

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: P1458605

Luminaire Tested: GLAN-SB2C-940-U-T3LG-HSS

Issue Date: 05/20/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1458605  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 5/22/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: STREETWORKS  
Catalog Number: GLAN-SB2C-940-U-T3LG-HSS  
Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 615mA 2xLight Square PACKAGE 90CRI 4000K FIXTURE w/ TYPE III LOW GLARE WITH HOUSE SIDE SHIELD  
Light Source: (52) 4000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

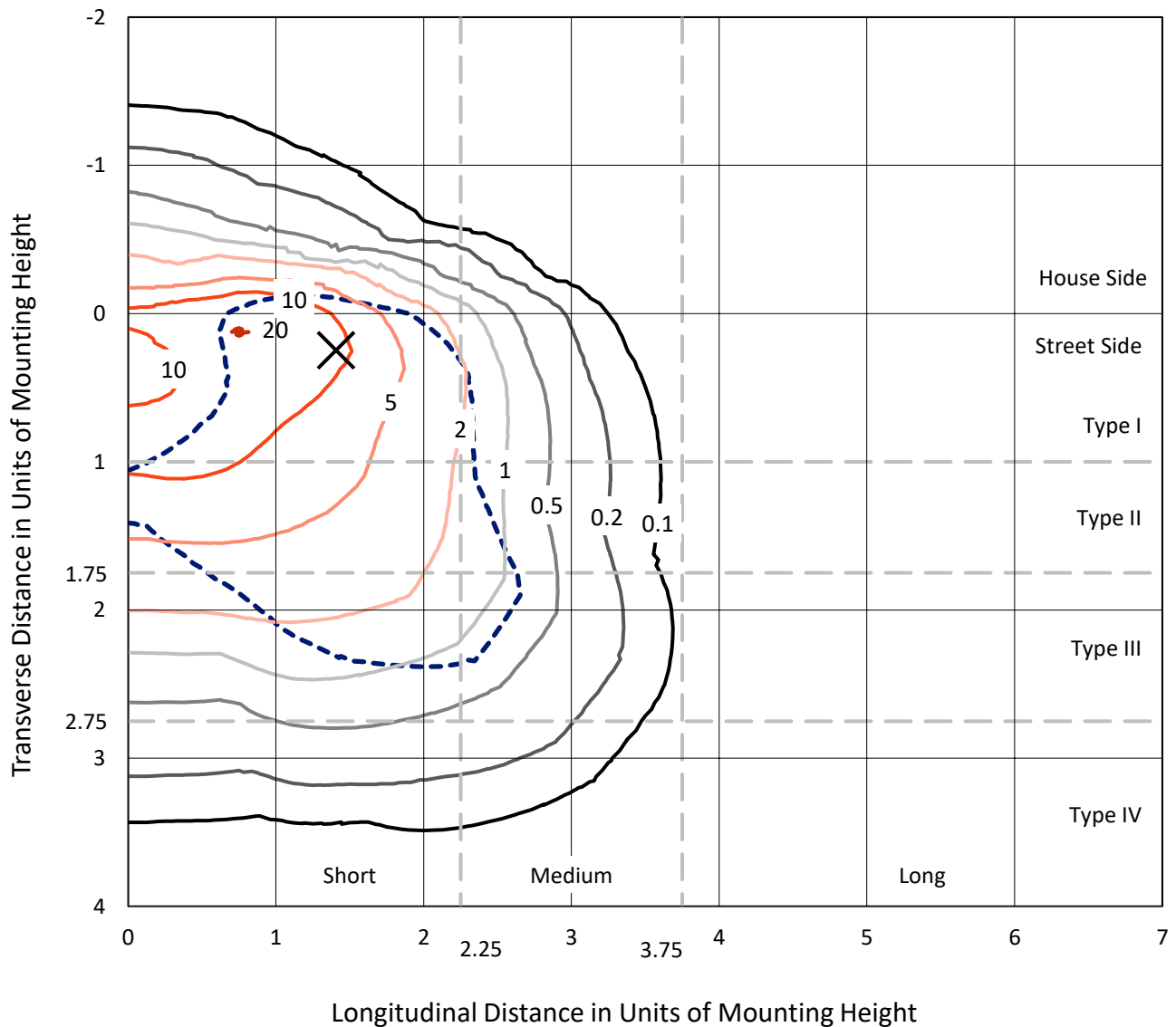
Lumens per Lamp: N/A  
Luminaire Lumens: 8295.6 lumens  
Efficiency: N/A  
Efficacy: 82.2 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B1 - U0 - G2

Input Watts (W): 100.9  
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

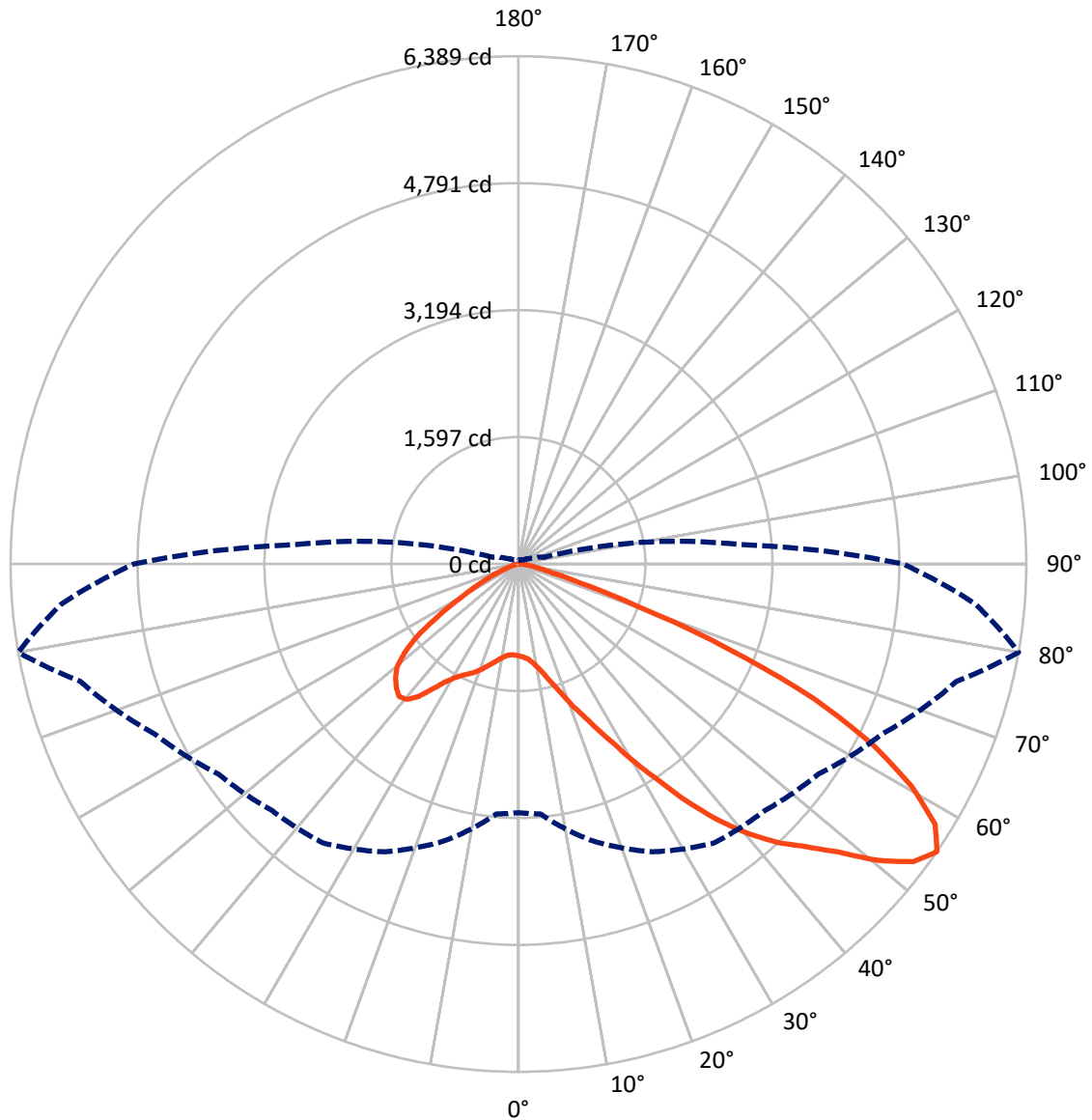
× Max cd  
 - - - 1/2 Max cd



Based on 10 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    | 1008.4   | 0.0    | 1008.4 |
|                    | % Fixture | 12.2     | 0.0    | 12.2   |
| <b>Street Side</b> | Lumens    | 7287.2   | 0.0    | 7287.2 |
|                    | % Fixture | 87.8     | 0.0    | 87.8   |
| <b>Total</b>       | Lumens    | 8295.6   | 0.0    | 8295.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 97.0   | 1.2       |
| 10°-20°   | 255.7  | 3.1       |
| 20°-30°   | 500.5  | 6.0       |
| 30°-40°   | 1018.3 | 12.3      |
| 40°-50°   | 1716.6 | 20.7      |
| 50°-60°   | 2193.3 | 26.4      |
| 60°-70°   | 1872.6 | 22.6      |
| 70°-80°   | 598.4  | 7.2       |
| 80°-90°   | 43.2   | 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°    | 8295.6 | 100.0     |
| 0°-180°   | 8295.6 | 100.0     |



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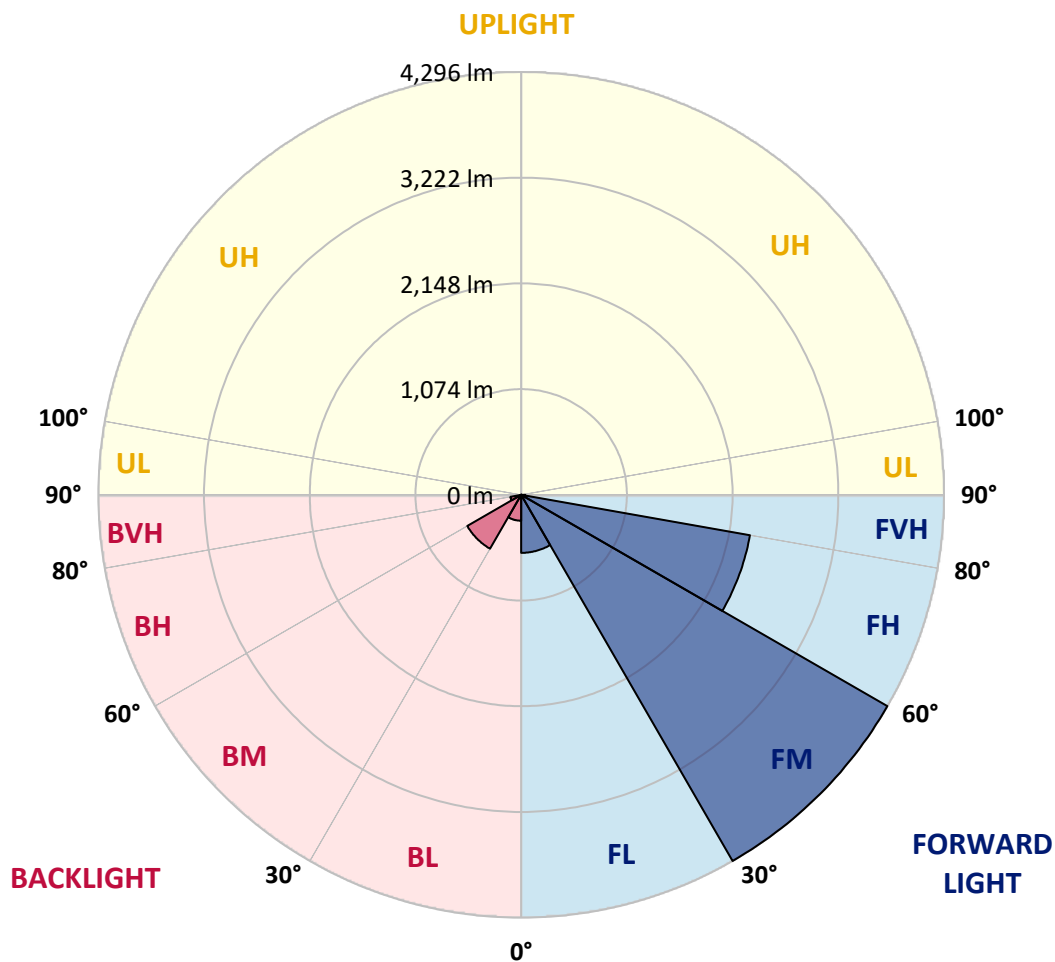
CATALOG NUMBER: GLAN-SB2C-940-U-T3LG-HSS

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 589.8  | 7.1       |                         |      |         |
| FM   | (30°-60°)   | 4296.2 | 51.8      |                         |      |         |
| FH   | (60°-80°)   | 2360.2 | 28.5      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 41.0   | 0.5       |                         |      | G1/100  |
| BL   | (0°-30°)    | 263.3  | 3.2       | B1/500                  |      |         |
| BM   | (30°-60°)   | 632.0  | 7.6       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 110.8  | 1.3       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 2.3    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G2**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 80°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 |
| 2.5°  | 1162.6 | 1165.0 | 1162.6 | 1165.0 | 1169.7 | 1167.4 | 1176.8 | 1174.4 | 1174.4 | 1172.1 | 1162.6 |
| 5°    | 1096.6 | 1099.0 | 1103.7 | 1115.5 | 1132.0 | 1148.5 | 1169.7 | 1183.9 | 1198.0 | 1195.7 | 1186.2 |
| 7.5°  | 966.9  | 971.6  | 990.5  | 1014.1 | 1068.3 | 1117.8 | 1172.1 | 1207.4 | 1238.1 | 1247.5 | 1240.5 |
| 10°   | 893.8  | 898.5  | 910.3  | 933.9  | 983.4  | 1065.9 | 1172.1 | 1245.2 | 1299.4 | 1318.3 | 1320.6 |
| 12.5° | 886.7  | 889.1  | 898.5  | 924.4  | 966.9  | 1037.6 | 1169.7 | 1294.7 | 1386.7 | 1415.0 | 1424.4 |
| 15°   | 891.4  | 896.1  | 905.6  | 926.8  | 976.3  | 1056.5 | 1188.6 | 1372.5 | 1502.2 | 1542.3 | 1544.7 |
| 17.5° | 910.3  | 915.0  | 926.8  | 950.4  | 1004.6 | 1106.0 | 1247.5 | 1452.7 | 1641.4 | 1686.2 | 1712.1 |
| 20°   | 948.0  | 950.4  | 964.5  | 995.2  | 1056.5 | 1167.4 | 1334.8 | 1561.2 | 1808.8 | 1874.8 | 1893.7 |
| 22.5° | 997.6  | 1004.6 | 1023.5 | 1061.2 | 1139.1 | 1252.2 | 1455.1 | 1693.2 | 1992.8 | 2061.1 | 2094.2 |
| 25°   | 1051.8 | 1061.2 | 1089.5 | 1150.8 | 1249.9 | 1382.0 | 1603.6 | 1867.8 | 2209.7 | 2292.3 | 2337.1 |
| 27.5° | 1162.6 | 1165.0 | 1183.9 | 1261.7 | 1389.0 | 1551.8 | 1792.3 | 2091.8 | 2464.4 | 2561.1 | 2610.6 |
| 30°   | 1405.5 | 1407.9 | 1391.4 | 1412.6 | 1542.3 | 1752.2 | 2014.0 | 2353.6 | 2761.6 | 2896.0 | 2936.1 |
| 32.5° | 1702.7 | 1714.5 | 1712.1 | 1698.0 | 1756.9 | 1952.7 | 2278.1 | 2667.2 | 3110.6 | 3252.1 | 3289.8 |
| 35°   | 2039.9 | 2068.2 | 2061.1 | 2056.4 | 2063.5 | 2209.7 | 2580.0 | 3013.9 | 3506.8 | 3678.9 | 3709.6 |
| 37.5° | 2370.1 | 2377.2 | 2410.2 | 2450.3 | 2455.0 | 2556.4 | 2929.0 | 3381.8 | 3874.7 | 4094.0 | 4141.1 |
| 40°   | 2624.8 | 2648.4 | 2730.9 | 2811.1 | 2893.6 | 2973.8 | 3216.7 | 3678.9 | 4167.1 | 4461.9 | 4483.1 |
| 42.5° | 2822.9 | 2879.5 | 2999.7 | 3124.7 | 3292.2 | 3381.8 | 3490.3 | 3888.8 | 4405.3 | 4789.7 | 4780.2 |
| 45°   | 3063.4 | 3087.0 | 3256.8 | 3421.9 | 3591.7 | 3728.4 | 3726.1 | 4065.7 | 4591.6 | 5070.3 | 5011.4 |
| 47.5° | 3226.1 | 3254.4 | 3485.5 | 3678.9 | 3853.4 | 3921.8 | 3936.0 | 4256.7 | 4848.6 | 5409.9 | 5270.8 |
| 50°   | 3313.4 | 3362.9 | 3615.3 | 3860.5 | 4049.2 | 4070.4 | 4134.1 | 4506.7 | 5185.9 | 5860.3 | 5598.6 |
| 52.5° | 3322.8 | 3370.0 | 3660.1 | 3976.1 | 4181.2 | 4223.7 | 4332.2 | 4789.7 | 5513.7 | 6221.2 | 5787.2 |
| 55°   | 3127.1 | 3155.4 | 3605.8 | 3994.9 | 4285.0 | 4384.1 | 4605.7 | 5051.4 | 5704.7 | 6388.6 | 5770.7 |
| 57.5° | 2943.1 | 2971.4 | 3362.9 | 3961.9 | 4391.1 | 4593.9 | 4898.2 | 5230.7 | 5556.1 | 6181.1 | 5402.8 |
| 60°   | 2785.1 | 2799.3 | 3155.4 | 3808.6 | 4431.2 | 4799.1 | 5150.5 | 5053.8 | 5171.7 | 5683.5 | 4773.2 |
| 62.5° | 2488.0 | 2497.4 | 2919.6 | 3532.7 | 4351.0 | 4957.1 | 5237.8 | 4678.8 | 4749.6 | 4997.2 | 4032.7 |
| 65°   | 1879.6 | 1914.9 | 2301.7 | 3325.2 | 4219.0 | 5030.2 | 5034.9 | 4221.3 | 4148.2 | 4089.3 | 3171.9 |
| 67.5° | 1275.8 | 1315.9 | 1549.4 | 2990.3 | 4004.4 | 5060.9 | 4641.1 | 3629.4 | 3160.1 | 2855.9 | 2077.6 |
| 70°   | 1018.8 | 1018.8 | 1099.0 | 2403.1 | 3495.0 | 4669.4 | 4152.9 | 2740.3 | 2006.9 | 1577.7 | 1113.1 |
| 72.5° | 669.8  | 672.1  | 747.6  | 1525.8 | 2478.6 | 3561.0 | 3386.5 | 1584.8 | 1042.4 | 804.2  | 549.5  |
| 75°   | 242.9  | 242.9  | 327.8  | 610.8  | 1311.2 | 2120.1 | 2063.5 | 757.0  | 566.0  | 438.6  | 332.5  |
| 77.5° | 129.7  | 134.4  | 158.0  | 252.3  | 502.3  | 863.1  | 806.5  | 386.8  | 320.7  | 273.6  | 207.5  |
| 80°   | 87.3   | 89.6   | 106.1  | 155.6  | 242.9  | 332.5  | 259.4  | 217.0  | 217.0  | 183.9  | 139.1  |
| 82.5° | 47.2   | 49.5   | 70.7   | 101.4  | 129.7  | 155.6  | 125.0  | 127.3  | 153.3  | 125.0  | 80.2   |
| 85°   | 33.0   | 33.0   | 54.2   | 73.1   | 73.1   | 75.5   | 54.2   | 80.2   | 89.6   | 77.8   | 54.2   |
| 87.5° | 18.9   | 18.9   | 30.7   | 35.4   | 35.4   | 33.0   | 16.5   | 28.3   | 35.4   | 40.1   | 23.6   |
| 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: P1458605

CATALOG NUMBER: GLAN-SB2C-940-U-T3LG-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 | 1155.6 |
| 2.5°  | 1160.3 | 1153.2 | 1139.1 | 1110.8 | 1096.6 | 1077.7 | 1061.2 | 1040.0 | 1035.3 | 1032.9 | 1023.5 |
| 5°    | 1179.1 | 1165.0 | 1122.5 | 1061.2 | 1009.3 | 959.8  | 910.3  | 882.0  | 858.4  | 846.6  | 844.3  |
| 7.5°  | 1226.3 | 1198.0 | 1120.2 | 1011.7 | 915.0  | 830.1  | 757.0  | 693.3  | 660.3  | 632.0  | 634.4  |
| 10°   | 1297.1 | 1252.2 | 1124.9 | 964.5  | 820.7  | 683.9  | 577.8  | 485.8  | 419.8  | 389.1  | 386.8  |
| 12.5° | 1391.4 | 1327.7 | 1141.4 | 917.4  | 705.1  | 514.1  | 379.7  | 325.4  | 311.3  | 308.9  | 306.6  |
| 15°   | 1506.9 | 1417.3 | 1157.9 | 856.1  | 549.5  | 356.1  | 308.9  | 297.1  | 294.8  | 292.4  | 292.4  |
| 17.5° | 1646.1 | 1521.1 | 1167.4 | 752.3  | 400.9  | 306.6  | 290.1  | 283.0  | 280.6  | 278.3  | 278.3  |
| 20°   | 1820.6 | 1636.7 | 1179.1 | 620.2  | 339.6  | 294.8  | 275.9  | 266.5  | 264.1  | 264.1  | 261.8  |
| 22.5° | 1992.8 | 1766.4 | 1169.7 | 504.7  | 327.8  | 280.6  | 259.4  | 250.0  | 245.3  | 245.3  | 242.9  |
| 25°   | 2190.8 | 1898.4 | 1141.4 | 455.1  | 325.4  | 268.8  | 242.9  | 228.8  | 221.7  | 219.3  | 219.3  |
| 27.5° | 2417.2 | 2049.4 | 1096.6 | 457.5  | 325.4  | 259.4  | 221.7  | 202.8  | 198.1  | 193.4  | 193.4  |
| 30°   | 2676.7 | 2233.3 | 1063.6 | 488.2  | 330.2  | 250.0  | 202.8  | 179.2  | 172.2  | 167.4  | 169.8  |
| 32.5° | 2973.8 | 2438.5 | 1061.2 | 537.7  | 337.2  | 235.8  | 181.6  | 155.6  | 148.6  | 146.2  | 148.6  |
| 35°   | 3311.0 | 2693.2 | 1115.5 | 575.4  | 318.4  | 205.2  | 155.6  | 134.4  | 127.3  | 127.3  | 129.7  |
| 37.5° | 3686.0 | 2985.6 | 1188.6 | 566.0  | 257.1  | 162.7  | 134.4  | 117.9  | 110.8  | 113.2  | 115.6  |
| 40°   | 4028.0 | 3214.3 | 1200.4 | 483.4  | 193.4  | 139.1  | 115.6  | 103.8  | 99.0   | 101.4  | 103.8  |
| 42.5° | 4287.4 | 3398.3 | 1087.2 | 375.0  | 162.7  | 117.9  | 99.0   | 89.6   | 87.3   | 92.0   | 92.0   |
| 45°   | 4497.3 | 3471.4 | 907.9  | 278.3  | 143.9  | 101.4  | 87.3   | 82.5   | 77.8   | 80.2   | 80.2   |
| 47.5° | 4716.6 | 3483.2 | 740.5  | 224.0  | 127.3  | 92.0   | 80.2   | 75.5   | 70.7   | 70.7   | 70.7   |
| 50°   | 4928.8 | 3454.9 | 566.0  | 198.1  | 117.9  | 82.5   | 73.1   | 68.4   | 63.7   | 61.3   | 61.3   |
| 52.5° | 4980.7 | 3228.5 | 415.1  | 183.9  | 108.5  | 77.8   | 68.4   | 63.7   | 59.0   | 56.6   | 56.6   |
| 55°   | 4836.8 | 2799.3 | 325.4  | 165.1  | 99.0   | 70.7   | 63.7   | 59.0   | 51.9   | 49.5   | 49.5   |
| 57.5° | 4362.8 | 2134.2 | 259.4  | 141.5  | 89.6   | 68.4   | 59.0   | 54.2   | 47.2   | 44.8   | 44.8   |
| 60°   | 3747.3 | 1514.0 | 209.9  | 115.6  | 82.5   | 61.3   | 54.2   | 47.2   | 42.4   | 37.7   | 37.7   |
| 62.5° | 3065.8 | 1087.2 | 169.8  | 96.7   | 77.8   | 54.2   | 49.5   | 42.4   | 33.0   | 25.9   | 25.9   |
| 65°   | 2351.2 | 780.6  | 132.1  | 77.8   | 70.7   | 47.2   | 42.4   | 35.4   | 25.9   | 18.9   | 18.9   |
| 67.5° | 1521.1 | 504.7  | 99.0   | 68.4   | 54.2   | 40.1   | 33.0   | 28.3   | 23.6   | 16.5   | 14.1   |
| 70°   | 801.8  | 294.8  | 73.1   | 59.0   | 40.1   | 30.7   | 28.3   | 23.6   | 18.9   | 11.8   | 11.8   |
| 72.5° | 415.1  | 193.4  | 54.2   | 51.9   | 30.7   | 21.2   | 23.6   | 18.9   | 14.1   | 7.1    | 7.1    |
| 75°   | 266.5  | 129.7  | 40.1   | 42.4   | 18.9   | 16.5   | 16.5   | 11.8   | 7.1    | 4.7    | 2.4    |
| 77.5° | 172.2  | 87.3   | 28.3   | 35.4   | 11.8   | 9.4    | 9.4    | 4.7    | 2.4    | 0.0    | 0.0    |
| 80°   | 101.4  | 54.2   | 18.9   | 23.6   | 4.7    | 4.7    | 2.4    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 51.9   | 28.3   | 9.4    | 9.4    | 2.4    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 33.0   | 14.1   | 2.4    | 2.4    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 16.5   | 4.7    | 2.4    | 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    |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-16

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-940-U-5WQ

Data in this report applies to families of products including GSS-SB1A-940-U-5WQ

**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-16  
 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-940-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI 4000K CCT 26 LEDS

**Spectral Parameters**

CCT (K): 3856  
 CIE u': 0.2261  
 CIE v': 0.5084  
 Duv: 0.0032  
 CIE x: 0.3896  
 CIE y: 0.3894  
 CIE z: 0.2211  
 Peak Wavelength (nm): 614  
 Dominant Wavelength (nm): 578  
 Purity: 33.77304  
 Rf: 91.8  
 Rg: 98.4

|           |      |      |      |
|-----------|------|------|------|
| CRI (Ra): | 92.1 |      |      |
| R1:       | 91.8 | R9:  | 60.7 |
| R2:       | 94.1 | R10: | 85.2 |
| R3:       | 95.3 | R11: | 92.4 |
| R4:       | 92.8 | R12: | 74.5 |
| R5:       | 91.0 | R13: | 92.3 |
| R6:       | 91.6 | R14: | 97.0 |
| R7:       | 95.0 | R15: | 88.5 |
| R8:       | 85.2 |      |      |



**Test Conditions**

Stabilization Time: 23M  
 Operation Time: 1H 23M  
 Sphere Temperature (°C): 25.2

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| 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**

| $\lambda$<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               | 492                         | NR                      | 620               | 993                         | NR                      | 750               | 73                          | NR                      | 880               | 1                           | NR                      |
| 365               | 0                           | NR                      | 495               | 539                         | NR                      | 625               | 978                         | NR                      | 755               | 62                          | NR                      | 885               | 1                           | NR                      |
| 370               | 0                           | NR                      | 500               | 583                         | NR                      | 630               | 962                         | NR                      | 760               | 54                          | NR                      | 890               | 1                           | NR                      |
| 375               | 0                           | NR                      | 505               | 623                         | NR                      | 635               | 933                         | NR                      | 765               | 46                          | NR                      | 895               | 1                           | NR                      |
| 380               | 0                           | NR                      | 510               | 661                         | NR                      | 640               | 898                         | NR                      | 770               | 39                          | NR                      | 900               | 1                           | NR                      |
| 385               | 0                           | NR                      | 515               | 698                         | NR                      | 645               | 855                         | NR                      | 775               | 34                          | NR                      | 905               | 1                           | NR                      |
| 390               | 0                           | NR                      | 520               | 733                         | NR                      | 650               | 810                         | NR                      | 780               | 29                          | NR                      | 910               | 1                           | NR                      |
| 395               | 1                           | NR                      | 525               | 764                         | NR                      | 655               | 759                         | NR                      | 785               | 25                          | NR                      | 915               | 1                           | NR                      |
| 400               | 3                           | NR                      | 530               | 794                         | NR                      | 660               | 704                         | NR                      | 790               | 21                          | NR                      | 920               | 1                           | NR                      |
| 405               | 6                           | NR                      | 535               | 820                         | NR                      | 665               | 651                         | NR                      | 795               | 18                          | NR                      | 925               | 1                           | NR                      |
| 410               | 12                          | NR                      | 540               | 837                         | NR                      | 670               | 592                         | NR                      | 800               | 16                          | NR                      | 930               | 1                           | NR                      |
| 415               | 22                          | NR                      | 545               | 853                         | NR                      | 675               | 538                         | NR                      | 805               | 13                          | NR                      | 935               | 0                           | NR                      |
| 420               | 42                          | NR                      | 550               | 864                         | NR                      | 680               | 486                         | NR                      | 810               | 12                          | NR                      | 940               | 0                           | NR                      |
| 425               | 79                          | NR                      | 555               | 872                         | NR                      | 685               | 435                         | NR                      | 815               | 10                          | NR                      | 945               | 0                           | NR                      |
| 430               | 147                         | NR                      | 560               | 876                         | NR                      | 690               | 389                         | NR                      | 820               | 9                           | NR                      | 950               | 0                           | NR                      |
| 435               | 278                         | NR                      | 565               | 883                         | NR                      | 695               | 344                         | NR                      | 825               | 7                           | NR                      | 955               | 0                           | NR                      |
| 440               | 515                         | NR                      | 570               | 891                         | NR                      | 700               | 303                         | NR                      | 830               | 6                           | NR                      | 960               | 0                           | NR                      |
| 445               | 832                         | NR                      | 575               | 900                         | NR                      | 705               | 266                         | NR                      | 835               | 5                           | NR                      | 965               | 0                           | NR                      |
| 450               | 874                         | NR                      | 580               | 914                         | NR                      | 710               | 233                         | NR                      | 840               | 5                           | NR                      | 970               | 0                           | NR                      |
| 455               | 659                         | NR                      | 585               | 927                         | NR                      | 715               | 203                         | NR                      | 845               | 4                           | NR                      | 975               | 0                           | NR                      |
| 460               | 567                         | NR                      | 590               | 944                         | NR                      | 720               | 178                         | NR                      | 850               | 4                           | NR                      | 980               | 0                           | NR                      |
| 465               | 485                         | NR                      | 595               | 961                         | NR                      | 725               | 154                         | NR                      | 855               | 3                           | NR                      | 985               | 0                           | NR                      |
| 470               | 401                         | NR                      | 600               | 975                         | NR                      | 730               | 133                         | NR                      | 860               | 3                           | NR                      | 990               | 0                           | NR                      |
| 475               | 393                         | NR                      | 605               | 988                         | NR                      | 735               | 115                         | NR                      | 865               | 2                           | NR                      | 995               | 1                           | NR                      |
| 480               | 417                         | NR                      | 610               | 996                         | NR                      | 740               | 98                          | NR                      | 870               | 2                           | NR                      | 1000              | 0                           | NR                      |
| 485               | 448                         | NR                      | 615               | 998                         | NR                      | 745               | 85                          | NR                      | 875               | 2                           | NR                      |                   |                             |                         |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.72**

| 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    | 492                      | NR            | 620    | 993                      | NR            | 750    | 73                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 539                      | NR            | 625    | 978                      | NR            | 755    | 62                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 583                      | NR            | 630    | 962                      | NR            | 760    | 54                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 623                      | NR            | 635    | 933                      | NR            | 765    | 46                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 661                      | NR            | 640    | 898                      | NR            | 770    | 39                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 698                      | NR            | 645    | 855                      | NR            | 775    | 34                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 733                      | NR            | 650    | 810                      | NR            | 780    | 29                       | NR            | 910    | 1                        | NR            |
| 395    | 1                        | NR            | 525    | 764                      | NR            | 655    | 759                      | NR            | 785    | 25                       | NR            | 915    | 1                        | NR            |
| 400    | 3                        | NR            | 530    | 794                      | NR            | 660    | 704                      | NR            | 790    | 21                       | NR            | 920    | 1                        | NR            |
| 405    | 6                        | NR            | 535    | 820                      | NR            | 665    | 651                      | NR            | 795    | 18                       | NR            | 925    | 1                        | NR            |
| 410    | 12                       | NR            | 540    | 837                      | NR            | 670    | 592                      | NR            | 800    | 16                       | NR            | 930    | 1                        | NR            |
| 415    | 22                       | NR            | 545    | 853                      | NR            | 675    | 538                      | NR            | 805    | 13                       | NR            | 935    | 0                        | NR            |
| 420    | 42                       | NR            | 550    | 864                      | NR            | 680    | 486                      | NR            | 810    | 12                       | NR            | 940    | 0                        | NR            |
| 425    | 79                       | NR            | 555    | 872                      | NR            | 685    | 435                      | NR            | 815    | 10                       | NR            | 945    | 0                        | NR            |
| 430    | 147                      | NR            | 560    | 876                      | NR            | 690    | 389                      | NR            | 820    | 9                        | NR            | 950    | 0                        | NR            |
| 435    | 278                      | NR            | 565    | 883                      | NR            | 695    | 344                      | NR            | 825    | 7                        | NR            | 955    | 0                        | NR            |
| 440    | 515                      | NR            | 570    | 891                      | NR            | 700    | 303                      | NR            | 830    | 6                        | NR            | 960    | 0                        | NR            |
| 445    | 832                      | NR            | 575    | 900                      | NR            | 705    | 266                      | NR            | 835    | 5                        | NR            | 965    | 0                        | NR            |
| 450    | 874                      | NR            | 580    | 914                      | NR            | 710    | 233                      | NR            | 840    | 5                        | NR            | 970    | 0                        | NR            |
| 455    | 659                      | NR            | 585    | 927                      | NR            | 715    | 203                      | NR            | 845    | 4                        | NR            | 975    | 0                        | NR            |
| 460    | 567                      | NR            | 590    | 944                      | NR            | 720    | 178                      | NR            | 850    | 4                        | NR            | 980    | 0                        | NR            |
| 465    | 485                      | NR            | 595    | 961                      | NR            | 725    | 154                      | NR            | 855    | 3                        | NR            | 985    | 0                        | NR            |
| 470    | 401                      | NR            | 600    | 975                      | NR            | 730    | 133                      | NR            | 860    | 3                        | NR            | 990    | 0                        | NR            |
| 475    | 393                      | NR            | 605    | 988                      | NR            | 735    | 115                      | NR            | 865    | 2                        | NR            | 995    | 1                        | NR            |
| 480    | 417                      | NR            | 610    | 996                      | NR            | 740    | 98                       | NR            | 870    | 2                        | NR            | 1000   | 0                        | NR            |
| 485    | 448                      | NR            | 615    | 998                      | NR            | 745    | 85                       | NR            | 875    | 2                        | NR            |        |                          |               |

REPORT NUMBER: SP1-2407-184-16

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: NR**

**M/P: 3.52**

| 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    | 492                      | NR            | 620    | 993                      | NR            | 750    | 73                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 539                      | NR            | 625    | 978                      | NR            | 755    | 62                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 583                      | NR            | 630    | 962                      | NR            | 760    | 54                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 623                      | NR            | 635    | 933                      | NR            | 765    | 46                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 661                      | NR            | 640    | 898                      | NR            | 770    | 39                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 698                      | NR            | 645    | 855                      | NR            | 775    | 34                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 733                      | NR            | 650    | 810                      | NR            | 780    | 29                       | NR            | 910    | 1                        | NR            |
| 395    | 1                        | NR            | 525    | 764                      | NR            | 655    | 759                      | NR            | 785    | 25                       | NR            | 915    | 1                        | NR            |
| 400    | 3                        | NR            | 530    | 794                      | NR            | 660    | 704                      | NR            | 790    | 21                       | NR            | 920    | 1                        | NR            |
| 405    | 6                        | NR            | 535    | 820                      | NR            | 665    | 651                      | NR            | 795    | 18                       | NR            | 925    | 1                        | NR            |
| 410    | 12                       | NR            | 540    | 837                      | NR            | 670    | 592                      | NR            | 800    | 16                       | NR            | 930    | 1                        | NR            |
| 415    | 22                       | NR            | 545    | 853                      | NR            | 675    | 538                      | NR            | 805    | 13                       | NR            | 935    | 0                        | NR            |
| 420    | 42                       | NR            | 550    | 864                      | NR            | 680    | 486                      | NR            | 810    | 12                       | NR            | 940    | 0                        | NR            |
| 425    | 79                       | NR            | 555    | 872                      | NR            | 685    | 435                      | NR            | 815    | 10                       | NR            | 945    | 0                        | NR            |
| 430    | 147                      | NR            | 560    | 876                      | NR            | 690    | 389                      | NR            | 820    | 9                        | NR            | 950    | 0                        | NR            |
| 435    | 278                      | NR            | 565    | 883                      | NR            | 695    | 344                      | NR            | 825    | 7                        | NR            | 955    | 0                        | NR            |
| 440    | 515                      | NR            | 570    | 891                      | NR            | 700    | 303                      | NR            | 830    | 6                        | NR            | 960    | 0                        | NR            |
| 445    | 832                      | NR            | 575    | 900                      | NR            | 705    | 266                      | NR            | 835    | 5                        | NR            | 965    | 0                        | NR            |
| 450    | 874                      | NR            | 580    | 914                      | NR            | 710    | 233                      | NR            | 840    | 5                        | NR            | 970    | 0                        | NR            |
| 455    | 659                      | NR            | 585    | 927                      | NR            | 715    | 203                      | NR            | 845    | 4                        | NR            | 975    | 0                        | NR            |
| 460    | 567                      | NR            | 590    | 944                      | NR            | 720    | 178                      | NR            | 850    | 4                        | NR            | 980    | 0                        | NR            |
| 465    | 485                      | NR            | 595    | 961                      | NR            | 725    | 154                      | NR            | 855    | 3                        | NR            | 985    | 0                        | NR            |
| 470    | 401                      | NR            | 600    | 975                      | NR            | 730    | 133                      | NR            | 860    | 3                        | NR            | 990    | 0                        | NR            |
| 475    | 393                      | NR            | 605    | 988                      | NR            | 735    | 115                      | NR            | 865    | 2                        | NR            | 995    | 1                        | NR            |
| 480    | 417                      | NR            | 610    | 996                      | NR            | 740    | 98                       | NR            | 870    | 2                        | NR            | 1000   | 0                        | NR            |
| 485    | 448                      | NR            | 615    | 998                      | NR            | 745    | 85                       | NR            | 875    | 2                        | NR            |        |                          |               |

**Summary**

$R_f = 91.8$   
 $R_g = 98.4$   
 $CIE R_a = 92.1$   
 $R_9 = 60.7$



**Color Vector Graphics**

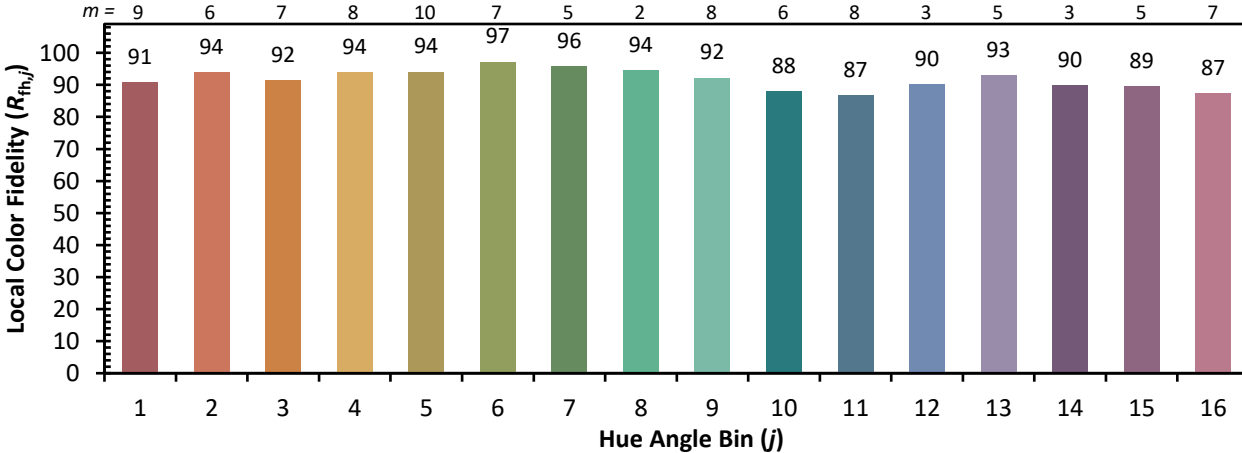


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 94 | CES51 = 96 | CES76 = 87 |
| CES02 = 62 | CES27 = 91 | CES52 = 98 | CES77 = 90 |
| CES03 = 31 | CES28 = 96 | CES53 = 95 | CES78 = 84 |
| CES04 = 69 | CES29 = 96 | CES54 = 94 | CES79 = 96 |
| CES05 = 49 | CES30 = 93 | CES55 = 92 | CES80 = 94 |
| CES06 = 50 | CES31 = 97 | CES56 = 93 | CES81 = 89 |
| CES07 = 42 | CES32 = 92 | CES57 = 92 | CES82 = 97 |
| CES08 = 41 | CES33 = 99 | CES58 = 92 | CES83 = 98 |
| CES09 = 29 | CES34 = 94 | CES59 = 96 | CES84 = 94 |
| CES10 = 74 | CES35 = 96 | CES60 = 93 | CES85 = 85 |
| CES11 = 57 | CES36 = 82 | CES61 = 92 | CES86 = 88 |
| CES12 = 63 | CES37 = 95 | CES62 = 87 | CES87 = 92 |
| CES13 = 43 | CES38 = 88 | CES63 = 92 | CES88 = 96 |
| CES14 = 74 | CES39 = 99 | CES64 = 89 | CES89 = 87 |
| CES15 = 71 | CES40 = 98 | CES65 = 88 | CES90 = 96 |
| CES16 = 47 | CES41 = 97 | CES66 = 87 | CES91 = 74 |
| CES17 = 49 | CES42 = 96 | CES67 = 86 | CES92 = 80 |
| CES18 = 56 | CES43 = 96 | CES68 = 88 | CES93 = 88 |
| CES19 = 71 | CES44 = 99 | CES69 = 89 | CES94 = 82 |
| CES20 = 66 | CES45 = 98 | CES70 = 86 | CES95 = 83 |
| CES21 = 85 | CES46 = 97 | CES71 = 81 | CES96 = 92 |
| CES22 = 78 | CES47 = 97 | CES72 = 94 | CES97 = 95 |
| CES23 = 91 | CES48 = 91 | CES73 = 81 | CES98 = 94 |
| CES24 = 90 | CES49 = 96 | CES74 = 93 | CES99 = 91 |
| CES25 = 71 | CES50 = 97 | CES75 = 83 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)