

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

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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: P1456796

Luminaire Tested: GLAN-SB9B-927-U-T3LG

Issue Date: 05/20/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1456796  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 5/22/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: STREETWORKS  
Catalog Number: GLAN-SB9B-927-U-T3LG  
Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 450mA 9xLight Square  
PACKAGE 90CRI 2700K FIXTURE w/ TYPE III LOW GLARE  
Light Source: (234) 2700K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

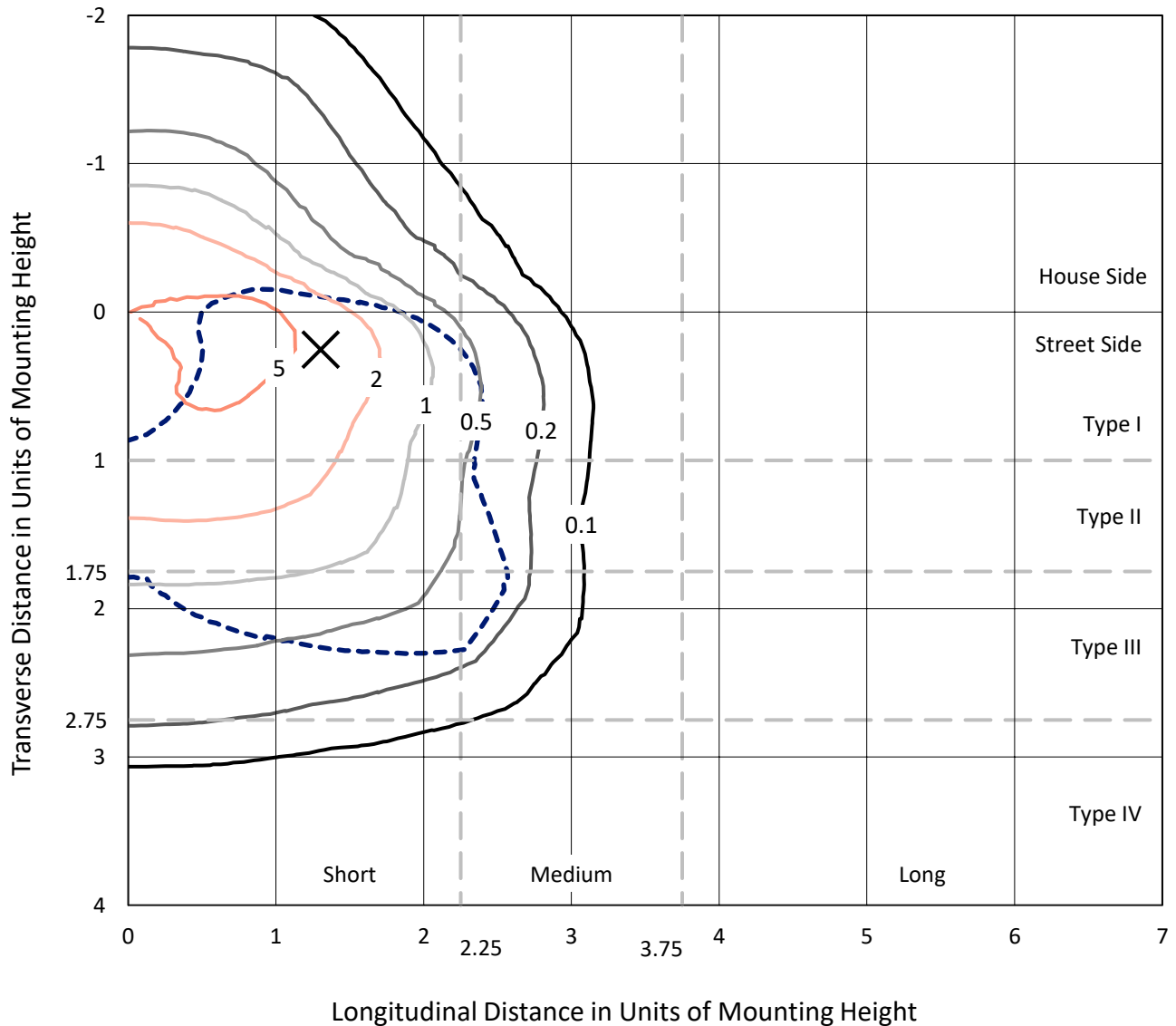
Lumens per Lamp: N/A  
Luminaire Lumens: 30433.5 lumens  
Efficiency: N/A  
Efficacy: 92.4 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B3 - U0 - G3  
  
Input Watts (W): 329.5  
Input Voltage (V): 120  
Input Current (Ain): 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

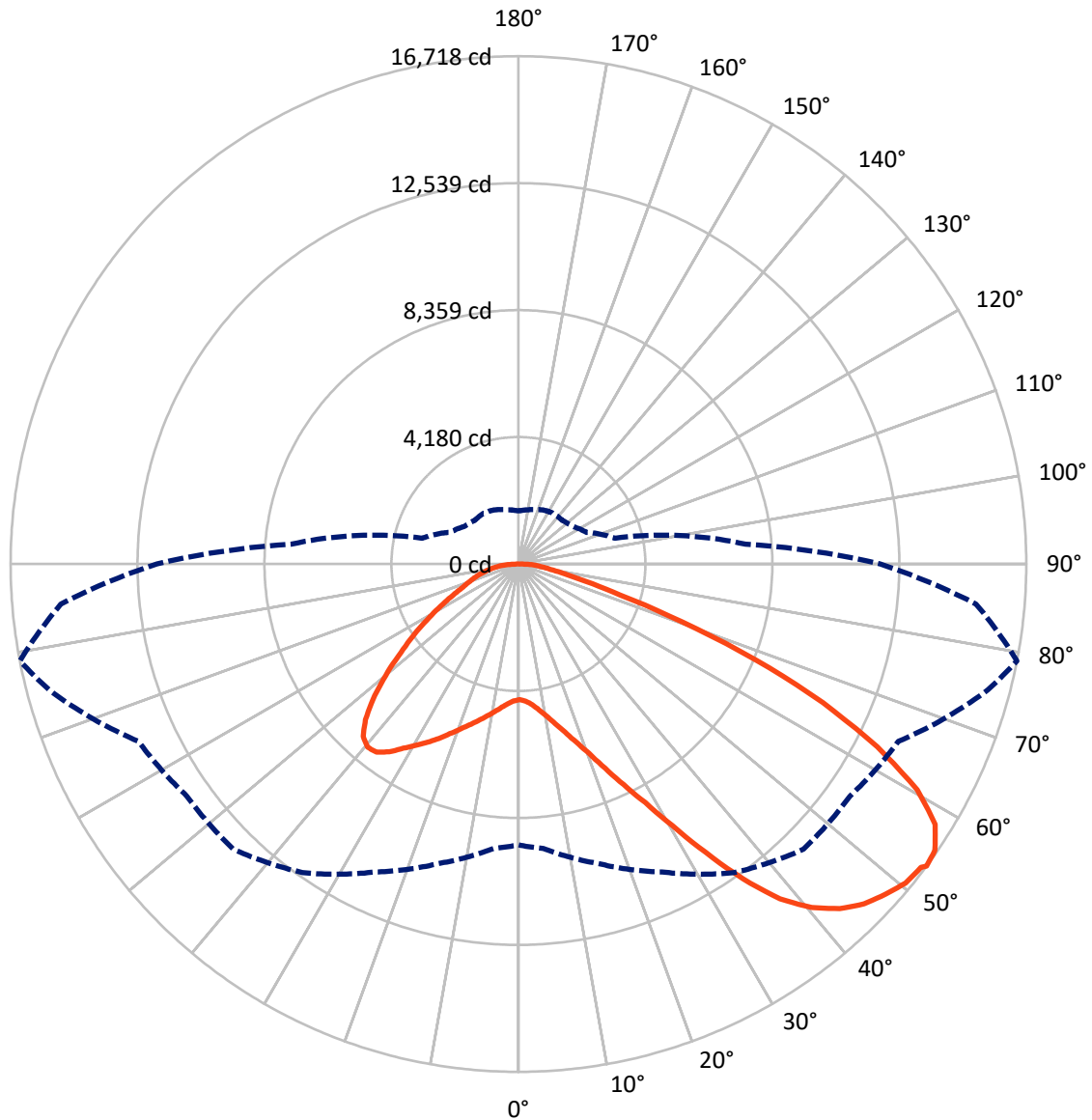


Based on 30 foot mounting height. Maximum calculated value = 7.7 fc  
 Type III - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 79-Deg Lateral      - - - Horizontal Cone Through 53-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 7672.1   | 0.0    | 7672.1  |
|                    | % Fixture | 25.2     | 0.0    | 25.2    |
| <b>Street Side</b> | Lumens    | 22761.4  | 0.0    | 22761.4 |
|                    | % Fixture | 74.8     | 0.0    | 74.8    |
| <b>Total</b>       | Lumens    | 30433.5  | 0.0    | 30433.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 425.7   | 1.4       |
| 10°-20°   | 1318.2  | 4.3       |
| 20°-30°   | 2520.4  | 8.3       |
| 30°-40°   | 4327.3  | 14.2      |
| 40°-50°   | 6061.2  | 19.9      |
| 50°-60°   | 6878.7  | 22.6      |
| 60°-70°   | 6032.2  | 19.8      |
| 70°-80°   | 2358.7  | 7.8       |
| 80°-90°   | 511.0   | 1.7       |
| 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°    | 30433.5 | 100.0     |
| 0°-180°   | 30433.5 | 100.0     |



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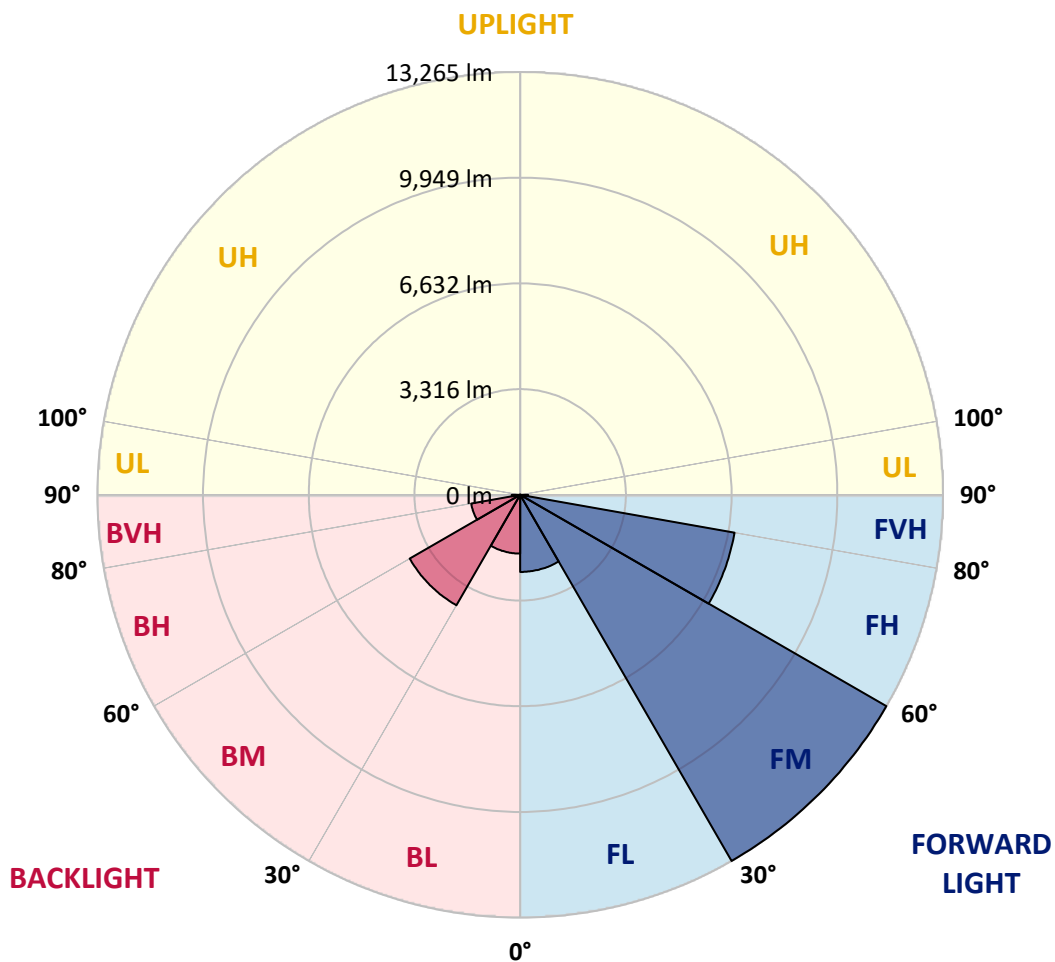
CATALOG NUMBER: GLAN-SB9B-927-U-T3LG

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|---------|-----------|-------------------------|------|---------|
|      |             |         |           | B                       | U    | G       |
| FL   | (0°-30°)    | 2419.2  | 7.9       |                         |      |         |
| FM   | (30°-60°)   | 13264.9 | 43.6      |                         |      |         |
| FH   | (60°-80°)   | 6829.5  | 22.4      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 247.9   | 0.8       |                         |      | G3/500  |
| BL   | (0°-30°)    | 1845.2  | 6.1       | B3/2500                 |      |         |
| BM   | (30°-60°)   | 4002.3  | 13.2      | B3/5000                 |      |         |
| BH   | (60°-80°)   | 1561.4  | 5.1       | B3/2500                 |      | G3/2500 |
| BVH  | (80°-90°)   | 263.2   | 0.9       |                         |      | G3/500  |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G3**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 75°     | 79°     | 85°     |
|-------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 4467.7 | 4467.7 | 4467.7  | 4467.7  | 4467.7  | 4467.7  | 4467.7  | 4467.7  | 4467.7  | 4467.7  | 4467.7  |
| 2.5°  | 4474.5 | 4474.5 | 4447.4  | 4474.5  | 4460.9  | 4481.3  | 4494.8  | 4494.8  | 4521.9  | 4515.2  | 4515.2  |
| 5°    | 4399.9 | 4386.4 | 4379.6  | 4427.0  | 4454.2  | 4508.4  | 4569.4  | 4596.5  | 4644.0  | 4644.0  | 4650.8  |
| 7.5°  | 4203.3 | 4196.5 | 4230.4  | 4325.3  | 4413.5  | 4549.1  | 4677.9  | 4752.5  | 4827.0  | 4840.6  | 4840.6  |
| 10°   | 4081.3 | 4074.5 | 4115.2  | 4230.4  | 4372.8  | 4569.4  | 4772.8  | 4928.7  | 5050.8  | 5084.7  | 5084.7  |
| 12.5° | 4081.3 | 4081.3 | 4115.2  | 4230.4  | 4379.6  | 4616.9  | 4894.8  | 5159.2  | 5349.1  | 5389.7  | 5376.2  |
| 15°   | 4196.5 | 4189.8 | 4230.4  | 4352.5  | 4494.8  | 4718.6  | 5057.5  | 5410.1  | 5667.7  | 5742.3  | 5749.0  |
| 17.5° | 4318.6 | 4311.8 | 4372.8  | 4528.7  | 4698.2  | 4921.9  | 5267.7  | 5701.6  | 6067.7  | 6162.6  | 6182.9  |
| 20°   | 4508.4 | 4501.6 | 4576.2  | 4725.3  | 4935.5  | 5193.1  | 5552.4  | 6047.3  | 6555.8  | 6657.5  | 6684.6  |
| 22.5° | 4725.3 | 4732.1 | 4813.5  | 4996.5  | 5206.7  | 5545.7  | 5986.3  | 6535.5  | 7145.6  | 7301.6  | 7328.7  |
| 25°   | 5179.6 | 5159.2 | 5227.0  | 5355.8  | 5579.6  | 5986.3  | 6528.7  | 7125.3  | 7850.7  | 8040.5  | 8074.4  |
| 27.5° | 5782.9 | 5749.0 | 5823.6  | 5952.4  | 6115.1  | 6494.8  | 7118.5  | 7782.9  | 8657.5  | 8894.7  | 8901.5  |
| 30°   | 6325.3 | 6305.0 | 6406.7  | 6671.1  | 6840.6  | 7132.1  | 7796.5  | 8555.8  | 9654.1  | 9999.8  | 10013.4 |
| 32.5° | 6793.1 | 6786.3 | 6976.1  | 7315.1  | 7701.6  | 8013.4  | 8657.5  | 9532.0  | 10915.1 | 11315.0 | 11226.9 |
| 35°   | 7240.5 | 7260.9 | 7498.2  | 7850.7  | 8365.9  | 8989.7  | 9640.5  | 10637.1 | 12243.8 | 12725.2 | 12582.8 |
| 37.5° | 7694.8 | 7708.3 | 8020.2  | 8474.4  | 9016.8  | 9830.3  | 10704.9 | 11837.1 | 13396.4 | 13993.0 | 13681.1 |
| 40°   | 8115.1 | 8155.8 | 8576.1  | 9064.2  | 9769.3  | 10596.4 | 11572.7 | 12671.0 | 14284.5 | 14874.3 | 14535.3 |
| 42.5° | 8535.4 | 8596.5 | 9050.7  | 9721.9  | 10474.4 | 11335.4 | 12176.0 | 13179.4 | 14854.0 | 15511.6 | 14989.6 |
| 45°   | 8969.3 | 9010.0 | 9572.7  | 10271.0 | 11125.2 | 11918.4 | 12521.8 | 13504.8 | 15247.2 | 15959.0 | 15247.2 |
| 47.5° | 9260.8 | 9342.2 | 9959.1  | 10765.9 | 11620.1 | 12365.9 | 12799.8 | 13640.4 | 15498.0 | 16250.5 | 15342.1 |
| 50°   | 9376.1 | 9491.3 | 10155.7 | 11050.6 | 12026.9 | 12786.2 | 13016.7 | 13715.0 | 15776.0 | 16508.2 | 15321.7 |
| 52.5° | 9355.8 | 9464.2 | 10189.6 | 11179.5 | 12352.3 | 13172.6 | 13226.9 | 13796.4 | 15972.6 | 16596.3 | 15145.5 |
| 53°   | 9247.3 | 9396.4 | 10210.0 | 11186.2 | 12399.8 | 13274.3 | 13321.8 | 13803.1 | 15999.7 | 16718.3 | 15118.4 |
| 55°   | 8874.4 | 8955.8 | 9999.8  | 11179.5 | 12623.5 | 13654.0 | 13586.2 | 14006.5 | 16074.3 | 16637.0 | 14820.1 |
| 57.5° | 8535.4 | 8616.8 | 9525.2  | 11050.6 | 12806.5 | 14189.6 | 14013.3 | 13972.6 | 15667.5 | 16176.0 | 14067.5 |
| 60°   | 8318.5 | 8345.6 | 9111.7  | 10643.9 | 12732.0 | 14562.4 | 14291.3 | 13572.6 | 14664.1 | 15084.5 | 12745.5 |
| 62.5° | 8135.4 | 8128.7 | 8806.6  | 10060.8 | 12447.2 | 14616.7 | 14345.5 | 12582.8 | 13193.0 | 13260.8 | 10982.8 |
| 65°   | 7721.9 | 7674.4 | 8332.0  | 9403.2  | 11857.4 | 14372.6 | 13681.1 | 11084.5 | 11240.5 | 11016.7 | 8820.2  |
| 67.5° | 6901.6 | 6799.9 | 7382.9  | 8399.8  | 10657.4 | 13681.1 | 12413.3 | 9342.2  | 8860.9  | 8413.4  | 6643.9  |
| 70°   | 4942.3 | 4942.3 | 5410.1  | 6427.0  | 8555.8  | 11823.5 | 10657.4 | 7071.1  | 6101.6  | 5701.6  | 4440.6  |
| 72.5° | 2420.3 | 2481.3 | 2969.4  | 3796.5  | 5735.5  | 8582.9  | 8162.6  | 4583.0  | 3701.6  | 3505.0  | 2847.4  |
| 75°   | 1030.5 | 1037.3 | 1267.8  | 1681.3  | 2908.4  | 5077.9  | 5111.8  | 2644.0  | 2372.8  | 2277.9  | 1884.7  |
| 77.5° | 718.6  | 732.2  | 833.9   | 989.8   | 1383.0  | 2332.2  | 2657.6  | 1600.0  | 1593.2  | 1525.4  | 1342.3  |
| 80°   | 549.1  | 562.7  | 630.5   | 739.0   | 928.8   | 1193.2  | 1376.2  | 1084.7  | 1139.0  | 1071.2  | 969.5   |
| 82.5° | 413.6  | 427.1  | 474.6   | 555.9   | 664.4   | 800.0   | 772.9   | 800.0   | 840.7   | 800.0   | 698.3   |
| 85°   | 278.0  | 284.7  | 318.6   | 386.4   | 427.1   | 481.3   | 481.3   | 583.0   | 610.2   | 596.6   | 549.1   |
| 87.5° | 142.4  | 142.4  | 169.5   | 203.4   | 216.9   | 223.7   | 196.6   | 257.6   | 291.5   | 318.6   | 257.6   |
| 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: P1456796

CATALOG NUMBER: GLAN-SB9B-927-U-T3LG

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4467.7  | 4467.7  | 4467.7 | 4467.7 | 4467.7 | 4467.7 | 4467.7 | 4467.7 | 4467.7 | 4467.7 | 4467.7 |
| 2.5°  | 4515.2  | 4521.9  | 4501.6 | 4494.8 | 4488.1 | 4454.2 | 4454.2 | 4420.3 | 4413.5 | 4420.3 | 4399.9 |
| 5°    | 4664.3  | 4650.8  | 4596.5 | 4555.8 | 4508.4 | 4413.5 | 4359.2 | 4284.7 | 4264.3 | 4244.0 | 4223.7 |
| 7.5°  | 4847.4  | 4827.0  | 4732.1 | 4623.6 | 4494.8 | 4311.8 | 4210.1 | 4088.1 | 4047.4 | 4013.5 | 3999.9 |
| 10°   | 5077.9  | 5037.2  | 4888.0 | 4657.5 | 4420.3 | 4196.5 | 4054.2 | 3905.0 | 3837.2 | 3823.7 | 3789.8 |
| 12.5° | 5376.2  | 5301.6  | 5023.6 | 4664.3 | 4352.5 | 4060.9 | 3905.0 | 3789.8 | 3762.6 | 3755.9 | 3722.0 |
| 15°   | 5708.4  | 5599.9  | 5152.4 | 4671.1 | 4264.3 | 3945.7 | 3850.8 | 3789.8 | 3789.8 | 3783.0 | 3762.6 |
| 17.5° | 6115.1  | 5938.9  | 5274.5 | 4644.0 | 4155.9 | 3911.8 | 3864.3 | 3810.1 | 3796.5 | 3803.3 | 3776.2 |
| 20°   | 6603.3  | 6311.7  | 5403.3 | 4610.1 | 4108.4 | 3918.6 | 3864.3 | 3789.8 | 3755.9 | 3749.1 | 3728.7 |
| 22.5° | 7166.0  | 6738.9  | 5545.7 | 4555.8 | 4108.4 | 3911.8 | 3823.7 | 3722.0 | 3654.2 | 3627.1 | 3599.9 |
| 25°   | 7810.0  | 7233.8  | 5694.8 | 4535.5 | 4122.0 | 3884.7 | 3742.3 | 3579.6 | 3471.1 | 3430.4 | 3410.1 |
| 27.5° | 8589.7  | 7755.8  | 5803.3 | 4555.8 | 4115.2 | 3823.7 | 3599.9 | 3389.8 | 3267.7 | 3199.9 | 3186.4 |
| 30°   | 9450.7  | 8318.5  | 5877.9 | 4589.7 | 4074.5 | 3708.4 | 3430.4 | 3193.2 | 3023.7 | 2942.3 | 2922.0 |
| 32.5° | 10467.6 | 8949.0  | 5952.4 | 4589.7 | 3972.8 | 3545.7 | 3233.8 | 2976.2 | 2799.9 | 2705.0 | 2691.5 |
| 35°   | 11593.0 | 9721.9  | 6020.2 | 4583.0 | 3850.8 | 3369.4 | 3037.2 | 2772.8 | 2589.8 | 2494.9 | 2488.1 |
| 37.5° | 12548.9 | 10304.9 | 6054.1 | 4515.2 | 3681.3 | 3166.0 | 2854.2 | 2589.8 | 2400.0 | 2298.3 | 2291.5 |
| 40°   | 13138.7 | 10549.0 | 5986.3 | 4379.6 | 3477.9 | 2955.9 | 2650.8 | 2406.7 | 2216.9 | 2094.9 | 2067.8 |
| 42.5° | 13362.5 | 10433.7 | 5769.4 | 4155.9 | 3233.8 | 2745.7 | 2481.3 | 2223.7 | 1972.8 | 1871.2 | 1850.8 |
| 45°   | 13287.9 | 9986.3  | 5308.4 | 3837.2 | 2962.7 | 2555.9 | 2332.2 | 2040.6 | 1877.9 | 1789.8 | 1783.0 |
| 47.5° | 13037.0 | 9294.7  | 4732.1 | 3437.2 | 2677.9 | 2386.4 | 2135.6 | 1993.2 | 1844.0 | 1749.1 | 1742.3 |
| 50°   | 12596.4 | 8555.8  | 4040.6 | 2983.0 | 2420.3 | 2210.1 | 2088.1 | 1972.8 | 1850.8 | 1776.2 | 1762.7 |
| 52.5° | 12033.7 | 7721.9  | 3403.3 | 2542.3 | 2196.6 | 2054.2 | 2040.6 | 1959.3 | 1864.4 | 1783.0 | 1749.1 |
| 53°   | 11904.9 | 7504.9  | 3281.3 | 2467.8 | 2162.7 | 2033.9 | 2027.1 | 1959.3 | 1850.8 | 1776.2 | 1749.1 |
| 55°   | 11287.9 | 6833.8  | 2894.9 | 2203.3 | 1993.2 | 1966.1 | 2027.1 | 1952.5 | 1816.9 | 1755.9 | 1735.6 |
| 57.5° | 10298.1 | 5952.4  | 2522.0 | 1959.3 | 1816.9 | 1884.7 | 2006.7 | 1925.4 | 1776.2 | 1667.8 | 1633.9 |
| 60°   | 9104.9  | 4942.3  | 2237.2 | 1796.6 | 1688.1 | 1783.0 | 1925.4 | 1830.5 | 1627.1 | 1572.9 | 1566.1 |
| 62.5° | 7681.2  | 3999.9  | 2020.3 | 1661.0 | 1579.6 | 1674.5 | 1803.4 | 1640.6 | 1491.5 | 1450.8 | 1437.3 |
| 65°   | 5999.9  | 3179.6  | 1850.8 | 1559.3 | 1471.2 | 1545.7 | 1633.9 | 1532.2 | 1437.3 | 1403.4 | 1396.6 |
| 67.5° | 4460.9  | 2494.9  | 1715.2 | 1471.2 | 1362.7 | 1410.1 | 1511.8 | 1484.7 | 1403.4 | 1383.0 | 1376.2 |
| 70°   | 3077.9  | 2027.1  | 1593.2 | 1389.8 | 1227.1 | 1281.3 | 1437.3 | 1457.6 | 1376.2 | 1362.7 | 1355.9 |
| 72.5° | 2155.9  | 1715.2  | 1464.4 | 1301.7 | 1118.6 | 1172.9 | 1403.4 | 1403.4 | 1315.2 | 1335.6 | 1322.0 |
| 75°   | 1620.3  | 1444.0  | 1315.2 | 1193.2 | 983.0  | 1064.4 | 1355.9 | 1342.3 | 1254.2 | 1342.3 | 1308.5 |
| 77.5° | 1220.3  | 1166.1  | 1139.0 | 1057.6 | 861.0  | 942.4  | 1261.0 | 1233.9 | 1118.6 | 1125.4 | 1064.4 |
| 80°   | 888.1   | 901.7   | 976.3  | 901.7  | 718.6  | 779.6  | 1064.4 | 1050.8 | 908.5  | 935.6  | 861.0  |
| 82.5° | 637.3   | 671.2   | 833.9  | 725.4  | 522.0  | 555.9  | 732.2  | 793.2  | 711.9  | 671.2  | 684.7  |
| 85°   | 481.3   | 501.7   | 671.2  | 535.6  | 325.4  | 366.1  | 501.7  | 569.5  | 555.9  | 515.2  | 522.0  |
| 87.5° | 203.4   | 230.5   | 311.9  | 250.8  | 189.8  | 189.8  | 311.9  | 400.0  | 359.3  | 305.1  | 318.6  |
| 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: SP1-2407-184-13

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-927-U-5WQ

Data in this report applies to families of products including GSS-SB1A-927-U-5WQ

**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-13  
 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-927-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI 2700K CCT 26 LEDS

**Spectral Parameters**

CCT (K): 2731  
 CIE u': 0.2605  
 CIE v': 0.5298  
 Duv: 0.0021  
 CIE x: 0.4610  
 CIE y: 0.4166  
 CIE z: 0.1224  
 Peak Wavelength (nm): 622  
 Dominant Wavelength (nm): 583  
 Purity: 63.43685  
 Rf: 92.6  
 Rg: 98

|           |      |      |      |
|-----------|------|------|------|
| CRI (Ra): | 91.8 |      |      |
| R1:       | 91.4 | R9:  | 54.7 |
| R2:       | 95.1 | R10: | 87.7 |
| R3:       | 97.6 | R11: | 92.9 |
| R4:       | 92.3 | R12: | 84.0 |
| R5:       | 91.1 | R13: | 92.2 |
| R6:       | 94.7 | R14: | 97.8 |
| R7:       | 92.3 | R15: | 86.8 |
| R8:       | 80.0 |      |      |



**Test Conditions**

Stabilization Time: M  
 Operation Time: 1H 0M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-13

| 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 2700K 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               | 253                         | NR                      | 620               | 997                         | NR                      | 750               | 78                          | NR                      | 880               | 2                           | NR                      |
| 365               | 0                           | NR                      | 495               | 285                         | NR                      | 625               | 996                         | NR                      | 755               | 67                          | NR                      | 885               | 1                           | NR                      |
| 370               | 0                           | NR                      | 500               | 314                         | NR                      | 630               | 989                         | NR                      | 760               | 58                          | NR                      | 890               | 1                           | NR                      |
| 375               | 0                           | NR                      | 505               | 343                         | NR                      | 635               | 969                         | NR                      | 765               | 50                          | NR                      | 895               | 1                           | NR                      |
| 380               | 0                           | NR                      | 510               | 372                         | NR                      | 640               | 939                         | NR                      | 770               | 42                          | NR                      | 900               | 1                           | NR                      |
| 385               | 0                           | NR                      | 515               | 401                         | NR                      | 645               | 901                         | NR                      | 775               | 36                          | NR                      | 905               | 1                           | NR                      |
| 390               | 0                           | NR                      | 520               | 431                         | NR                      | 650               | 858                         | NR                      | 780               | 31                          | NR                      | 910               | 1                           | NR                      |
| 395               | 0                           | NR                      | 525               | 459                         | NR                      | 655               | 806                         | NR                      | 785               | 26                          | NR                      | 915               | 1                           | NR                      |
| 400               | 0                           | NR                      | 530               | 488                         | NR                      | 660               | 752                         | NR                      | 790               | 23                          | NR                      | 920               | 1                           | NR                      |
| 405               | 2                           | NR                      | 535               | 516                         | NR                      | 665               | 696                         | NR                      | 795               | 19                          | NR                      | 925               | 1                           | NR                      |
| 410               | 5                           | NR                      | 540               | 540                         | NR                      | 670               | 636                         | NR                      | 800               | 17                          | NR                      | 930               | 0                           | NR                      |
| 415               | 10                          | NR                      | 545               | 566                         | NR                      | 675               | 579                         | NR                      | 805               | 14                          | NR                      | 935               | 0                           | NR                      |
| 420               | 19                          | NR                      | 550               | 589                         | NR                      | 680               | 524                         | NR                      | 810               | 12                          | NR                      | 940               | 0                           | NR                      |
| 425               | 34                          | NR                      | 555               | 612                         | NR                      | 685               | 470                         | NR                      | 815               | 11                          | NR                      | 945               | 0                           | NR                      |
| 430               | 61                          | NR                      | 560               | 634                         | NR                      | 690               | 421                         | NR                      | 820               | 9                           | NR                      | 950               | 0                           | NR                      |
| 435               | 113                         | NR                      | 565               | 660                         | NR                      | 695               | 371                         | NR                      | 825               | 8                           | NR                      | 955               | 0                           | NR                      |
| 440               | 198                         | NR                      | 570               | 688                         | NR                      | 700               | 327                         | NR                      | 830               | 7                           | NR                      | 960               | 0                           | NR                      |
| 445               | 288                         | NR                      | 575               | 719                         | NR                      | 705               | 288                         | NR                      | 835               | 6                           | NR                      | 965               | 0                           | NR                      |
| 450               | 286                         | NR                      | 580               | 754                         | NR                      | 710               | 251                         | NR                      | 840               | 5                           | NR                      | 970               | 0                           | NR                      |
| 455               | 228                         | NR                      | 585               | 791                         | NR                      | 715               | 220                         | NR                      | 845               | 4                           | NR                      | 975               | 0                           | NR                      |
| 460               | 207                         | NR                      | 590               | 831                         | NR                      | 720               | 192                         | NR                      | 850               | 4                           | NR                      | 980               | 0                           | NR                      |
| 465               | 186                         | NR                      | 595               | 870                         | NR                      | 725               | 166                         | NR                      | 855               | 3                           | NR                      | 985               | 0                           | NR                      |
| 470               | 168                         | NR                      | 600               | 907                         | NR                      | 730               | 144                         | NR                      | 860               | 3                           | NR                      | 990               | 1                           | NR                      |
| 475               | 177                         | NR                      | 605               | 940                         | NR                      | 735               | 124                         | NR                      | 865               | 2                           | NR                      | 995               | 1                           | NR                      |
| 480               | 198                         | NR                      | 610               | 967                         | NR                      | 740               | 106                         | NR                      | 870               | 2                           | NR                      | 1000              | 0                           | NR                      |
| 485               | 223                         | NR                      | 615               | 988                         | NR                      | 745               | 91                          | NR                      | 875               | 2                           | NR                      |                   |                             |                         |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.27**

| 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    | 253                      | NR            | 620    | 997                      | NR            | 750    | 78                       | NR            | 880    | 2                        | NR            |
| 365    | 0                        | NR            | 495    | 285                      | NR            | 625    | 996                      | NR            | 755    | 67                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 314                      | NR            | 630    | 989                      | NR            | 760    | 58                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 969                      | NR            | 765    | 50                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 372                      | NR            | 640    | 939                      | NR            | 770    | 42                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 401                      | NR            | 645    | 901                      | NR            | 775    | 36                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 431                      | NR            | 650    | 858                      | NR            | 780    | 31                       | NR            | 910    | 1                        | NR            |
| 395    | 0                        | NR            | 525    | 459                      | NR            | 655    | 806                      | NR            | 785    | 26                       | NR            | 915    | 1                        | NR            |
| 400    | 0                        | NR            | 530    | 488                      | NR            | 660    | 752                      | NR            | 790    | 23                       | NR            | 920    | 1                        | NR            |
| 405    | 2                        | NR            | 535    | 516                      | NR            | 665    | 696                      | NR            | 795    | 19                       | NR            | 925    | 1                        | NR            |
| 410    | 5                        | NR            | 540    | 540                      | NR            | 670    | 636                      | NR            | 800    | 17                       | NR            | 930    | 0                        | NR            |
| 415    | 10                       | NR            | 545    | 566                      | NR            | 675    | 579                      | NR            | 805    | 14                       | NR            | 935    | 0                        | NR            |
| 420    | 19                       | NR            | 550    | 589                      | NR            | 680    | 524                      | NR            | 810    | 12                       | NR            | 940    | 0                        | NR            |
| 425    | 34                       | NR            | 555    | 612                      | NR            | 685    | 470                      | NR            | 815    | 11                       | NR            | 945    | 0                        | NR            |
| 430    | 61                       | NR            | 560    | 634                      | NR            | 690    | 421                      | NR            | 820    | 9                        | NR            | 950    | 0                        | NR            |
| 435    | 113                      | NR            | 565    | 660                      | NR            | 695    | 371                      | NR            | 825    | 8                        | NR            | 955    | 0                        | NR            |
| 440    | 198                      | NR            | 570    | 688                      | NR            | 700    | 327                      | NR            | 830    | 7                        | NR            | 960    | 0                        | NR            |
| 445    | 288                      | NR            | 575    | 719                      | NR            | 705    | 288                      | NR            | 835    | 6                        | NR            | 965    | 0                        | NR            |
| 450    | 286                      | NR            | 580    | 754                      | NR            | 710    | 251                      | NR            | 840    | 5                        | NR            | 970    | 0                        | NR            |
| 455    | 228                      | NR            | 585    | 791                      | NR            | 715    | 220                      | NR            | 845    | 4                        | NR            | 975    | 0                        | NR            |
| 460    | 207                      | NR            | 590    | 831                      | NR            | 720    | 192                      | NR            | 850    | 4                        | NR            | 980    | 0                        | NR            |
| 465    | 186                      | NR            | 595    | 870                      | NR            | 725    | 166                      | NR            | 855    | 3                        | NR            | 985    | 0                        | NR            |
| 470    | 168                      | NR            | 600    | 907                      | NR            | 730    | 144                      | NR            | 860    | 3                        | NR            | 990    | 1                        | NR            |
| 475    | 177                      | NR            | 605    | 940                      | NR            | 735    | 124                      | NR            | 865    | 2                        | NR            | 995    | 1                        | NR            |
| 480    | 198                      | NR            | 610    | 967                      | NR            | 740    | 106                      | NR            | 870    | 2                        | NR            | 1000   | 0                        | NR            |
| 485    | 223                      | NR            | 615    | 988                      | NR            | 745    | 91                       | NR            | 875    | 2                        | NR            |        |                          |               |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: NR**

**M/P: 2.38**

| 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    | 253                      | NR            | 620    | 997                      | NR            | 750    | 78                       | NR            | 880    | 2                        | NR            |
| 365    | 0                        | NR            | 495    | 285                      | NR            | 625    | 996                      | NR            | 755    | 67                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 314                      | NR            | 630    | 989                      | NR            | 760    | 58                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 969                      | NR            | 765    | 50                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 372                      | NR            | 640    | 939                      | NR            | 770    | 42                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 401                      | NR            | 645    | 901                      | NR            | 775    | 36                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 431                      | NR            | 650    | 858                      | NR            | 780    | 31                       | NR            | 910    | 1                        | NR            |
| 395    | 0                        | NR            | 525    | 459                      | NR            | 655    | 806                      | NR            | 785    | 26                       | NR            | 915    | 1                        | NR            |
| 400    | 0                        | NR            | 530    | 488                      | NR            | 660    | 752                      | NR            | 790    | 23                       | NR            | 920    | 1                        | NR            |
| 405    | 2                        | NR            | 535    | 516                      | NR            | 665    | 696                      | NR            | 795    | 19                       | NR            | 925    | 1                        | NR            |
| 410    | 5                        | NR            | 540    | 540                      | NR            | 670    | 636                      | NR            | 800    | 17                       | NR            | 930    | 0                        | NR            |
| 415    | 10                       | NR            | 545    | 566                      | NR            | 675    | 579                      | NR            | 805    | 14                       | NR            | 935    | 0                        | NR            |
| 420    | 19                       | NR            | 550    | 589                      | NR            | 680    | 524                      | NR            | 810    | 12                       | NR            | 940    | 0                        | NR            |
| 425    | 34                       | NR            | 555    | 612                      | NR            | 685    | 470                      | NR            | 815    | 11                       | NR            | 945    | 0                        | NR            |
| 430    | 61                       | NR            | 560    | 634                      | NR            | 690    | 421                      | NR            | 820    | 9                        | NR            | 950    | 0                        | NR            |
| 435    | 113                      | NR            | 565    | 660                      | NR            | 695    | 371                      | NR            | 825    | 8                        | NR            | 955    | 0                        | NR            |
| 440    | 198                      | NR            | 570    | 688                      | NR            | 700    | 327                      | NR            | 830    | 7                        | NR            | 960    | 0                        | NR            |
| 445    | 288                      | NR            | 575    | 719                      | NR            | 705    | 288                      | NR            | 835    | 6                        | NR            | 965    | 0                        | NR            |
| 450    | 286                      | NR            | 580    | 754                      | NR            | 710    | 251                      | NR            | 840    | 5                        | NR            | 970    | 0                        | NR            |
| 455    | 228                      | NR            | 585    | 791                      | NR            | 715    | 220                      | NR            | 845    | 4                        | NR            | 975    | 0                        | NR            |
| 460    | 207                      | NR            | 590    | 831                      | NR            | 720    | 192                      | NR            | 850    | 4                        | NR            | 980    | 0                        | NR            |
| 465    | 186                      | NR            | 595    | 870                      | NR            | 725    | 166                      | NR            | 855    | 3                        | NR            | 985    | 0                        | NR            |
| 470    | 168                      | NR            | 600    | 907                      | NR            | 730    | 144                      | NR            | 860    | 3                        | NR            | 990    | 1                        | NR            |
| 475    | 177                      | NR            | 605    | 940                      | NR            | 735    | 124                      | NR            | 865    | 2                        | NR            | 995    | 1                        | NR            |
| 480    | 198                      | NR            | 610    | 967                      | NR            | 740    | 106                      | NR            | 870    | 2                        | NR            | 1000   | 0                        | NR            |
| 485    | 223                      | NR            | 615    | 988                      | NR            | 745    | 91                       | NR            | 875    | 2                        | NR            |        |                          |               |

**Summary**

$R_f = 92.6$   
 $R_g = 98$   
 $CIE R_a = 91.8$   
 $R_9 = 54.7$



**Color Vector Graphics**



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

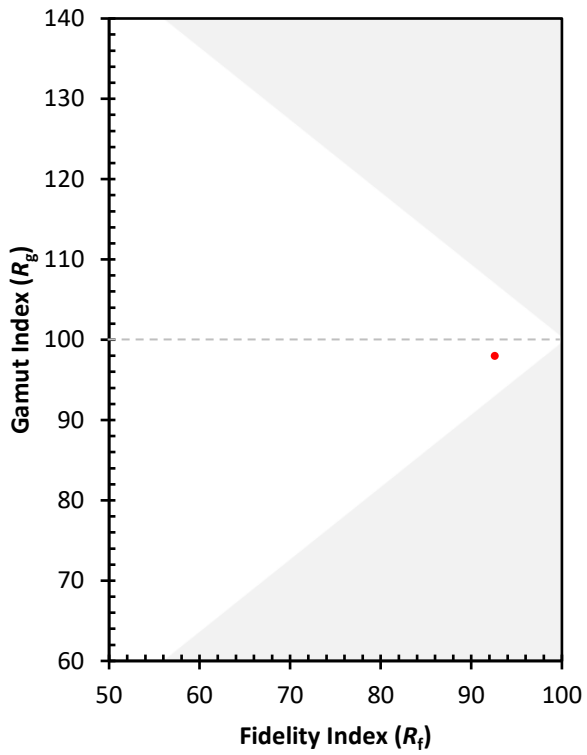
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 94 | CES51 = 98 | CES76 = 90 |
| CES02 = 64 | CES27 = 95 | CES52 = 98 | CES77 = 90 |
| CES03 = 32 | CES28 = 97 | CES53 = 96 | CES78 = 89 |
| CES04 = 71 | CES29 = 95 | CES54 = 96 | CES79 = 93 |
| CES05 = 51 | CES30 = 98 | CES55 = 95 | CES80 = 94 |
| CES06 = 52 | CES31 = 96 | CES56 = 94 | CES81 = 82 |
| CES07 = 44 | CES32 = 91 | CES57 = 94 | CES82 = 97 |
| CES08 = 43 | CES33 = 97 | CES58 = 94 | CES83 = 96 |
| CES09 = 29 | CES34 = 96 | CES59 = 96 | CES84 = 96 |
| CES10 = 77 | CES35 = 98 | CES60 = 96 | CES85 = 85 |
| CES11 = 59 | CES36 = 90 | CES61 = 94 | CES86 = 82 |
| CES12 = 66 | CES37 = 95 | CES62 = 95 | CES87 = 93 |
| CES13 = 44 | CES38 = 96 | CES63 = 94 | CES88 = 95 |
| CES14 = 74 | CES39 = 99 | CES64 = 92 | CES89 = 85 |
| CES15 = 72 | CES40 = 98 | CES65 = 89 | CES90 = 96 |
| CES16 = 48 | CES41 = 98 | CES66 = 91 | CES91 = 85 |
| CES17 = 50 | CES42 = 97 | CES67 = 90 | CES92 = 82 |
| CES18 = 57 | CES43 = 97 | CES68 = 91 | CES93 = 89 |
| CES19 = 72 | CES44 = 99 | CES69 = 93 | CES94 = 79 |
| CES20 = 68 | CES45 = 99 | CES70 = 90 | CES95 = 87 |
| CES21 = 87 | CES46 = 96 | CES71 = 89 | CES96 = 92 |
| CES22 = 79 | CES47 = 94 | CES72 = 96 | CES97 = 96 |
| CES23 = 92 | CES48 = 93 | CES73 = 87 | CES98 = 93 |
| CES24 = 91 | CES49 = 96 | CES74 = 92 | CES99 = 90 |
| CES25 = 72 | CES50 = 98 | CES75 = 90 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)