

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: P1066158

Luminaire Tested: **NVN-SA5B-830-U-T2BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1066158  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: NVN-SA5B-830-U-T2BC  
Description: Navion AREA AND ROADWAY LUMINAIRE 800mA 5xLight Square PACKAGE  
80CRI 3000K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (70) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 17382.4 lumens  
Efficiency: N/A  
Efficacy: 97.2 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G3

Input Watts (W): 178.8  
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

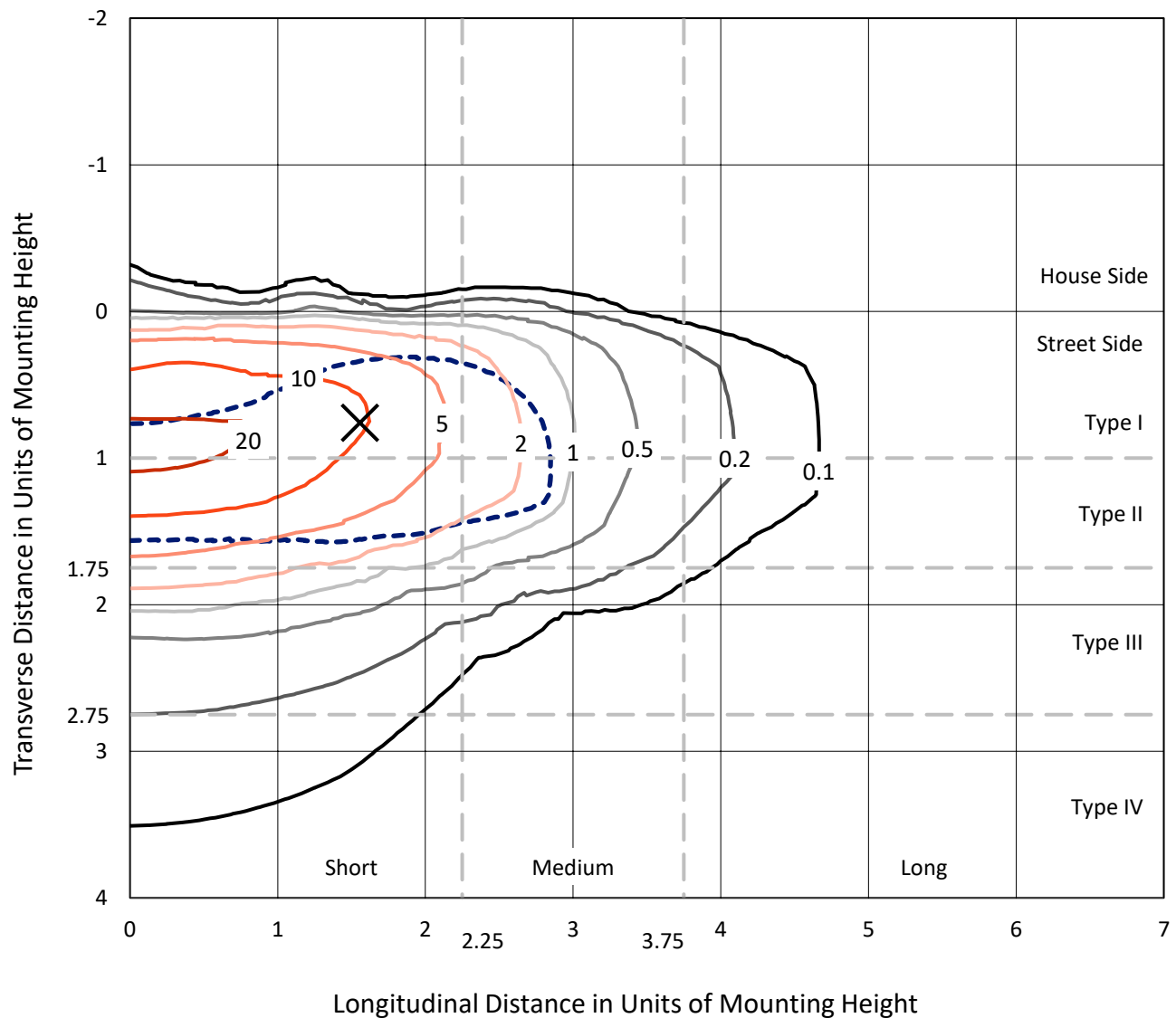


REPORT NUMBER: P1066158

CATALOG NUMBER: NVN-SA5B-830-U-T2BC

## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

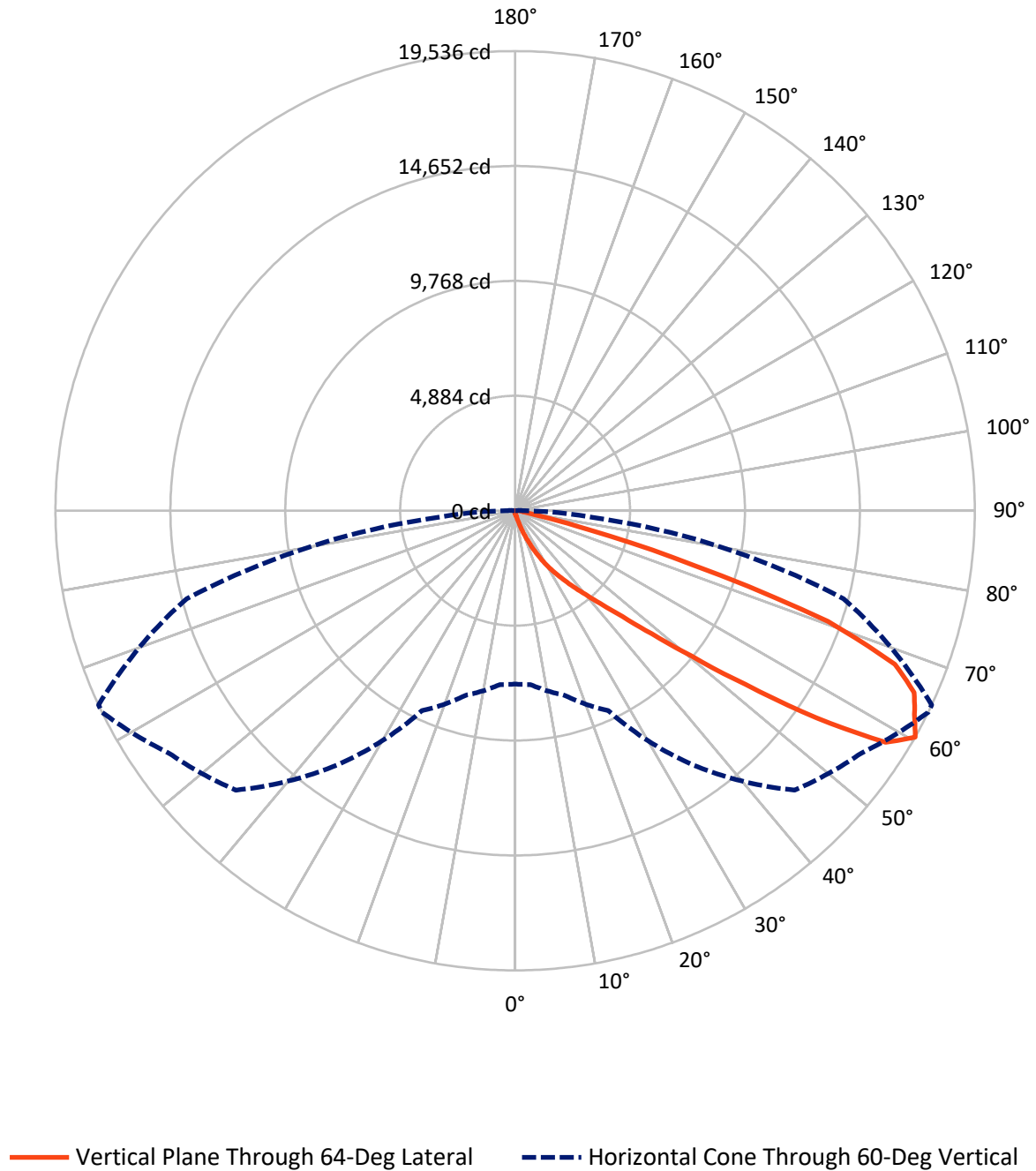


Based on 15 foot mounting height. Maximum calculated value = 24.9 fc  
 Type II - Short - N/A

REPORT NUMBER: P1066158

CATALOG NUMBER: NVN-SA5B-830-U-T2BC

## Luminous Intensity Polar Plot



REPORT NUMBER: P1066158

CATALOG NUMBER: NVN-SA5B-830-U-T2BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 70.5     | 0.0    | 70.5    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 17311.9  | 0.0    | 17311.9 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 17382.4  | 0.0    | 17382.4 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 17.3    | 0.1       |
| 10°-20°   | 170.8   | 1.0       |
| 20°-30°   | 567.3   | 3.3       |
| 30°-40°   | 1513.8  | 8.7       |
| 40°-50°   | 3847.6  | 22.1      |
| 50°-60°   | 5609.0  | 32.3      |
| 60°-70°   | 4332.4  | 24.9      |
| 70°-80°   | 1189.8  | 6.8       |
| 80°-90°   | 134.3   | 0.8       |
| 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°    | 17382.4 | 100.0     |
| 0°-180°   | 17382.4 | 100.0     |



REPORT NUMBER: P1066158

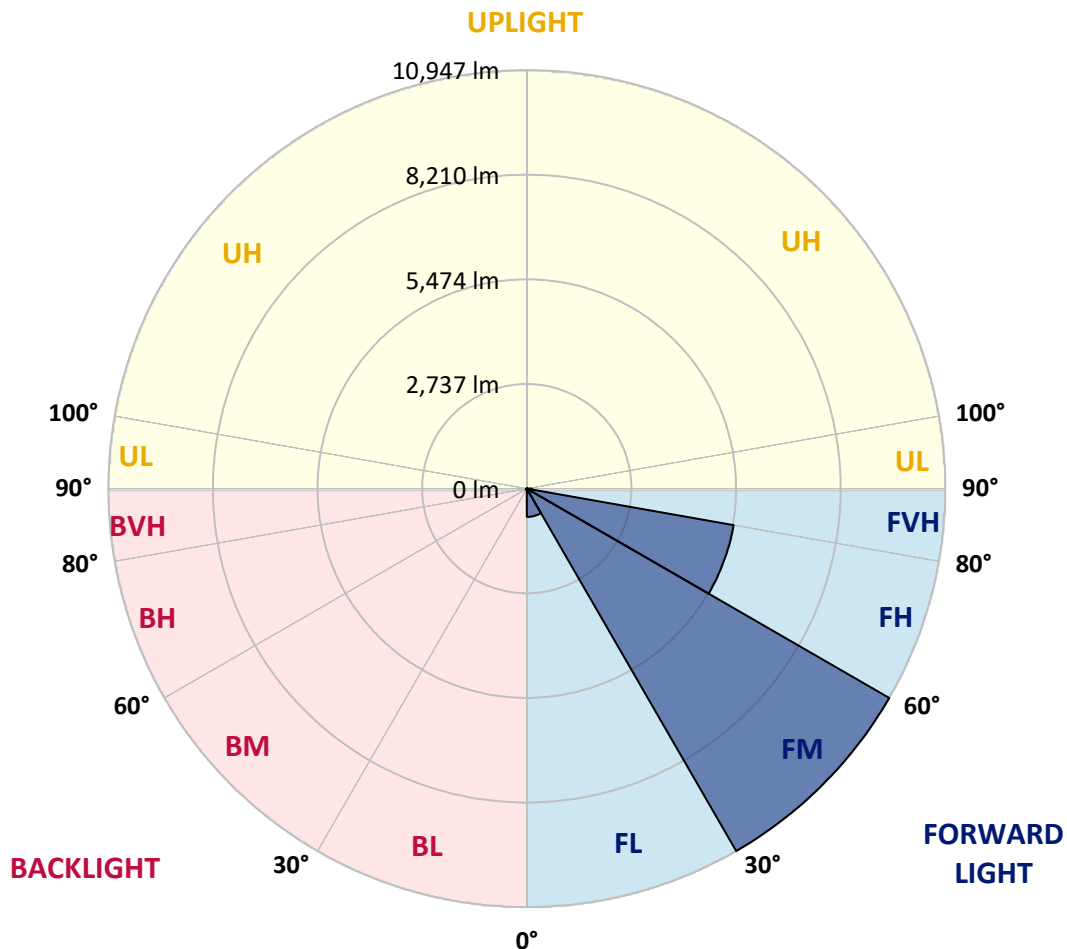
CATALOG NUMBER: NVN-SA5B-830-U-T2BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|---------|-----------|-------------------------|------|---------|
|      |             |         |           | B                       | U    | G       |
| FL   | (0°-30°)    | 739.6   | 4.3       |                         |      |         |
| FM   | (30°-60°)   | 10947.1 | 63.0      |                         |      |         |
| FH   | (60°-80°)   | 5494.1  | 31.6      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 131.1   | 0.8       |                         |      | G2/225  |
| BL   | (0°-30°)    | 15.8    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 23.4    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 28.1    | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 3.2     | 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 II Short



REPORT NUMBER: P1066158

CATALOG NUMBER: NVN-SA5B-830-U-T2BC

**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 114.8   | 114.8   | 114.8   | 114.8   | 114.8   | 114.8   | 114.8   | 114.8   | 114.8   | 114.8   | 114.8  |
| 2.5°  | 153.1   | 153.1   | 153.1   | 148.3   | 143.5   | 143.5   | 138.8   | 134.0   | 134.0   | 124.4   | 119.6  |
| 5°    | 234.5   | 234.5   | 224.9   | 215.3   | 201.0   | 181.8   | 162.7   | 148.3   | 148.3   | 134.0   | 124.4  |
| 7.5°  | 459.3   | 473.7   | 430.6   | 378.0   | 306.2   | 258.4   | 205.7   | 172.3   | 167.5   | 143.5   | 124.4  |
| 10°   | 995.2   | 985.7   | 918.7   | 789.5   | 622.0   | 449.8   | 287.1   | 210.5   | 201.0   | 153.1   | 124.4  |
| 12.5° | 1497.6  | 1512.0  | 1440.2  | 1296.7  | 1095.7  | 799.1   | 492.8   | 272.7   | 263.2   | 167.5   | 124.4  |
| 15°   | 1928.2  | 1928.2  | 1880.4  | 1808.6  | 1588.5  | 1277.5  | 794.3   | 406.7   | 373.2   | 181.8   | 119.6  |
| 17.5° | 2224.9  | 2220.1  | 2201.0  | 2181.8  | 2052.7  | 1732.1  | 1215.3  | 650.7   | 574.2   | 215.3   | 119.6  |
| 20°   | 2559.8  | 2545.5  | 2569.4  | 2531.1  | 2430.6  | 2177.1  | 1660.3  | 966.5   | 894.7   | 272.7   | 119.6  |
| 22.5° | 2909.1  | 2923.5  | 2942.6  | 2904.3  | 2794.3  | 2574.2  | 2129.2  | 1373.2  | 1296.7  | 378.0   | 124.4  |
| 25°   | 3354.1  | 3344.5  | 3387.6  | 3354.1  | 3215.3  | 2957.0  | 2569.4  | 1818.2  | 1708.2  | 526.3   | 134.0  |
| 27.5° | 3899.6  | 3880.4  | 3909.1  | 3823.0  | 3641.2  | 3378.0  | 2961.8  | 2272.7  | 2143.6  | 756.0   | 153.1  |
| 30°   | 4622.1  | 4636.4  | 4507.2  | 4406.7  | 4148.4  | 3799.1  | 3397.2  | 2760.8  | 2626.8  | 1028.7  | 172.3  |
| 32.5° | 5760.8  | 5660.3  | 5459.4  | 5052.7  | 4713.0  | 4268.0  | 3832.6  | 3186.6  | 3067.0  | 1378.0  | 201.0  |
| 35°   | 7536.0  | 7555.1  | 7114.9  | 6110.1  | 5373.3  | 4856.5  | 4311.0  | 3655.5  | 3569.4  | 1775.1  | 239.2  |
| 37.5° | 9698.7  | 9646.0  | 9258.5  | 7990.5  | 6339.8  | 5588.6  | 4856.5  | 4167.5  | 4043.1  | 2205.8  | 287.1  |
| 40°   | 12148.4 | 11928.3 | 11703.5 | 10842.2 | 8354.1  | 6507.2  | 5545.5  | 4760.8  | 4665.1  | 2703.4  | 363.6  |
| 42.5° | 14110.2 | 14052.8 | 14091.0 | 13732.2 | 11713.0 | 8071.8  | 6459.4  | 5488.1  | 5373.3  | 3320.6  | 497.6  |
| 45°   | 15076.7 | 14995.4 | 15225.0 | 15493.0 | 14976.2 | 11402.0 | 7933.1  | 6416.3  | 6263.2  | 4047.9  | 703.4  |
| 47.5° | 14818.3 | 14760.9 | 15253.7 | 15780.1 | 16469.1 | 15263.3 | 10339.8 | 7803.9  | 7540.7  | 4980.9  | 1009.6 |
| 50°   | 13545.6 | 13550.4 | 14359.0 | 15339.9 | 16430.8 | 17220.3 | 13904.4 | 9703.4  | 9373.3  | 6220.2  | 1488.1 |
| 52.5° | 12306.3 | 12344.6 | 13201.1 | 14631.7 | 15861.4 | 17449.9 | 17033.7 | 12263.3 | 11727.4 | 7679.5  | 2052.7 |
| 55°   | 11033.6 | 11052.7 | 11808.7 | 13823.1 | 15593.5 | 16765.7 | 18641.3 | 15560.0 | 14990.6 | 9497.7  | 2602.9 |
| 57.5° | 9808.7  | 9808.7  | 10091.0 | 11880.5 | 15301.6 | 16703.5 | 18449.9 | 18574.3 | 18110.2 | 11574.3 | 3009.6 |
| 60°   | 7368.5  | 7416.3  | 8119.7  | 9373.3  | 13196.3 | 16794.4 | 17961.9 | 19536.1 | 19536.1 | 14454.7 | 3320.6 |
| 62.5° | 3722.5  | 3794.3  | 4669.9  | 5890.0  | 9052.7  | 15540.8 | 18038.5 | 19052.8 | 19129.4 | 16995.4 | 4028.7 |
| 65°   | 1746.4  | 1827.8  | 2296.7  | 3157.9  | 4870.9  | 10937.9 | 17244.2 | 18641.3 | 18617.4 | 16512.1 | 5521.6 |
| 67.5° | 1253.6  | 1277.5  | 1435.4  | 1842.1  | 2622.0  | 4794.3  | 13162.8 | 17411.7 | 17421.2 | 14028.8 | 6349.3 |
| 70°   | 1124.4  | 1124.4  | 1162.7  | 1282.3  | 1579.0  | 2143.6  | 6397.2  | 14100.6 | 14784.8 | 10832.6 | 5885.2 |
| 72.5° | 1110.1  | 1100.5  | 1090.9  | 1095.7  | 1067.0  | 1076.6  | 2196.2  | 7961.8  | 8937.9  | 7579.0  | 4693.8 |
| 75°   | 1081.4  | 1081.4  | 1071.8  | 1038.3  | 851.7   | 693.8   | 756.0   | 3220.1  | 3722.5  | 5062.3  | 3483.3 |
| 77.5° | 856.5   | 942.6   | 1043.1  | 980.9   | 779.9   | 521.5   | 440.2   | 933.0   | 1177.0  | 3105.3  | 2526.3 |
| 80°   | 397.1   | 401.9   | 397.1   | 416.3   | 497.6   | 373.2   | 325.4   | 454.5   | 459.3   | 1722.5  | 1564.6 |
| 82.5° | 287.1   | 291.9   | 277.5   | 248.8   | 220.1   | 201.0   | 267.9   | 334.9   | 358.9   | 789.5   | 583.7  |
| 85°   | 86.1    | 81.3    | 95.7    | 129.2   | 153.1   | 177.0   | 224.9   | 282.3   | 296.7   | 291.9   | 86.1   |
| 87.5° | 38.3    | 38.3    | 47.8    | 67.0    | 90.9    | 134.0   | 196.2   | 258.4   | 263.2   | 301.4   | 23.9   |
| 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: P1066158

CATALOG NUMBER: NVN-SA5B-830-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 114.8  | 114.8 | 114.8 | 114.8 | 114.8 | 114.8 | 114.8 | 114.8 | 114.8 | 114.8 | 114.8 |
| 2.5°  | 119.6  | 114.8 | 110.0 | 105.3 | 100.5 | 95.7  | 90.9  | 90.9  | 95.7  | 95.7  | 95.7  |
| 5°    | 114.8  | 110.0 | 100.5 | 90.9  | 86.1  | 81.3  | 76.6  | 76.6  | 81.3  | 81.3  | 81.3  |
| 7.5°  | 114.8  | 105.3 | 95.7  | 86.1  | 76.6  | 71.8  | 67.0  | 67.0  | 67.0  | 71.8  | 71.8  |
| 10°   | 114.8  | 105.3 | 90.9  | 76.6  | 67.0  | 62.2  | 57.4  | 52.6  | 57.4  | 57.4  | 57.4  |
| 12.5° | 110.0  | 100.5 | 86.1  | 71.8  | 57.4  | 47.8  | 43.1  | 43.1  | 43.1  | 43.1  | 43.1  |
| 15°   | 105.3  | 95.7  | 81.3  | 62.2  | 47.8  | 38.3  | 28.7  | 28.7  | 28.7  | 33.5  | 33.5  |
| 17.5° | 100.5  | 90.9  | 71.8  | 47.8  | 33.5  | 23.9  | 19.1  | 19.1  | 19.1  | 23.9  | 23.9  |
| 20°   | 100.5  | 86.1  | 62.2  | 38.3  | 23.9  | 14.4  | 9.6   | 9.6   | 9.6   | 14.4  | 19.1  |
| 22.5° | 100.5  | 86.1  | 57.4  | 28.7  | 14.4  | 9.6   | 4.8   | 4.8   | 4.8   | 4.8   | 4.8   |
| 25°   | 100.5  | 81.3  | 52.6  | 23.9  | 9.6   | 4.8   | 0.0   | 0.0   | 4.8   | 9.6   | 14.4  |
| 27.5° | 100.5  | 76.6  | 43.1  | 14.4  | 9.6   | 4.8   | 0.0   | 4.8   | 9.6   | 9.6   | 9.6   |
| 30°   | 100.5  | 76.6  | 38.3  | 14.4  | 4.8   | 0.0   | 0.0   | 4.8   | 9.6   | 9.6   | 14.4  |
| 32.5° | 105.3  | 71.8  | 33.5  | 9.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 110.0  | 67.0  | 28.7  | 9.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 119.6  | 67.0  | 19.1  | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 134.0  | 71.8  | 19.1  | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 167.5  | 76.6  | 14.4  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 234.5  | 95.7  | 14.4  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 344.5  | 143.5 | 14.4  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 502.4  | 196.2 | 9.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 617.2  | 196.2 | 9.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 612.4  | 124.4 | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 468.9  | 86.1  | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 397.1  | 62.2  | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 478.5  | 47.8  | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 851.7  | 43.1  | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1368.4 | 43.1  | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 1531.1 | 43.1  | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1196.2 | 38.3  | 4.8   | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 655.5  | 33.5  | 4.8   | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 330.1  | 23.9  | 9.6   | 4.8   | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 138.8  | 19.1  | 9.6   | 4.8   | 4.8   | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 47.8   | 19.1  | 9.6   | 9.6   | 4.8   | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 23.9   | 14.4  | 14.4  | 9.6   | 9.6   | 4.8   | 4.8   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 14.4   | 14.4  | 14.4  | 9.6   | 9.6   | 4.8   | 4.8   | 0.0   | 0.0   | 0.0   | 4.8   |
| 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: SP1-2407-184-9

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-830-U-5WQ

Data in this report applies to families of products including GSS-SB1A-830-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-9  
 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-830-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 3055  
 CIE  $u'$ : 0.2475  
 CIE  $v'$ : 0.5247  
 Duv: 0.0032  
 CIE x: 0.4377  
 CIE y: 0.4124  
 CIE z: 0.1499  
 Peak Wavelength (nm): 604  
 Dominant Wavelength (nm): 581  
 Purity: 55.16339  
 R<sub>f</sub>: 81.5  
 R<sub>g</sub>: 99.2

CRI (Ra): 80.9  
 R1: 79.5  
 R2: 85.6  
 R3: 92.1  
 R4: 82.4  
 R5: 78.9  
 R6: 81.7  
 R7: 85.1  
 R8: 61.9  
 R9: 6.8  
 R10: 67.1  
 R11: 82.5  
 R12: 63.4  
 R13: 80.2  
 R14: 95.1  
 R15: 71.7



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-9

| 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: SP1-2407-184-9

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-9

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 170                      | NR            | 620    | 938                      | NR            | 750    | 35                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 234                      | NR            | 625    | 894                      | NR            | 755    | 30                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 302                      | NR            | 630    | 847                      | NR            | 760    | 26                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 371                      | NR            | 635    | 788                      | NR            | 765    | 22                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 431                      | NR            | 640    | 728                      | NR            | 770    | 19                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 482                      | NR            | 645    | 665                      | NR            | 775    | 16                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 523                      | NR            | 650    | 603                      | NR            | 780    | 14                       | NR            | 910    | 0                        | NR            |
| 395    | 2                        | NR            | 525    | 553                      | NR            | 655    | 542                      | NR            | 785    | 12                       | NR            | 915    | 0                        | NR            |
| 400    | 4                        | NR            | 530    | 580                      | NR            | 660    | 484                      | NR            | 790    | 11                       | NR            | 920    | 0                        | NR            |
| 405    | 8                        | NR            | 535    | 603                      | NR            | 665    | 430                      | NR            | 795    | 9                        | NR            | 925    | 0                        | NR            |
| 410    | 18                       | NR            | 540    | 622                      | NR            | 670    | 377                      | NR            | 800    | 8                        | NR            | 930    | 0                        | NR            |
| 415    | 36                       | NR            | 545    | 644                      | NR            | 675    | 330                      | NR            | 805    | 7                        | NR            | 935    | 0                        | NR            |
| 420    | 71                       | NR            | 550    | 668                      | NR            | 680    | 289                      | NR            | 810    | 6                        | NR            | 940    | 0                        | NR            |
| 425    | 131                      | NR            | 555    | 693                      | NR            | 685    | 250                      | NR            | 815    | 5                        | NR            | 945    | 0                        | NR            |
| 430    | 215                      | NR            | 560    | 720                      | NR            | 690    | 218                      | NR            | 820    | 4                        | NR            | 950    | 0                        | NR            |
| 435    | 341                      | NR            | 565    | 754                      | NR            | 695    | 188                      | NR            | 825    | 4                        | NR            | 955    | 0                        | NR            |
| 440    | 514                      | NR            | 570    | 792                      | NR            | 700    | 161                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 576                      | NR            | 575    | 832                      | NR            | 705    | 139                      | NR            | 835    | 3                        | NR            | 965    | 0                        | NR            |
| 450    | 358                      | NR            | 580    | 875                      | NR            | 710    | 119                      | NR            | 840    | 3                        | NR            | 970    | 0                        | NR            |
| 455    | 222                      | NR            | 585    | 913                      | NR            | 715    | 102                      | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 170                      | NR            | 590    | 950                      | NR            | 720    | 88                       | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 115                      | NR            | 595    | 977                      | NR            | 725    | 76                       | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 88                       | NR            | 600    | 994                      | NR            | 730    | 65                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 87                       | NR            | 605    | 997                      | NR            | 735    | 56                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 96                       | NR            | 610    | 990                      | NR            | 740    | 47                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 122                      | NR            | 615    | 971                      | NR            | 745    | 41                       | NR            | 875    | 1                        | NR            |        |                          |               |

REPORT NUMBER: SP1-2407-184-9

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.28

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 170                      | NR            | 620    | 938                      | NR            | 750    | 35                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 234                      | NR            | 625    | 894                      | NR            | 755    | 30                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 302                      | NR            | 630    | 847                      | NR            | 760    | 26                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 371                      | NR            | 635    | 788                      | NR            | 765    | 22                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 431                      | NR            | 640    | 728                      | NR            | 770    | 19                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 482                      | NR            | 645    | 665                      | NR            | 775    | 16                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 523                      | NR            | 650    | 603                      | NR            | 780    | 14                       | NR            | 910    | 0                        | NR            |
| 395    | 2                        | NR            | 525    | 553                      | NR            | 655    | 542                      | NR            | 785    | 12                       | NR            | 915    | 0                        | NR            |
| 400    | 4                        | NR            | 530    | 580                      | NR            | 660    | 484                      | NR            | 790    | 11                       | NR            | 920    | 0                        | NR            |
| 405    | 8                        | NR            | 535    | 603                      | NR            | 665    | 430                      | NR            | 795    | 9                        | NR            | 925    | 0                        | NR            |
| 410    | 18                       | NR            | 540    | 622                      | NR            | 670    | 377                      | NR            | 800    | 8                        | NR            | 930    | 0                        | NR            |
| 415    | 36                       | NR            | 545    | 644                      | NR            | 675    | 330                      | NR            | 805    | 7                        | NR            | 935    | 0                        | NR            |
| 420    | 71                       | NR            | 550    | 668                      | NR            | 680    | 289                      | NR            | 810    | 6                        | NR            | 940    | 0                        | NR            |
| 425    | 131                      | NR            | 555    | 693                      | NR            | 685    | 250                      | NR            | 815    | 5                        | NR            | 945    | 0                        | NR            |
| 430    | 215                      | NR            | 560    | 720                      | NR            | 690    | 218                      | NR            | 820    | 4                        | NR            | 950    | 0                        | NR            |
| 435    | 341                      | NR            | 565    | 754                      | NR            | 695    | 188                      | NR            | 825    | 4                        | NR            | 955    | 0                        | NR            |
| 440    | 514                      | NR            | 570    | 792                      | NR            | 700    | 161                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 576                      | NR            | 575    | 832                      | NR            | 705    | 139                      | NR            | 835    | 3                        | NR            | 965    | 0                        | NR            |
| 450    | 358                      | NR            | 580    | 875                      | NR            | 710    | 119                      | NR            | 840    | 3                        | NR            | 970    | 0                        | NR            |
| 455    | 222                      | NR            | 585    | 913                      | NR            | 715    | 102                      | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 170                      | NR            | 590    | 950                      | NR            | 720    | 88                       | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 115                      | NR            | 595    | 977                      | NR            | 725    | 76                       | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 88                       | NR            | 600    | 994                      | NR            | 730    | 65                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 87                       | NR            | 605    | 997                      | NR            | 735    | 56                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 96                       | NR            | 610    | 990                      | NR            | 740    | 47                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 122                      | NR            | 615    | 971                      | NR            | 745    | 41                       | NR            | 875    | 1                        | NR            |        |                          |               |

REPORT NUMBER: SP1-2407-184-9

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.33

| $\lambda$<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               | 170                                  | NR                             | 620               | 938                                  | NR                             | 750               | 35                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 234                                  | NR                             | 625               | 894                                  | NR                             | 755               | 30                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 302                                  | NR                             | 630               | 847                                  | NR                             | 760               | 26                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 371                                  | NR                             | 635               | 788                                  | NR                             | 765               | 22                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 431                                  | NR                             | 640               | 728                                  | NR                             | 770               | 19                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 482                                  | NR                             | 645               | 665                                  | NR                             | 775               | 16                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 523                                  | NR                             | 650               | 603                                  | NR                             | 780               | 14                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 553                                  | NR                             | 655               | 542                                  | NR                             | 785               | 12                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 580                                  | NR                             | 660               | 484                                  | NR                             | 790               | 11                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 603                                  | NR                             | 665               | 430                                  | NR                             | 795               | 9                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 18                                   | NR                             | 540               | 622                                  | NR                             | 670               | 377                                  | NR                             | 800               | 8                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 36                                   | NR                             | 545               | 644                                  | NR                             | 675               | 330                                  | NR                             | 805               | 7                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 71                                   | NR                             | 550               | 668                                  | NR                             | 680               | 289                                  | NR                             | 810               | 6                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 693                                  | NR                             | 685               | 250                                  | NR                             | 815               | 5                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 215                                  | NR                             | 560               | 720                                  | NR                             | 690               | 218                                  | NR                             | 820               | 4                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 341                                  | NR                             | 565               | 754                                  | NR                             | 695               | 188                                  | NR                             | 825               | 4                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 514                                  | NR                             | 570               | 792                                  | NR                             | 700               | 161                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 576                                  | NR                             | 575               | 832                                  | NR                             | 705               | 139                                  | NR                             | 835               | 3                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 358                                  | NR                             | 580               | 875                                  | NR                             | 710               | 119                                  | NR                             | 840               | 3                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 222                                  | NR                             | 585               | 913                                  | NR                             | 715               | 102                                  | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 170                                  | NR                             | 590               | 950                                  | NR                             | 720               | 88                                   | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 115                                  | NR                             | 595               | 977                                  | NR                             | 725               | 76                                   | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 88                                   | NR                             | 600               | 994                                  | NR                             | 730               | 65                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 87                                   | NR                             | 605               | 997                                  | NR                             | 735               | 56                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 96                                   | NR                             | 610               | 990                                  | NR                             | 740               | 47                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 122                                  | NR                             | 615               | 971                                  | NR                             | 745               | 41                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2407-184-9

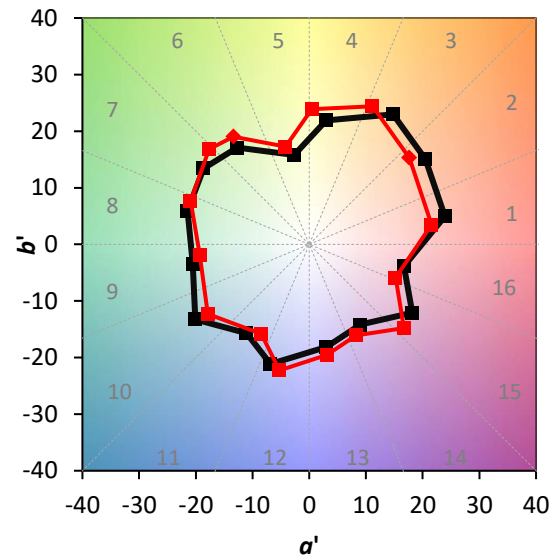
TM-30-18

### Summary

$R_f = 81.5$   
 $R_g = 99.2$   
 $CIE R_a = 80.9$   
 $R_9 = 6.8$

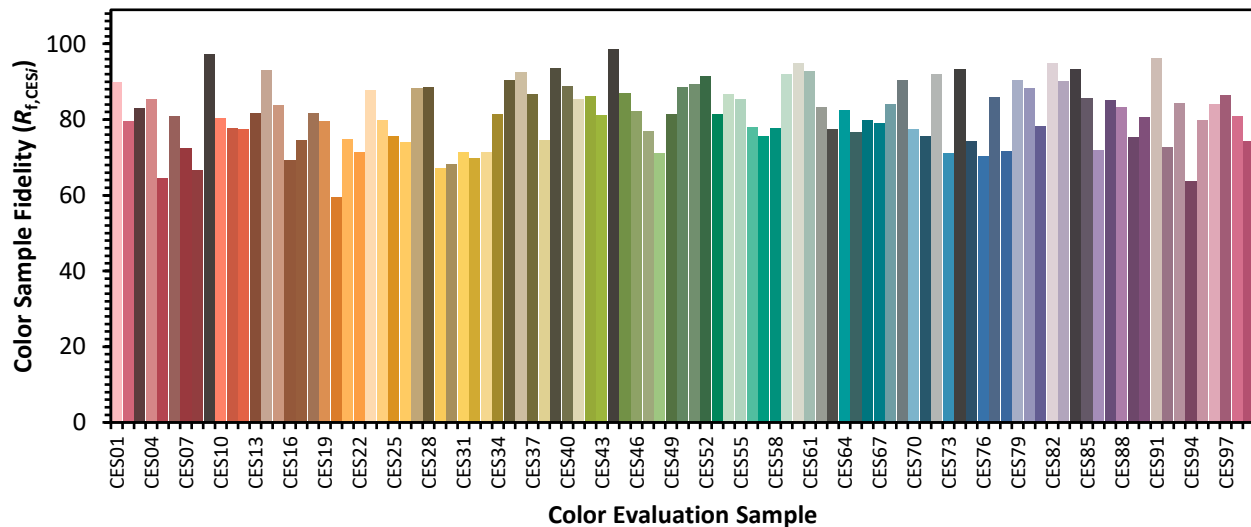


### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 91 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 93 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 90 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 77 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**


(END OF REPORT)