

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: P1064417

Luminaire Tested: **GLAN-SA2A-940-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1064417  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA2A-940-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 2xLight Square PACKAGE  
90CRI 4000K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (28) 4000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5425.5 lumens  
Efficiency: N/A  
Efficacy: 97.2 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G2

Input Watts (W): 55.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

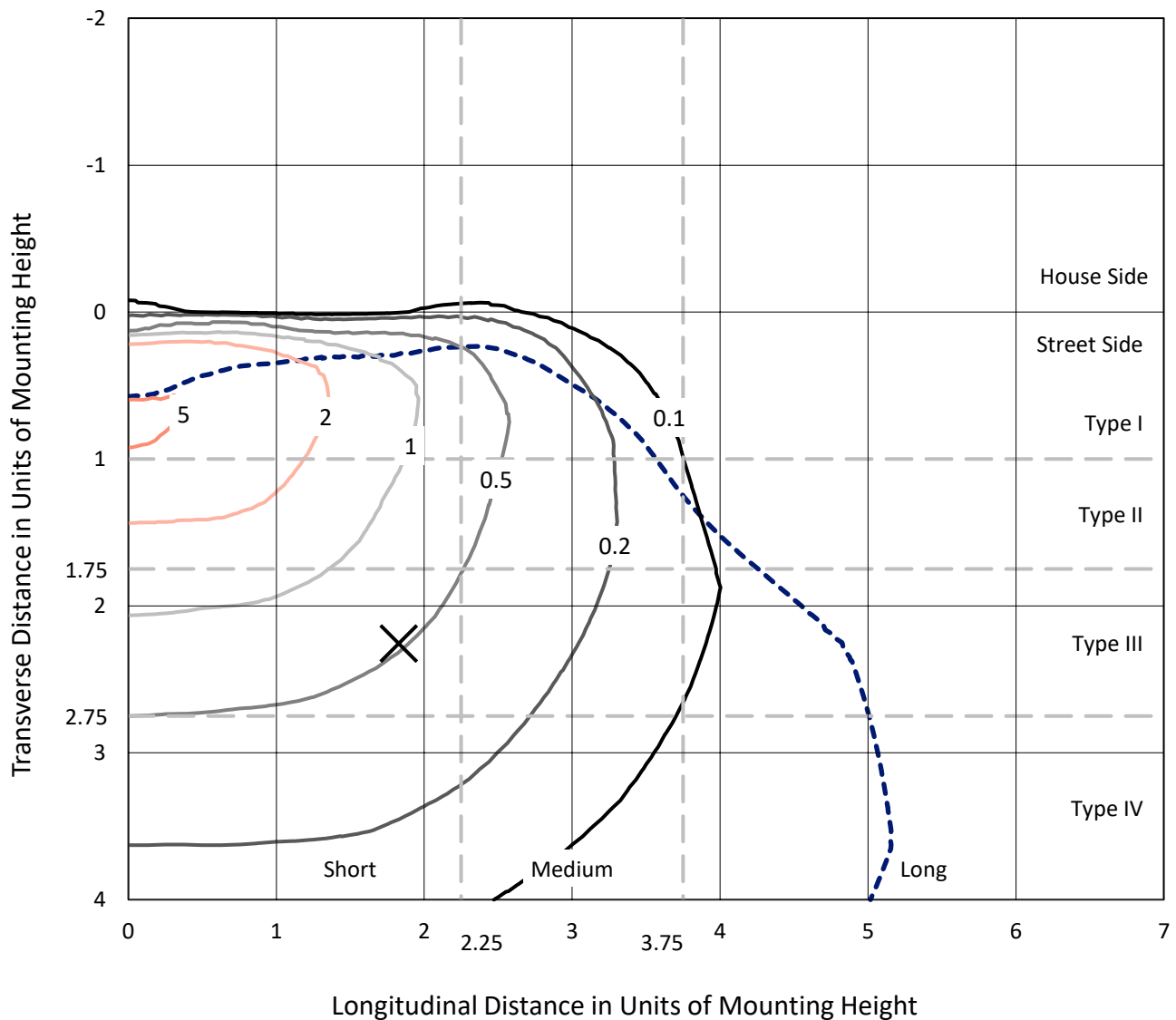


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
- - - 1/2 Max cd

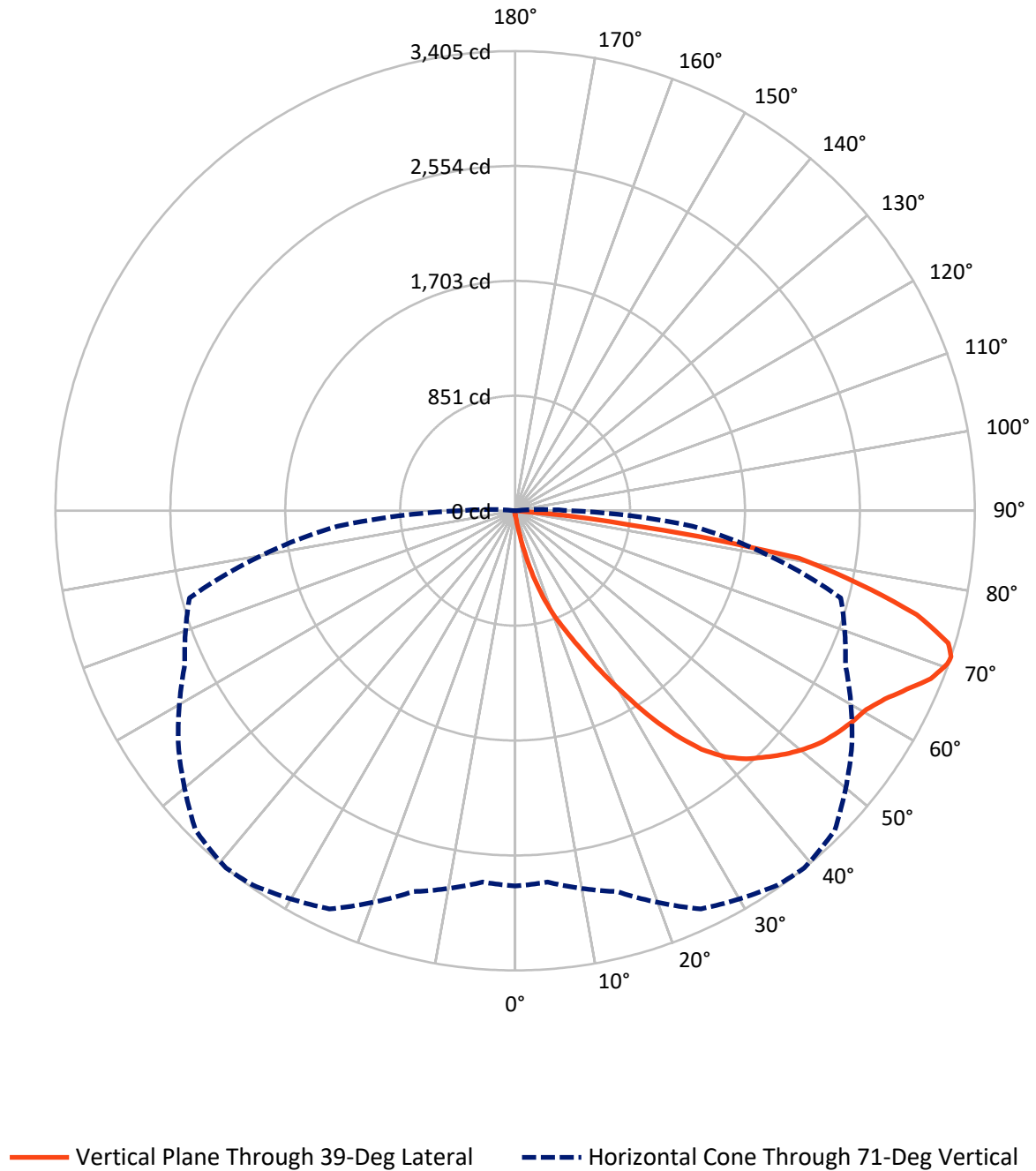


Based on 15 foot mounting height. Maximum calculated value = 5.6 fc  
Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 19.3     | 0.0    | 19.3   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 5406.3   | 0.0    | 5406.3 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 5425.5   | 0.0    | 5425.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 4.5    | 0.1       |
| 10°-20°   | 58.0   | 1.1       |
| 20°-30°   | 206.5  | 3.8       |
| 30°-40°   | 497.7  | 9.2       |
| 40°-50°   | 833.0  | 15.4      |
| 50°-60°   | 1069.8 | 19.7      |
| 60°-70°   | 1353.9 | 25.0      |
| 70°-80°   | 1207.0 | 22.2      |
| 80°-90°   | 195.1  | 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°    | 5425.5 | 100.0     |
| 0°-180°   | 5425.5 | 100.0     |



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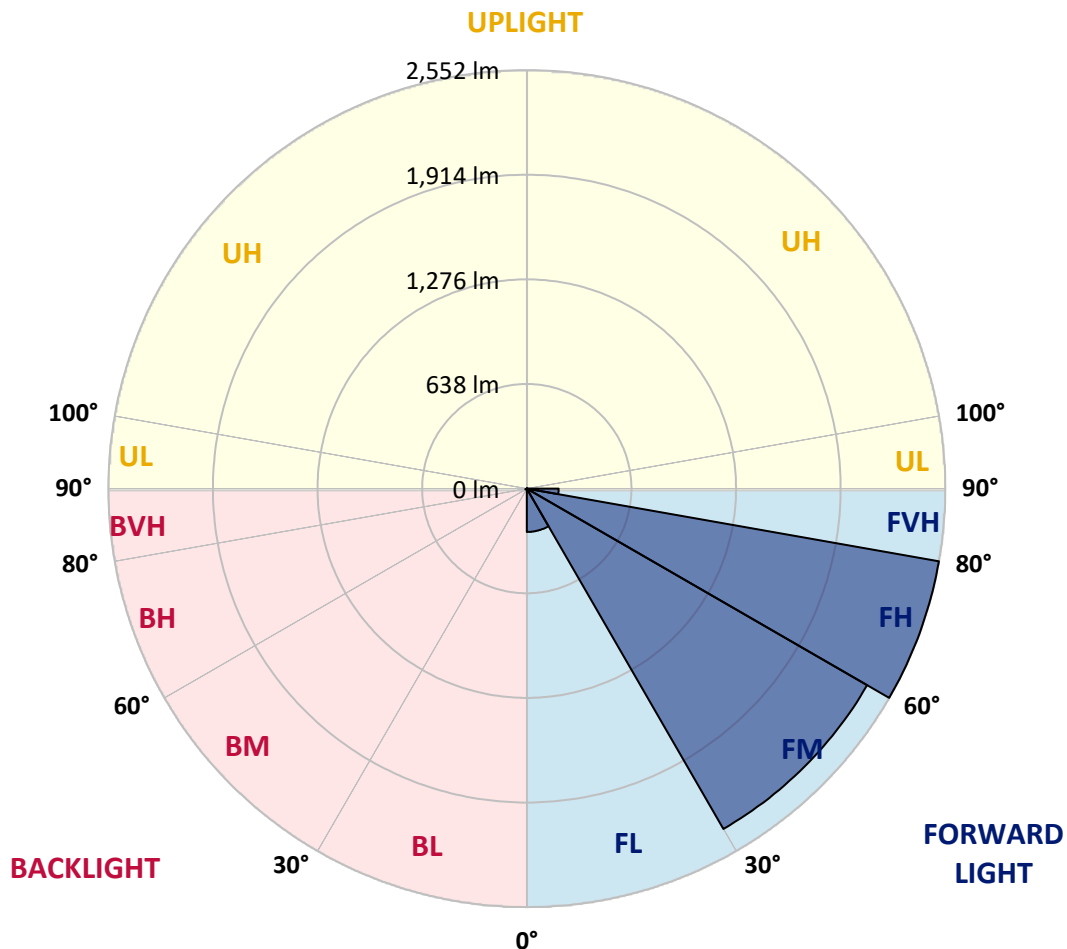
CATALOG NUMBER: GLAN-SA2A-940-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 264.4  | 4.9       |                         |      |         |
| FM   | (30°-60°)   | 2396.0 | 44.2      |                         |      |         |
| FH   | (60°-80°)   | 2551.6 | 47.0      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 194.2  | 3.6       |                         |      | G2/225  |
| BL   | (0°-30°)    | 4.7    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 4.5    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 9.3    | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 0.9    | 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-G2**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 39°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 29.7   | 29.7   | 29.7   | 29.7   | 29.7   | 29.7   | 29.7   | 29.7   | 29.7   | 29.7   | 29.7   |
| 2.5°  | 34.2   | 34.2   | 34.2   | 33.1   | 33.1   | 32.7   | 32.3   | 32.3   | 31.6   | 31.2   | 30.5   |
| 5°    | 51.8   | 50.7   | 48.1   | 46.6   | 43.7   | 41.9   | 40.0   | 37.5   | 34.9   | 33.1   | 30.9   |
| 7.5°  | 117.2  | 119.7  | 111.3  | 95.5   | 79.3   | 72.4   | 60.6   | 48.8   | 40.4   | 34.9   | 31.2   |
| 10°   | 298.6  | 297.1  | 268.5  | 236.9  | 182.9  | 161.2  | 126.3  | 79.7   | 52.2   | 38.2   | 31.6   |
| 12.5° | 507.9  | 506.5  | 472.7  | 429.7  | 358.5  | 313.3  | 247.2  | 148.7  | 74.9   | 43.3   | 31.6   |
| 15°   | 683.9  | 678.0  | 667.3  | 624.7  | 541.4  | 503.5  | 416.1  | 263.0  | 121.2  | 52.2   | 32.3   |
| 17.5° | 800.3  | 795.2  | 785.2  | 769.8  | 716.9  | 672.1  | 602.0  | 413.2  | 196.1  | 67.6   | 33.8   |
| 20°   | 907.2  | 903.5  | 895.4  | 892.5  | 858.3  | 834.5  | 776.4  | 585.8  | 305.6  | 91.8   | 36.0   |
| 22.5° | 1054.1 | 1046.4 | 1049.7 | 1032.1 | 998.6  | 970.0  | 934.4  | 766.5  | 439.3  | 132.2  | 40.0   |
| 25°   | 1234.1 | 1230.4 | 1221.2 | 1208.7 | 1162.4 | 1137.5 | 1082.7 | 936.9  | 588.7  | 185.1  | 44.4   |
| 27.5° | 1451.5 | 1447.4 | 1445.2 | 1416.6 | 1363.3 | 1336.2 | 1259.8 | 1097.8 | 757.0  | 259.3  | 50.3   |
| 30°   | 1702.0 | 1703.8 | 1689.5 | 1652.8 | 1590.7 | 1552.5 | 1473.9 | 1266.4 | 929.2  | 346.3  | 56.6   |
| 32.5° | 1961.3 | 1957.6 | 1935.6 | 1892.2 | 1836.8 | 1801.1 | 1701.2 | 1451.1 | 1109.9 | 461.3  | 63.9   |
| 35°   | 2240.8 | 2233.8 | 2175.8 | 2126.2 | 2078.8 | 2034.0 | 1942.9 | 1665.6 | 1290.6 | 590.2  | 73.8   |
| 37.5° | 2522.8 | 2490.2 | 2373.7 | 2310.9 | 2278.2 | 2241.5 | 2156.7 | 1894.4 | 1470.2 | 734.2  | 85.9   |
| 40°   | 2735.9 | 2710.5 | 2572.4 | 2456.7 | 2430.7 | 2399.4 | 2336.3 | 2092.0 | 1661.2 | 888.8  | 100.6  |
| 42.5° | 2853.8 | 2839.8 | 2715.7 | 2601.4 | 2540.1 | 2512.6 | 2458.6 | 2264.6 | 1850.0 | 1059.6 | 121.9  |
| 45°   | 2904.1 | 2882.4 | 2799.4 | 2746.1 | 2648.5 | 2602.9 | 2538.6 | 2395.0 | 2047.2 | 1253.5 | 151.7  |
| 47.5° | 2888.7 | 2876.2 | 2816.7 | 2836.1 | 2765.2 | 2694.4 | 2600.0 | 2494.9 | 2215.8 | 1476.1 | 192.5  |
| 50°   | 2791.7 | 2781.0 | 2762.7 | 2868.1 | 2859.3 | 2775.5 | 2679.3 | 2573.9 | 2353.5 | 1705.6 | 255.6  |
| 52.5° | 2607.3 | 2602.9 | 2649.9 | 2843.1 | 2912.5 | 2847.2 | 2755.7 | 2643.7 | 2482.1 | 1945.5 | 346.0  |
| 55°   | 2369.7 | 2387.7 | 2522.1 | 2804.2 | 2939.7 | 2900.0 | 2823.3 | 2709.1 | 2585.3 | 2160.0 | 479.3  |
| 57.5° | 2272.0 | 2276.8 | 2444.6 | 2776.6 | 2951.8 | 2946.7 | 2889.0 | 2771.5 | 2680.0 | 2331.5 | 682.8  |
| 60°   | 2386.2 | 2378.9 | 2467.4 | 2797.6 | 2976.1 | 2988.6 | 2947.4 | 2829.5 | 2762.3 | 2478.8 | 953.8  |
| 62.5° | 2592.6 | 2588.6 | 2616.9 | 2886.8 | 3047.0 | 3072.3 | 3028.6 | 2871.4 | 2835.0 | 2575.7 | 1263.1 |
| 65°   | 2777.0 | 2768.6 | 2821.1 | 3045.1 | 3171.5 | 3189.5 | 3151.3 | 2943.0 | 2867.0 | 2646.2 | 1553.6 |
| 67.5° | 2856.7 | 2854.9 | 2939.3 | 3195.7 | 3302.2 | 3321.7 | 3288.3 | 3041.8 | 2859.6 | 2668.7 | 1681.8 |
| 70°   | 2820.3 | 2813.4 | 2948.5 | 3259.6 | 3376.0 | 3398.1 | 3365.8 | 3078.5 | 2779.9 | 2597.8 | 1491.9 |
| 71°   | 2780.3 | 2761.6 | 2921.0 | 3255.2 | 3386.3 | 3405.0 | 3348.5 | 3045.1 | 2699.9 | 2497.1 | 1319.6 |
| 72.5° | 2656.2 | 2659.5 | 2845.3 | 3209.3 | 3361.7 | 3356.2 | 3250.8 | 2925.4 | 2603.3 | 2268.7 | 1060.0 |
| 75°   | 2350.6 | 2370.1 | 2600.3 | 3016.5 | 3142.1 | 3071.9 | 2910.7 | 2696.6 | 2409.4 | 1626.7 | 736.0  |
| 77.5° | 1920.9 | 1949.9 | 2202.9 | 2645.5 | 2609.9 | 2602.9 | 2596.3 | 2375.9 | 2057.5 | 873.8  | 512.0  |
| 80°   | 917.1  | 979.9  | 1328.8 | 1888.6 | 2051.6 | 2130.6 | 2081.0 | 1914.6 | 1591.1 | 416.1  | 305.9  |
| 82.5° | 59.9   | 59.1   | 83.7   | 158.7  | 668.8  | 864.6  | 1373.6 | 1368.5 | 1109.2 | 202.7  | 124.9  |
| 85°   | 28.3   | 29.0   | 32.0   | 36.4   | 42.2   | 46.3   | 63.9   | 374.6  | 530.7  | 96.6   | 27.2   |
| 87.5° | 16.5   | 16.9   | 19.8   | 25.3   | 33.1   | 36.7   | 43.7   | 56.2   | 69.0   | 53.3   | 5.9    |
| 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°    | 29.7  | 29.7 | 29.7 | 29.7 | 29.7 | 29.7 | 29.7 | 29.7 | 29.7 | 29.7 | 29.7 |
| 2.5°  | 30.1  | 29.7 | 28.6 | 27.5 | 26.4 | 25.7 | 25.3 | 25.7 | 25.7 | 26.1 | 26.1 |
| 5°    | 30.1  | 29.0 | 27.2 | 25.0 | 23.5 | 22.0 | 21.3 | 20.9 | 21.3 | 21.3 | 21.3 |
| 7.5°  | 29.7  | 27.9 | 25.3 | 22.8 | 20.9 | 19.1 | 18.4 | 18.0 | 18.0 | 18.4 | 18.4 |
| 10°   | 29.0  | 27.2 | 23.9 | 20.9 | 18.7 | 16.5 | 15.4 | 14.3 | 14.3 | 14.3 | 14.7 |
| 12.5° | 28.6  | 26.1 | 22.0 | 19.1 | 16.2 | 13.6 | 11.4 | 10.3 | 10.7 | 10.7 | 10.7 |
| 15°   | 27.9  | 25.0 | 20.9 | 17.3 | 13.6 | 10.3 | 8.4  | 7.3  | 7.7  | 8.1  | 7.7  |
| 17.5° | 27.9  | 24.6 | 19.5 | 15.1 | 10.7 | 7.7  | 6.2  | 5.5  | 5.5  | 5.9  | 5.9  |
| 20°   | 27.9  | 23.9 | 18.4 | 12.9 | 8.1  | 5.9  | 4.4  | 4.0  | 4.0  | 4.8  | 5.1  |
| 22.5° | 28.6  | 23.9 | 16.9 | 10.7 | 6.6  | 4.4  | 3.3  | 2.9  | 3.3  | 4.0  | 4.4  |
| 25°   | 29.7  | 23.5 | 15.4 | 9.5  | 5.5  | 3.3  | 2.6  | 1.8  | 2.2  | 2.9  | 3.3  |
| 27.5° | 30.9  | 23.1 | 14.0 | 8.4  | 4.4  | 2.6  | 1.8  | 1.5  | 1.1  | 1.5  | 1.5  |
| 30°   | 32.0  | 23.1 | 12.5 | 7.0  | 3.7  | 1.8  | 1.1  | 0.7  | 0.4  | 0.0  | 0.0  |
| 32.5° | 32.7  | 22.4 | 11.4 | 5.5  | 2.9  | 1.5  | 0.7  | 0.4  | 0.0  | 0.0  | 0.0  |
| 35°   | 33.4  | 21.7 | 9.9  | 4.4  | 2.2  | 1.1  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 34.2  | 20.6 | 8.4  | 3.7  | 1.8  | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 34.9  | 19.1 | 7.0  | 3.3  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 35.6  | 18.0 | 5.9  | 2.6  | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 37.5  | 17.3 | 4.8  | 2.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 40.8  | 16.5 | 4.4  | 1.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 45.5  | 15.8 | 4.0  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 52.2  | 15.4 | 3.7  | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 63.9  | 15.1 | 3.3  | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 84.1  | 14.7 | 3.3  | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 128.9 | 14.0 | 3.3  | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 230.3 | 13.6 | 2.9  | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 401.4 | 14.0 | 2.9  | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 575.5 | 14.7 | 2.6  | 1.1  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 492.5 | 12.9 | 2.6  | 1.5  | 0.7  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 71°   | 401.4 | 11.4 | 2.6  | 1.5  | 0.7  | 0.4  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 258.2 | 8.8  | 2.2  | 1.5  | 0.7  | 0.7  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 109.1 | 7.3  | 2.2  | 1.5  | 1.1  | 0.7  | 0.7  | 0.4  | 0.0  | 0.0  | 0.0  |
| 77.5° | 46.6  | 5.5  | 2.2  | 1.8  | 1.5  | 1.1  | 1.1  | 0.7  | 0.4  | 0.0  | 0.0  |
| 80°   | 17.6  | 4.4  | 2.6  | 2.2  | 1.8  | 1.8  | 1.5  | 0.7  | 0.4  | 0.0  | 0.0  |
| 82.5° | 8.1   | 3.7  | 2.6  | 2.2  | 2.2  | 1.8  | 1.5  | 1.1  | 0.7  | 0.0  | 0.0  |
| 85°   | 5.1   | 3.3  | 2.6  | 2.2  | 2.2  | 1.8  | 1.8  | 1.1  | 0.7  | 0.0  | 0.0  |
| 87.5° | 4.0   | 3.3  | 2.6  | 2.6  | 2.2  | 2.2  | 1.5  | 1.1  | 0.4  | 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: SP1-2407-184-16

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-940-U-5WQ

Data in this report applies to families of products including GSS-SB1A-940-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-16  
 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-940-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI 4000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 3856  
 CIE  $u'$ : 0.2261  
 CIE  $v'$ : 0.5084  
 Duv: 0.0032  
 CIE x: 0.3896  
 CIE y: 0.3894  
 CIE z: 0.2211  
 Peak Wavelength (nm): 614  
 Dominant Wavelength (nm): 578  
 Purity: 33.77304  
 R<sub>f</sub>: 91.8  
 R<sub>g</sub>: 98.4

CRI (Ra): 92.1  
 R1: 91.8  
 R2: 94.1  
 R3: 95.3  
 R4: 92.8  
 R5: 91.0  
 R6: 91.6  
 R7: 95.0  
 R8: 85.2  
 R9: 60.7  
 R10: 85.2  
 R11: 92.4  
 R12: 74.5  
 R13: 92.3  
 R14: 97.0  
 R15: 88.5



### Test Conditions

Stabilization Time: 23M  
 Operation Time: 1H 23M  
 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 4000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 492                         | NR               | 620       | 993                         | NR               | 750       | 73                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 539                         | NR               | 625       | 978                         | NR               | 755       | 62                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 583                         | NR               | 630       | 962                         | NR               | 760       | 54                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 623                         | NR               | 635       | 933                         | NR               | 765       | 46                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 661                         | NR               | 640       | 898                         | NR               | 770       | 39                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 698                         | NR               | 645       | 855                         | NR               | 775       | 34                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 733                         | NR               | 650       | 810                         | NR               | 780       | 29                          | NR               | 910       | 1                           | NR               |
| 395       | 1                           | NR               | 525       | 764                         | NR               | 655       | 759                         | NR               | 785       | 25                          | NR               | 915       | 1                           | NR               |
| 400       | 3                           | NR               | 530       | 794                         | NR               | 660       | 704                         | NR               | 790       | 21                          | NR               | 920       | 1                           | NR               |
| 405       | 6                           | NR               | 535       | 820                         | NR               | 665       | 651                         | NR               | 795       | 18                          | NR               | 925       | 1                           | NR               |
| 410       | 12                          | NR               | 540       | 837                         | NR               | 670       | 592                         | NR               | 800       | 16                          | NR               | 930       | 1                           | NR               |
| 415       | 22                          | NR               | 545       | 853                         | NR               | 675       | 538                         | NR               | 805       | 13                          | NR               | 935       | 0                           | NR               |
| 420       | 42                          | NR               | 550       | 864                         | NR               | 680       | 486                         | NR               | 810       | 12                          | NR               | 940       | 0                           | NR               |
| 425       | 79                          | NR               | 555       | 872                         | NR               | 685       | 435                         | NR               | 815       | 10                          | NR               | 945       | 0                           | NR               |
| 430       | 147                         | NR               | 560       | 876                         | NR               | 690       | 389                         | NR               | 820       | 9                           | NR               | 950       | 0                           | NR               |
| 435       | 278                         | NR               | 565       | 883                         | NR               | 695       | 344                         | NR               | 825       | 7                           | NR               | 955       | 0                           | NR               |
| 440       | 515                         | NR               | 570       | 891                         | NR               | 700       | 303                         | NR               | 830       | 6                           | NR               | 960       | 0                           | NR               |
| 445       | 832                         | NR               | 575       | 900                         | NR               | 705       | 266                         | NR               | 835       | 5                           | NR               | 965       | 0                           | NR               |
| 450       | 874                         | NR               | 580       | 914                         | NR               | 710       | 233                         | NR               | 840       | 5                           | NR               | 970       | 0                           | NR               |
| 455       | 659                         | NR               | 585       | 927                         | NR               | 715       | 203                         | NR               | 845       | 4                           | NR               | 975       | 0                           | NR               |
| 460       | 567                         | NR               | 590       | 944                         | NR               | 720       | 178                         | NR               | 850       | 4                           | NR               | 980       | 0                           | NR               |
| 465       | 485                         | NR               | 595       | 961                         | NR               | 725       | 154                         | NR               | 855       | 3                           | NR               | 985       | 0                           | NR               |
| 470       | 401                         | NR               | 600       | 975                         | NR               | 730       | 133                         | NR               | 860       | 3                           | NR               | 990       | 0                           | NR               |
| 475       | 393                         | NR               | 605       | 988                         | NR               | 735       | 115                         | NR               | 865       | 2                           | NR               | 995       | 1                           | NR               |
| 480       | 417                         | NR               | 610       | 996                         | NR               | 740       | 98                          | NR               | 870       | 2                           | NR               | 1000      | 0                           | NR               |
| 485       | 448                         | NR               | 615       | 998                         | NR               | 745       | 85                          | NR               | 875       | 2                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2407-184-16

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.72

| 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       | 492                         | NR               | 620       | 993                         | NR               | 750       | 73                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 539                         | NR               | 625       | 978                         | NR               | 755       | 62                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 583                         | NR               | 630       | 962                         | NR               | 760       | 54                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 623                         | NR               | 635       | 933                         | NR               | 765       | 46                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 661                         | NR               | 640       | 898                         | NR               | 770       | 39                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 698                         | NR               | 645       | 855                         | NR               | 775       | 34                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 733                         | NR               | 650       | 810                         | NR               | 780       | 29                          | NR               | 910       | 1                           | NR               |
| 395       | 1                           | NR               | 525       | 764                         | NR               | 655       | 759                         | NR               | 785       | 25                          | NR               | 915       | 1                           | NR               |
| 400       | 3                           | NR               | 530       | 794                         | NR               | 660       | 704                         | NR               | 790       | 21                          | NR               | 920       | 1                           | NR               |
| 405       | 6                           | NR               | 535       | 820                         | NR               | 665       | 651                         | NR               | 795       | 18                          | NR               | 925       | 1                           | NR               |
| 410       | 12                          | NR               | 540       | 837                         | NR               | 670       | 592                         | NR               | 800       | 16                          | NR               | 930       | 1                           | NR               |
| 415       | 22                          | NR               | 545       | 853                         | NR               | 675       | 538                         | NR               | 805       | 13                          | NR               | 935       | 0                           | NR               |
| 420       | 42                          | NR               | 550       | 864                         | NR               | 680       | 486                         | NR               | 810       | 12                          | NR               | 940       | 0                           | NR               |
| 425       | 79                          | NR               | 555       | 872                         | NR               | 685       | 435                         | NR               | 815       | 10                          | NR               | 945       | 0                           | NR               |
| 430       | 147                         | NR               | 560       | 876                         | NR               | 690       | 389                         | NR               | 820       | 9                           | NR               | 950       | 0                           | NR               |
| 435       | 278                         | NR               | 565       | 883                         | NR               | 695       | 344                         | NR               | 825       | 7                           | NR               | 955       | 0                           | NR               |
| 440       | 515                         | NR               | 570       | 891                         | NR               | 700       | 303                         | NR               | 830       | 6                           | NR               | 960       | 0                           | NR               |
| 445       | 832                         | NR               | 575       | 900                         | NR               | 705       | 266                         | NR               | 835       | 5                           | NR               | 965       | 0                           | NR               |
| 450       | 874                         | NR               | 580       | 914                         | NR               | 710       | 233                         | NR               | 840       | 5                           | NR               | 970       | 0                           | NR               |
| 455       | 659                         | NR               | 585       | 927                         | NR               | 715       | 203                         | NR               | 845       | 4                           | NR               | 975       | 0                           | NR               |
| 460       | 567                         | NR               | 590       | 944                         | NR               | 720       | 178                         | NR               | 850       | 4                           | NR               | 980       | 0                           | NR               |
| 465       | 485                         | NR               | 595       | 961                         | NR               | 725       | 154                         | NR               | 855       | 3                           | NR               | 985       | 0                           | NR               |
| 470       | 401                         | NR               | 600       | 975                         | NR               | 730       | 133                         | NR               | 860       | 3                           | NR               | 990       | 0                           | NR               |
| 475       | 393                         | NR               | 605       | 988                         | NR               | 735       | 115                         | NR               | 865       | 2                           | NR               | 995       | 1                           | NR               |
| 480       | 417                         | NR               | 610       | 996                         | NR               | 740       | 98                          | NR               | 870       | 2                           | NR               | 1000      | 0                           | NR               |
| 485       | 448                         | NR               | 615       | 998                         | NR               | 745       | 85                          | NR               | 875       | 2                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2407-184-16

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.52

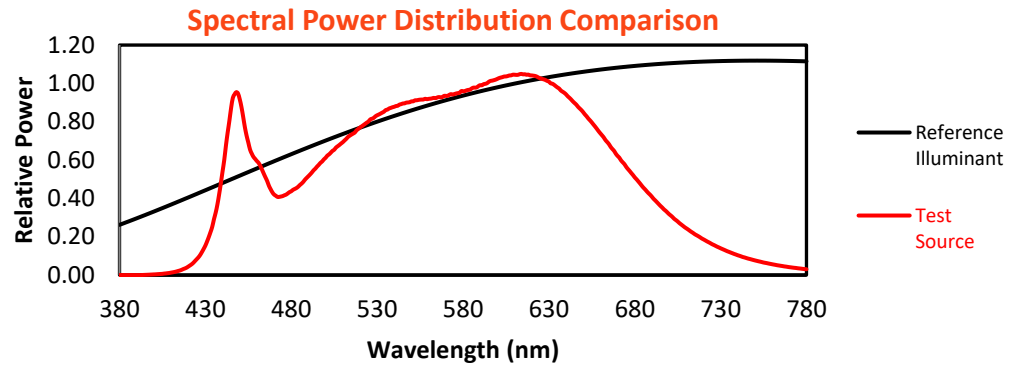
| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 492                         | NR               | 620       | 993                         | NR               | 750       | 73                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 539                         | NR               | 625       | 978                         | NR               | 755       | 62                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 583                         | NR               | 630       | 962                         | NR               | 760       | 54                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 623                         | NR               | 635       | 933                         | NR               | 765       | 46                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 661                         | NR               | 640       | 898                         | NR               | 770       | 39                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 698                         | NR               | 645       | 855                         | NR               | 775       | 34                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 733                         | NR               | 650       | 810                         | NR               | 780       | 29                          | NR               | 910       | 1                           | NR               |
| 395       | 1                           | NR               | 525       | 764                         | NR               | 655       | 759                         | NR               | 785       | 25                          | NR               | 915       | 1                           | NR               |
| 400       | 3                           | NR               | 530       | 794                         | NR               | 660       | 704                         | NR               | 790       | 21                          | NR               | 920       | 1                           | NR               |
| 405       | 6                           | NR               | 535       | 820                         | NR               | 665       | 651                         | NR               | 795       | 18                          | NR               | 925       | 1                           | NR               |
| 410       | 12                          | NR               | 540       | 837                         | NR               | 670       | 592                         | NR               | 800       | 16                          | NR               | 930       | 1                           | NR               |
| 415       | 22                          | NR               | 545       | 853                         | NR               | 675       | 538                         | NR               | 805       | 13                          | NR               | 935       | 0                           | NR               |
| 420       | 42                          | NR               | 550       | 864                         | NR               | 680       | 486                         | NR               | 810       | 12                          | NR               | 940       | 0                           | NR               |
| 425       | 79                          | NR               | 555       | 872                         | NR               | 685       | 435                         | NR               | 815       | 10                          | NR               | 945       | 0                           | NR               |
| 430       | 147                         | NR               | 560       | 876                         | NR               | 690       | 389                         | NR               | 820       | 9                           | NR               | 950       | 0                           | NR               |
| 435       | 278                         | NR               | 565       | 883                         | NR               | 695       | 344                         | NR               | 825       | 7                           | NR               | 955       | 0                           | NR               |
| 440       | 515                         | NR               | 570       | 891                         | NR               | 700       | 303                         | NR               | 830       | 6                           | NR               | 960       | 0                           | NR               |
| 445       | 832                         | NR               | 575       | 900                         | NR               | 705       | 266                         | NR               | 835       | 5                           | NR               | 965       | 0                           | NR               |
| 450       | 874                         | NR               | 580       | 914                         | NR               | 710       | 233                         | NR               | 840       | 5                           | NR               | 970       | 0                           | NR               |
| 455       | 659                         | NR               | 585       | 927                         | NR               | 715       | 203                         | NR               | 845       | 4                           | NR               | 975       | 0                           | NR               |
| 460       | 567                         | NR               | 590       | 944                         | NR               | 720       | 178                         | NR               | 850       | 4                           | NR               | 980       | 0                           | NR               |
| 465       | 485                         | NR               | 595       | 961                         | NR               | 725       | 154                         | NR               | 855       | 3                           | NR               | 985       | 0                           | NR               |
| 470       | 401                         | NR               | 600       | 975                         | NR               | 730       | 133                         | NR               | 860       | 3                           | NR               | 990       | 0                           | NR               |
| 475       | 393                         | NR               | 605       | 988                         | NR               | 735       | 115                         | NR               | 865       | 2                           | NR               | 995       | 1                           | NR               |
| 480       | 417                         | NR               | 610       | 996                         | NR               | 740       | 98                          | NR               | 870       | 2                           | NR               | 1000      | 0                           | NR               |
| 485       | 448                         | NR               | 615       | 998                         | NR               | 745       | 85                          | NR               | 875       | 2                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2407-184-16

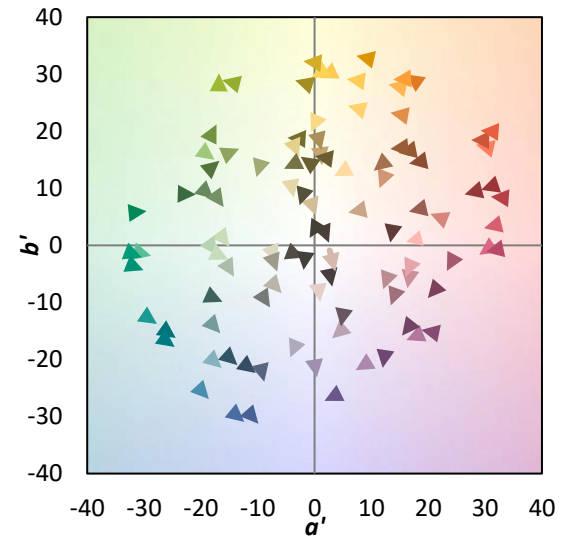
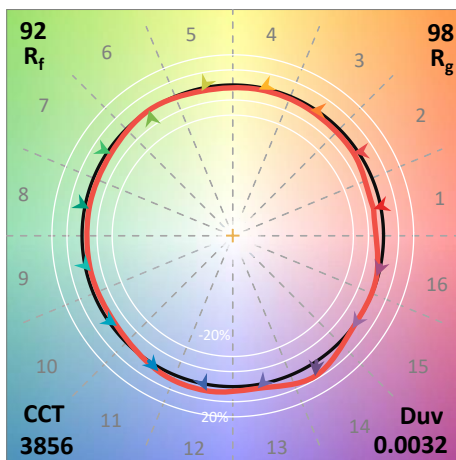
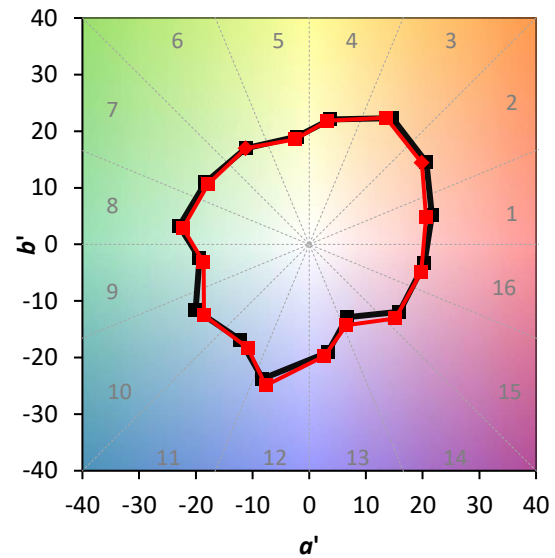
TM-30-18

### Summary

$R_f = 91.8$   
 $R_g = 98.4$   
 $CIE R_a = 92.1$   
 $R_9 = 60.7$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 94 | CES51 = 96 | CES76 = 87 |
| CES02 = 62 | CES27 = 91 | CES52 = 98 | CES77 = 90 |
| CES03 = 31 | CES28 = 96 | CES53 = 95 | CES78 = 84 |
| CES04 = 69 | CES29 = 96 | CES54 = 94 | CES79 = 96 |
| CES05 = 49 | CES30 = 93 | CES55 = 92 | CES80 = 94 |
| CES06 = 50 | CES31 = 97 | CES56 = 93 | CES81 = 89 |
| CES07 = 42 | CES32 = 92 | CES57 = 92 | CES82 = 97 |
| CES08 = 41 | CES33 = 99 | CES58 = 92 | CES83 = 98 |
| CES09 = 29 | CES34 = 94 | CES59 = 96 | CES84 = 94 |
| CES10 = 74 | CES35 = 96 | CES60 = 93 | CES85 = 85 |
| CES11 = 57 | CES36 = 82 | CES61 = 92 | CES86 = 88 |
| CES12 = 63 | CES37 = 95 | CES62 = 87 | CES87 = 92 |
| CES13 = 43 | CES38 = 88 | CES63 = 92 | CES88 = 96 |
| CES14 = 74 | CES39 = 99 | CES64 = 89 | CES89 = 87 |
| CES15 = 71 | CES40 = 98 | CES65 = 88 | CES90 = 96 |
| CES16 = 47 | CES41 = 97 | CES66 = 87 | CES91 = 74 |
| CES17 = 49 | CES42 = 96 | CES67 = 86 | CES92 = 80 |
| CES18 = 56 | CES43 = 96 | CES68 = 88 | CES93 = 88 |
| CES19 = 71 | CES44 = 99 | CES69 = 89 | CES94 = 82 |
| CES20 = 66 | CES45 = 98 | CES70 = 86 | CES95 = 83 |
| CES21 = 85 | CES46 = 97 | CES71 = 81 | CES96 = 92 |
| CES22 = 78 | CES47 = 97 | CES72 = 94 | CES97 = 95 |
| CES23 = 91 | CES48 = 91 | CES73 = 81 | CES98 = 94 |
| CES24 = 90 | CES49 = 96 | CES74 = 93 | CES99 = 91 |
| CES25 = 71 | CES50 = 97 | CES75 = 83 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)