

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: P1063177

Luminaire Tested: **GLAN-SA7A-935-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1063177  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA7A-935-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 7xLight Square PACKAGE  
90CRI 3500K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (98) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 19094.3 lumens  
Efficiency: N/A  
Efficacy: 98.9 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): 193.1  
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



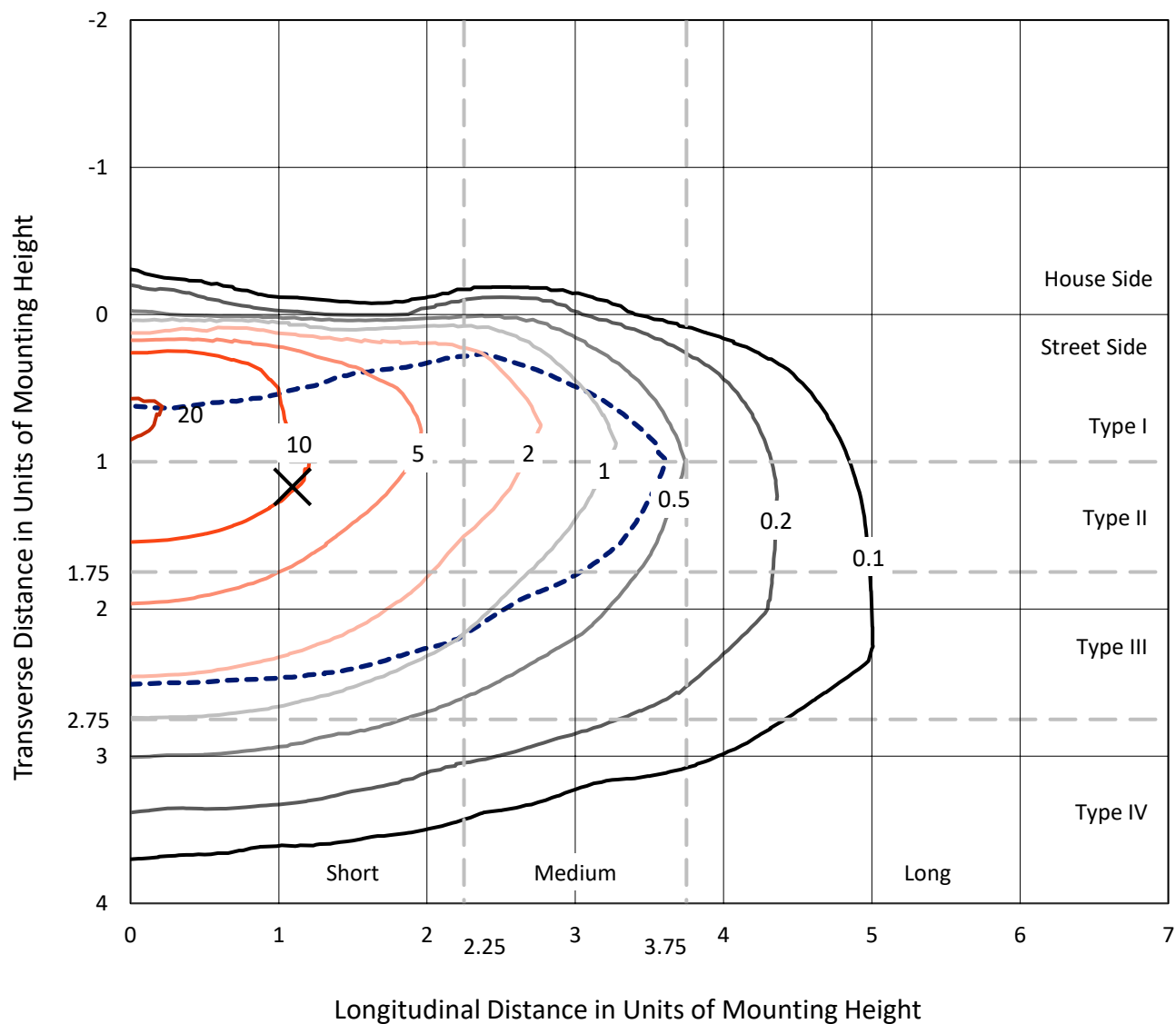
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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

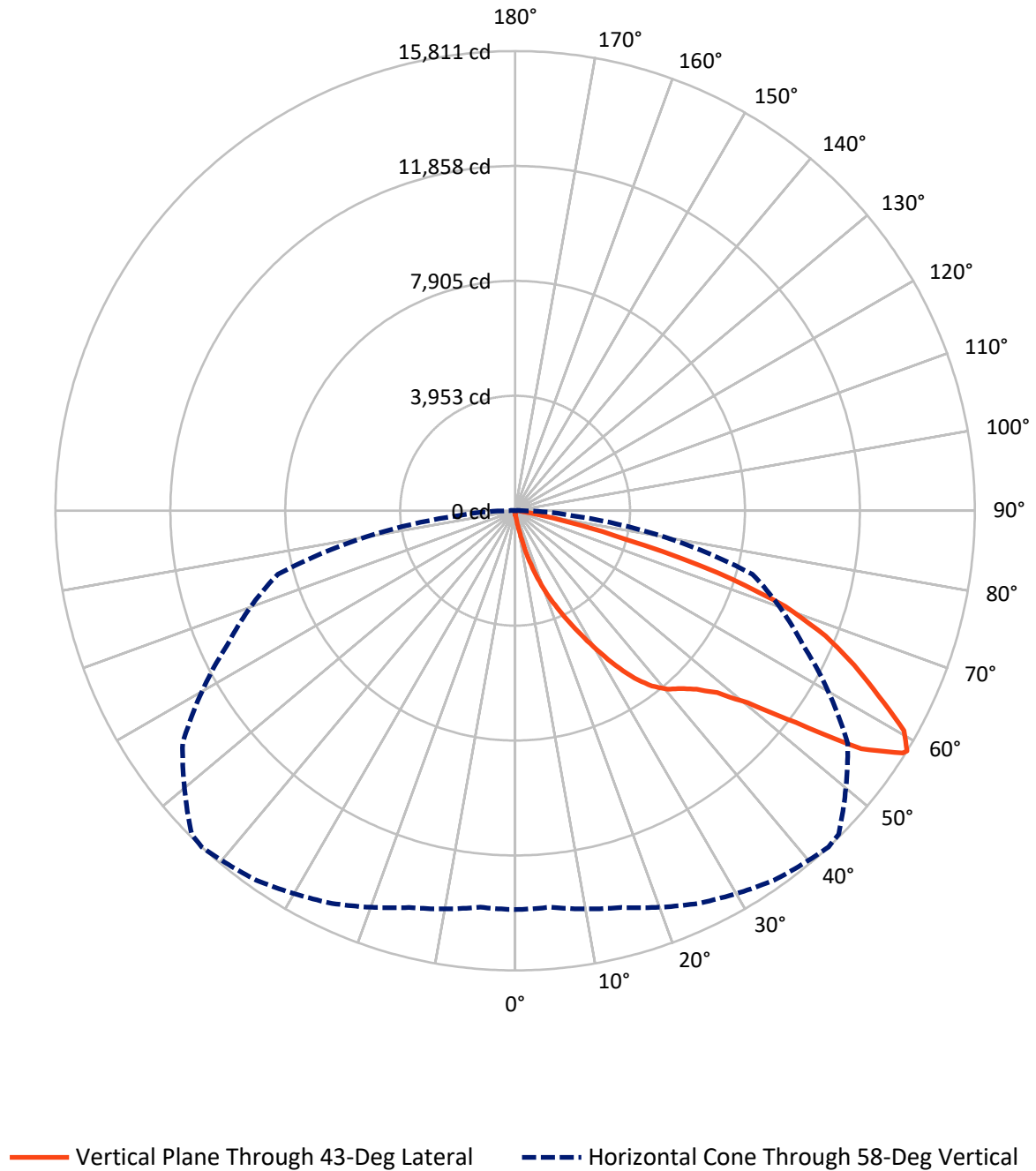


Based on 15 foot mounting height. Maximum calculated value = 21.4 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 69.7     | 0.0    | 69.7    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 19024.6  | 0.0    | 19024.6 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 19094.3  | 0.0    | 19094.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 18.3    | 0.1       |
| 10°-20°   | 219.5   | 1.1       |
| 20°-30°   | 791.1   | 4.1       |
| 30°-40°   | 1810.0  | 9.5       |
| 40°-50°   | 3052.8  | 16.0      |
| 50°-60°   | 5037.8  | 26.4      |
| 60°-70°   | 5630.5  | 29.5      |
| 70°-80°   | 2324.7  | 12.2      |
| 80°-90°   | 209.6   | 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°    | 19094.3 | 100.0     |
| 0°-180°   | 19094.3 | 100.0     |



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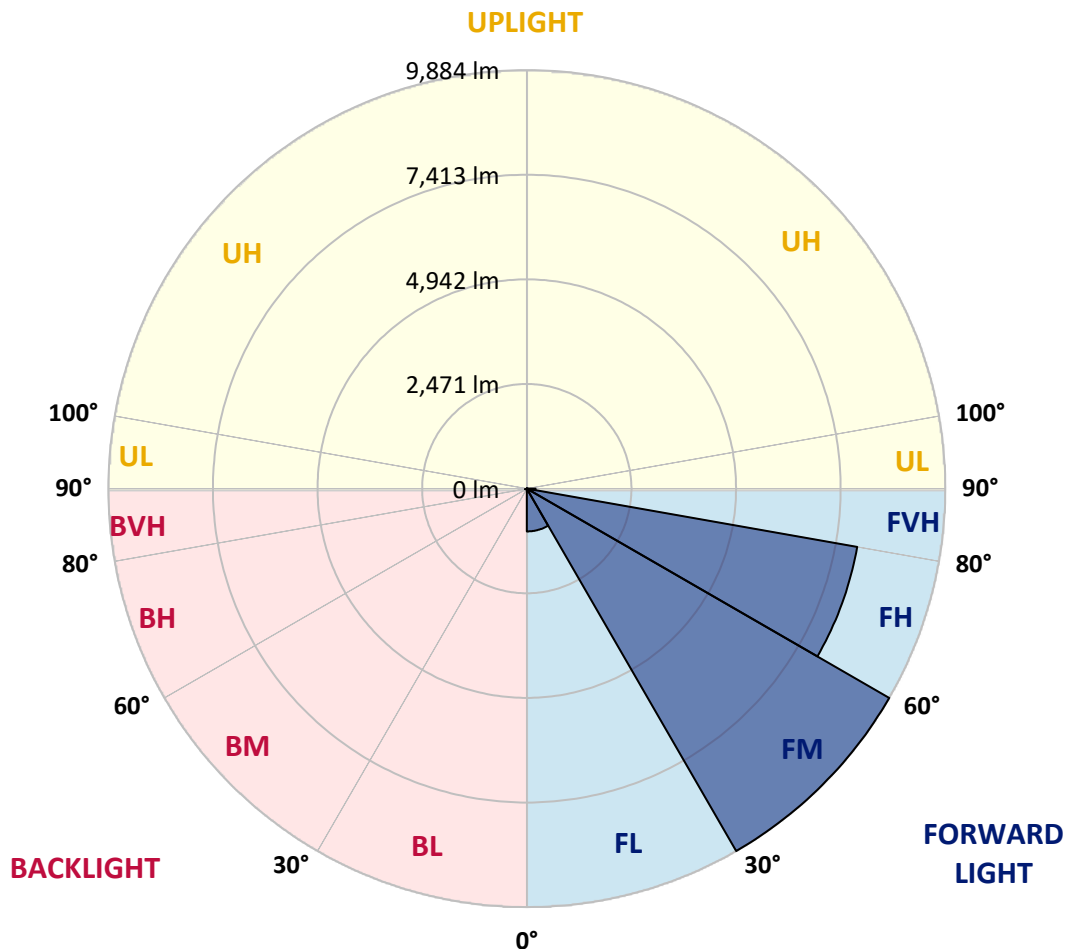
CATALOG NUMBER: GLAN-SA7A-935-U-T3BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|--------|-----------|-------------------------|------|----------|
|      |             |        |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1010.7 | 5.3       |                         |      |          |
| FM   | (30°-60°)   | 9883.9 | 51.8      |                         |      |          |
| FH   | (60°-80°)   | 7923.2 | 41.5      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 206.7  | 1.1       |                         |      | G2/225   |
| BL   | (0°-30°)    | 18.2   | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 16.7   | 0.1       | B0/220                  |      |          |
| BH   | (60°-80°)   | 31.9   | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 2.9    | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |          |

**BUG Rating: B0-U0-G4**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 124.8   | 124.8   | 124.8   | 124.8   | 124.8   | 124.8   | 124.8   | 124.8   | 124.8   | 124.8   | 124.8  |
| 2.5°  | 149.8   | 154.8   | 149.8   | 149.8   | 149.8   | 144.8   | 144.8   | 139.8   | 139.8   | 134.8   | 129.8  |
| 5°    | 219.7   | 219.7   | 204.8   | 194.8   | 184.8   | 179.8   | 174.8   | 164.8   | 154.8   | 144.8   | 134.8  |
| 7.5°  | 489.4   | 489.4   | 444.5   | 384.5   | 304.6   | 259.7   | 249.7   | 204.8   | 174.8   | 154.8   | 134.8  |
| 10°   | 1168.6  | 1168.6  | 1068.7  | 903.9   | 699.2   | 519.4   | 464.4   | 294.6   | 209.7   | 164.8   | 139.8  |
| 12.5° | 1942.6  | 1967.6  | 1842.8  | 1633.0  | 1328.4  | 1013.8  | 903.9   | 539.3   | 279.7   | 179.8   | 139.8  |
| 15°   | 2636.8  | 2576.9  | 2541.9  | 2342.2  | 2052.5  | 1678.0  | 1538.1  | 908.9   | 404.5   | 204.8   | 139.8  |
| 17.5° | 3106.2  | 3106.2  | 3056.3  | 2921.5  | 2656.8  | 2327.2  | 2212.3  | 1468.2  | 654.2   | 234.7   | 144.8  |
| 20°   | 3655.6  | 3655.6  | 3565.7  | 3470.8  | 3236.1  | 2956.4  | 2846.5  | 2087.5  | 1013.8  | 299.6   | 144.8  |
| 22.5° | 4319.8  | 4329.7  | 4229.9  | 4060.1  | 3835.3  | 3525.7  | 3430.8  | 2661.8  | 1468.2  | 399.5   | 149.8  |
| 25°   | 5128.8  | 5138.8  | 4993.9  | 4834.1  | 4489.6  | 4155.0  | 4010.1  | 3321.0  | 2022.5  | 559.3   | 149.8  |
| 27.5° | 6022.7  | 6092.6  | 5877.9  | 5603.2  | 5238.6  | 4819.2  | 4709.3  | 3915.3  | 2571.9  | 789.0   | 159.8  |
| 30°   | 7136.3  | 7136.3  | 6851.7  | 6467.2  | 6072.6  | 5553.3  | 5413.4  | 4539.5  | 3156.2  | 1093.7  | 169.8  |
| 32.5° | 8095.2  | 8020.3  | 7655.7  | 7251.2  | 6831.7  | 6347.3  | 6197.5  | 5193.7  | 3755.4  | 1473.2  | 189.8  |
| 35°   | 8829.3  | 8764.4  | 8314.9  | 7880.4  | 7515.9  | 7071.4  | 6891.6  | 5902.8  | 4389.7  | 1902.7  | 219.7  |
| 37.5° | 9458.5  | 9433.6  | 8824.3  | 8280.0  | 8040.2  | 7650.7  | 7490.9  | 6572.0  | 5013.9  | 2367.1  | 254.7  |
| 40°   | 10147.7 | 10067.8 | 9418.6  | 8744.4  | 8384.8  | 8070.2  | 7925.4  | 7111.4  | 5613.2  | 2911.5  | 304.6  |
| 42.5° | 10737.0 | 10642.1 | 10057.8 | 9398.6  | 8784.3  | 8359.9  | 8220.0  | 7565.8  | 6197.5  | 3455.8  | 369.6  |
| 45°   | 11391.2 | 11341.2 | 10752.0 | 10252.6 | 9433.6  | 8754.4  | 8569.6  | 7930.4  | 6731.8  | 4105.0  | 454.4  |
| 47.5° | 12375.0 | 12285.1 | 11735.8 | 11326.3 | 10377.4 | 9353.7  | 9089.0  | 8304.9  | 7246.2  | 4744.2  | 584.3  |
| 50°   | 13518.6 | 13458.7 | 13134.1 | 12809.5 | 11865.6 | 10377.4 | 10062.8 | 8844.3  | 7820.5  | 5503.3  | 754.1  |
| 52.5° | 14452.5 | 14442.5 | 14482.4 | 14487.4 | 13773.3 | 12100.3 | 11630.9 | 9713.2  | 8479.7  | 6252.4  | 993.8  |
| 55°   | 14432.5 | 14477.4 | 14916.9 | 15421.3 | 15476.2 | 14452.5 | 13998.0 | 11176.4 | 9338.7  | 7176.3  | 1328.4 |
| 57.5° | 13893.2 | 13858.2 | 14322.6 | 15081.7 | 15616.1 | 15725.9 | 15651.0 | 13448.7 | 10632.1 | 8289.9  | 1842.8 |
| 58°   | 13718.4 | 13688.4 | 14127.9 | 14901.9 | 15516.2 | 15810.8 | 15735.9 | 13963.1 | 10921.8 | 8449.8  | 1982.6 |
| 60°   | 13084.1 | 13089.1 | 13348.8 | 14053.0 | 14667.2 | 15366.4 | 15436.3 | 15431.3 | 12365.0 | 9518.5  | 2686.7 |
| 62.5° | 12245.2 | 12205.2 | 12444.9 | 13019.2 | 13558.6 | 14028.0 | 14147.8 | 15531.2 | 14477.4 | 10876.8 | 4030.1 |
| 65°   | 11086.6 | 11026.6 | 11281.3 | 11930.5 | 12509.8 | 12814.5 | 12819.5 | 14192.8 | 15471.2 | 12335.0 | 5947.8 |
| 67.5° | 8934.2  | 8884.2  | 9393.6  | 10227.6 | 11121.5 | 11521.0 | 11700.8 | 12315.1 | 14632.3 | 13323.8 | 7046.5 |
| 70°   | 5473.4  | 5578.2  | 6287.4  | 7595.8  | 9123.9  | 9858.0  | 10127.7 | 10317.5 | 12459.9 | 13174.0 | 5892.9 |
| 72.5° | 2526.9  | 2402.1  | 3006.4  | 3920.2  | 5663.1  | 7296.2  | 7575.8  | 8319.9  | 9878.0  | 11436.1 | 4394.7 |
| 75°   | 1178.6  | 1133.6  | 1273.5  | 1712.9  | 2566.9  | 3940.2  | 4449.6  | 6641.9  | 7575.8  | 7955.4  | 3171.2 |
| 77.5° | 604.3   | 609.3   | 724.1   | 779.1   | 1058.7  | 1822.8  | 2092.5  | 4369.7  | 5553.3  | 4439.6  | 2127.4 |
| 80°   | 264.7   | 274.7   | 279.7   | 304.6   | 429.5   | 704.1   | 794.0   | 2027.5  | 3795.4  | 2262.3  | 1163.6 |
| 82.5° | 169.8   | 174.8   | 174.8   | 174.8   | 204.8   | 279.7   | 319.6   | 814.0   | 1892.7  | 1123.6  | 359.6  |
| 85°   | 89.9    | 89.9    | 99.9    | 124.8   | 144.8   | 169.8   | 179.8   | 259.7   | 624.2   | 334.6   | 84.9   |
| 87.5° | 49.9    | 54.9    | 59.9    | 74.9    | 94.9    | 114.9   | 124.8   | 179.8   | 239.7   | 229.7   | 20.0   |
| 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°    | 124.8  | 124.8 | 124.8 | 124.8 | 124.8 | 124.8 | 124.8 | 124.8 | 124.8 | 124.8 | 124.8 |
| 2.5°  | 129.8  | 124.8 | 119.9 | 114.9 | 109.9 | 104.9 | 104.9 | 104.9 | 104.9 | 104.9 | 104.9 |
| 5°    | 124.8  | 119.9 | 114.9 | 104.9 | 94.9  | 89.9  | 84.9  | 79.9  | 79.9  | 79.9  | 79.9  |
| 7.5°  | 124.8  | 119.9 | 104.9 | 94.9  | 84.9  | 74.9  | 64.9  | 64.9  | 64.9  | 64.9  | 64.9  |
| 10°   | 124.8  | 114.9 | 99.9  | 84.9  | 69.9  | 59.9  | 54.9  | 49.9  | 49.9  | 49.9  | 49.9  |
| 12.5° | 124.8  | 109.9 | 94.9  | 74.9  | 59.9  | 49.9  | 44.9  | 40.0  | 40.0  | 40.0  | 40.0  |
| 15°   | 124.8  | 109.9 | 89.9  | 69.9  | 54.9  | 40.0  | 35.0  | 30.0  | 30.0  | 30.0  | 30.0  |
| 17.5° | 119.9  | 104.9 | 84.9  | 59.9  | 44.9  | 30.0  | 25.0  | 20.0  | 20.0  | 25.0  | 25.0  |
| 20°   | 114.9  | 99.9  | 74.9  | 49.9  | 35.0  | 25.0  | 15.0  | 15.0  | 15.0  | 15.0  | 15.0  |
| 22.5° | 114.9  | 99.9  | 69.9  | 44.9  | 30.0  | 15.0  | 10.0  | 10.0  | 10.0  | 10.0  | 15.0  |
| 25°   | 114.9  | 94.9  | 59.9  | 35.0  | 20.0  | 10.0  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| 27.5° | 114.9  | 94.9  | 54.9  | 30.0  | 15.0  | 10.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 109.9  | 89.9  | 49.9  | 25.0  | 10.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 109.9  | 84.9  | 40.0  | 20.0  | 10.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 114.9  | 79.9  | 35.0  | 15.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 5.0   |
| 37.5° | 119.9  | 74.9  | 30.0  | 10.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 124.8  | 69.9  | 30.0  | 10.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 134.8  | 69.9  | 25.0  | 10.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 144.8  | 69.9  | 20.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 164.8  | 74.9  | 20.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 179.8  | 79.9  | 15.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 199.8  | 74.9  | 15.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 224.7  | 74.9  | 15.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 244.7  | 69.9  | 15.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 254.7  | 64.9  | 10.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 304.6  | 59.9  | 10.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 474.4  | 49.9  | 10.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 963.8  | 44.9  | 10.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1797.8 | 40.0  | 10.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2012.6 | 44.9  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1268.5 | 35.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 669.2  | 35.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 334.6  | 35.0  | 5.0   | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 154.8  | 25.0  | 5.0   | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 64.9   | 15.0  | 10.0  | 5.0   | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 30.0   | 15.0  | 10.0  | 10.0  | 5.0   | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 15.0   | 15.0  | 15.0  | 10.0  | 10.0  | 5.0   | 5.0   | 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

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

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

REPORT NUMBER: SP1-2407-184-15

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.58

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

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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                             |                   |                                        |                                |

REPORT NUMBER: SP1-2407-184-15

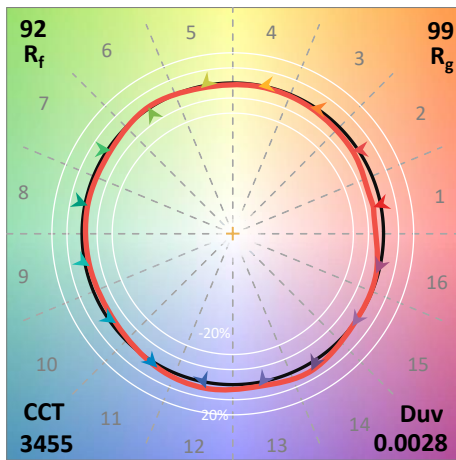
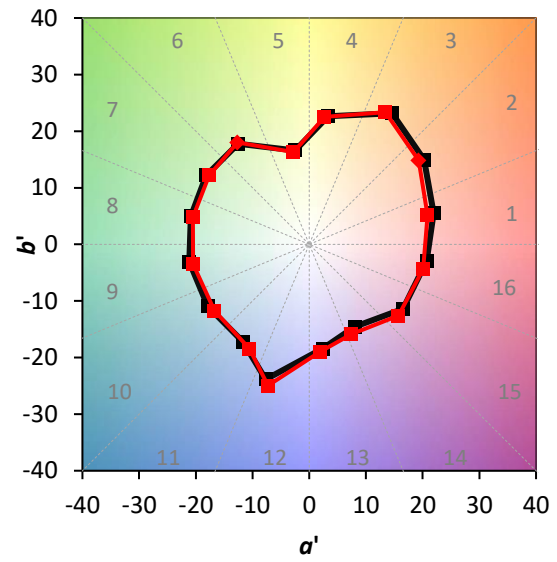
TM-30-18

### Summary

$R_f = 92.3$   
 $R_g = 98.5$   
 $\text{CIE } R_a = 92.2$   
 $R_9 = 59.8$



### 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)