR                             | 620               | 998                                    | NR                             | 750               | 77                                     | NR                             | 880               | 2                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 347                                    | NR                             | 625               | 993                                    | NR                             | 755               | 66                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 379                                    | NR                             | 630               | 983                                    | NR                             | 760               | 56                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 412                                    | NR                             | 635               | 960                                    | NR                             | 765               | 48                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 442                                    | NR                             | 640               | 930                                    | NR                             | 770               | 41                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 475                                    | NR                             | 645               | 889                                    | NR                             | 775               | 35                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 506                                    | NR                             | 650               | 846                                    | NR                             | 780               | 30                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 0                                      | NR                             | 525               | 535                                    | NR                             | 655               | 794                                    | NR                             | 785               | 26                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 1                                      | NR                             | 530               | 565                                    | NR                             | 660               | 740                                    | NR                             | 790               | 22                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 2                                      | NR                             | 535               | 592                                    | NR                             | 665               | 684                                    | NR                             | 795               | 19                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 6                                      | NR                             | 540               | 615                                    | NR                             | 670               | 624                                    | NR                             | 800               | 16                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 10                                     | NR                             | 545               | 638                                    | NR                             | 675               | 567                                    | NR                             | 805               | 14                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 20                                     | NR                             | 550               | 658                                    | NR                             | 680               | 513                                    | NR                             | 810               | 12                                     | NR                             | 940               | 0                                      | NR                             |
| 425               | 38                                     | NR                             | 555               | 678                                    | NR                             | 685               | 459                                    | NR                             | 815               | 10                                     | NR                             | 945               | 0                                      | NR                             |
| 430               | 70                                     | NR                             | 560               | 695                                    | NR                             | 690               | 412                                    | NR                             | 820               | 9                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 136                                    | NR                             | 565               | 716                                    | NR                             | 695               | 363                                    | NR                             | 825               | 8                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 262                                    | NR                             | 570               | 740                                    | NR                             | 700               | 320                                    | NR                             | 830               | 7                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 424                                    | NR                             | 575               | 765                                    | NR                             | 705               | 281                                    | NR                             | 835               | 6                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 406                                    | NR                             | 580               | 796                                    | NR                             | 710               | 245                                    | NR                             | 840               | 5                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 313                                    | NR                             | 585               | 827                                    | NR                             | 715               | 215                                    | NR                             | 845               | 4                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 294                                    | NR                             | 590               | 861                                    | NR                             | 720               | 188                                    | NR                             | 850               | 4                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 250                                    | NR                             | 595               | 894                                    | NR                             | 725               | 162                                    | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 217                                    | NR                             | 600               | 927                                    | NR                             | 730               | 140                                    | NR                             | 860               | 3                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 228                                    | NR                             | 605               | 954                                    | NR                             | 735               | 121                                    | NR                             | 865               | 2                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 249                                    | NR                             | 610               | 976                                    | NR                             | 740               | 104                                    | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 276                                    | NR                             | 615               | 992                                    | NR                             | 745               | 89                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP1-2407-184-14

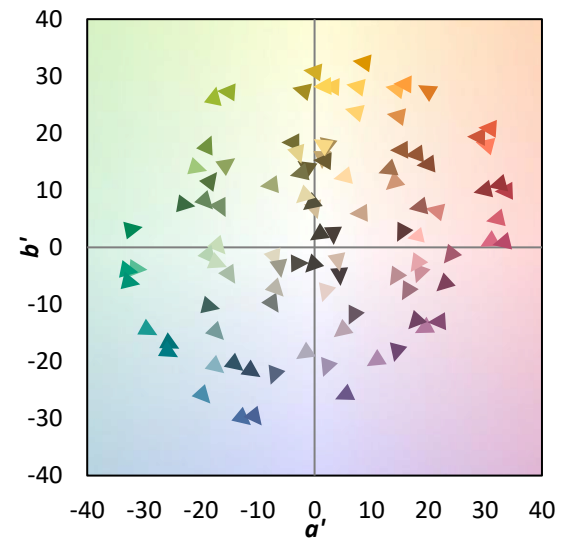
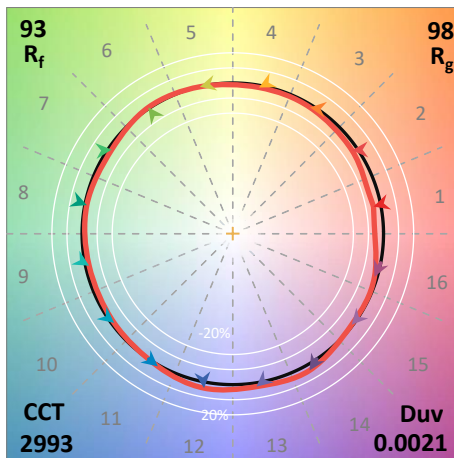
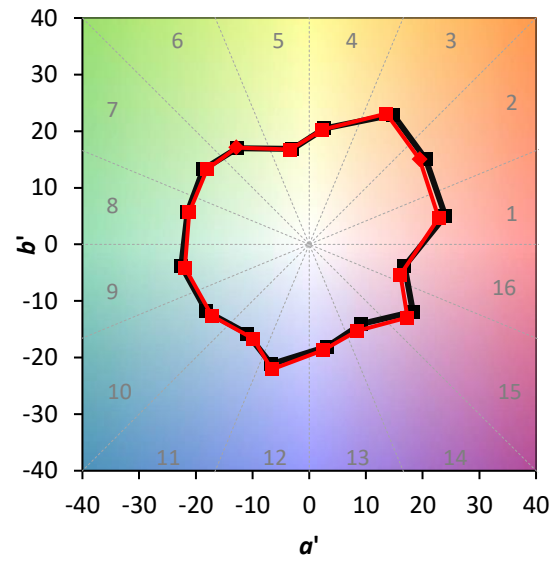
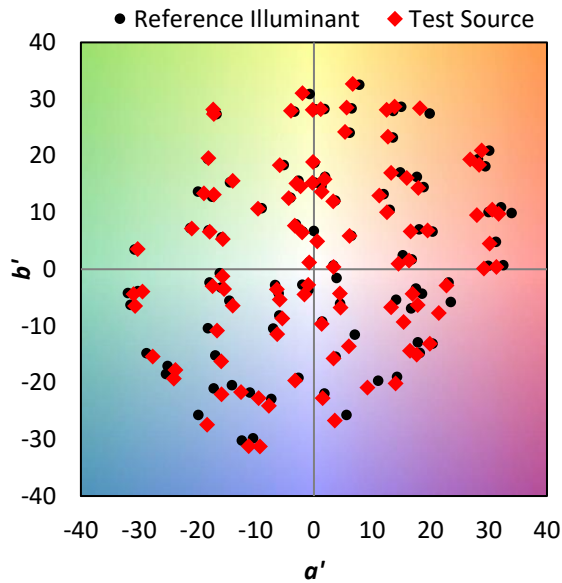
TM-30-18

### Summary

$R_f = 92.6$   
 $R_g = 98.5$   
 $\text{CIE } R_a = 92.4$   
 $R_9 = 58.2$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 94 | CES51 = 98 | CES76 = 90 |
| CES02 = 63 | CES27 = 94 | CES52 = 98 | CES77 = 91 |
| CES03 = 32 | CES28 = 97 | CES53 = 96 | CES78 = 88 |
| CES04 = 70 | CES29 = 95 | CES54 = 95 | CES79 = 94 |
| CES05 = 51 | CES30 = 97 | CES55 = 94 | CES80 = 94 |
| CES06 = 51 | CES31 = 96 | CES56 = 94 | CES81 = 84 |
| CES07 = 43 | CES32 = 91 | CES57 = 94 | CES82 = 97 |
| CES08 = 42 | CES33 = 98 | CES58 = 94 | CES83 = 97 |
| CES09 = 29 | CES34 = 96 | CES59 = 97 | CES84 = 95 |
| CES10 = 76 | CES35 = 97 | CES60 = 95 | CES85 = 85 |
| CES11 = 59 | CES36 = 87 | CES61 = 94 | CES86 = 84 |
| CES12 = 65 | CES37 = 95 | CES62 = 92 | CES87 = 92 |
| CES13 = 44 | CES38 = 93 | CES63 = 93 | CES88 = 95 |
| CES14 = 74 | CES39 = 99 | CES64 = 92 | CES89 = 86 |
| CES15 = 72 | CES40 = 98 | CES65 = 89 | CES90 = 96 |
| CES16 = 48 | CES41 = 98 | CES66 = 90 | CES91 = 82 |
| CES17 = 50 | CES42 = 97 | CES67 = 89 | CES92 = 81 |
| CES18 = 57 | CES43 = 97 | CES68 = 90 | CES93 = 89 |
| CES19 = 72 | CES44 = 99 | CES69 = 92 | CES94 = 80 |
| CES20 = 67 | CES45 = 99 | CES70 = 89 | CES95 = 86 |
| CES21 = 86 | CES46 = 96 | CES71 = 87 | CES96 = 92 |
| CES22 = 79 | CES47 = 95 | CES72 = 95 | CES97 = 96 |
| CES23 = 92 | CES48 = 93 | CES73 = 85 | CES98 = 94 |
| CES24 = 91 | CES49 = 97 | CES74 = 93 | CES99 = 91 |
| CES25 = 72 | CES50 = 98 | CES75 = 88 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)