

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

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Peachtree City, GA 30269

Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: STREETWORKS

Report Number: P1458094

Luminaire Tested: GLAN-SB9D-740-U-T3LG-HSS

Issue Date: 05/20/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1458094  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 5/21/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: STREETWORKS  
Catalog Number: GLAN-SB9D-740-U-T3LG-HSS  
Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 900mA 9xLight Square PACKAGE 70CRI 4000K FIXTURE w/ TYPE III LOW GLARE WITH HOUSE SIDE SHIELD  
Light Source: (234) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

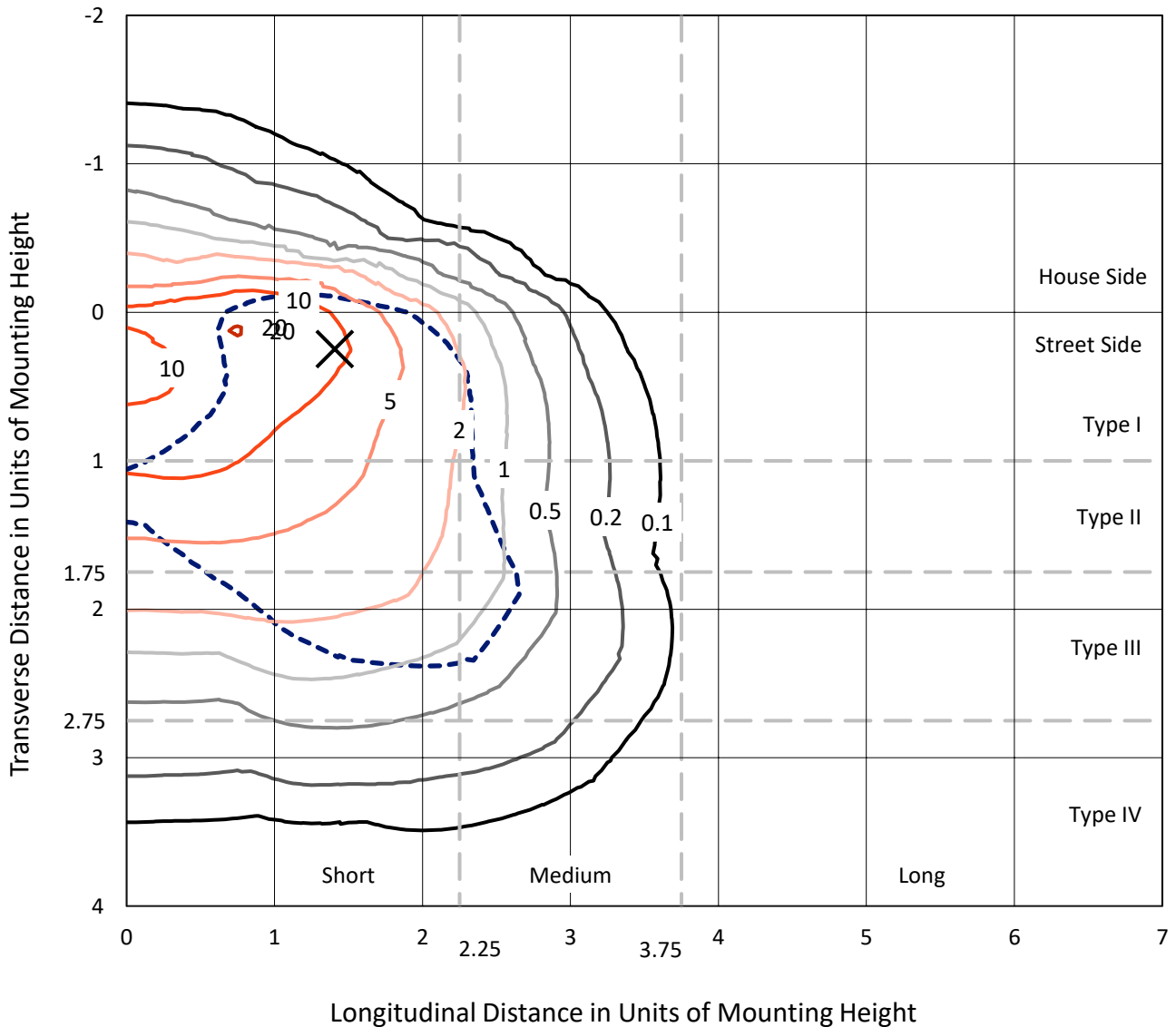
Lumens per Lamp: N/A  
Luminaire Lumens: 74949.2 lumens  
Efficiency: N/A  
Efficacy: 113.9 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B4 - U0 - G5

Input Watts (W): 658  
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

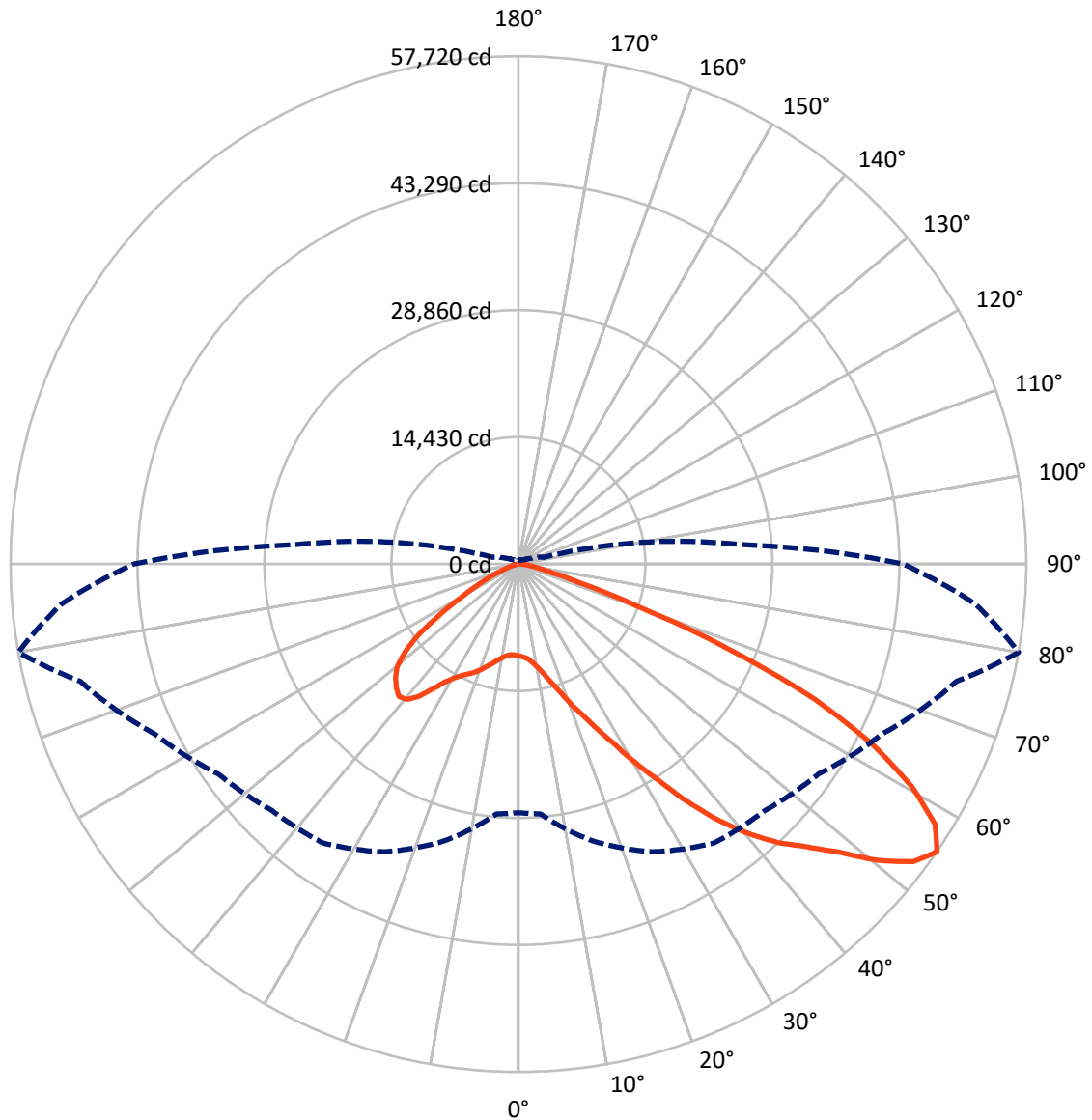
✕ Max cd  
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 20.5 fc  
 Type III - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 80-Deg Lateral    - - - Horizontal Cone Through 55-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 9110.9   | 0.0    | 9110.9  |
|                    | % Fixture | 12.2     | 0.0    | 12.2    |
| <b>Street Side</b> | Lumens    | 65838.3  | 0.0    | 65838.3 |
|                    | % Fixture | 87.8     | 0.0    | 87.8    |
| <b>Total</b>       | Lumens    | 74949.2  | 0.0    | 74949.2 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 876.2   | 1.2       |
| 10°-20°   | 2309.9  | 3.1       |
| 20°-30°   | 4522.0  | 6.0       |
| 30°-40°   | 9199.8  | 12.3      |
| 40°-50°   | 15509.5 | 20.7      |
| 50°-60°   | 19816.4 | 26.4      |
| 60°-70°   | 16918.6 | 22.6      |
| 70°-80°   | 5406.5  | 7.2       |
| 80°-90°   | 390.4   | 0.5       |
| 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°    | 74949.2 | 100.0     |
| 0°-180°   | 74949.2 | 100.0     |



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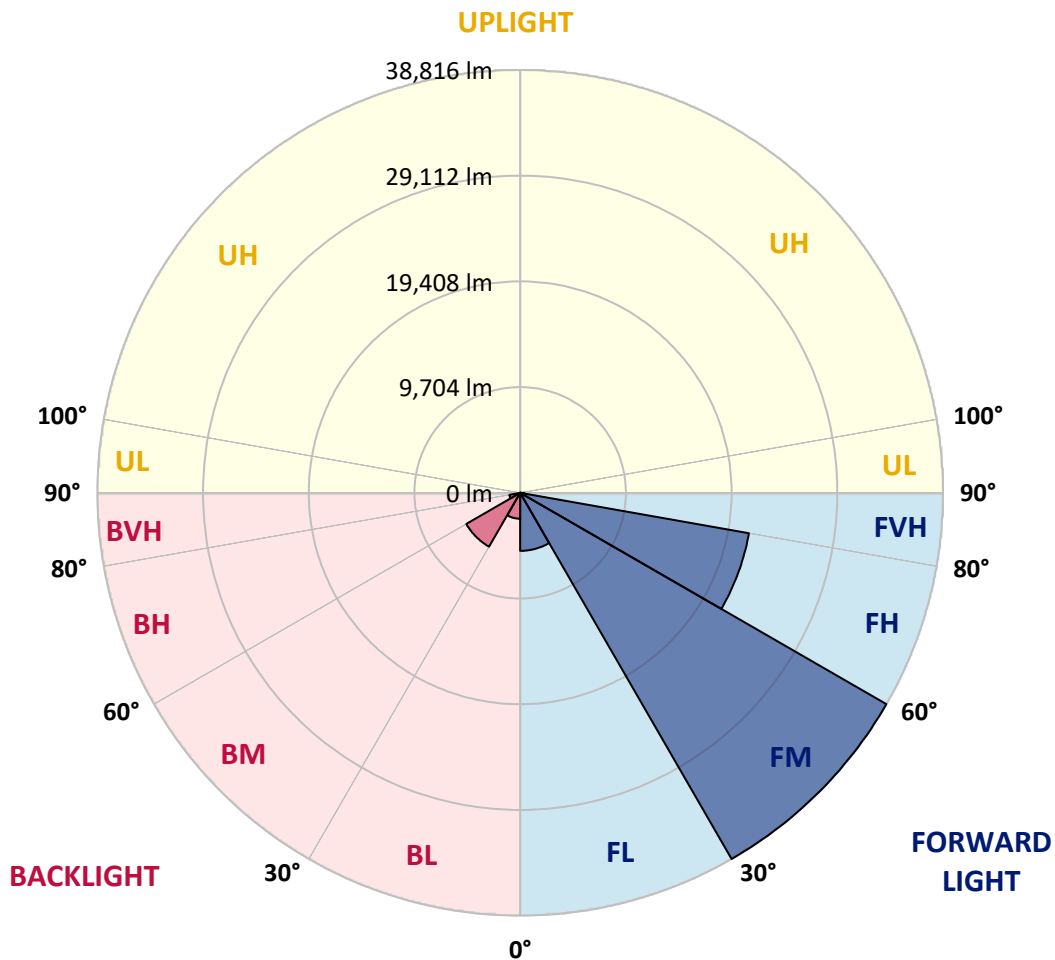
CATALOG NUMBER: GLAN-SB9D-740-U-T3LG-HSS

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|---------|-----------|-------------------------|------|---------|
|      |             |         |           | B                       | U    | G       |
| FL   | (0°-30°)    | 5329.0  | 7.1       |                         |      |         |
| FM   | (30°-60°)   | 38815.6 | 51.8      |                         |      |         |
| FH   | (60°-80°)   | 21323.7 | 28.5      |                         |      | G5      |
| FVH  | (80°-90°)   | 370.0   | 0.5       |                         |      | G3/500  |
| BL   | (0°-30°)    | 2379.1  | 3.2       | B3/2500                 |      |         |
| BM   | (30°-60°)   | 5710.1  | 7.6       | B4/8500                 |      |         |
| BH   | (60°-80°)   | 1001.4  | 1.3       | B3/2500                 |      | G3/2500 |
| BVH  | (80°-90°)   | 20.3    | 0.0       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |         |

**BUG Rating: B4-U0-G5**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 75°     | 80°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 |
| 2.5°  | 10504.2 | 10525.5 | 10504.2 | 10525.5 | 10568.1 | 10546.8 | 10632.1 | 10610.8 | 10610.8 | 10589.5 | 10504.2 |
| 5°    | 9907.6  | 9928.9  | 9971.6  | 10078.1 | 10227.2 | 10376.4 | 10568.1 | 10696.0 | 10823.8 | 10802.5 | 10717.3 |
| 7.5°  | 8735.8  | 8778.4  | 8948.8  | 9161.9  | 9652.0  | 10099.4 | 10589.5 | 10909.1 | 11186.0 | 11271.3 | 11207.3 |
| 10°   | 8075.3  | 8117.9  | 8224.4  | 8437.5  | 8884.9  | 9630.6  | 10589.5 | 11250.0 | 11740.0 | 11910.5 | 11931.8 |
| 12.5° | 8011.3  | 8032.6  | 8117.9  | 8352.2  | 8735.8  | 9375.0  | 10568.1 | 11697.4 | 12528.4 | 12784.0 | 12869.3 |
| 15°   | 8053.9  | 8096.6  | 8181.8  | 8373.6  | 8821.0  | 9545.4  | 10738.6 | 12400.5 | 13572.4 | 13934.6 | 13955.9 |
| 17.5° | 8224.4  | 8267.0  | 8373.6  | 8586.6  | 9076.7  | 9992.9  | 11271.3 | 13125.0 | 14829.5 | 15234.3 | 15468.7 |
| 20°   | 8565.3  | 8586.6  | 8714.5  | 8991.4  | 9545.4  | 10546.8 | 12059.6 | 14105.1 | 16342.3 | 16938.9 | 17109.3 |
| 22.5° | 9012.8  | 9076.7  | 9247.1  | 9588.0  | 10291.2 | 11313.9 | 13146.3 | 15298.2 | 18004.2 | 18622.1 | 18920.4 |
| 25°   | 9502.8  | 9588.0  | 9843.7  | 10397.7 | 11292.6 | 12485.8 | 14488.6 | 16874.9 | 19964.4 | 20710.2 | 21115.0 |
| 27.5° | 10504.2 | 10525.5 | 10696.0 | 11399.1 | 12549.7 | 14019.8 | 16193.1 | 18899.1 | 22265.5 | 23139.1 | 23586.6 |
| 30°   | 12698.8 | 12720.1 | 12571.0 | 12762.7 | 13934.6 | 15830.9 | 18196.0 | 21264.1 | 24950.2 | 26164.7 | 26526.9 |
| 32.5° | 15383.5 | 15490.0 | 15468.7 | 15340.9 | 15873.5 | 17642.0 | 20582.3 | 24097.9 | 28103.6 | 29382.0 | 29722.9 |
| 35°   | 18430.3 | 18686.0 | 18622.1 | 18579.5 | 18643.4 | 19964.4 | 23309.6 | 27230.0 | 31683.1 | 33238.5 | 33515.5 |
| 37.5° | 21413.3 | 21477.2 | 21775.5 | 22137.7 | 22180.3 | 23096.5 | 26463.0 | 30553.9 | 35007.0 | 36988.5 | 37414.6 |
| 40°   | 23714.4 | 23927.5 | 24673.2 | 25397.6 | 26143.4 | 26867.8 | 29062.4 | 33238.5 | 37649.0 | 40312.4 | 40504.1 |
| 42.5° | 25504.2 | 26015.5 | 27102.2 | 28231.4 | 29744.2 | 30553.9 | 31534.0 | 35134.8 | 39801.0 | 43274.0 | 43188.8 |
| 45°   | 27677.5 | 27890.5 | 29424.6 | 30916.1 | 32450.2 | 33686.0 | 33664.7 | 36732.8 | 41484.2 | 45809.5 | 45276.8 |
| 47.5° | 29147.6 | 29403.3 | 31491.4 | 33238.5 | 34815.2 | 35433.1 | 35561.0 | 38458.7 | 43806.7 | 48877.7 | 47620.6 |
| 50°   | 29936.0 | 30383.4 | 32663.2 | 34879.1 | 36583.7 | 36775.4 | 37350.7 | 40717.2 | 46853.5 | 52947.3 | 50582.2 |
| 52.5° | 30021.2 | 30447.3 | 33068.1 | 35923.2 | 37776.9 | 38160.4 | 39140.5 | 43274.0 | 49815.2 | 56207.2 | 52286.8 |
| 55°   | 28252.7 | 28508.4 | 32578.0 | 36093.6 | 38714.4 | 39609.2 | 41612.1 | 45639.0 | 51541.0 | 57720.0 | 52137.6 |
| 57.5° | 26590.8 | 26846.5 | 30383.4 | 35795.3 | 39673.2 | 41505.5 | 44254.1 | 47258.4 | 50198.7 | 55845.0 | 48813.8 |
| 60°   | 25163.3 | 25291.1 | 28508.4 | 34410.4 | 40035.4 | 43359.2 | 46533.9 | 45660.4 | 46725.7 | 51349.3 | 43124.9 |
| 62.5° | 22478.6 | 22563.8 | 26377.7 | 31917.5 | 39310.9 | 44786.8 | 47322.3 | 42272.6 | 42911.8 | 45149.0 | 36434.5 |
| 65°   | 16981.5 | 17301.1 | 20795.4 | 30042.5 | 38117.8 | 45447.3 | 45489.9 | 38139.1 | 37478.6 | 36945.9 | 28657.6 |
| 67.5° | 11526.9 | 11889.2 | 13998.5 | 27017.0 | 36178.9 | 45724.3 | 41931.7 | 32791.1 | 28551.0 | 25802.5 | 18771.2 |
| 70°   | 9204.5  | 9204.5  | 9928.9  | 21711.6 | 31576.6 | 42187.4 | 37521.2 | 24758.4 | 18132.0 | 14254.2 | 10056.8 |
| 72.5° | 6051.1  | 6072.4  | 6754.2  | 13785.5 | 22393.4 | 32173.2 | 30596.5 | 14318.1 | 9417.6  | 7265.6  | 4964.5  |
| 75°   | 2194.6  | 2194.6  | 2961.6  | 5518.4  | 11846.5 | 19154.8 | 18643.4 | 6839.5  | 5113.6  | 3963.1  | 3004.3  |
| 77.5° | 1171.9  | 1214.5  | 1427.6  | 2279.8  | 4538.3  | 7798.3  | 7286.9  | 3494.3  | 2897.7  | 2471.6  | 1875.0  |
| 80°   | 788.3   | 809.7   | 958.8   | 1406.2  | 2194.6  | 3004.3  | 2343.7  | 1960.2  | 1960.2  | 1661.9  | 1257.1  |
| 82.5° | 426.1   | 447.4   | 639.2   | 916.2   | 1171.9  | 1406.2  | 1129.3  | 1150.6  | 1384.9  | 1129.3  | 724.4   |
| 85°   | 298.3   | 298.3   | 490.1   | 660.5   | 660.5   | 681.8   | 490.1   | 724.4   | 809.7   | 703.1   | 490.1   |
| 87.5° | 170.5   | 170.5   | 277.0   | 319.6   | 319.6   | 298.3   | 149.1   | 255.7   | 319.6   | 362.2   | 213.1   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |



REPORT NUMBER: P1458094

CATALOG NUMBER: GLAN-SB9D-740-U-T3LG-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°    | 115°    | 125°    | 135°    | 145°    | 155°    | 165°    | 175°    | 180°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 | 10440.3 |
| 2.5°  | 10482.9 | 10419.0 | 10291.2 | 10035.5 | 9907.6  | 9737.2  | 9588.0  | 9396.3  | 9353.7  | 9332.4  | 9247.1  |
| 5°    | 10653.4 | 10525.5 | 10142.0 | 9588.0  | 9119.3  | 8671.8  | 8224.4  | 7968.7  | 7755.7  | 7649.1  | 7627.8  |
| 7.5°  | 11079.5 | 10823.8 | 10120.7 | 9140.6  | 8267.0  | 7500.0  | 6839.5  | 6264.2  | 5965.9  | 5710.2  | 5731.5  |
| 10°   | 11718.7 | 11313.9 | 10163.3 | 8714.5  | 7414.7  | 6179.0  | 5220.2  | 4389.2  | 3792.6  | 3515.6  | 3494.3  |
| 12.5° | 12571.0 | 11995.7 | 10312.5 | 8288.3  | 6370.7  | 4644.9  | 3430.4  | 2940.3  | 2812.5  | 2791.2  | 2769.9  |
| 15°   | 13615.0 | 12805.4 | 10461.6 | 7734.3  | 4964.5  | 3217.3  | 2791.2  | 2684.6  | 2663.3  | 2642.0  | 2642.0  |
| 17.5° | 14872.1 | 13742.9 | 10546.8 | 6796.9  | 3622.1  | 2769.9  | 2620.7  | 2556.8  | 2535.5  | 2514.2  | 2514.2  |
| 20°   | 16448.8 | 14786.9 | 10653.4 | 5603.7  | 3068.2  | 2663.3  | 2492.9  | 2407.7  | 2386.4  | 2386.4  | 2365.0  |
| 22.5° | 18004.2 | 15958.8 | 10568.1 | 4559.6  | 2961.6  | 2535.5  | 2343.7  | 2258.5  | 2215.9  | 2215.9  | 2194.6  |
| 25°   | 19794.0 | 17151.9 | 10312.5 | 4112.2  | 2940.3  | 2429.0  | 2194.6  | 2066.8  | 2002.8  | 1981.5  | 1981.5  |
| 27.5° | 21839.4 | 18515.6 | 9907.6  | 4133.5  | 2940.3  | 2343.7  | 2002.8  | 1832.4  | 1789.8  | 1747.2  | 1747.2  |
| 30°   | 24183.2 | 20177.5 | 9609.3  | 4410.5  | 2982.9  | 2258.5  | 1832.4  | 1619.3  | 1555.4  | 1512.8  | 1534.1  |
| 32.5° | 26867.8 | 22031.2 | 9588.0  | 4857.9  | 3046.9  | 2130.7  | 1640.6  | 1406.2  | 1342.3  | 1321.0  | 1342.3  |
| 35°   | 29914.7 | 24332.3 | 10078.1 | 5198.8  | 2876.4  | 1853.7  | 1406.2  | 1214.5  | 1150.6  | 1150.6  | 1171.9  |
| 37.5° | 33302.4 | 26974.3 | 10738.6 | 5113.6  | 2322.4  | 1470.2  | 1214.5  | 1065.3  | 1001.4  | 1022.7  | 1044.0  |
| 40°   | 36391.9 | 29041.1 | 10845.1 | 4367.9  | 1747.2  | 1257.1  | 1044.0  | 937.5   | 894.9   | 916.2   | 937.5   |
| 42.5° | 38735.7 | 30703.0 | 9822.4  | 3387.8  | 1470.2  | 1065.3  | 894.9   | 809.7   | 788.3   | 831.0   | 831.0   |
| 45°   | 40632.0 | 31363.5 | 8203.1  | 2514.2  | 1299.7  | 916.2   | 788.3   | 745.7   | 703.1   | 724.4   | 724.4   |
| 47.5° | 42613.5 | 31470.1 | 6690.3  | 2024.1  | 1150.6  | 831.0   | 724.4   | 681.8   | 639.2   | 639.2   | 639.2   |
| 50°   | 44531.1 | 31214.4 | 5113.6  | 1789.8  | 1065.3  | 745.7   | 660.5   | 617.9   | 575.3   | 554.0   | 554.0   |
| 52.5° | 44999.8 | 29168.9 | 3750.0  | 1661.9  | 980.1   | 703.1   | 617.9   | 575.3   | 532.7   | 511.4   | 511.4   |
| 55°   | 43700.1 | 25291.1 | 2940.3  | 1491.5  | 894.9   | 639.2   | 575.3   | 532.7   | 468.7   | 447.4   | 447.4   |
| 57.5° | 39417.5 | 19282.6 | 2343.7  | 1278.4  | 809.7   | 617.9   | 532.7   | 490.1   | 426.1   | 404.8   | 404.8   |
| 60°   | 33856.4 | 13678.9 | 1896.3  | 1044.0  | 745.7   | 554.0   | 490.1   | 426.1   | 383.5   | 340.9   | 340.9   |
| 62.5° | 27698.8 | 9822.4  | 1534.1  | 873.6   | 703.1   | 490.1   | 447.4   | 383.5   | 298.3   | 234.4   | 234.4   |
| 65°   | 21242.8 | 7052.5  | 1193.2  | 703.1   | 639.2   | 426.1   | 383.5   | 319.6   | 234.4   | 170.5   | 170.5   |
| 67.5° | 13742.9 | 4559.6  | 894.9   | 617.9   | 490.1   | 362.2   | 298.3   | 255.7   | 213.1   | 149.1   | 127.8   |
| 70°   | 7244.3  | 2663.3  | 660.5   | 532.7   | 362.2   | 277.0   | 255.7   | 213.1   | 170.5   | 106.5   | 106.5   |
| 72.5° | 3750.0  | 1747.2  | 490.1   | 468.7   | 277.0   | 191.8   | 213.1   | 170.5   | 127.8   | 63.9    | 63.9    |
| 75°   | 2407.7  | 1171.9  | 362.2   | 383.5   | 170.5   | 149.1   | 149.1   | 106.5   | 63.9    | 42.6    | 21.3    |
| 77.5° | 1555.4  | 788.3   | 255.7   | 319.6   | 106.5   | 85.2    | 85.2    | 42.6    | 21.3    | 0.0     | 0.0     |
| 80°   | 916.2   | 490.1   | 170.5   | 213.1   | 42.6    | 42.6    | 21.3    | 0.0     | 0.0     | 0.0     | 0.0     |
| 82.5° | 468.7   | 255.7   | 85.2    | 85.2    | 21.3    | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| 85°   | 298.3   | 127.8   | 21.3    | 21.3    | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| 87.5° | 149.1   | 42.6    | 21.3    | 0.0     | 0.0     | 0.0     | 0.0     | 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     |

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-1

Test Date: 10/09/2024

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

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

**Test Information**

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

**Spectral Parameters**

CCT (K): 3949  
 CIE u': 0.2248  
 CIE v': 0.5053  
 Duv: 0.0022  
 CIE x: 0.3844  
 CIE y: 0.3840  
 CIE z: 0.2316  
 Peak Wavelength (nm): 440  
 Dominant Wavelength (nm): 578  
 Purity: 30.60026  
 Rf: 71.8  
 Rg: 96.5

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 70.7 |      |       |
| R1:       | 68.0 | R9:  | -36.7 |
| R2:       | 76.0 | R10: | 45.1  |
| R3:       | 84.3 | R11: | 70.7  |
| R4:       | 72.0 | R12: | 47.1  |
| R5:       | 68.6 | R13: | 68.5  |
| R6:       | 68.3 | R14: | 91.1  |
| R7:       | 77.9 | R15: | 58.7  |
| R8:       | 50.3 |      |       |



**Test Conditions**

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

REPORT NUMBER: SP1-2407-184-1

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

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CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 4000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 139                      | NR            | 620    | 607                      | NR            | 750    | 15                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 198                      | NR            | 625    | 554                      | NR            | 755    | 13                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 267                      | NR            | 630    | 504                      | NR            | 760    | 11                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 452                      | NR            | 765    | 10                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 410                      | NR            | 640    | 403                      | NR            | 770    | 8                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 470                      | NR            | 645    | 357                      | NR            | 775    | 7                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 516                      | NR            | 650    | 314                      | NR            | 780    | 6                        | NR            | 910    | 0                        | NR            |
| 395    | 7                        | NR            | 525    | 550                      | NR            | 655    | 275                      | NR            | 785    | 5                        | NR            | 915    | 0                        | NR            |
| 400    | 10                       | NR            | 530    | 578                      | NR            | 660    | 240                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 17                       | NR            | 535    | 601                      | NR            | 665    | 208                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 35                       | NR            | 540    | 620                      | NR            | 670    | 179                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 70                       | NR            | 545    | 641                      | NR            | 675    | 155                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 147                      | NR            | 550    | 664                      | NR            | 680    | 133                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 285                      | NR            | 555    | 689                      | NR            | 685    | 114                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 487                      | NR            | 560    | 715                      | NR            | 690    | 98                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 787                      | NR            | 565    | 743                      | NR            | 695    | 84                       | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 1000                     | NR            | 570    | 771                      | NR            | 700    | 72                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 783                      | NR            | 575    | 794                      | NR            | 705    | 61                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 417                      | NR            | 580    | 811                      | NR            | 710    | 52                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 261                      | NR            | 585    | 817                      | NR            | 715    | 45                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 167                      | NR            | 590    | 815                      | NR            | 720    | 39                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 104                      | NR            | 595    | 801                      | NR            | 725    | 33                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 79                       | NR            | 600    | 777                      | NR            | 730    | 28                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 73                       | NR            | 605    | 744                      | NR            | 735    | 24                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 704                      | NR            | 740    | 21                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 98                       | NR            | 615    | 657                      | NR            | 745    | 18                       | NR            | 875    | 1                        | NR            |        |                          |               |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.47**

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 139                      | NR            | 620    | 607                      | NR            | 750    | 15                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 198                      | NR            | 625    | 554                      | NR            | 755    | 13                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 267                      | NR            | 630    | 504                      | NR            | 760    | 11                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 452                      | NR            | 765    | 10                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 410                      | NR            | 640    | 403                      | NR            | 770    | 8                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 470                      | NR            | 645    | 357                      | NR            | 775    | 7                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 516                      | NR            | 650    | 314                      | NR            | 780    | 6                        | NR            | 910    | 0                        | NR            |
| 395    | 7                        | NR            | 525    | 550                      | NR            | 655    | 275                      | NR            | 785    | 5                        | NR            | 915    | 0                        | NR            |
| 400    | 10                       | NR            | 530    | 578                      | NR            | 660    | 240                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 17                       | NR            | 535    | 601                      | NR            | 665    | 208                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 35                       | NR            | 540    | 620                      | NR            | 670    | 179                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 70                       | NR            | 545    | 641                      | NR            | 675    | 155                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 147                      | NR            | 550    | 664                      | NR            | 680    | 133                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 285                      | NR            | 555    | 689                      | NR            | 685    | 114                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 487                      | NR            | 560    | 715                      | NR            | 690    | 98                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 787                      | NR            | 565    | 743                      | NR            | 695    | 84                       | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 1000                     | NR            | 570    | 771                      | NR            | 700    | 72                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 783                      | NR            | 575    | 794                      | NR            | 705    | 61                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 417                      | NR            | 580    | 811                      | NR            | 710    | 52                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 261                      | NR            | 585    | 817                      | NR            | 715    | 45                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 167                      | NR            | 590    | 815                      | NR            | 720    | 39                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 104                      | NR            | 595    | 801                      | NR            | 725    | 33                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 79                       | NR            | 600    | 777                      | NR            | 730    | 28                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 73                       | NR            | 605    | 744                      | NR            | 735    | 24                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 704                      | NR            | 740    | 21                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 98                       | NR            | 615    | 657                      | NR            | 745    | 18                       | NR            | 875    | 1                        | NR            |        |                          |               |

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.78

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 139                      | NR            | 620    | 607                      | NR            | 750    | 15                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 198                      | NR            | 625    | 554                      | NR            | 755    | 13                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 267                      | NR            | 630    | 504                      | NR            | 760    | 11                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 452                      | NR            | 765    | 10                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 410                      | NR            | 640    | 403                      | NR            | 770    | 8                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 470                      | NR            | 645    | 357                      | NR            | 775    | 7                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 516                      | NR            | 650    | 314                      | NR            | 780    | 6                        | NR            | 910    | 0                        | NR            |
| 395    | 7                        | NR            | 525    | 550                      | NR            | 655    | 275                      | NR            | 785    | 5                        | NR            | 915    | 0                        | NR            |
| 400    | 10                       | NR            | 530    | 578                      | NR            | 660    | 240                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 17                       | NR            | 535    | 601                      | NR            | 665    | 208                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 35                       | NR            | 540    | 620                      | NR            | 670    | 179                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 70                       | NR            | 545    | 641                      | NR            | 675    | 155                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 147                      | NR            | 550    | 664                      | NR            | 680    | 133                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 285                      | NR            | 555    | 689                      | NR            | 685    | 114                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 487                      | NR            | 560    | 715                      | NR            | 690    | 98                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 787                      | NR            | 565    | 743                      | NR            | 695    | 84                       | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 1000                     | NR            | 570    | 771                      | NR            | 700    | 72                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 783                      | NR            | 575    | 794                      | NR            | 705    | 61                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 417                      | NR            | 580    | 811                      | NR            | 710    | 52                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 261                      | NR            | 585    | 817                      | NR            | 715    | 45                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 167                      | NR            | 590    | 815                      | NR            | 720    | 39                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 104                      | NR            | 595    | 801                      | NR            | 725    | 33                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 79                       | NR            | 600    | 777                      | NR            | 730    | 28                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 73                       | NR            | 605    | 744                      | NR            | 735    | 24                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 704                      | NR            | 740    | 21                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 98                       | NR            | 615    | 657                      | NR            | 745    | 18                       | NR            | 875    | 1                        | NR            |        |                          |               |

**Summary**

$R_f = 71.8$   
 $R_g = 96.5$   
 $CIE R_a = 70.7$   
 $R_9 = -36.7$



**Color Vector Graphics**

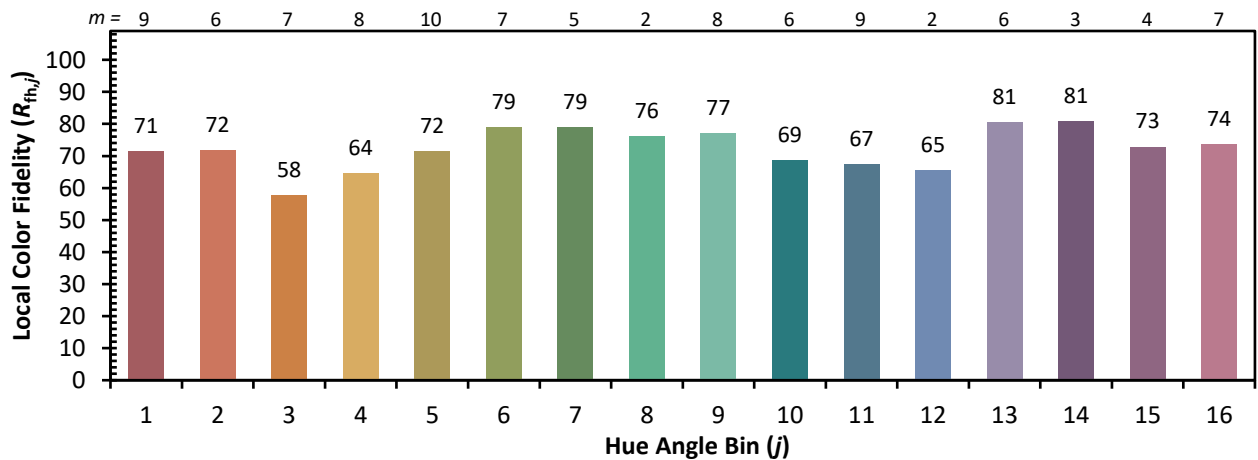


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

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



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)