

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: P1064393

Luminaire Tested: **GLAN-SA5A-935-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1064393  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA5A-935-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 5xLight Square PACKAGE  
90CRI 3500K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (70) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13188.9 lumens  
Efficiency: N/A  
Efficacy: 96.6 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G3

Input Watts (W): 136.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

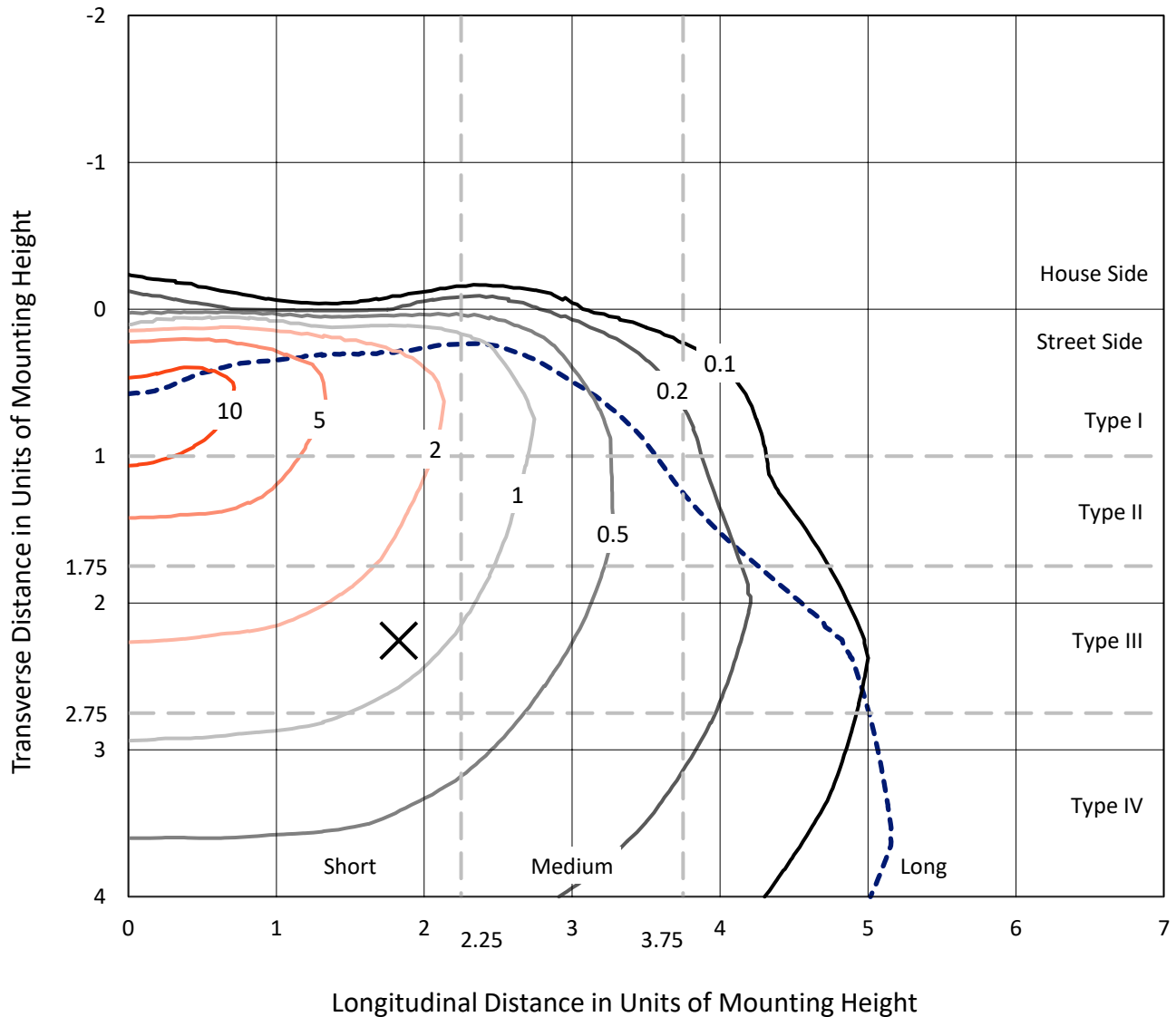


REPORT NUMBER: P1064393

CATALOG NUMBER: GLAN-SA5A-935-U-T4BC

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 --- 1/2 Max cd

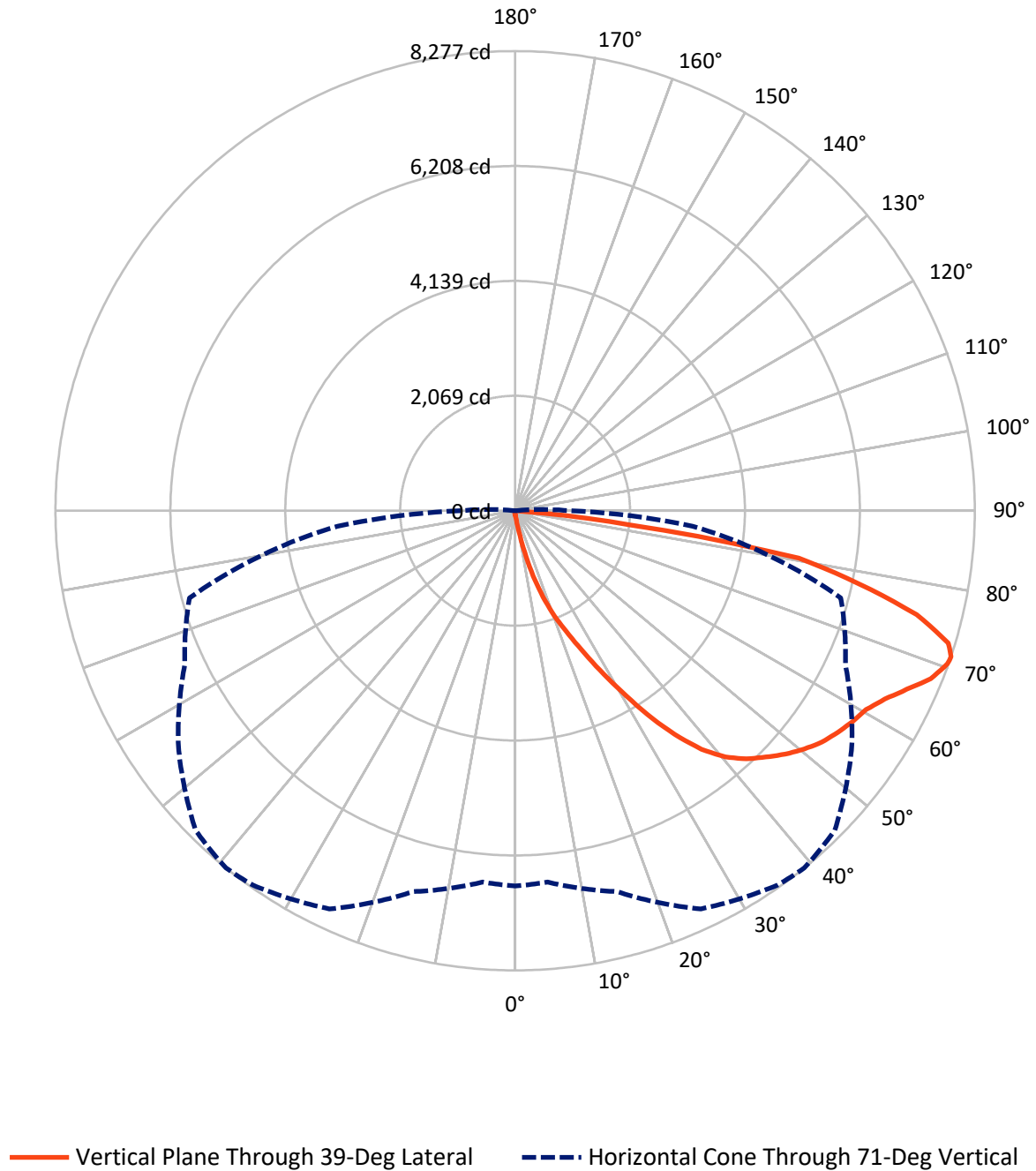


Based on 15 foot mounting height. Maximum calculated value = 13.6 fc  
 Type IV - Short - N/A

REPORT NUMBER: P1064393

CATALOG NUMBER: GLAN-SA5A-935-U-T4BC

## Luminous Intensity Polar Plot



REPORT NUMBER: P1064393

CATALOG NUMBER: GLAN-SA5A-935-U-T4BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 46.9     | 0.0    | 46.9    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 13142.1  | 0.0    | 13142.1 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 13188.9  | 0.0    | 13188.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 11.0    | 0.1       |
| 10°-20°   | 141.0   | 1.1       |
| 20°-30°   | 502.0   | 3.8       |
| 30°-40°   | 1209.9  | 9.2       |
| 40°-50°   | 2024.8  | 15.4      |
| 50°-60°   | 2600.6  | 19.7      |
| 60°-70°   | 3291.1  | 25.0      |
| 70°-80°   | 2934.2  | 22.2      |
| 80°-90°   | 474.3   | 3.6       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 13188.9 | 100.0     |
| 0°-180°   | 13188.9 | 100.0     |



REPORT NUMBER: P1064393

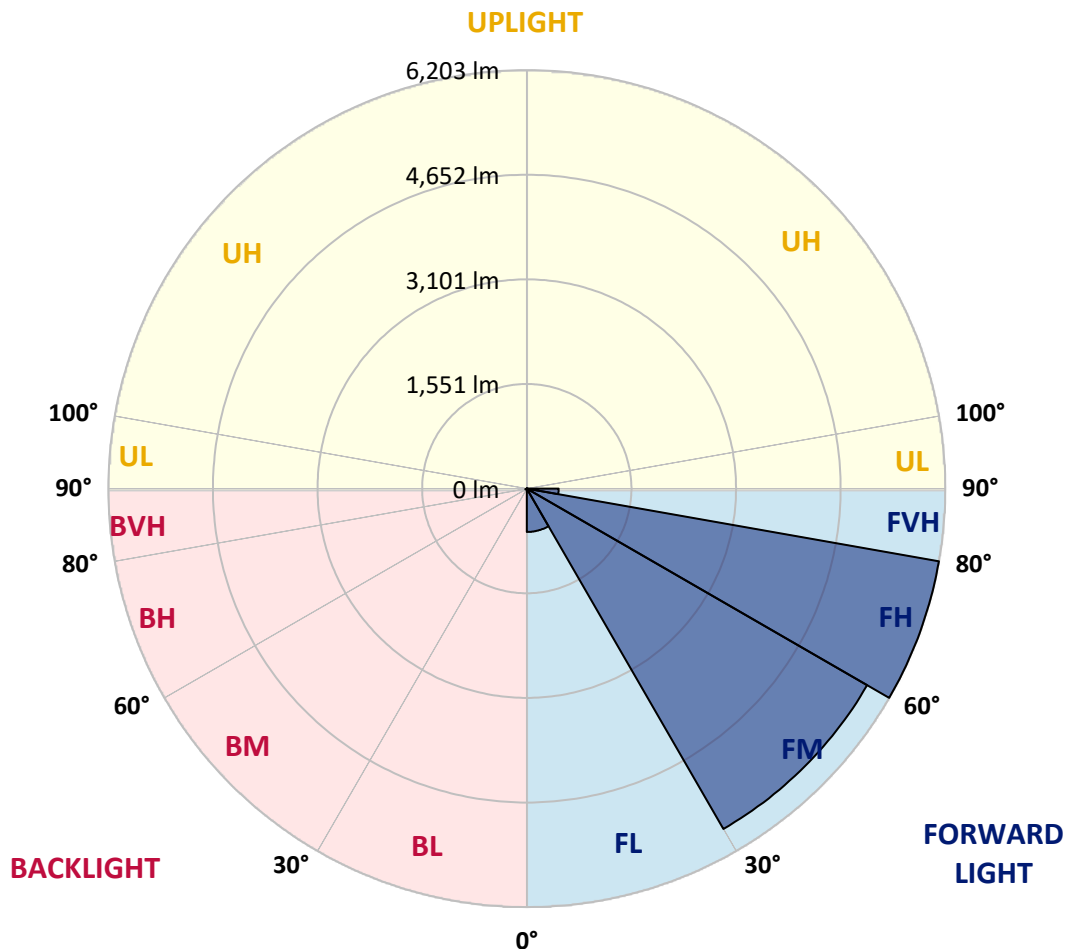
CATALOG NUMBER: GLAN-SA5A-935-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 642.7  | 4.9       |                         |      |         |
| FM   | (30°-60°)   | 5824.5 | 44.2      |                         |      |         |
| FH   | (60°-80°)   | 6202.8 | 47.0      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 472.1  | 3.6       |                         |      | G3/500  |
| BL   | (0°-30°)    | 11.3   | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 10.8   | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 22.5   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 2.2    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B0-U0-G3**

Type IV Short





REPORT NUMBER: P1064393

CATALOG NUMBER: GLAN-SA5A-935-U-T4BC

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 39°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 72.3   | 72.3   | 72.3   | 72.3   | 72.3   | 72.3   | 72.3   | 72.3   | 72.3   | 72.3   | 72.3   |
| 2.5°  | 83.0   | 83.0   | 83.0   | 80.4   | 80.4   | 79.5   | 78.6   | 78.6   | 76.8   | 75.9   | 74.1   |
| 5°    | 125.9  | 123.2  | 117.0  | 113.4  | 106.2  | 101.8  | 97.3   | 91.1   | 84.8   | 80.4   | 75.0   |
| 7.5°  | 284.8  | 291.1  | 270.5  | 232.1  | 192.8  | 175.9  | 147.3  | 118.7  | 98.2   | 84.8   | 75.9   |
| 10°   | 725.9  | 722.3  | 652.7  | 575.9  | 444.6  | 391.9  | 307.1  | 193.7  | 126.8  | 92.9   | 76.8   |
| 12.5° | 1234.8 | 1231.2 | 1149.1 | 1044.6 | 871.4  | 761.6  | 600.9  | 361.6  | 182.1  | 105.4  | 76.8   |
| 15°   | 1662.4 | 1648.1 | 1622.3 | 1518.7 | 1316.0 | 1224.1 | 1011.6 | 639.3  | 294.6  | 126.8  | 78.6   |
| 17.5° | 1945.5 | 1933.0 | 1908.8 | 1871.4 | 1742.8 | 1633.9 | 1463.3 | 1004.4 | 476.8  | 164.3  | 82.1   |
| 20°   | 2205.3 | 2196.3 | 2176.7 | 2169.6 | 2086.5 | 2028.5 | 1887.4 | 1424.0 | 742.8  | 223.2  | 87.5   |
| 22.5° | 2562.4 | 2543.6 | 2551.7 | 2508.8 | 2427.6 | 2357.9 | 2271.3 | 1863.3 | 1067.8 | 321.4  | 97.3   |
| 25°   | 2999.9 | 2990.9 | 2968.6 | 2938.3 | 2825.8 | 2765.1 | 2632.0 | 2277.6 | 1431.2 | 450.0  | 108.0  |
| 27.5° | 3528.4 | 3518.6 | 3513.2 | 3443.6 | 3314.1 | 3248.1 | 3062.4 | 2668.6 | 1840.1 | 630.3  | 122.3  |
| 30°   | 4137.3 | 4141.8 | 4107.0 | 4017.7 | 3866.8 | 3773.9 | 3582.9 | 3078.4 | 2258.8 | 841.9  | 137.5  |
| 32.5° | 4767.7 | 4758.7 | 4705.2 | 4599.8 | 4465.0 | 4378.4 | 4135.5 | 3527.5 | 2698.1 | 1121.4 | 155.4  |
| 35°   | 5447.1 | 5430.1 | 5289.1 | 5168.5 | 5053.4 | 4944.4 | 4723.0 | 4048.9 | 3137.4 | 1434.8 | 179.5  |
| 37.5° | 6132.8 | 6053.3 | 5770.3 | 5617.6 | 5538.2 | 5448.9 | 5242.6 | 4605.2 | 3574.0 | 1784.7 | 208.9  |
| 40°   | 6650.6 | 6589.0 | 6253.3 | 5972.1 | 5908.7 | 5832.8 | 5679.2 | 5085.5 | 4038.2 | 2160.6 | 244.6  |
| 42.5° | 6937.2 | 6903.3 | 6601.5 | 6323.8 | 6174.7 | 6107.8 | 5976.5 | 5505.1 | 4497.1 | 2575.8 | 296.4  |
| 45°   | 7059.5 | 7006.9 | 6805.1 | 6675.6 | 6438.1 | 6327.4 | 6171.2 | 5822.1 | 4976.6 | 3047.2 | 368.7  |
| 47.5° | 7022.0 | 6991.7 | 6847.0 | 6894.4 | 6722.0 | 6549.7 | 6320.3 | 6064.9 | 5386.4 | 3588.2 | 467.8  |
| 50°   | 6786.3 | 6760.4 | 6715.8 | 6972.0 | 6950.6 | 6747.0 | 6513.1 | 6256.9 | 5721.2 | 4146.3 | 621.4  |
| 52.5° | 6338.1 | 6327.4 | 6441.7 | 6911.3 | 7080.1 | 6921.1 | 6698.8 | 6426.5 | 6033.7 | 4729.3 | 841.0  |
| 55°   | 5760.5 | 5804.2 | 6131.0 | 6816.7 | 7146.1 | 7049.7 | 6863.1 | 6585.4 | 6284.6 | 5250.7 | 1165.1 |
| 57.5° | 5523.0 | 5534.6 | 5942.6 | 6749.7 | 7175.6 | 7163.1 | 7022.9 | 6737.2 | 6514.9 | 5667.6 | 1659.8 |
| 60°   | 5800.7 | 5782.8 | 5998.0 | 6800.6 | 7234.5 | 7264.9 | 7164.9 | 6878.3 | 6714.9 | 6025.6 | 2318.7 |
| 62.5° | 6302.4 | 6292.6 | 6361.3 | 7017.6 | 7406.8 | 7468.4 | 7362.2 | 6980.1 | 6891.7 | 6261.3 | 3070.4 |
| 65°   | 6750.6 | 6730.1 | 6857.8 | 7402.4 | 7709.5 | 7753.2 | 7660.4 | 7154.2 | 6969.4 | 6432.8 | 3776.6 |
| 67.5° | 6944.4 | 6939.9 | 7145.2 | 7768.4 | 8027.3 | 8074.7 | 7993.4 | 7394.3 | 6951.5 | 6487.2 | 4088.2 |
| 70°   | 6856.0 | 6839.0 | 7167.6 | 7923.8 | 8206.8 | 8260.4 | 8181.8 | 7483.6 | 6757.8 | 6314.9 | 3626.6 |
| 71°   | 6758.6 | 6713.1 | 7100.6 | 7913.1 | 8231.8 | 8277.3 | 8139.8 | 7402.4 | 6563.1 | 6070.3 | 3207.9 |
| 72.5° | 6456.9 | 6464.9 | 6916.7 | 7801.5 | 8172.0 | 8158.6 | 7902.3 | 7111.3 | 6328.3 | 5514.9 | 2576.7 |
| 75°   | 5714.0 | 5761.4 | 6321.2 | 7332.7 | 7638.1 | 7467.5 | 7075.6 | 6555.1 | 5856.9 | 3954.3 | 1789.2 |
| 77.5° | 4669.4 | 4740.0 | 5355.1 | 6431.0 | 6344.4 | 6327.4 | 6311.3 | 5775.7 | 5001.6 | 2124.0 | 1244.6 |
| 80°   | 2229.4 | 2382.0 | 3230.2 | 4590.9 | 4987.3 | 5179.2 | 5058.7 | 4654.3 | 3867.7 | 1011.6 | 743.7  |
| 82.5° | 145.5  | 143.7  | 203.6  | 385.7  | 1625.8 | 2101.7 | 3339.1 | 3326.6 | 2696.3 | 492.8  | 303.6  |
| 85°   | 68.7   | 70.5   | 77.7   | 88.4   | 102.7  | 112.5  | 155.4  | 910.7  | 1290.1 | 234.8  | 66.1   |
| 87.5° | 40.2   | 41.1   | 48.2   | 61.6   | 80.4   | 89.3   | 106.2  | 136.6  | 167.9  | 129.5  | 14.3   |
| 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: P1064393

CATALOG NUMBER: GLAN-SA5A-935-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 72.3   | 72.3 | 72.3 | 72.3 | 72.3 | 72.3 | 72.3 | 72.3 | 72.3 | 72.3 | 72.3 |
| 2.5°  | 73.2   | 72.3 | 69.6 | 67.0 | 64.3 | 62.5 | 61.6 | 62.5 | 62.5 | 63.4 | 63.4 |
| 5°    | 73.2   | 70.5 | 66.1 | 60.7 | 57.1 | 53.6 | 51.8 | 50.9 | 51.8 | 51.8 | 51.8 |
| 7.5°  | 72.3   | 67.9 | 61.6 | 55.4 | 50.9 | 46.4 | 44.6 | 43.7 | 43.7 | 44.6 | 44.6 |
| 10°   | 70.5   | 66.1 | 58.0 | 50.9 | 45.5 | 40.2 | 37.5 | 34.8 | 34.8 | 34.8 | 35.7 |
| 12.5° | 69.6   | 63.4 | 53.6 | 46.4 | 39.3 | 33.0 | 27.7 | 25.0 | 25.9 | 25.9 | 25.9 |
| 15°   | 67.9   | 60.7 | 50.9 | 42.0 | 33.0 | 25.0 | 20.5 | 17.9 | 18.7 | 19.6 | 18.7 |
| 17.5° | 67.9   | 59.8 | 47.3 | 36.6 | 25.9 | 18.7 | 15.2 | 13.4 | 13.4 | 14.3 | 14.3 |
| 20°   | 67.9   | 58.0 | 44.6 | 31.2 | 19.6 | 14.3 | 10.7 | 9.8  | 9.8  | 11.6 | 12.5 |
| 22.5° | 69.6   | 58.0 | 41.1 | 25.9 | 16.1 | 10.7 | 8.0  | 7.1  | 8.0  | 9.8  | 10.7 |
| 25°   | 72.3   | 57.1 | 37.5 | 23.2 | 13.4 | 8.0  | 6.2  | 4.5  | 5.4  | 7.1  | 8.0  |
| 27.5° | 75.0   | 56.2 | 33.9 | 20.5 | 10.7 | 6.2  | 4.5  | 3.6  | 2.7  | 3.6  | 3.6  |
| 30°   | 77.7   | 56.2 | 30.4 | 17.0 | 8.9  | 4.5  | 2.7  | 1.8  | 0.9  | 0.0  | 0.0  |
| 32.5° | 79.5   | 54.5 | 27.7 | 13.4 | 7.1  | 3.6  | 1.8  | 0.9  | 0.0  | 0.0  | 0.0  |
| 35°   | 81.2   | 52.7 | 24.1 | 10.7 | 5.4  | 2.7  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 83.0   | 50.0 | 20.5 | 8.9  | 4.5  | 1.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 84.8   | 46.4 | 17.0 | 8.0  | 2.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 86.6   | 43.7 | 14.3 | 6.2  | 1.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 91.1   | 42.0 | 11.6 | 5.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 99.1   | 40.2 | 10.7 | 3.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 110.7  | 38.4 | 9.8  | 2.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 126.8  | 37.5 | 8.9  | 1.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 155.4  | 36.6 | 8.0  | 1.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 204.5  | 35.7 | 8.0  | 1.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 313.4  | 33.9 | 8.0  | 1.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 559.8  | 33.0 | 7.1  | 1.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 975.9  | 33.9 | 7.1  | 1.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 1399.0 | 35.7 | 6.2  | 2.7  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 1197.3 | 31.2 | 6.2  | 3.6  | 1.8  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 71°   | 975.9  | 27.7 | 6.2  | 3.6  | 1.8  | 0.9  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 627.7  | 21.4 | 5.4  | 3.6  | 1.8  | 1.8  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 265.2  | 17.9 | 5.4  | 3.6  | 2.7  | 1.8  | 1.8  | 0.9  | 0.0  | 0.0  | 0.0  |
| 77.5° | 113.4  | 13.4 | 5.4  | 4.5  | 3.6  | 2.7  | 2.7  | 1.8  | 0.9  | 0.0  | 0.0  |
| 80°   | 42.9   | 10.7 | 6.2  | 5.4  | 4.5  | 4.5  | 3.6  | 1.8  | 0.9  | 0.0  | 0.0  |
| 82.5° | 19.6   | 8.9  | 6.2  | 5.4  | 5.4  | 4.5  | 3.6  | 2.7  | 1.8  | 0.0  | 0.0  |
| 85°   | 12.5   | 8.0  | 6.2  | 5.4  | 5.4  | 4.5  | 4.5  | 2.7  | 1.8  | 0.0  | 0.0  |
| 87.5° | 9.8    | 8.0  | 6.2  | 6.2  | 5.4  | 5.4  | 3.6  | 2.7  | 0.9  | 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: SP1-2407-184-15

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-935-U-5WQ

Data in this report applies to families of products including GSS-SB1A-935-U-5WQ

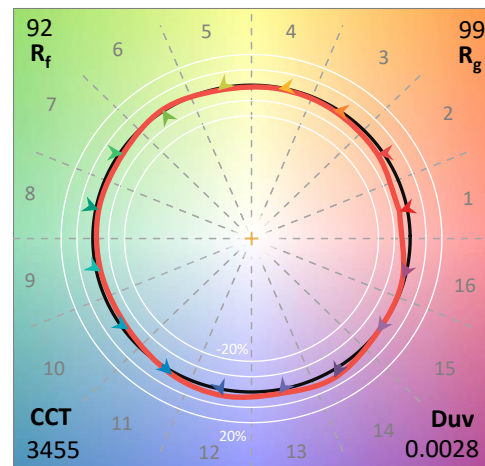
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-15  
 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-935-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI  
 3500K CCT 26 LEDS

### Spectral Parameters

CCT (K): 3455  
 CIE  $u'$ : 0.2356  
 CIE  $v'$ : 0.5159  
 Duv: 0.0028  
 CIE x: 0.4109  
 CIE y: 0.3999  
 CIE z: 0.1892  
 Peak Wavelength (nm): 616  
 Dominant Wavelength (nm): 579  
 Purity: 43.35383  
 Rf: 92.3  
 Rg: 98.5

CRI (Ra): 92.2  
 R1: 92.0  
 R2: 94.4  
 R3: 95.6  
 R4: 93.2  
 R5: 91.4  
 R6: 92.5  
 R7: 94.5  
 R8: 84.2  
 R9: 59.8  
 R10: 85.8  
 R11: 93.2  
 R12: 78.0  
 R13: 92.5  
 R14: 97.0  
 R15: 88.4



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-15

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

REPORT NUMBER: SP1-2407-184-15

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-15

### 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               | 410                                    | NR                             | 620               | 997                                    | NR                             | 750               | 74                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 454                                    | NR                             | 625               | 988                                    | NR                             | 755               | 64                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 493                                    | NR                             | 630               | 973                                    | NR                             | 760               | 54                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 530                                    | NR                             | 635               | 946                                    | NR                             | 765               | 47                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 564                                    | NR                             | 640               | 913                                    | NR                             | 770               | 40                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 599                                    | NR                             | 645               | 870                                    | NR                             | 775               | 34                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 634                                    | NR                             | 650               | 826                                    | NR                             | 780               | 29                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 0                                      | NR                             | 525               | 664                                    | NR                             | 655               | 774                                    | NR                             | 785               | 25                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 2                                      | NR                             | 530               | 695                                    | NR                             | 660               | 720                                    | NR                             | 790               | 21                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 4                                      | NR                             | 535               | 722                                    | NR                             | 665               | 664                                    | NR                             | 795               | 18                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 9                                      | NR                             | 540               | 741                                    | NR                             | 670               | 605                                    | NR                             | 800               | 16                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 17                                     | NR                             | 545               | 762                                    | NR                             | 675               | 550                                    | NR                             | 805               | 13                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 32                                     | NR                             | 550               | 777                                    | NR                             | 680               | 497                                    | NR                             | 810               | 12                                     | NR                             | 940               | 0                                      | NR                             |
| 425               | 61                                     | NR                             | 555               | 789                                    | NR                             | 685               | 445                                    | NR                             | 815               | 10                                     | NR                             | 945               | 0                                      | NR                             |
| 430               | 114                                    | NR                             | 560               | 800                                    | NR                             | 690               | 398                                    | NR                             | 820               | 9                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 218                                    | NR                             | 565               | 813                                    | NR                             | 695               | 352                                    | NR                             | 825               | 7                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 427                                    | NR                             | 570               | 828                                    | NR                             | 700               | 309                                    | NR                             | 830               | 6                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 684                                    | NR                             | 575               | 846                                    | NR                             | 705               | 273                                    | NR                             | 835               | 5                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 611                                    | NR                             | 580               | 866                                    | NR                             | 710               | 237                                    | NR                             | 840               | 5                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 461                                    | NR                             | 585               | 888                                    | NR                             | 715               | 208                                    | NR                             | 845               | 4                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 427                                    | NR                             | 590               | 913                                    | NR                             | 720               | 181                                    | NR                             | 850               | 4                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 349                                    | NR                             | 595               | 936                                    | NR                             | 725               | 157                                    | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 298                                    | NR                             | 600               | 957                                    | NR                             | 730               | 136                                    | NR                             | 860               | 3                                      | NR                             | 990               | 1                                      | NR                             |
| 475               | 312                                    | NR                             | 605               | 976                                    | NR                             | 735               | 117                                    | NR                             | 865               | 2                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 335                                    | NR                             | 610               | 990                                    | NR                             | 740               | 100                                    | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 367                                    | NR                             | 615               | 999                                    | NR                             | 745               | 86                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP1-2407-184-15

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.58

| $\lambda$<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               | 410                                  | NR                             | 620               | 997                                  | NR                             | 750               | 74                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 454                                  | NR                             | 625               | 988                                  | NR                             | 755               | 64                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 493                                  | NR                             | 630               | 973                                  | NR                             | 760               | 54                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 530                                  | NR                             | 635               | 946                                  | NR                             | 765               | 47                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 564                                  | NR                             | 640               | 913                                  | NR                             | 770               | 40                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 599                                  | NR                             | 645               | 870                                  | NR                             | 775               | 34                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 634                                  | NR                             | 650               | 826                                  | NR                             | 780               | 29                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 664                                  | NR                             | 655               | 774                                  | NR                             | 785               | 25                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 2                                    | NR                             | 530               | 695                                  | NR                             | 660               | 720                                  | NR                             | 790               | 21                                   | NR                             | 920               | 1                                    | NR                             |
| 405               | 4                                    | NR                             | 535               | 722                                  | NR                             | 665               | 664                                  | NR                             | 795               | 18                                   | NR                             | 925               | 1                                    | NR                             |
| 410               | 9                                    | NR                             | 540               | 741                                  | NR                             | 670               | 605                                  | NR                             | 800               | 16                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 17                                   | NR                             | 545               | 762                                  | NR                             | 675               | 550                                  | NR                             | 805               | 13                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 32                                   | NR                             | 550               | 777                                  | NR                             | 680               | 497                                  | NR                             | 810               | 12                                   | NR                             | 940               | 0                                    | NR                             |
| 425               | 61                                   | NR                             | 555               | 789                                  | NR                             | 685               | 445                                  | NR                             | 815               | 10                                   | NR                             | 945               | 0                                    | NR                             |
| 430               | 114                                  | NR                             | 560               | 800                                  | NR                             | 690               | 398                                  | NR                             | 820               | 9                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 218                                  | NR                             | 565               | 813                                  | NR                             | 695               | 352                                  | NR                             | 825               | 7                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 427                                  | NR                             | 570               | 828                                  | NR                             | 700               | 309                                  | NR                             | 830               | 6                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 684                                  | NR                             | 575               | 846                                  | NR                             | 705               | 273                                  | NR                             | 835               | 5                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 611                                  | NR                             | 580               | 866                                  | NR                             | 710               | 237                                  | NR                             | 840               | 5                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 461                                  | NR                             | 585               | 888                                  | NR                             | 715               | 208                                  | NR                             | 845               | 4                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 427                                  | NR                             | 590               | 913                                  | NR                             | 720               | 181                                  | NR                             | 850               | 4                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 349                                  | NR                             | 595               | 936                                  | NR                             | 725               | 157                                  | NR                             | 855               | 3                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 298                                  | NR                             | 600               | 957                                  | NR                             | 730               | 136                                  | NR                             | 860               | 3                                    | NR                             | 990               | 1                                    | NR                             |
| 475               | 312                                  | NR                             | 605               | 976                                  | NR                             | 735               | 117                                  | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 335                                  | NR                             | 610               | 990                                  | NR                             | 740               | 100                                  | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 367                                  | NR                             | 615               | 999                                  | NR                             | 745               | 86                                   | NR                             | 875               | 2                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2407-184-15

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.14

| 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       | 410                         | NR               | 620       | 997                         | NR               | 750       | 74                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 454                         | NR               | 625       | 988                         | NR               | 755       | 64                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 493                         | NR               | 630       | 973                         | NR               | 760       | 54                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 530                         | NR               | 635       | 946                         | NR               | 765       | 47                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 564                         | NR               | 640       | 913                         | NR               | 770       | 40                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 599                         | NR               | 645       | 870                         | NR               | 775       | 34                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 634                         | NR               | 650       | 826                         | NR               | 780       | 29                          | NR               | 910       | 1                           | NR               |
| 395       | 0                           | NR               | 525       | 664                         | NR               | 655       | 774                         | NR               | 785       | 25                          | NR               | 915       | 1                           | NR               |
| 400       | 2                           | NR               | 530       | 695                         | NR               | 660       | 720                         | NR               | 790       | 21                          | NR               | 920       | 1                           | NR               |
| 405       | 4                           | NR               | 535       | 722                         | NR               | 665       | 664                         | NR               | 795       | 18                          | NR               | 925       | 1                           | NR               |
| 410       | 9                           | NR               | 540       | 741                         | NR               | 670       | 605                         | NR               | 800       | 16                          | NR               | 930       | 0                           | NR               |
| 415       | 17                          | NR               | 545       | 762                         | NR               | 675       | 550                         | NR               | 805       | 13                          | NR               | 935       | 0                           | NR               |
| 420       | 32                          | NR               | 550       | 777                         | NR               | 680       | 497                         | NR               | 810       | 12                          | NR               | 940       | 0                           | NR               |
| 425       | 61                          | NR               | 555       | 789                         | NR               | 685       | 445                         | NR               | 815       | 10                          | NR               | 945       | 0                           | NR               |
| 430       | 114                         | NR               | 560       | 800                         | NR               | 690       | 398                         | NR               | 820       | 9                           | NR               | 950       | 0                           | NR               |
| 435       | 218                         | NR               | 565       | 813                         | NR               | 695       | 352                         | NR               | 825       | 7                           | NR               | 955       | 0                           | NR               |
| 440       | 427                         | NR               | 570       | 828                         | NR               | 700       | 309                         | NR               | 830       | 6                           | NR               | 960       | 0                           | NR               |
| 445       | 684                         | NR               | 575       | 846                         | NR               | 705       | 273                         | NR               | 835       | 5                           | NR               | 965       | 0                           | NR               |
| 450       | 611                         | NR               | 580       | 866                         | NR               | 710       | 237                         | NR               | 840       | 5                           | NR               | 970       | 0                           | NR               |
| 455       | 461                         | NR               | 585       | 888                         | NR               | 715       | 208                         | NR               | 845       | 4                           | NR               | 975       | 0                           | NR               |
| 460       | 427                         | NR               | 590       | 913                         | NR               | 720       | 181                         | NR               | 850       | 4                           | NR               | 980       | 0                           | NR               |
| 465       | 349                         | NR               | 595       | 936                         | NR               | 725       | 157                         | NR               | 855       | 3                           | NR               | 985       | 0                           | NR               |
| 470       | 298                         | NR               | 600       | 957                         | NR               | 730       | 136                         | NR               | 860       | 3                           | NR               | 990       | 1                           | NR               |
| 475       | 312                         | NR               | 605       | 976                         | NR               | 735       | 117                         | NR               | 865       | 2                           | NR               | 995       | 0                           | NR               |
| 480       | 335                         | NR               | 610       | 990                         | NR               | 740       | 100                         | NR               | 870       | 2                           | NR               | 1000      | 0                           | NR               |
| 485       | 367                         | NR               | 615       | 999                         | NR               | 745       | 86                          | NR               | 875       | 2                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2407-184-15

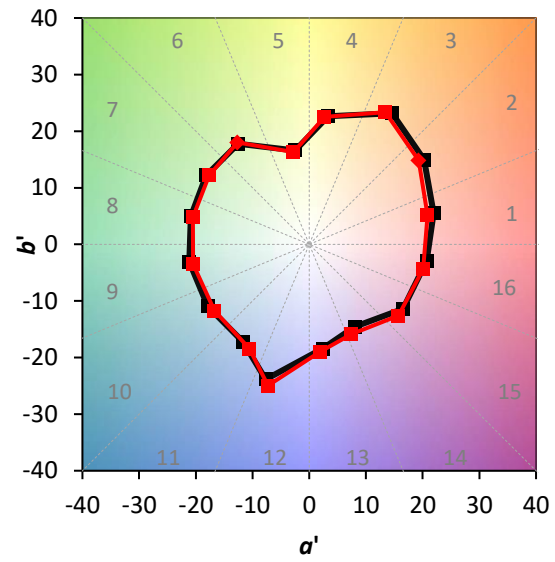
TM-30-18

### Summary

$R_f = 92.3$   
 $R_g = 98.5$   
 $CIE R_a = 92.2$   
 $R_9 = 59.8$

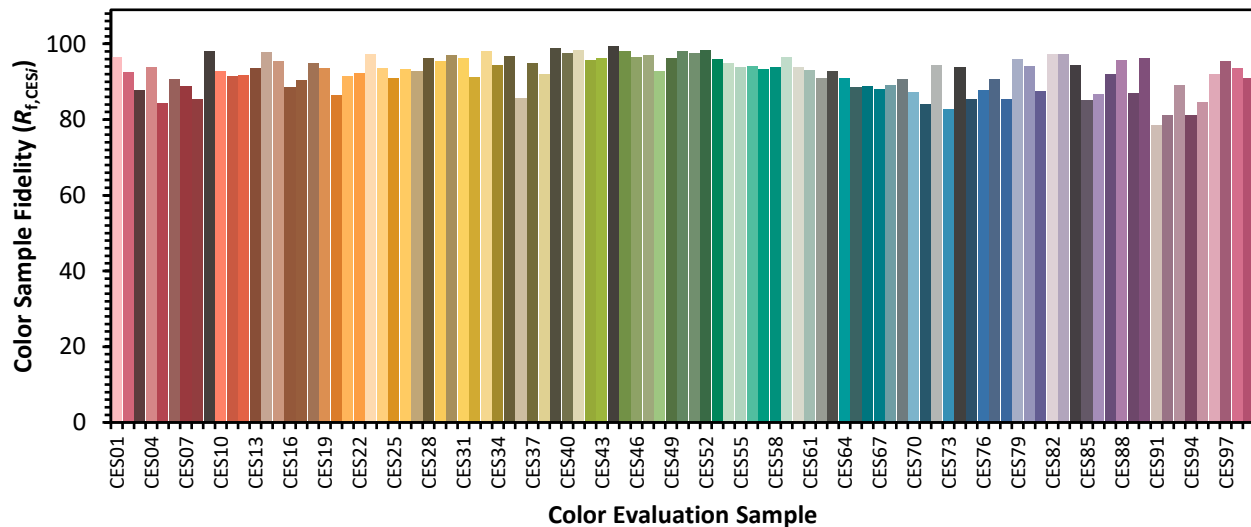


### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 93 | CES51 = 97 | CES76 = 88 |
| CES02 = 62 | CES27 = 93 | CES52 = 98 | CES77 = 91 |
| CES03 = 31 | CES28 = 96 | CES53 = 96 | CES78 = 85 |
| CES04 = 70 | CES29 = 95 | CES54 = 95 | CES79 = 96 |
| CES05 = 50 | CES30 = 97 | CES55 = 94 | CES80 = 94 |
| CES06 = 51 | CES31 = 96 | CES56 = 94 | CES81 = 87 |
| CES07 = 42 | CES32 = 91 | CES57 = 93 | CES82 = 97 |
| CES08 = 41 | CES33 = 98 | CES58 = 94 | CES83 = 97 |
| CES09 = 29 | CES34 = 94 | CES59 = 96 | CES84 = 94 |
| CES10 = 75 | CES35 = 97 | CES60 = 94 | CES85 = 85 |
| CES11 = 58 | CES36 = 86 | CES61 = 93 | CES86 = 87 |
| CES12 = 64 | CES37 = 95 | CES62 = 91 | CES87 = 92 |
| CES13 = 43 | CES38 = 92 | CES63 = 93 | CES88 = 96 |
| CES14 = 74 | CES39 = 99 | CES64 = 91 | CES89 = 87 |
| CES15 = 71 | CES40 = 98 | CES65 = 89 | CES90 = 96 |
| CES16 = 47 | CES41 = 98 | CES66 = 89 | CES91 = 78 |
| CES17 = 49 | CES42 = 96 | CES67 = 88 | CES92 = 81 |
| CES18 = 56 | CES43 = 96 | CES68 = 89 | CES93 = 89 |
| CES19 = 71 | CES44 = 99 | CES69 = 91 | CES94 = 81 |
| CES20 = 66 | CES45 = 98 | CES70 = 87 | CES95 = 85 |
| CES21 = 86 | CES46 = 97 | CES71 = 84 | CES96 = 92 |
| CES22 = 78 | CES47 = 97 | CES72 = 95 | CES97 = 95 |
| CES23 = 91 | CES48 = 93 | CES73 = 83 | CES98 = 94 |
| CES24 = 90 | CES49 = 96 | CES74 = 94 | CES99 = 91 |
| CES25 = 71 | CES50 = 98 | CES75 = 85 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**


(END OF REPORT)