

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: P1065959

Luminaire Tested: **NVN-SA3C-740-U-T2BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1065959  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: NVN-SA3C-740-U-T2BC  
Description: Navion AREA AND ROADWAY LUMINAIRE 1050mA 3xLight Square PACKAGE  
70CRI 4000K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (42) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 16324.7 lumens  
Efficiency: N/A  
Efficacy: 116.3 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G3

Input Watts (W): 140.4  
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

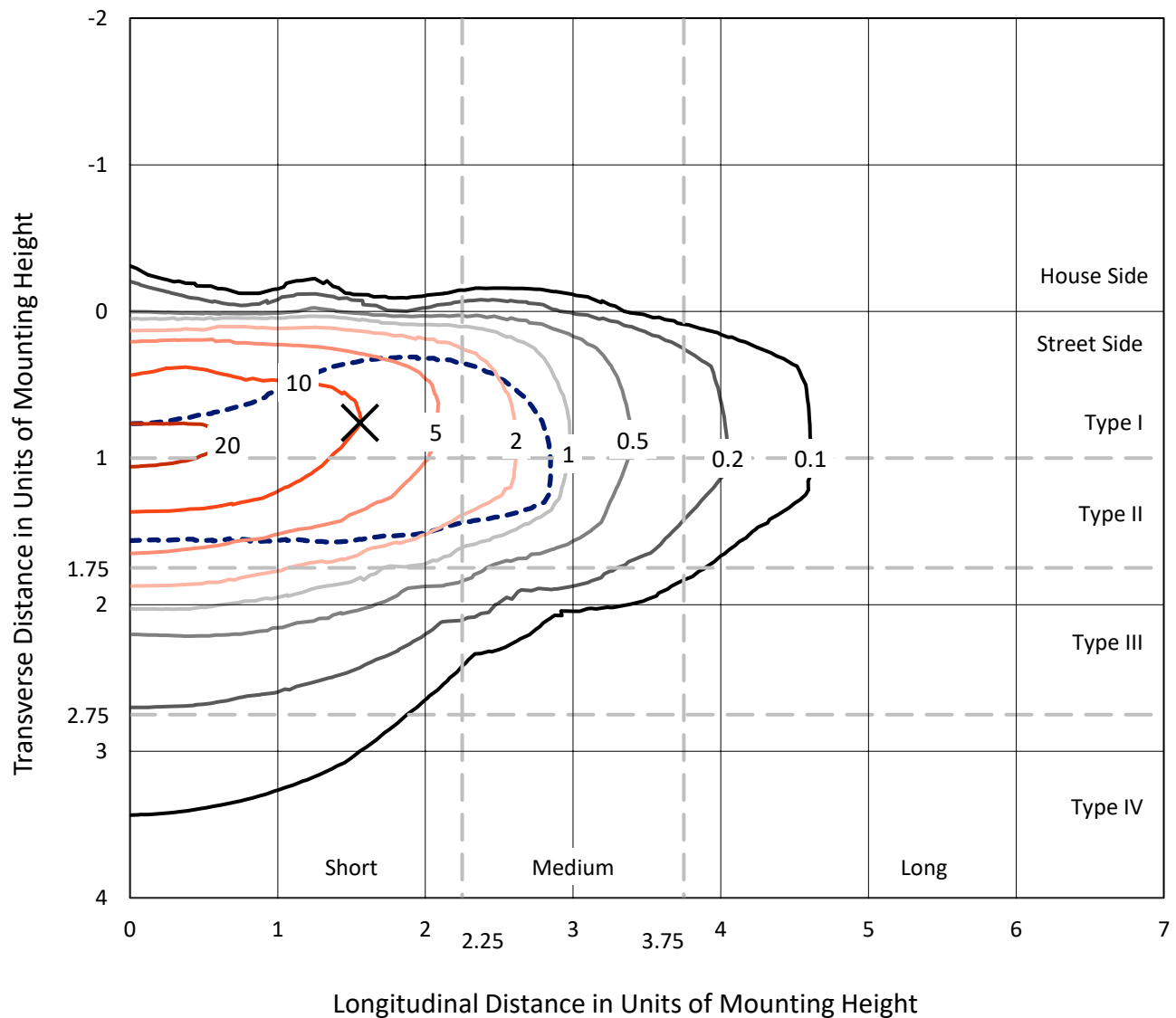


REPORT NUMBER: P1065959

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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

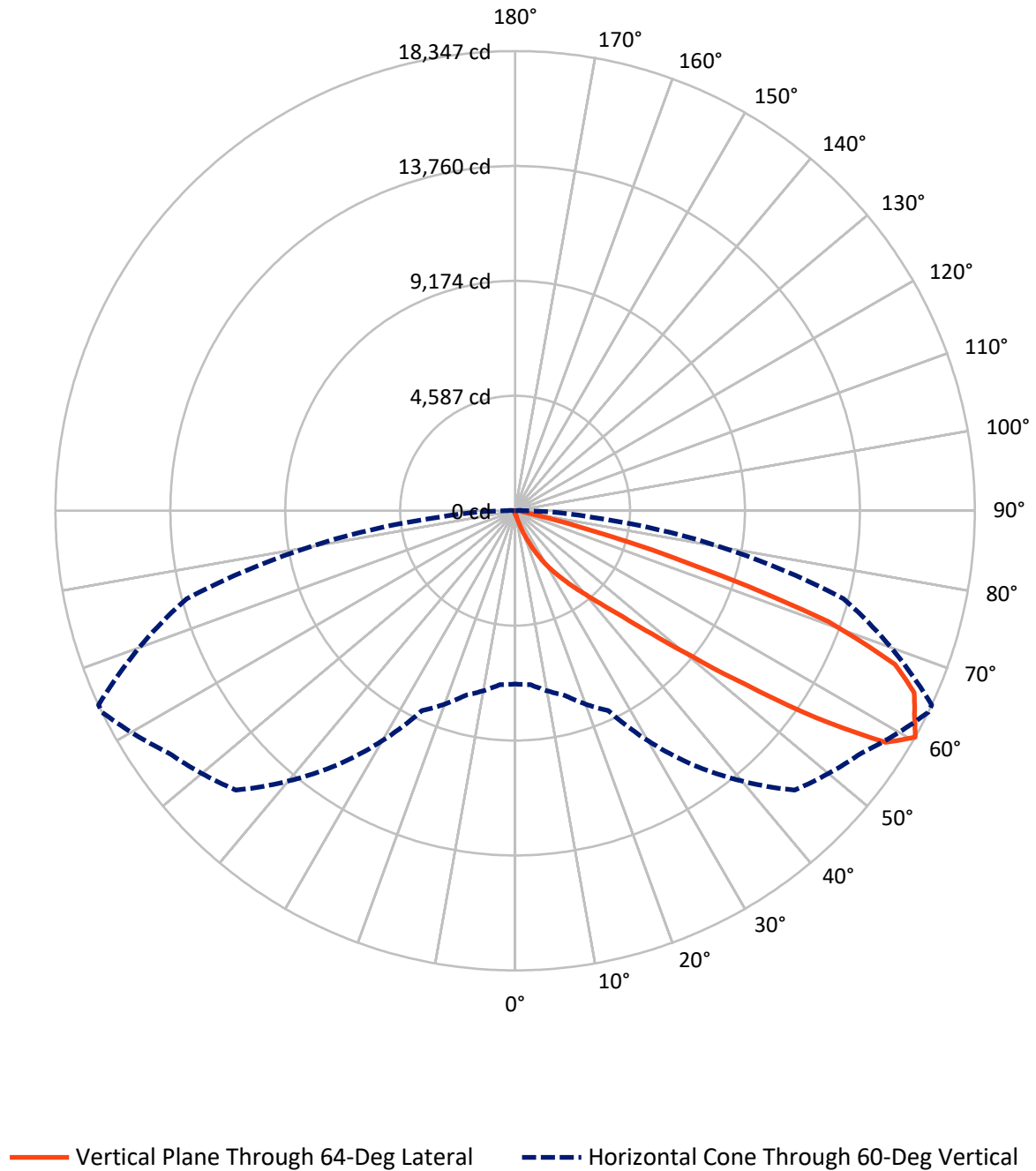


Based on 15 foot mounting height. Maximum calculated value = 23.4 fc  
 Type II - Short - N/A

REPORT NUMBER: P1065959

CATALOG NUMBER: NVN-SA3C-740-U-T2BC

## Luminous Intensity Polar Plot



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CATALOG NUMBER: NVN-SA3C-740-U-T2BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 66.2     | 0.0    | 66.2    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 16258.5  | 0.0    | 16258.5 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 16324.7  | 0.0    | 16324.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 16.2    | 0.1       |
| 10°-20°   | 160.4   | 1.0       |
| 20°-30°   | 532.8   | 3.3       |
| 30°-40°   | 1421.7  | 8.7       |
| 40°-50°   | 3613.5  | 22.1      |
| 50°-60°   | 5267.7  | 32.3      |
| 60°-70°   | 4068.8  | 24.9      |
| 70°-80°   | 1117.4  | 6.8       |
| 80°-90°   | 126.1   | 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°    | 16324.7 | 100.0     |
| 0°-180°   | 16324.7 | 100.0     |



REPORT NUMBER: P1065959

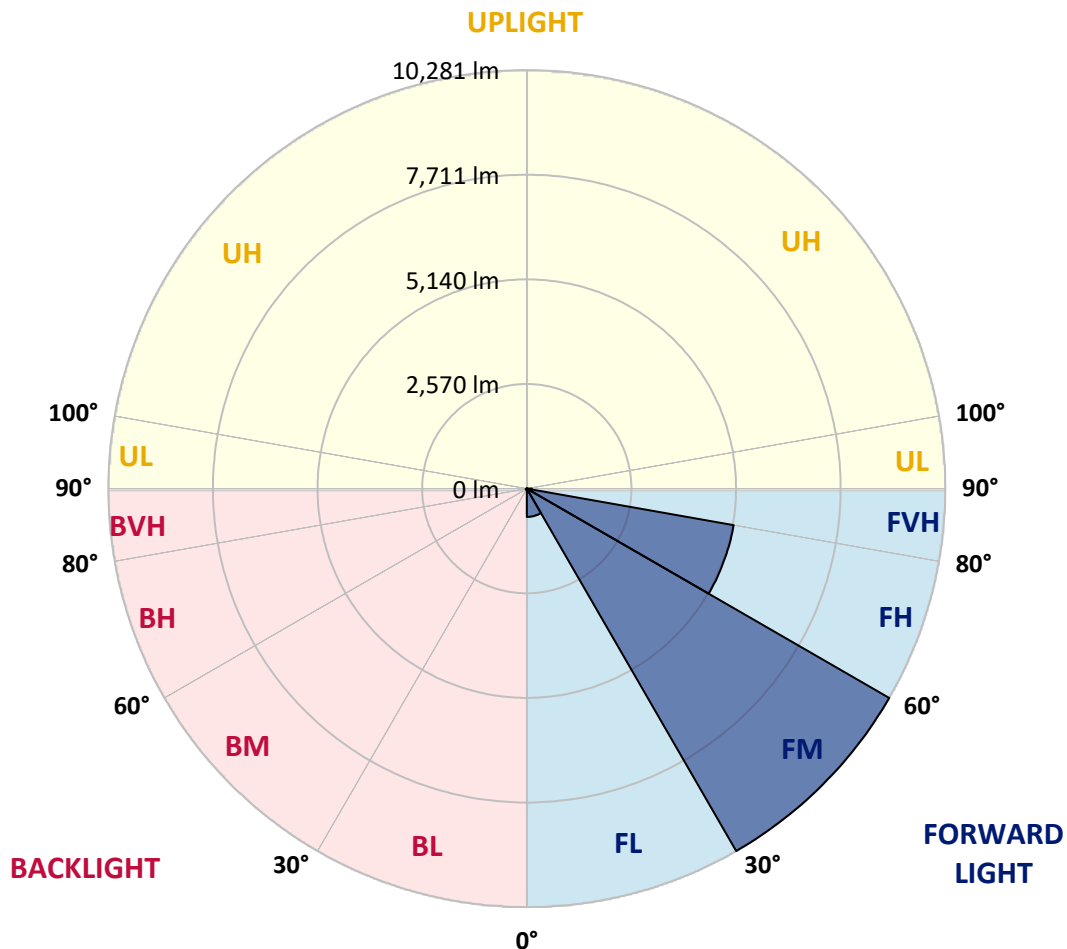
CATALOG NUMBER: NVN-SA3C-740-U-T2BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|---------|-----------|-------------------------|------|---------|
|      |             |         |           | B                       | U    | G       |
| FL   | (0°-30°)    | 694.6   | 4.3       |                         |      |         |
| FM   | (30°-60°)   | 10281.0 | 63.0      |                         |      |         |
| FH   | (60°-80°)   | 5159.8  | 31.6      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 123.1   | 0.8       |                         |      | G2/225  |
| BL   | (0°-30°)    | 14.9    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 21.9    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 26.4    | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 3.0     | 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



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 107.8   | 107.8   | 107.8   | 107.8   | 107.8   | 107.8   | 107.8   | 107.8   | 107.8   | 107.8   | 107.8  |
| 2.5°  | 143.8   | 143.8   | 143.8   | 139.3   | 134.8   | 134.8   | 130.3   | 125.8   | 125.8   | 116.8   | 112.3  |
| 5°    | 220.2   | 220.2   | 211.2   | 202.2   | 188.7   | 170.8   | 152.8   | 139.3   | 139.3   | 125.8   | 116.8  |
| 7.5°  | 431.4   | 444.9   | 404.4   | 355.0   | 287.6   | 242.7   | 193.2   | 161.8   | 157.3   | 134.8   | 116.8  |
| 10°   | 934.7   | 925.7   | 862.8   | 741.4   | 584.2   | 422.4   | 269.6   | 197.7   | 188.7   | 143.8   | 116.8  |
| 12.5° | 1406.5  | 1420.0  | 1352.6  | 1217.8  | 1029.0  | 750.4   | 462.8   | 256.1   | 247.1   | 157.3   | 116.8  |
| 15°   | 1810.9  | 1810.9  | 1766.0  | 1698.6  | 1491.9  | 1199.8  | 745.9   | 382.0   | 350.5   | 170.8   | 112.3  |
| 17.5° | 2089.5  | 2085.0  | 2067.1  | 2049.1  | 1927.8  | 1626.7  | 1141.4  | 611.1   | 539.2   | 202.2   | 112.3  |
| 20°   | 2404.1  | 2390.6  | 2413.1  | 2377.1  | 2282.7  | 2044.6  | 1559.3  | 907.7   | 840.3   | 256.1   | 112.3  |
| 22.5° | 2732.1  | 2745.6  | 2763.6  | 2727.6  | 2624.3  | 2417.6  | 1999.6  | 1289.7  | 1217.8  | 355.0   | 116.8  |
| 25°   | 3150.0  | 3141.0  | 3181.5  | 3150.0  | 3019.7  | 2777.0  | 2413.1  | 1707.6  | 1604.2  | 494.3   | 125.8  |
| 27.5° | 3662.3  | 3644.3  | 3671.3  | 3590.4  | 3419.6  | 3172.5  | 2781.5  | 2134.5  | 2013.1  | 710.0   | 143.8  |
| 30°   | 4340.8  | 4354.3  | 4233.0  | 4138.6  | 3895.9  | 3567.9  | 3190.4  | 2592.8  | 2467.0  | 966.1   | 161.8  |
| 32.5° | 5410.3  | 5315.9  | 5127.2  | 4745.2  | 4426.2  | 4008.3  | 3599.4  | 2992.7  | 2880.4  | 1294.2  | 188.7  |
| 35°   | 7077.4  | 7095.4  | 6682.0  | 5738.3  | 5046.3  | 4561.0  | 4048.7  | 3433.1  | 3352.2  | 1667.1  | 224.7  |
| 37.5° | 9108.5  | 9059.1  | 8695.1  | 7504.3  | 5954.0  | 5248.5  | 4561.0  | 3913.9  | 3797.1  | 2071.5  | 269.6  |
| 40°   | 11409.2 | 11202.5 | 10991.3 | 10182.5 | 7845.8  | 6111.3  | 5208.1  | 4471.1  | 4381.3  | 2538.9  | 341.5  |
| 42.5° | 13251.6 | 13197.7 | 13233.6 | 12896.6 | 11000.3 | 7580.7  | 6066.3  | 5154.1  | 5046.3  | 3118.6  | 467.3  |
| 45°   | 14159.3 | 14082.9 | 14298.6 | 14550.2 | 14064.9 | 10708.2 | 7450.4  | 6025.9  | 5882.1  | 3801.6  | 660.6  |
| 47.5° | 13916.7 | 13862.7 | 14325.6 | 14819.9 | 15466.9 | 14334.6 | 9710.7  | 7329.0  | 7081.9  | 4677.8  | 948.1  |
| 50°   | 12721.4 | 12725.8 | 13485.3 | 14406.5 | 15431.0 | 16172.4 | 13058.4 | 9113.0  | 8802.9  | 5841.7  | 1397.5 |
| 52.5° | 11557.5 | 11593.5 | 12397.8 | 13741.4 | 14896.3 | 16388.1 | 15997.2 | 11517.1 | 11013.8 | 7212.2  | 1927.8 |
| 55°   | 10362.2 | 10380.2 | 11090.2 | 12982.0 | 14644.6 | 15745.5 | 17507.0 | 14613.2 | 14078.4 | 8919.8  | 2444.5 |
| 57.5° | 9211.9  | 9211.9  | 9477.0  | 11157.6 | 14370.5 | 15687.1 | 17327.3 | 17444.1 | 17008.2 | 10870.0 | 2826.5 |
| 60°   | 6920.1  | 6965.1  | 7625.6  | 8802.9  | 12393.3 | 15772.5 | 16868.9 | 18347.3 | 18347.3 | 13575.1 | 3118.6 |
| 62.5° | 3496.0  | 3563.4  | 4385.7  | 5531.6  | 8501.9  | 14595.2 | 16940.8 | 17893.5 | 17965.4 | 15961.2 | 3783.6 |
| 65°   | 1640.2  | 1716.6  | 2156.9  | 2965.8  | 4574.5  | 10272.3 | 16194.9 | 17507.0 | 17484.6 | 15507.4 | 5185.6 |
| 67.5° | 1177.3  | 1199.8  | 1348.1  | 1730.0  | 2462.5  | 4502.6  | 12361.9 | 16352.2 | 16361.2 | 13175.2 | 5963.0 |
| 70°   | 1056.0  | 1056.0  | 1091.9  | 1204.3  | 1482.9  | 2013.1  | 6007.9  | 13242.6 | 13885.2 | 10173.5 | 5527.1 |
| 72.5° | 1042.5  | 1033.5  | 1024.5  | 1029.0  | 1002.1  | 1011.1  | 2062.6  | 7477.3  | 8394.0  | 7117.8  | 4408.2 |
| 75°   | 1015.6  | 1015.6  | 1006.6  | 975.1   | 799.9   | 651.6   | 710.0   | 3024.2  | 3496.0  | 4754.2  | 3271.3 |
| 77.5° | 804.4   | 885.2   | 979.6   | 921.2   | 732.5   | 489.8   | 413.4   | 876.3   | 1105.4  | 2916.3  | 2372.6 |
| 80°   | 373.0   | 377.5   | 373.0   | 390.9   | 467.3   | 350.5   | 305.6   | 426.9   | 431.4   | 1617.7  | 1469.4 |
| 82.5° | 269.6   | 274.1   | 260.6   | 233.7   | 206.7   | 188.7   | 251.6   | 314.6   | 337.0   | 741.4   | 548.2  |
| 85°   | 80.9    | 76.4    | 89.9    | 121.3   | 143.8   | 166.3   | 211.2   | 265.1   | 278.6   | 274.1   | 80.9   |
| 87.5° | 35.9    | 35.9    | 44.9    | 62.9    | 85.4    | 125.8   | 184.2   | 242.7   | 247.1   | 283.1   | 22.5   |
| 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: P1065959

CATALOG NUMBER: NVN-SA3C-740-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 107.8  | 107.8 | 107.8 | 107.8 | 107.8 | 107.8 | 107.8 | 107.8 | 107.8 | 107.8 | 107.8 |
| 2.5°  | 112.3  | 107.8 | 103.4 | 98.9  | 94.4  | 89.9  | 85.4  | 85.4  | 89.9  | 89.9  | 89.9  |
| 5°    | 107.8  | 103.4 | 94.4  | 85.4  | 80.9  | 76.4  | 71.9  | 71.9  | 76.4  | 76.4  | 76.4  |
| 7.5°  | 107.8  | 98.9  | 89.9  | 80.9  | 71.9  | 67.4  | 62.9  | 62.9  | 62.9  | 67.4  | 67.4  |
| 10°   | 107.8  | 98.9  | 85.4  | 71.9  | 62.9  | 58.4  | 53.9  | 49.4  | 53.9  | 53.9  | 53.9  |
| 12.5° | 103.4  | 94.4  | 80.9  | 67.4  | 53.9  | 44.9  | 40.4  | 40.4  | 40.4  | 40.4  | 40.4  |
| 15°   | 98.9   | 89.9  | 76.4  | 58.4  | 44.9  | 35.9  | 27.0  | 27.0  | 27.0  | 31.5  | 31.5  |
| 17.5° | 94.4   | 85.4  | 67.4  | 44.9  | 31.5  | 22.5  | 18.0  | 18.0  | 18.0  | 22.5  | 22.5  |
| 20°   | 94.4   | 80.9  | 58.4  | 35.9  | 22.5  | 13.5  | 9.0   | 9.0   | 9.0   | 13.5  | 18.0  |
| 22.5° | 94.4   | 80.9  | 53.9  | 27.0  | 13.5  | 9.0   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| 25°   | 94.4   | 76.4  | 49.4  | 22.5  | 9.0   | 4.5   | 0.0   | 0.0   | 4.5   | 9.0   | 13.5  |
| 27.5° | 94.4   | 71.9  | 40.4  | 13.5  | 9.0   | 4.5   | 0.0   | 4.5   | 9.0   | 9.0   | 9.0   |
| 30°   | 94.4   | 71.9  | 35.9  | 13.5  | 4.5   | 0.0   | 0.0   | 4.5   | 9.0   | 9.0   | 13.5  |
| 32.5° | 98.9   | 67.4  | 31.5  | 9.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 103.4  | 62.9  | 27.0  | 9.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 112.3  | 62.9  | 18.0  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 125.8  | 67.4  | 18.0  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 157.3  | 71.9  | 13.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 220.2  | 89.9  | 13.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 323.5  | 134.8 | 13.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 471.8  | 184.2 | 9.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 579.7  | 184.2 | 9.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 575.2  | 116.8 | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 440.4  | 80.9  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 373.0  | 58.4  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 449.4  | 44.9  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 799.9  | 40.4  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1285.2 | 40.4  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 1437.9 | 40.4  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1123.4 | 35.9  | 4.5   | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 615.6  | 31.5  | 4.5   | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 310.1  | 22.5  | 9.0   | 4.5   | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 130.3  | 18.0  | 9.0   | 4.5   | 4.5   | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 44.9   | 18.0  | 9.0   | 9.0   | 4.5   | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 22.5   | 13.5  | 13.5  | 9.0   | 9.0   | 4.5   | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 13.5   | 13.5  | 13.5  | 9.0   | 9.0   | 4.5   | 4.5   | 0.0   | 0.0   | 0.0   | 4.5   |
| 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: SP1-2407-184-1

Test Date: 10/09/2024

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

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

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-1  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-740-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 4000K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 3949     | CRI (Ra): | 70.7 |      |       |
| CIE u':                   | 0.2248   | R1:       | 68.0 | R9:  | -36.7 |
| CIE v':                   | 0.5053   | R2:       | 76.0 | R10: | 45.1  |
| Duv:                      | 0.0022   | R3:       | 84.3 | R11: | 70.7  |
| CIE x:                    | 0.3844   | R4:       | 72.0 | R12: | 47.1  |
| CIE y:                    | 0.3840   | R5:       | 68.6 | R13: | 68.5  |
| CIE z:                    | 0.2316   | R6:       | 68.3 | R14: | 91.1  |
| Peak Wavelength (nm):     | 440      | R7:       | 77.9 | R15: | 58.7  |
| Dominant Wavelength (nm): | 578      | R8:       | 50.3 |      |       |
| Purity:                   | 30.60026 |           |      |      |       |
| Rf:                       | 71.8     |           |      |      |       |
| Rg:                       | 96.5     |           |      |      |       |



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-1

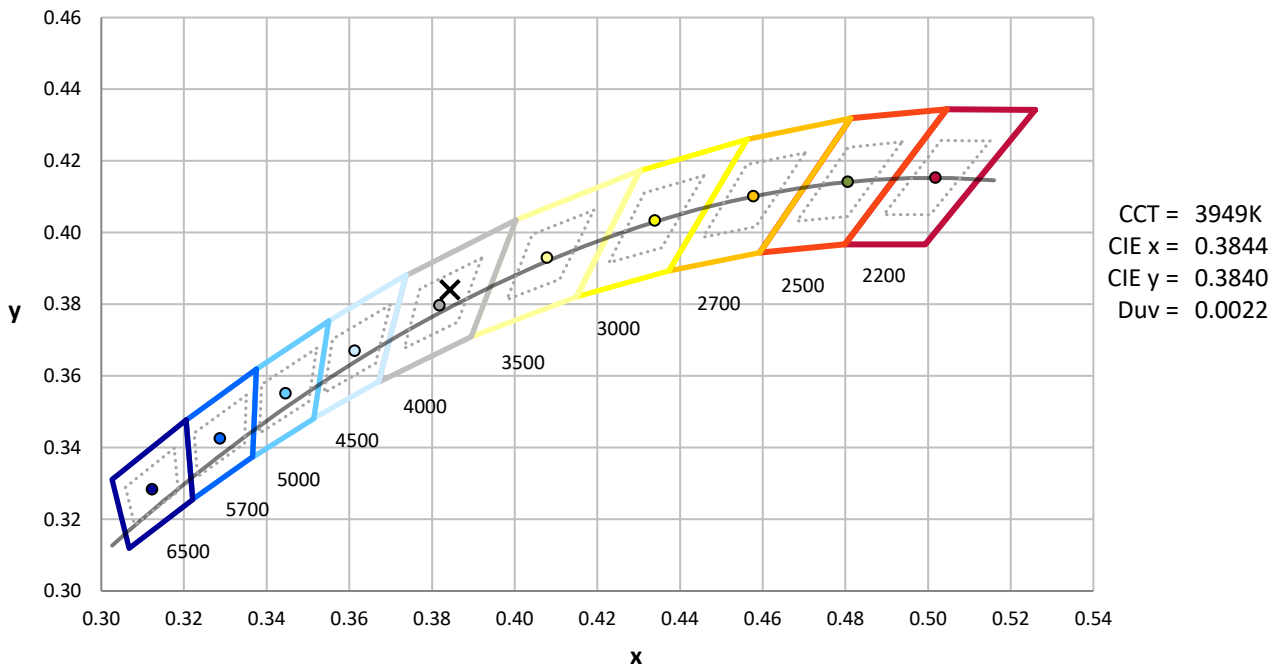
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

REPORT NUMBER: SP1-2407-184-1

**CIE 1931 Chromaticity Diagram**



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



REPORT NUMBER: SP1-2407-184-1

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

REPORT NUMBER: SP1-2407-184-1

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.47

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

REPORT NUMBER: SP1-2407-184-1

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.78

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

REPORT NUMBER: SP1-2407-184-1

TM-30-18

### Summary

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



### Color Vector Graphics



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

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



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)