

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: P1063181

Luminaire Tested: **GLAN-SA8A-935-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1063181  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA8A-935-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 8xLight Square PACKAGE  
90CRI 3500K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (112) 3500K CCT, 90 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 21915.7 lumens  
Efficiency: N/A  
Efficacy: 100.7 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 217.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

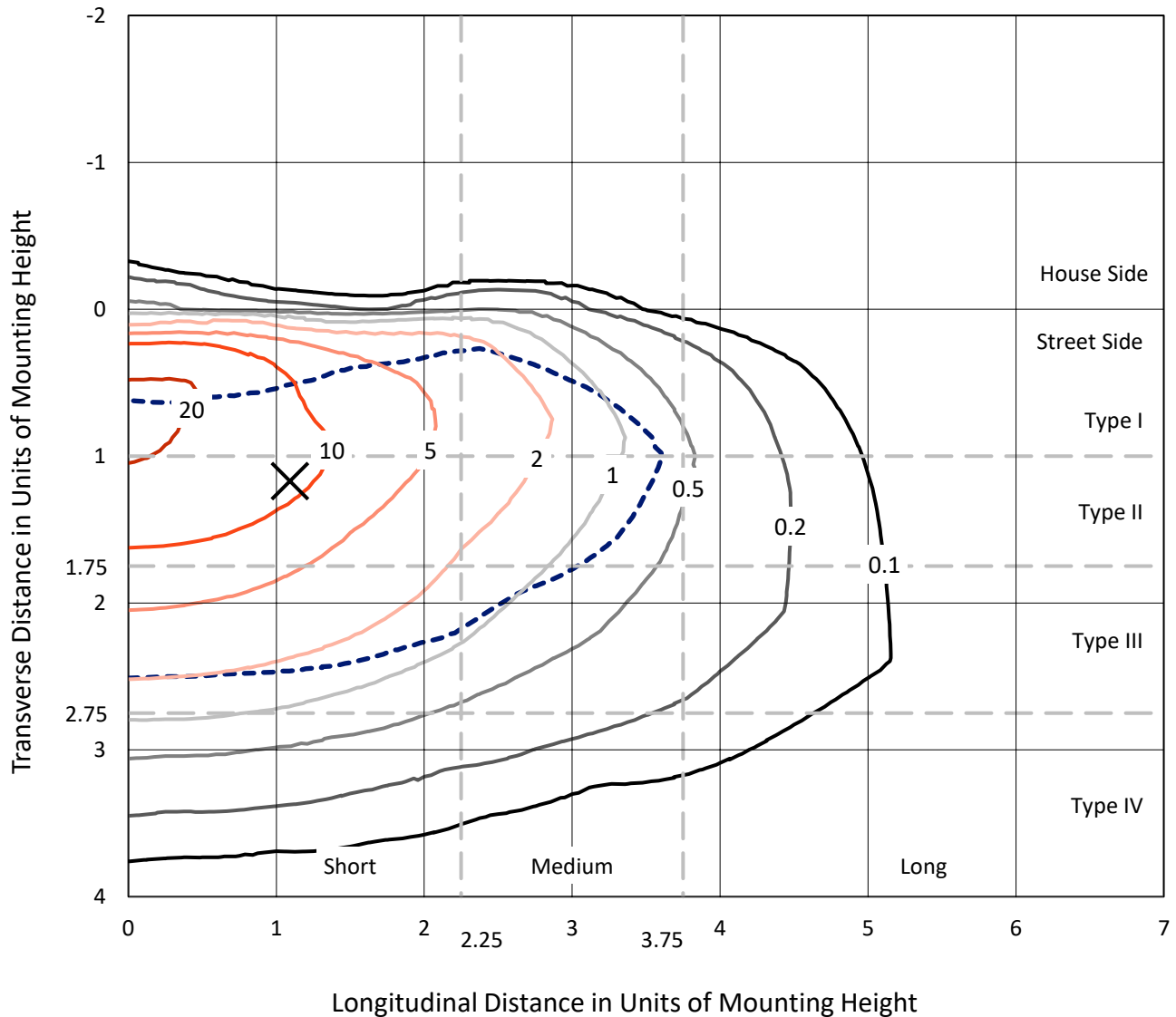


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
- - - 1/2 Max cd

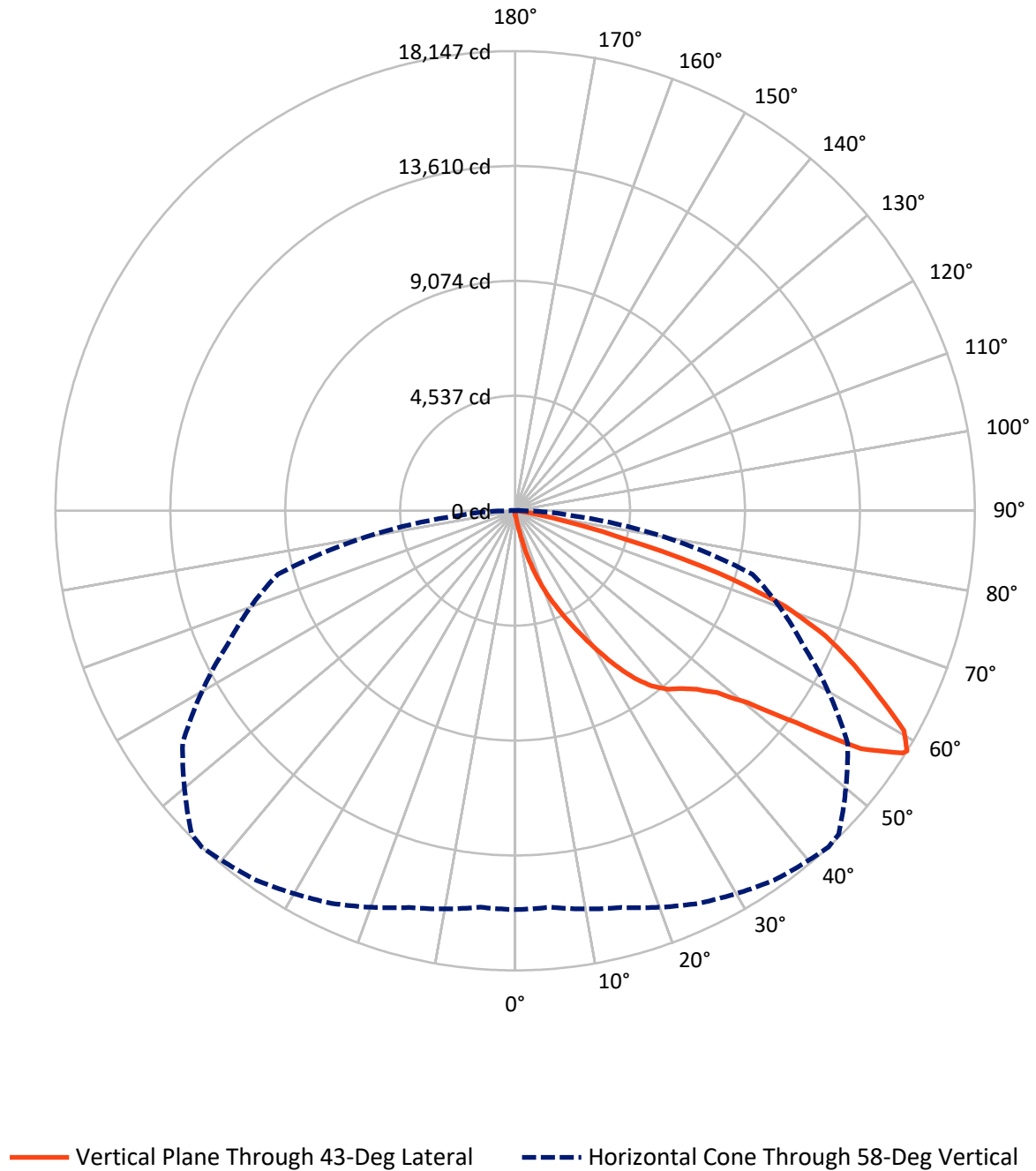


Based on 15 foot mounting height. Maximum calculated value = 24.6 fc  
Type III - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: GLAN-SA8A-935-U-T3BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 80.0     | 0.0    | 80.0    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 21835.7  | 0.0    | 21835.7 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 21915.7  | 0.0    | 21915.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 21.0    | 0.1       |
| 10°-20°   | 251.9   | 1.1       |
| 20°-30°   | 908.0   | 4.1       |
| 30°-40°   | 2077.5  | 9.5       |
| 40°-50°   | 3503.9  | 16.0      |
| 50°-60°   | 5782.2  | 26.4      |
| 60°-70°   | 6462.4  | 29.5      |
| 70°-80°   | 2668.2  | 12.2      |
| 80°-90°   | 240.5   | 1.1       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 21915.7 | 100.0     |
| 0°-180°   | 21915.7 | 100.0     |



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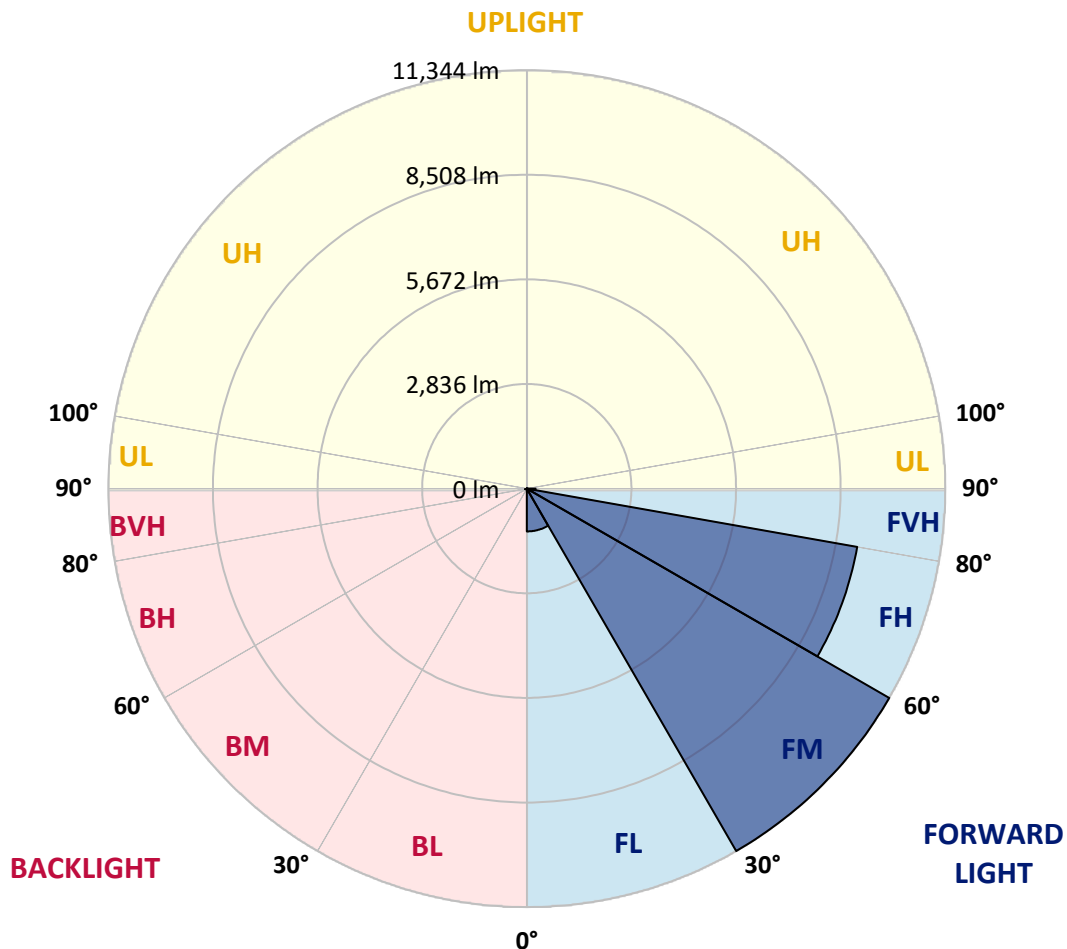
CATALOG NUMBER: GLAN-SA8A-935-U-T3BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1160.0  | 5.3       |                         |      |          |
| FM   | (30°-60°)   | 11344.4 | 51.8      |                         |      |          |
| FH   | (60°-80°)   | 9094.0  | 41.5      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 237.2   | 1.1       |                         |      | G3/500   |
| BL   | (0°-30°)    | 20.9    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 19.2    | 0.1       | B0/220                  |      |          |
| BH   | (60°-80°)   | 36.7    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 3.3     | 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-G4**

Type III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 143.3   | 143.3   | 143.3   | 143.3   | 143.3   | 143.3   | 143.3   | 143.3   | 143.3   | 143.3   | 143.3  |
| 2.5°  | 172.0   | 177.7   | 172.0   | 172.0   | 172.0   | 166.2   | 166.2   | 160.5   | 160.5   | 154.8   | 149.0  |
| 5°    | 252.2   | 252.2   | 235.0   | 223.5   | 212.1   | 206.3   | 200.6   | 189.2   | 177.7   | 166.2   | 154.8  |
| 7.5°  | 561.7   | 561.7   | 510.1   | 441.4   | 349.6   | 298.1   | 286.6   | 235.0   | 200.6   | 177.7   | 154.8  |
| 10°   | 1341.3  | 1341.3  | 1226.6  | 1037.5  | 802.5   | 596.1   | 533.1   | 338.2   | 240.7   | 189.2   | 160.5  |
| 12.5° | 2229.7  | 2258.4  | 2115.1  | 1874.3  | 1524.7  | 1163.6  | 1037.5  | 619.0   | 321.0   | 206.3   | 160.5  |
| 15°   | 3026.4  | 2957.6  | 2917.5  | 2688.2  | 2355.8  | 1925.9  | 1765.4  | 1043.2  | 464.3   | 235.0   | 160.5  |
| 17.5° | 3565.2  | 3565.2  | 3507.9  | 3353.1  | 3049.3  | 2671.0  | 2539.2  | 1685.2  | 750.9   | 269.4   | 166.2  |
| 20°   | 4195.7  | 4195.7  | 4092.5  | 3983.6  | 3714.2  | 3393.3  | 3267.2  | 2395.9  | 1163.6  | 343.9   | 166.2  |
| 22.5° | 4958.1  | 4969.5  | 4854.9  | 4660.0  | 4402.1  | 4046.7  | 3937.8  | 3055.1  | 1685.2  | 458.5   | 172.0  |
| 25°   | 5886.6  | 5898.1  | 5731.9  | 5548.4  | 5152.9  | 4768.9  | 4602.7  | 3811.7  | 2321.4  | 642.0   | 172.0  |
| 27.5° | 6912.6  | 6992.9  | 6746.4  | 6431.1  | 6012.7  | 5531.2  | 5405.1  | 4493.8  | 2951.9  | 905.6   | 183.4  |
| 30°   | 8190.8  | 8190.8  | 7864.1  | 7422.7  | 6969.9  | 6373.8  | 6213.3  | 5210.3  | 3622.5  | 1255.3  | 194.9  |
| 32.5° | 9291.3  | 9205.4  | 8786.9  | 8322.7  | 7841.2  | 7285.2  | 7113.2  | 5961.1  | 4310.4  | 1690.9  | 217.8  |
| 35°   | 10133.9 | 10059.4 | 9543.5  | 9044.9  | 8626.4  | 8116.3  | 7910.0  | 6775.1  | 5038.3  | 2183.8  | 252.2  |
| 37.5° | 10856.1 | 10827.5 | 10128.2 | 9503.4  | 9228.3  | 8781.2  | 8597.8  | 7543.1  | 5754.8  | 2716.9  | 292.3  |
| 40°   | 11647.1 | 11555.4 | 10810.3 | 10036.5 | 9623.8  | 9262.7  | 9096.5  | 8162.2  | 6442.6  | 3341.7  | 349.6  |
| 42.5° | 12323.5 | 12214.6 | 11544.0 | 10787.3 | 10082.3 | 9595.1  | 9434.6  | 8683.8  | 7113.2  | 3966.4  | 424.2  |
| 45°   | 13074.4 | 13017.0 | 12340.7 | 11767.5 | 10827.5 | 10047.9 | 9835.9  | 9102.2  | 7726.5  | 4711.6  | 521.6  |
| 47.5° | 14203.5 | 14100.4 | 13469.9 | 12999.8 | 11910.8 | 10735.8 | 10432.0 | 9532.1  | 8316.9  | 5445.3  | 670.6  |
| 50°   | 15516.1 | 15447.3 | 15074.8 | 14702.2 | 13618.9 | 11910.8 | 11549.7 | 10151.1 | 8976.1  | 6316.5  | 865.5  |
| 52.5° | 16588.0 | 16576.5 | 16622.4 | 16628.1 | 15808.5 | 13888.3 | 13349.5 | 11148.5 | 9732.7  | 7176.3  | 1140.6 |
| 55°   | 16565.1 | 16616.6 | 17121.0 | 17700.0 | 17763.0 | 16588.0 | 16066.4 | 12827.9 | 10718.6 | 8236.7  | 1524.7 |
| 57.5° | 15946.0 | 15905.9 | 16439.0 | 17310.2 | 17923.5 | 18049.6 | 17963.6 | 15435.9 | 12203.1 | 9514.9  | 2115.1 |
| 58°   | 15745.4 | 15711.0 | 16215.4 | 17103.8 | 17808.9 | 18147.0 | 18061.1 | 16026.3 | 12535.6 | 9698.3  | 2275.5 |
| 60°   | 15017.5 | 15023.2 | 15321.2 | 16129.4 | 16834.5 | 17636.9 | 17717.2 | 17711.4 | 14192.1 | 10924.9 | 3083.7 |
| 62.5° | 14054.5 | 14008.6 | 14283.8 | 14942.9 | 15562.0 | 16100.8 | 16238.3 | 17826.1 | 16616.6 | 12484.0 | 4625.6 |
| 65°   | 12724.7 | 12655.9 | 12948.3 | 13693.4 | 14358.3 | 14707.9 | 14713.7 | 16289.9 | 17757.3 | 14157.7 | 6826.6 |
| 67.5° | 10254.3 | 10197.0 | 10781.6 | 11738.8 | 12764.8 | 13223.4 | 13429.7 | 14134.7 | 16794.3 | 15292.6 | 8087.6 |
| 70°   | 6282.1  | 6402.5  | 7216.4  | 8718.1  | 10472.1 | 11314.7 | 11624.2 | 11842.0 | 14301.0 | 15120.6 | 6763.6 |
| 72.5° | 2900.3  | 2757.0  | 3450.6  | 4499.5  | 6499.9  | 8374.2  | 8695.2  | 9549.3  | 11337.6 | 13125.9 | 5044.0 |
| 75°   | 1352.7  | 1301.1  | 1461.6  | 1966.0  | 2946.2  | 4522.4  | 5107.1  | 7623.4  | 8695.2  | 9130.8  | 3639.7 |
| 77.5° | 693.6   | 699.3   | 831.1   | 894.2   | 1215.2  | 2092.1  | 2401.6  | 5015.4  | 6373.8  | 5095.6  | 2441.8 |
| 80°   | 303.8   | 315.3   | 321.0   | 349.6   | 492.9   | 808.2   | 911.4   | 2327.1  | 4356.2  | 2596.5  | 1335.5 |
| 82.5° | 194.9   | 200.6   | 200.6   | 200.6   | 235.0   | 321.0   | 366.8   | 934.3   | 2172.4  | 1289.7  | 412.7  |
| 85°   | 103.2   | 103.2   | 114.6   | 143.3   | 166.2   | 194.9   | 206.3   | 298.1   | 716.5   | 384.0   | 97.4   |
| 87.5° | 57.3    | 63.1    | 68.8    | 86.0    | 108.9   | 131.8   | 143.3   | 206.3   | 275.1   | 263.7   | 22.9   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |

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**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 143.3  | 143.3 | 143.3 | 143.3 | 143.3 | 143.3 | 143.3 | 143.3 | 143.3 | 143.3 | 143.3 |
| 2.5°  | 149.0  | 143.3 | 137.6 | 131.8 | 126.1 | 120.4 | 120.4 | 120.4 | 120.4 | 120.4 | 120.4 |
| 5°    | 143.3  | 137.6 | 131.8 | 120.4 | 108.9 | 103.2 | 97.4  | 91.7  | 91.7  | 91.7  | 91.7  |
| 7.5°  | 143.3  | 137.6 | 120.4 | 108.9 | 97.4  | 86.0  | 74.5  | 74.5  | 74.5  | 74.5  | 74.5  |
| 10°   | 143.3  | 131.8 | 114.6 | 97.4  | 80.2  | 68.8  | 63.1  | 57.3  | 57.3  | 57.3  | 57.3  |
| 12.5° | 143.3  | 126.1 | 108.9 | 86.0  | 68.8  | 57.3  | 51.6  | 45.9  | 45.9  | 45.9  | 45.9  |
| 15°   | 143.3  | 126.1 | 103.2 | 80.2  | 63.1  | 45.9  | 40.1  | 34.4  | 34.4  | 34.4  | 34.4  |
| 17.5° | 137.6  | 120.4 | 97.4  | 68.8  | 51.6  | 34.4  | 28.7  | 22.9  | 22.9  | 28.7  | 28.7  |
| 20°   | 131.8  | 114.6 | 86.0  | 57.3  | 40.1  | 28.7  | 17.2  | 17.2  | 17.2  | 17.2  | 17.2  |
| 22.5° | 131.8  | 114.6 | 80.2  | 51.6  | 34.4  | 17.2  | 11.5  | 11.5  | 11.5  | 11.5  | 17.2  |
| 25°   | 131.8  | 108.9 | 68.8  | 40.1  | 22.9  | 11.5  | 5.7   | 5.7   | 5.7   | 5.7   | 5.7   |
| 27.5° | 131.8  | 108.9 | 63.1  | 34.4  | 17.2  | 11.5  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 126.1  | 103.2 | 57.3  | 28.7  | 11.5  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 126.1  | 97.4  | 45.9  | 22.9  | 11.5  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 131.8  | 91.7  | 40.1  | 17.2  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 5.7   |
| 37.5° | 137.6  | 86.0  | 34.4  | 11.5  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 143.3  | 80.2  | 34.4  | 11.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 154.8  | 80.2  | 28.7  | 11.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 166.2  | 80.2  | 22.9  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 189.2  | 86.0  | 22.9  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 206.3  | 91.7  | 17.2  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 229.3  | 86.0  | 17.2  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 257.9  | 86.0  | 17.2  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 280.9  | 80.2  | 17.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 292.3  | 74.5  | 11.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 349.6  | 68.8  | 11.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 544.5  | 57.3  | 11.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1106.2 | 51.6  | 11.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2063.5 | 45.9  | 11.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2309.9 | 51.6  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1455.9 | 40.1  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 768.1  | 40.1  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 384.0  | 40.1  | 5.7   | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 177.7  | 28.7  | 5.7   | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 74.5   | 17.2  | 11.5  | 5.7   | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 34.4   | 17.2  | 11.5  | 11.5  | 5.7   | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 17.2   | 17.2  | 17.2  | 11.5  | 11.5  | 5.7   | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-15

Test Date: 10/11/2024

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

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

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-15  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-935-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI  
 3500K CCT 26 LEDS

### Spectral Parameters

CCT (K): 3455  
 CIE  $u'$ : 0.2356  
 CIE  $v'$ : 0.5159  
 Duv: 0.0028  
 CIE x: 0.4109  
 CIE y: 0.3999  
 CIE z: 0.1892  
 Peak Wavelength (nm): 616  
 Dominant Wavelength (nm): 579  
 Purity: 43.35383  
 R<sub>f</sub>: 92.3  
 R<sub>g</sub>: 98.5

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



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-15

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

REPORT NUMBER: SP1-2407-184-15

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-15

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 410                                  | NR                             | 620               | 997                                  | NR                             | 750               | 74                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 454                                  | NR                             | 625               | 988                                  | NR                             | 755               | 64                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 493                                  | NR                             | 630               | 973                                  | NR                             | 760               | 54                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 530                                  | NR                             | 635               | 946                                  | NR                             | 765               | 47                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 564                                  | NR                             | 640               | 913                                  | NR                             | 770               | 40                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 599                                  | NR                             | 645               | 870                                  | NR                             | 775               | 34                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 634                                  | NR                             | 650               | 826                                  | NR                             | 780               | 29                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 664                                  | NR                             | 655               | 774                                  | NR                             | 785               | 25                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 2                                    | NR                             | 530               | 695                                  | NR                             | 660               | 720                                  | NR                             | 790               | 21                                   | NR                             | 920               | 1                                    | NR                             |
| 405               | 4                                    | NR                             | 535               | 722                                  | NR                             | 665               | 664                                  | NR                             | 795               | 18                                   | NR                             | 925               | 1                                    | NR                             |
| 410               | 9                                    | NR                             | 540               | 741                                  | NR                             | 670               | 605                                  | NR                             | 800               | 16                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 17                                   | NR                             | 545               | 762                                  | NR                             | 675               | 550                                  | NR                             | 805               | 13                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 32                                   | NR                             | 550               | 777                                  | NR                             | 680               | 497                                  | NR                             | 810               | 12                                   | NR                             | 940               | 0                                    | NR                             |
| 425               | 61                                   | NR                             | 555               | 789                                  | NR                             | 685               | 445                                  | NR                             | 815               | 10                                   | NR                             | 945               | 0                                    | NR                             |
| 430               | 114                                  | NR                             | 560               | 800                                  | NR                             | 690               | 398                                  | NR                             | 820               | 9                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 218                                  | NR                             | 565               | 813                                  | NR                             | 695               | 352                                  | NR                             | 825               | 7                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 427                                  | NR                             | 570               | 828                                  | NR                             | 700               | 309                                  | NR                             | 830               | 6                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 684                                  | NR                             | 575               | 846                                  | NR                             | 705               | 273                                  | NR                             | 835               | 5                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 611                                  | NR                             | 580               | 866                                  | NR                             | 710               | 237                                  | NR                             | 840               | 5                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 461                                  | NR                             | 585               | 888                                  | NR                             | 715               | 208                                  | NR                             | 845               | 4                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 427                                  | NR                             | 590               | 913                                  | NR                             | 720               | 181                                  | NR                             | 850               | 4                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 349                                  | NR                             | 595               | 936                                  | NR                             | 725               | 157                                  | NR                             | 855               | 3                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 298                                  | NR                             | 600               | 957                                  | NR                             | 730               | 136                                  | NR                             | 860               | 3                                    | NR                             | 990               | 1                                    | NR                             |
| 475               | 312                                  | NR                             | 605               | 976                                  | NR                             | 735               | 117                                  | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 335                                  | NR                             | 610               | 990                                  | NR                             | 740               | 100                                  | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 367                                  | NR                             | 615               | 999                                  | NR                             | 745               | 86                                   | NR                             | 875               | 2                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.58

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 410                                  | NR                             | 620               | 997                                  | NR                             | 750               | 74                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 454                                  | NR                             | 625               | 988                                  | NR                             | 755               | 64                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 493                                  | NR                             | 630               | 973                                  | NR                             | 760               | 54                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 530                                  | NR                             | 635               | 946                                  | NR                             | 765               | 47                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 564                                  | NR                             | 640               | 913                                  | NR                             | 770               | 40                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 599                                  | NR                             | 645               | 870                                  | NR                             | 775               | 34                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 634                                  | NR                             | 650               | 826                                  | NR                             | 780               | 29                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 664                                  | NR                             | 655               | 774                                  | NR                             | 785               | 25                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 2                                    | NR                             | 530               | 695                                  | NR                             | 660               | 720                                  | NR                             | 790               | 21                                   | NR                             | 920               | 1                                    | NR                             |
| 405               | 4                                    | NR                             | 535               | 722                                  | NR                             | 665               | 664                                  | NR                             | 795               | 18                                   | NR                             | 925               | 1                                    | NR                             |
| 410               | 9                                    | NR                             | 540               | 741                                  | NR                             | 670               | 605                                  | NR                             | 800               | 16                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 17                                   | NR                             | 545               | 762                                  | NR                             | 675               | 550                                  | NR                             | 805               | 13                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 32                                   | NR                             | 550               | 777                                  | NR                             | 680               | 497                                  | NR                             | 810               | 12                                   | NR                             | 940               | 0                                    | NR                             |
| 425               | 61                                   | NR                             | 555               | 789                                  | NR                             | 685               | 445                                  | NR                             | 815               | 10                                   | NR                             | 945               | 0                                    | NR                             |
| 430               | 114                                  | NR                             | 560               | 800                                  | NR                             | 690               | 398                                  | NR                             | 820               | 9                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 218                                  | NR                             | 565               | 813                                  | NR                             | 695               | 352                                  | NR                             | 825               | 7                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 427                                  | NR                             | 570               | 828                                  | NR                             | 700               | 309                                  | NR                             | 830               | 6                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 684                                  | NR                             | 575               | 846                                  | NR                             | 705               | 273                                  | NR                             | 835               | 5                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 611                                  | NR                             | 580               | 866                                  | NR                             | 710               | 237                                  | NR                             | 840               | 5                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 461                                  | NR                             | 585               | 888                                  | NR                             | 715               | 208                                  | NR                             | 845               | 4                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 427                                  | NR                             | 590               | 913                                  | NR                             | 720               | 181                                  | NR                             | 850               | 4                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 349                                  | NR                             | 595               | 936                                  | NR                             | 725               | 157                                  | NR                             | 855               | 3                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 298                                  | NR                             | 600               | 957                                  | NR                             | 730               | 136                                  | NR                             | 860               | 3                                    | NR                             | 990               | 1                                    | NR                             |
| 475               | 312                                  | NR                             | 605               | 976                                  | NR                             | 735               | 117                                  | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 335                                  | NR                             | 610               | 990                                  | NR                             | 740               | 100                                  | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 367                                  | NR                             | 615               | 999                                  | NR                             | 745               | 86                                   | NR                             | 875               | 2                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.14

| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|
| 360               | 0                                      | NR                             | 490               | 410                                    | NR                             | 620               | 997                                    | NR                             | 750               | 74                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 454                                    | NR                             | 625               | 988                                    | NR                             | 755               | 64                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 493                                    | NR                             | 630               | 973                                    | NR                             | 760               | 54                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 530                                    | NR                             | 635               | 946                                    | NR                             | 765               | 47                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 564                                    | NR                             | 640               | 913                                    | NR                             | 770               | 40                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 599                                    | NR                             | 645               | 870                                    | NR                             | 775               | 34                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 634                                    | NR                             | 650               | 826                                    | NR                             | 780               | 29                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 0                                      | NR                             | 525               | 664                                    | NR                             | 655               | 774                                    | NR                             | 785               | 25                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 2                                      | NR                             | 530               | 695                                    | NR                             | 660               | 720                                    | NR                             | 790               | 21                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 4                                      | NR                             | 535               | 722                                    | NR                             | 665               | 664                                    | NR                             | 795               | 18                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 9                                      | NR                             | 540               | 741                                    | NR                             | 670               | 605                                    | NR                             | 800               | 16                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 17                                     | NR                             | 545               | 762                                    | NR                             | 675               | 550                                    | NR                             | 805               | 13                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 32                                     | NR                             | 550               | 777                                    | NR                             | 680               | 497                                    | NR                             | 810               | 12                                     | NR                             | 940               | 0                                      | NR                             |
| 425               | 61                                     | NR                             | 555               | 789                                    | NR                             | 685               | 445                                    | NR                             | 815               | 10                                     | NR                             | 945               | 0                                      | NR                             |
| 430               | 114                                    | NR                             | 560               | 800                                    | NR                             | 690               | 398                                    | NR                             | 820               | 9                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 218                                    | NR                             | 565               | 813                                    | NR                             | 695               | 352                                    | NR                             | 825               | 7                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 427                                    | NR                             | 570               | 828                                    | NR                             | 700               | 309                                    | NR                             | 830               | 6                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 684                                    | NR                             | 575               | 846                                    | NR                             | 705               | 273                                    | NR                             | 835               | 5                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 611                                    | NR                             | 580               | 866                                    | NR                             | 710               | 237                                    | NR                             | 840               | 5                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 461                                    | NR                             | 585               | 888                                    | NR                             | 715               | 208                                    | NR                             | 845               | 4                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 427                                    | NR                             | 590               | 913                                    | NR                             | 720               | 181                                    | NR                             | 850               | 4                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 349                                    | NR                             | 595               | 936                                    | NR                             | 725               | 157                                    | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 298                                    | NR                             | 600               | 957                                    | NR                             | 730               | 136                                    | NR                             | 860               | 3                                      | NR                             | 990               | 1                                      | NR                             |
| 475               | 312                                    | NR                             | 605               | 976                                    | NR                             | 735               | 117                                    | NR                             | 865               | 2                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 335                                    | NR                             | 610               | 990                                    | NR                             | 740               | 100                                    | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 367                                    | NR                             | 615               | 999                                    | NR                             | 745               | 86                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

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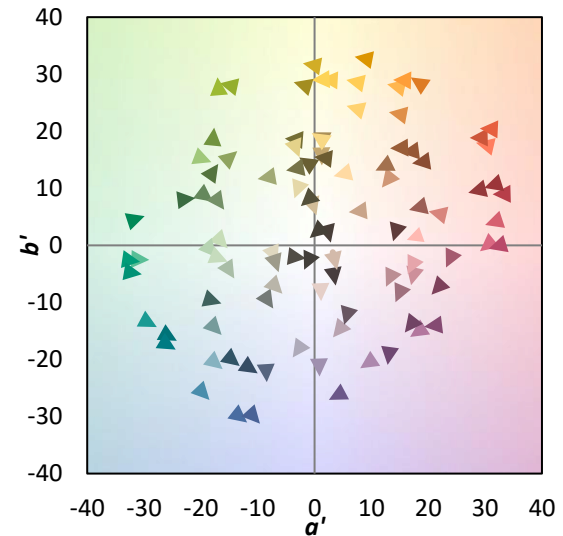
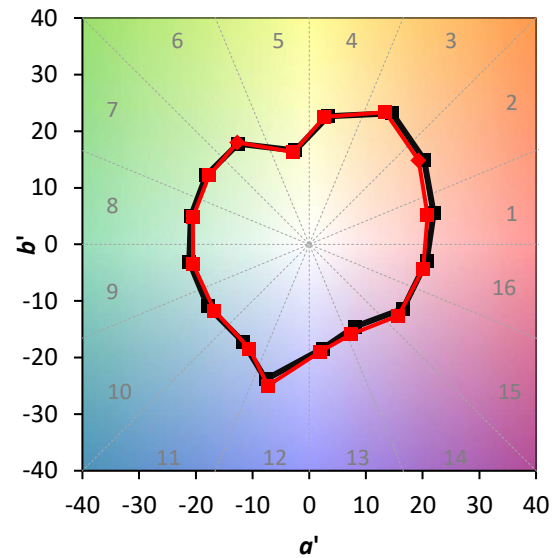
TM-30-18

### Summary

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



### Color Vector Graphics



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

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



Color Rendition by Hue-Angle Bin



**Measure Comparisons**


(END OF REPORT)