

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: P1456922

Luminaire Tested: GLAN-SB4D-740-U-T4LG

Issue Date: 05/20/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1456922  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 5/21/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: STREETWORKS  
Catalog Number: GLAN-SB4D-740-U-T4LG  
Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 900mA 4xLight Square  
PACKAGE 70CRI 4000K FIXTURE w/ TYPE IV LOW GLARE  
Light Source: (104) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

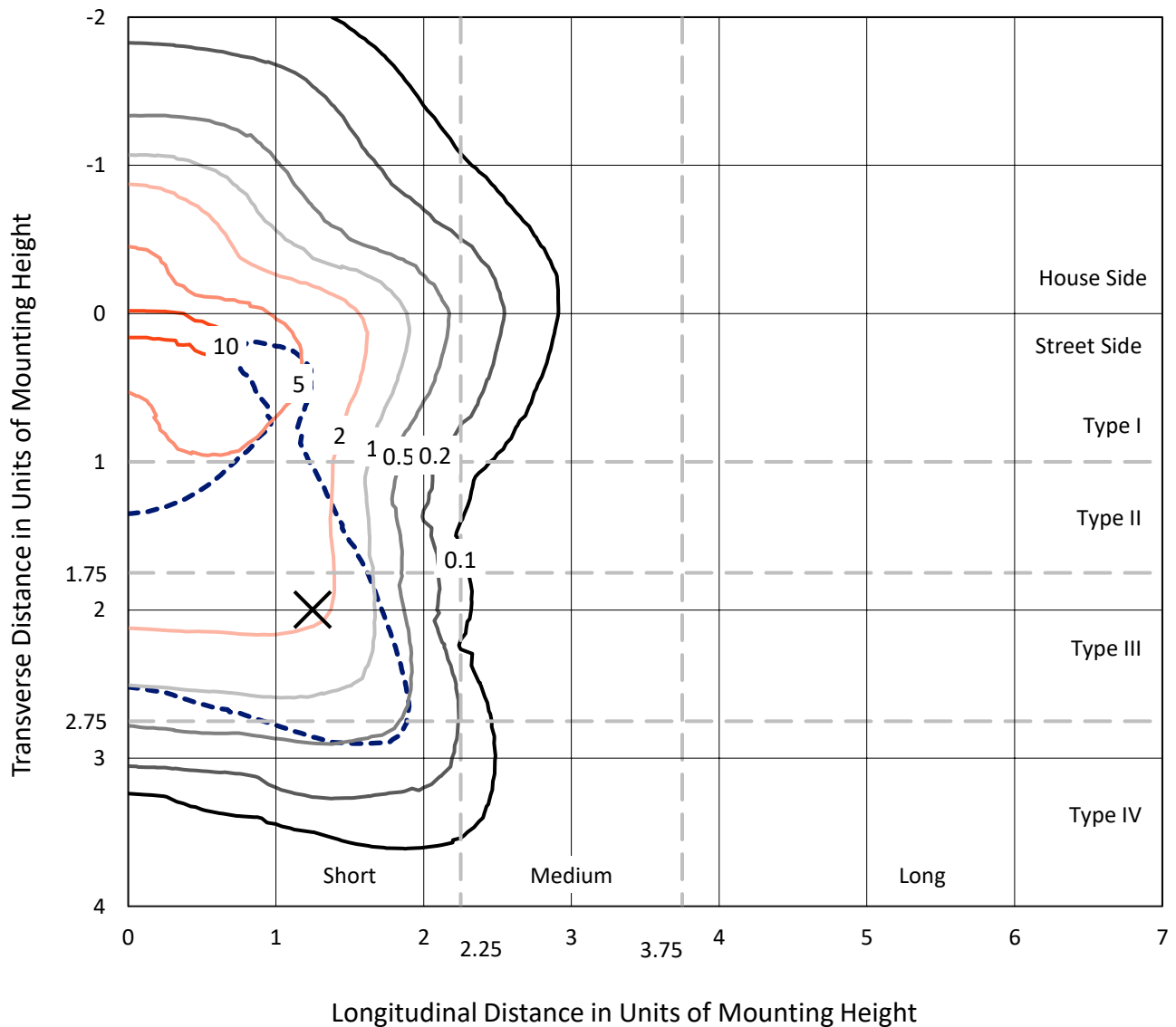
Lumens per Lamp: N/A  
Luminaire Lumens: 42226.9 lumens  
Efficiency: N/A  
Efficacy: 143.8 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B4 - U0 - G4  
  
Input Watts (W): 293.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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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CATALOG NUMBER: GLAN-SB4D-740-U-T4LG

### Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

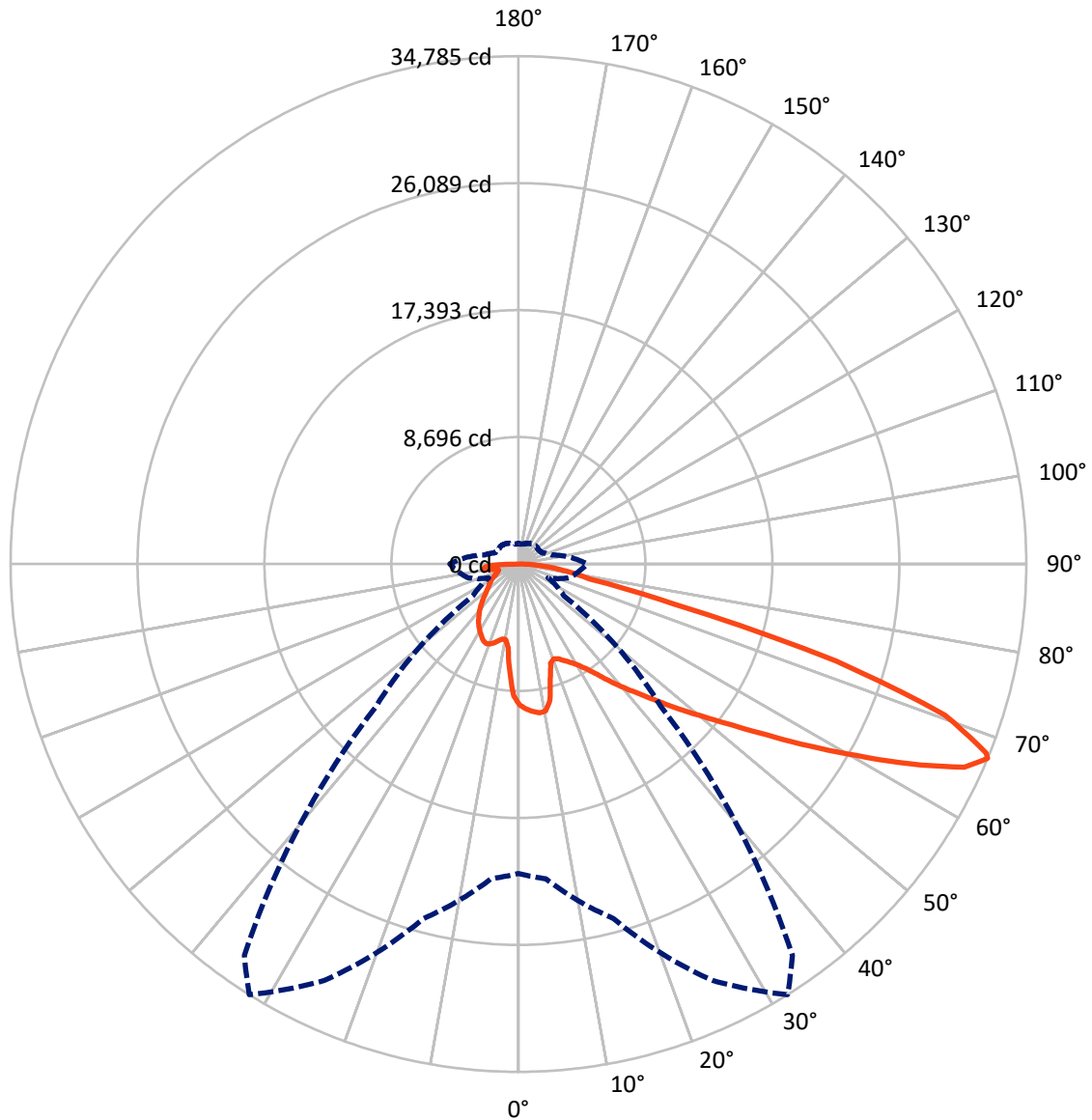


Based on 30 foot mounting height. Maximum calculated value = 11.6 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 32-Deg Lateral      - - - Horizontal Cone Through 67-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 9997.1   | 0.0    | 9997.1  |
|                    | % Fixture | 23.7     | 0.0    | 23.7    |
| <b>Street Side</b> | Lumens    | 32229.8  | 0.0    | 32229.8 |
|                    | % Fixture | 76.3     | 0.0    | 76.3    |
| <b>Total</b>       | Lumens    | 42226.9  | 0.0    | 42226.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 843.0   | 2.0       |
| 10°-20°   | 2238.2  | 5.3       |
| 20°-30°   | 3655.1  | 8.7       |
| 30°-40°   | 5387.3  | 12.8      |
| 40°-50°   | 7429.4  | 17.6      |
| 50°-60°   | 9385.6  | 22.2      |
| 60°-70°   | 9083.6  | 21.5      |
| 70°-80°   | 3241.9  | 7.7       |
| 80°-90°   | 962.7   | 2.3       |
| 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°    | 42226.9 | 100.0     |
| 0°-180°   | 42226.9 | 100.0     |



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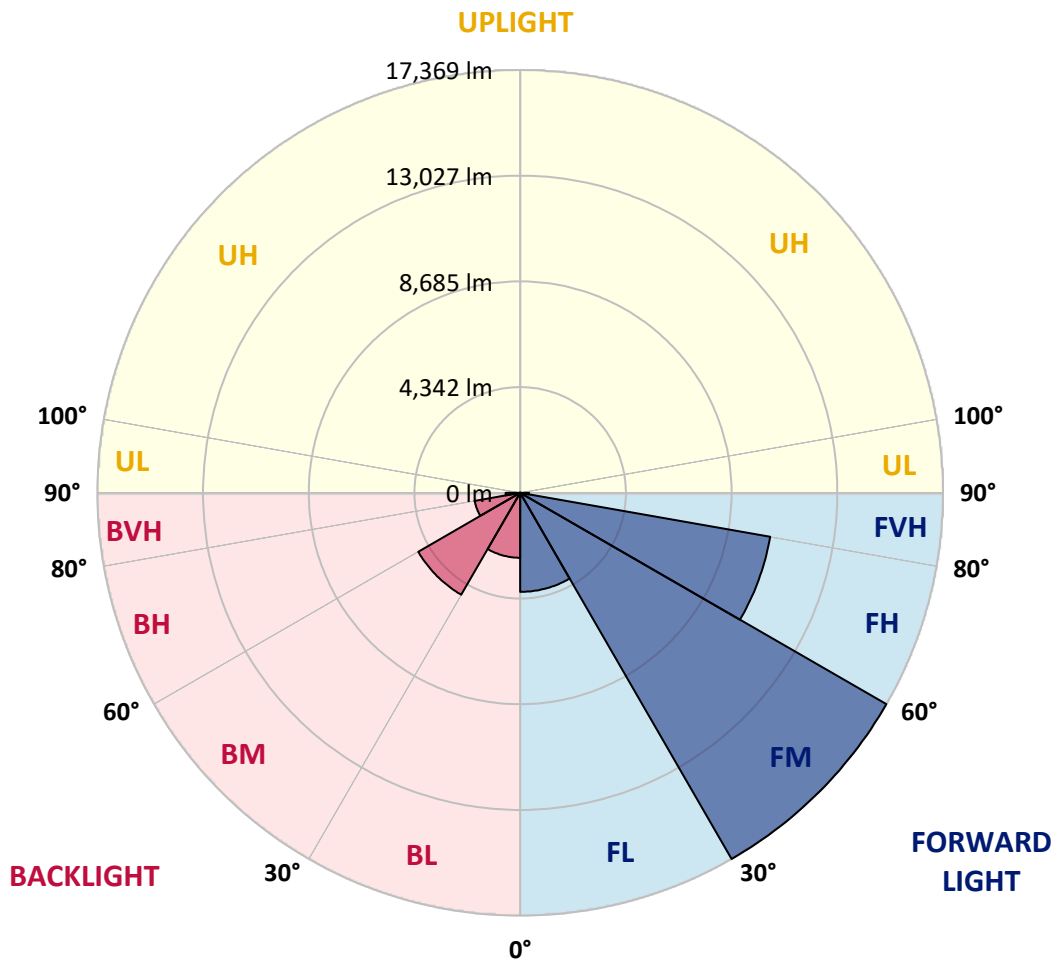
CATALOG NUMBER: GLAN-SB4D-740-U-T4LG

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 4068.6  | 9.6       |                         |      |          |
| FM   | (30°-60°)   | 17369.2 | 41.1      |                         |      |          |
| FH   | (60°-80°)   | 10429.2 | 24.7      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 362.8   | 0.9       |                         |      | G3/500   |
| BL   | (0°-30°)    | 2667.7  | 6.3       | B4/5000                 |      |          |
| BM   | (30°-60°)   | 4833.1  | 11.4      | B3/5000                 |      |          |
| BH   | (60°-80°)   | 1896.3  | 4.5       | B3/2500                 |      | G3/2500  |
| BVH  | (80°-90°)   | 599.9   | 1.4       |                         |      | G4/750   |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B4-U0-G4**

Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 32°     | 35°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 9648.0  | 9648.0  | 9648.0  | 9648.0  | 9648.0  | 9648.0  | 9648.0  | 9648.0  | 9648.0  | 9648.0  | 9648.0  |
| 2.5°  | 10013.7 | 9985.5  | 9957.4  | 9976.2  | 9938.7  | 9929.3  | 9882.4  | 9863.7  | 9807.4  | 9798.0  | 9694.9  |
| 5°    | 10219.9 | 10163.7 | 10154.3 | 10173.1 | 10135.6 | 10135.6 | 10098.1 | 10069.9 | 9985.5  | 9938.7  | 9788.6  |
| 7.5°  | 10219.9 | 10210.6 | 10229.3 | 10295.0 | 10304.3 | 10304.3 | 10304.3 | 10313.7 | 10229.3 | 10163.7 | 9929.3  |
| 10°   | 9638.6  | 9544.9  | 9751.1  | 10079.3 | 10238.7 | 10332.5 | 10501.2 | 10604.4 | 10538.7 | 10491.9 | 10173.1 |
| 12.5° | 7904.0  | 7913.4  | 8241.6  | 8944.8  | 9582.4  | 9854.3  | 10557.5 | 10932.5 | 10960.7 | 10885.6 | 10482.5 |
| 15°   | 6703.9  | 6750.8  | 6919.6  | 7425.9  | 8157.2  | 8560.4  | 10229.3 | 11223.2 | 11448.2 | 11373.2 | 10857.5 |
| 17.5° | 6338.2  | 6366.4  | 6441.4  | 6732.0  | 7144.6  | 7472.7  | 9338.6  | 11410.7 | 12038.9 | 11945.1 | 11279.4 |
| 20°   | 6282.0  | 6300.7  | 6394.5  | 6638.3  | 6919.6  | 7107.1  | 8429.1  | 11260.7 | 12592.1 | 12554.6 | 11663.9 |
| 22.5° | 6291.4  | 6310.1  | 6432.0  | 6769.5  | 7060.2  | 7219.6  | 8138.5  | 10913.8 | 13173.4 | 13210.9 | 12057.7 |
| 25°   | 6310.1  | 6319.5  | 6507.0  | 6957.1  | 7322.7  | 7519.6  | 8326.0  | 10604.4 | 13661.0 | 13979.8 | 12489.0 |
| 27.5° | 6413.2  | 6441.4  | 6694.5  | 7200.8  | 7632.1  | 7857.2  | 8766.6  | 10707.5 | 14195.4 | 14851.7 | 13004.6 |
| 30°   | 6694.5  | 6713.3  | 7022.7  | 7547.8  | 8016.6  | 8251.0  | 9291.7  | 11120.0 | 14851.7 | 15751.8 | 13511.0 |
| 32.5° | 7135.2  | 7154.0  | 7510.3  | 8054.1  | 8560.4  | 8841.7  | 9976.2  | 11907.6 | 15583.1 | 16698.8 | 14017.3 |
| 35°   | 7744.7  | 7754.0  | 8157.2  | 8738.5  | 9273.0  | 9591.7  | 10773.1 | 12798.4 | 16342.5 | 17505.2 | 14392.3 |
| 37.5° | 8466.6  | 8532.2  | 8944.8  | 9554.2  | 10182.4 | 10473.1 | 11710.7 | 13839.1 | 17017.6 | 18189.6 | 14608.0 |
| 40°   | 9460.5  | 9479.2  | 9882.4  | 10473.1 | 11138.8 | 11420.1 | 12648.4 | 14823.6 | 17758.3 | 18592.8 | 14804.9 |
| 42.5° | 10482.5 | 10641.9 | 10979.4 | 11635.7 | 12132.7 | 12357.7 | 13717.2 | 15723.7 | 18349.0 | 18611.5 | 14720.5 |
| 45°   | 11851.4 | 11973.3 | 12310.8 | 12892.1 | 13389.1 | 13651.6 | 14870.5 | 16548.8 | 18649.1 | 18452.2 | 14532.9 |
| 47.5° | 13417.2 | 13492.2 | 13764.1 | 14289.2 | 14842.4 | 15029.9 | 16070.6 | 17017.6 | 18761.6 | 18339.6 | 14448.6 |
| 50°   | 15264.3 | 15264.3 | 15461.2 | 15911.2 | 16417.5 | 16680.1 | 17177.0 | 17298.9 | 19089.7 | 18142.7 | 14664.2 |
| 52.5° | 16820.7 | 16895.7 | 17158.3 | 17795.8 | 18302.1 | 18602.2 | 18039.6 | 17730.2 | 18424.0 | 17045.7 | 14729.8 |
| 55°   | 18311.5 | 18395.9 | 18986.6 | 19783.6 | 20646.2 | 20974.3 | 19117.9 | 17514.5 | 16183.1 | 15442.4 | 14279.8 |
| 57.5° | 19736.7 | 19914.8 | 20655.5 | 22212.0 | 23515.2 | 23487.1 | 20486.8 | 15583.1 | 13210.9 | 13670.3 | 13295.3 |
| 60°   | 21724.4 | 21911.9 | 23093.3 | 25052.9 | 26646.9 | 25981.2 | 20505.5 | 12967.1 | 10295.0 | 10913.8 | 11448.2 |
| 62.5° | 23384.0 | 23702.8 | 25437.3 | 28700.2 | 30162.9 | 29122.2 | 18808.4 | 9929.3  | 6835.2  | 7613.4  | 8851.0  |
| 65°   | 23234.0 | 23655.9 | 26346.8 | 31381.8 | 33566.4 | 32600.7 | 16323.8 | 6282.0  | 3525.4  | 5203.7  | 6197.6  |
| 67°   | 21190.0 | 21649.4 | 25137.3 | 31475.6 | 34785.3 | 32722.6 | 13782.9 | 3797.3  | 2240.9  | 3609.8  | 4303.6  |
| 67.5° | 20018.0 | 20693.0 | 24537.2 | 31297.4 | 34560.3 | 32206.9 | 12639.0 | 3178.5  | 2109.6  | 3356.6  | 3919.2  |
| 70°   | 12310.8 | 13398.4 | 18414.7 | 27668.9 | 30978.6 | 26956.3 | 7022.7  | 1800.2  | 1715.8  | 2250.3  | 2709.7  |
| 72.5° | 3703.6  | 4031.7  | 7107.1  | 17748.9 | 22737.0 | 19980.5 | 3159.7  | 1387.7  | 1537.7  | 1809.6  | 2090.9  |
| 75°   | 1800.2  | 1922.1  | 2934.7  | 7257.1  | 11073.2 | 11016.9 | 1762.7  | 1190.8  | 1425.2  | 1518.9  | 1650.2  |
| 77.5° | 1153.3  | 1228.3  | 1828.3  | 4059.8  | 5072.5  | 4519.3  | 1275.1  | 1040.7  | 1265.8  | 1247.0  | 1228.3  |
| 80°   | 722.0   | 759.5   | 1172.0  | 2353.4  | 3741.1  | 3122.2  | 937.6   | 853.2   | 1087.6  | 965.7   | 872.0   |
| 82.5° | 468.8   | 515.7   | 750.1   | 1434.5  | 2672.2  | 2325.3  | 618.8   | 609.4   | 900.1   | 768.8   | 675.1   |
| 85°   | 309.4   | 346.9   | 478.2   | 843.8   | 1584.6  | 1659.6  | 403.2   | 421.9   | 693.8   | 581.3   | 515.7   |
| 87.5° | 112.5   | 140.6   | 243.8   | 375.0   | 740.7   | 918.9   | 168.8   | 159.4   | 337.5   | 271.9   | 215.7   |
| 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: P1456922

CATALOG NUMBER: GLAN-SB4D-740-U-T4LG

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 9648.0  | 9648.0 | 9648.0 | 9648.0 | 9648.0 | 9648.0 | 9648.0 | 9648.0 | 9648.0 | 9648.0 | 9648.0 |
| 2.5°  | 9676.1  | 9648.0 | 9516.7 | 9404.2 | 9319.8 | 9207.3 | 9085.4 | 8944.8 | 8851.0 | 8869.8 | 8841.7 |
| 5°    | 9723.0  | 9648.0 | 9394.8 | 9010.4 | 8635.4 | 8166.6 | 7566.5 | 7210.2 | 6938.3 | 6797.7 | 6835.2 |
| 7.5°  | 9826.1  | 9694.9 | 9160.4 | 8382.2 | 7407.1 | 6450.8 | 5860.1 | 5522.5 | 5363.1 | 5297.5 | 5288.1 |
| 10°   | 10004.3 | 9779.3 | 8860.4 | 7407.1 | 6132.0 | 5485.0 | 5269.4 | 5175.6 | 5156.9 | 5156.9 | 5147.5 |
| 12.5° | 10219.9 | 9863.7 | 8354.1 | 6460.1 | 5522.5 | 5288.1 | 5250.6 | 5260.0 | 5288.1 | 5316.2 | 5269.4 |
| 15°   | 10482.5 | 9901.2 | 7725.9 | 5888.2 | 5400.6 | 5344.4 | 5400.6 | 5466.3 | 5513.1 | 5550.6 | 5503.8 |
| 17.5° | 10745.0 | 9863.7 | 7135.2 | 5616.3 | 5419.4 | 5494.4 | 5606.9 | 5710.0 | 5738.2 | 5794.4 | 5756.9 |
| 20°   | 10932.5 | 9732.4 | 6628.9 | 5513.1 | 5466.3 | 5635.0 | 5775.7 | 5888.2 | 5944.4 | 5981.9 | 5944.4 |
| 22.5° | 11073.2 | 9563.6 | 6263.2 | 5410.0 | 5466.3 | 5672.5 | 5841.3 | 5972.6 | 6038.2 | 6075.7 | 6028.8 |
| 25°   | 11195.1 | 9329.2 | 5981.9 | 5260.0 | 5353.8 | 5550.6 | 5738.2 | 5869.4 | 5963.2 | 6019.5 | 5991.3 |
| 27.5° | 11345.1 | 9141.7 | 5719.4 | 5035.0 | 5119.3 | 5306.9 | 5503.8 | 5663.2 | 5841.3 | 5935.1 | 5916.3 |
| 30°   | 11513.8 | 9047.9 | 5466.3 | 4791.2 | 4847.4 | 5035.0 | 5269.4 | 5485.0 | 5728.8 | 5850.7 | 5850.7 |
| 32.5° | 11710.7 | 8982.3 | 5231.9 | 4556.8 | 4603.7 | 4809.9 | 5035.0 | 5231.9 | 5494.4 | 5691.3 | 5681.9 |
| 35°   | 11795.1 | 8907.3 | 5044.3 | 4341.1 | 4434.9 | 4603.7 | 4781.8 | 4913.1 | 5185.0 | 5419.4 | 5438.1 |
| 37.5° | 11879.5 | 8879.2 | 4950.6 | 4172.4 | 4247.4 | 4378.6 | 4472.4 | 4538.0 | 4791.2 | 5035.0 | 5044.3 |
| 40°   | 11982.7 | 9010.4 | 5016.2 | 4059.8 | 3994.2 | 4125.5 | 4172.4 | 4209.9 | 4341.1 | 4500.5 | 4500.5 |
| 42.5° | 11917.0 | 9104.2 | 5166.2 | 3956.7 | 3684.8 | 3834.8 | 3853.6 | 3844.2 | 3853.6 | 3863.0 | 3853.6 |
| 45°   | 11748.2 | 9010.4 | 5166.2 | 3797.3 | 3356.6 | 3516.0 | 3506.7 | 3459.8 | 3384.8 | 3187.9 | 3159.7 |
| 47.5° | 11710.7 | 8954.2 | 4969.3 | 3534.8 | 3028.5 | 3159.7 | 3178.5 | 3084.7 | 2869.1 | 2662.8 | 2597.2 |
| 50°   | 11870.1 | 9057.3 | 4659.9 | 3216.0 | 2747.2 | 2859.7 | 2906.6 | 2747.2 | 2503.4 | 2287.8 | 2250.3 |
| 52.5° | 12104.5 | 9188.6 | 4209.9 | 2869.1 | 2512.8 | 2625.3 | 2681.6 | 2503.4 | 2250.3 | 2081.5 | 2062.7 |
| 55°   | 12076.4 | 9188.6 | 3703.6 | 2550.3 | 2334.6 | 2419.0 | 2512.8 | 2325.3 | 2128.4 | 2034.6 | 2025.2 |
| 57.5° | 11467.0 | 8841.7 | 3328.5 | 2325.3 | 2165.9 | 2240.9 | 2362.8 | 2184.6 | 1997.1 | 2015.9 | 2044.0 |
| 60°   | 10276.2 | 7941.6 | 3047.2 | 2175.3 | 2015.9 | 2090.9 | 2222.1 | 2015.9 | 1772.1 | 1706.4 | 1706.4 |
| 62.5° | 8466.6  | 6544.5 | 2822.2 | 2025.2 | 1875.2 | 1969.0 | 2034.6 | 1762.7 | 1603.3 | 1528.3 | 1528.3 |
| 65°   | 6347.6  | 5063.1 | 2587.8 | 1903.3 | 1753.3 | 1856.5 | 1781.5 | 1650.2 | 1490.8 | 1434.5 | 1443.9 |
| 67°   | 4706.8  | 3928.6 | 2390.9 | 1800.2 | 1678.3 | 1725.2 | 1668.9 | 1575.2 | 1415.8 | 1368.9 | 1415.8 |
| 67.5° | 4228.6  | 3731.7 | 2344.0 | 1772.1 | 1659.6 | 1697.1 | 1640.8 | 1565.8 | 1397.0 | 1350.2 | 1397.0 |
| 70°   | 2906.6  | 2869.1 | 2090.9 | 1640.8 | 1556.4 | 1518.9 | 1547.1 | 1453.3 | 1312.7 | 1293.9 | 1340.8 |
| 72.5° | 2212.8  | 2287.8 | 1875.2 | 1528.3 | 1443.9 | 1397.0 | 1462.7 | 1368.9 | 1228.3 | 1256.4 | 1303.3 |
| 75°   | 1734.6  | 1847.1 | 1678.3 | 1368.9 | 1312.7 | 1322.0 | 1453.3 | 1415.8 | 1303.3 | 1331.4 | 1340.8 |
| 77.5° | 1284.5  | 1490.8 | 1434.5 | 1190.8 | 1143.9 | 1275.1 | 1640.8 | 1753.3 | 1556.4 | 1509.6 | 1443.9 |
| 80°   | 937.6   | 1068.9 | 1209.5 | 984.5  | 956.4  | 1228.3 | 2025.2 | 2240.9 | 1922.1 | 1734.6 | 1687.7 |
| 82.5° | 693.8   | 750.1  | 993.9  | 787.6  | 693.8  | 1097.0 | 2250.3 | 2634.7 | 2287.8 | 1931.5 | 1875.2 |
| 85°   | 496.9   | 581.3  | 787.6  | 581.3  | 459.4  | 900.1  | 2203.4 | 2578.4 | 2269.0 | 1828.3 | 1781.5 |
| 87.5° | 178.1   | 253.2  | 337.5  | 262.5  | 234.4  | 618.8  | 1819.0 | 1856.5 | 1415.8 | 647.0  | 656.3  |
| 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



CCT = 3949K  
 CIE x = 0.3844  
 CIE y = 0.3840  
 Duv = 0.0022

Point lies inside the ANSI 4000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

| $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /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)