

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: P1456220

Luminaire Tested: GLAN-SB9B-927-U-T2LG

Issue Date: 05/20/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1456220  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 5/22/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: STREETWORKS  
Catalog Number: GLAN-SB9B-927-U-T2LG  
Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 450mA 9xLight Square  
PACKAGE 90CRI 2700K FIXTURE w/ TYPE II LOW GLARE  
Light Source: (234) 2700K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

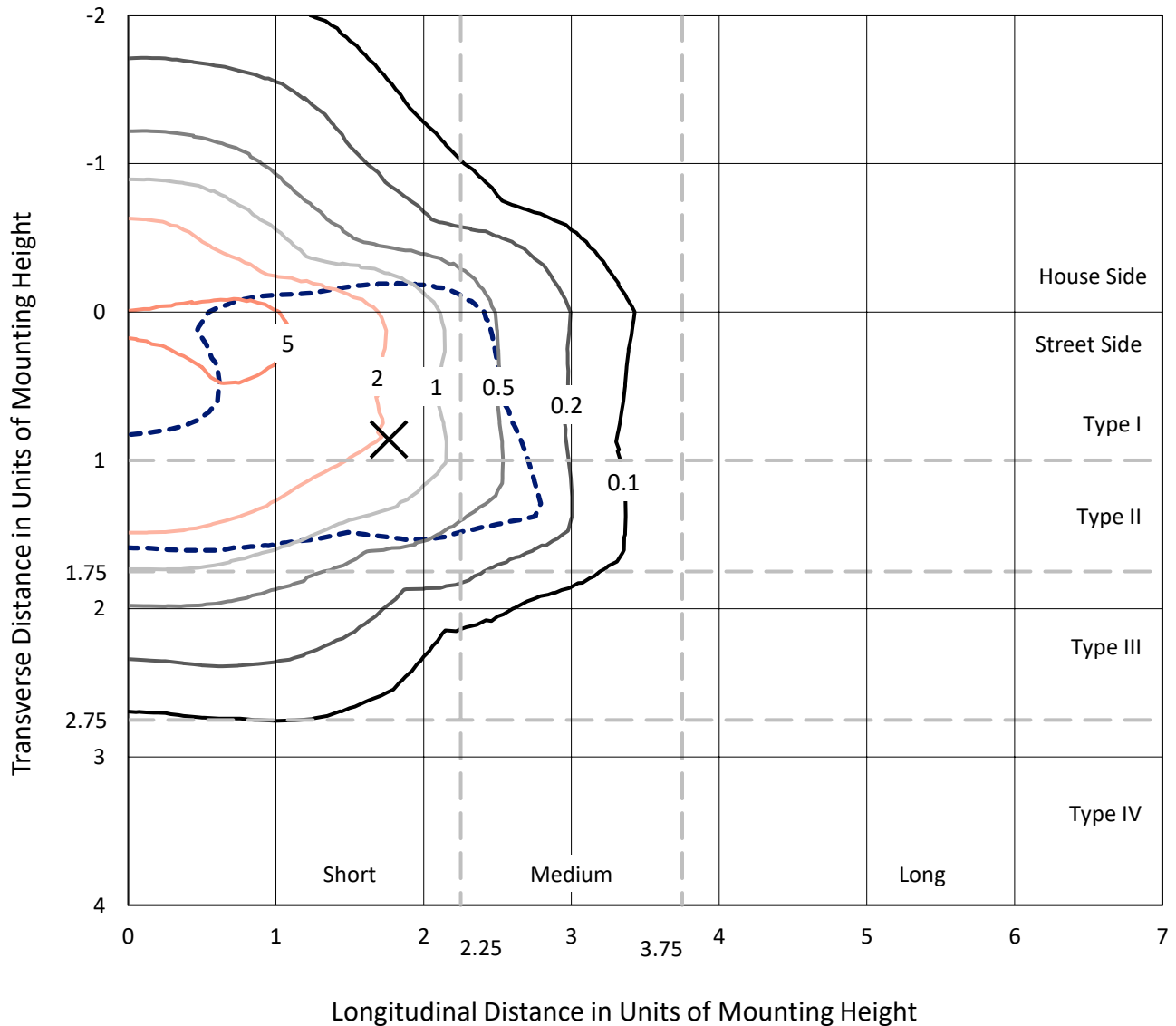
Lumens per Lamp: N/A  
Luminaire Lumens: 30184.5 lumens  
Efficiency: N/A  
Efficacy: 91.6 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B3 - U0 - G3  
  
Input Watts (W): 329.5  
Input Voltage (V): 120  
Input Current (Ain): 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

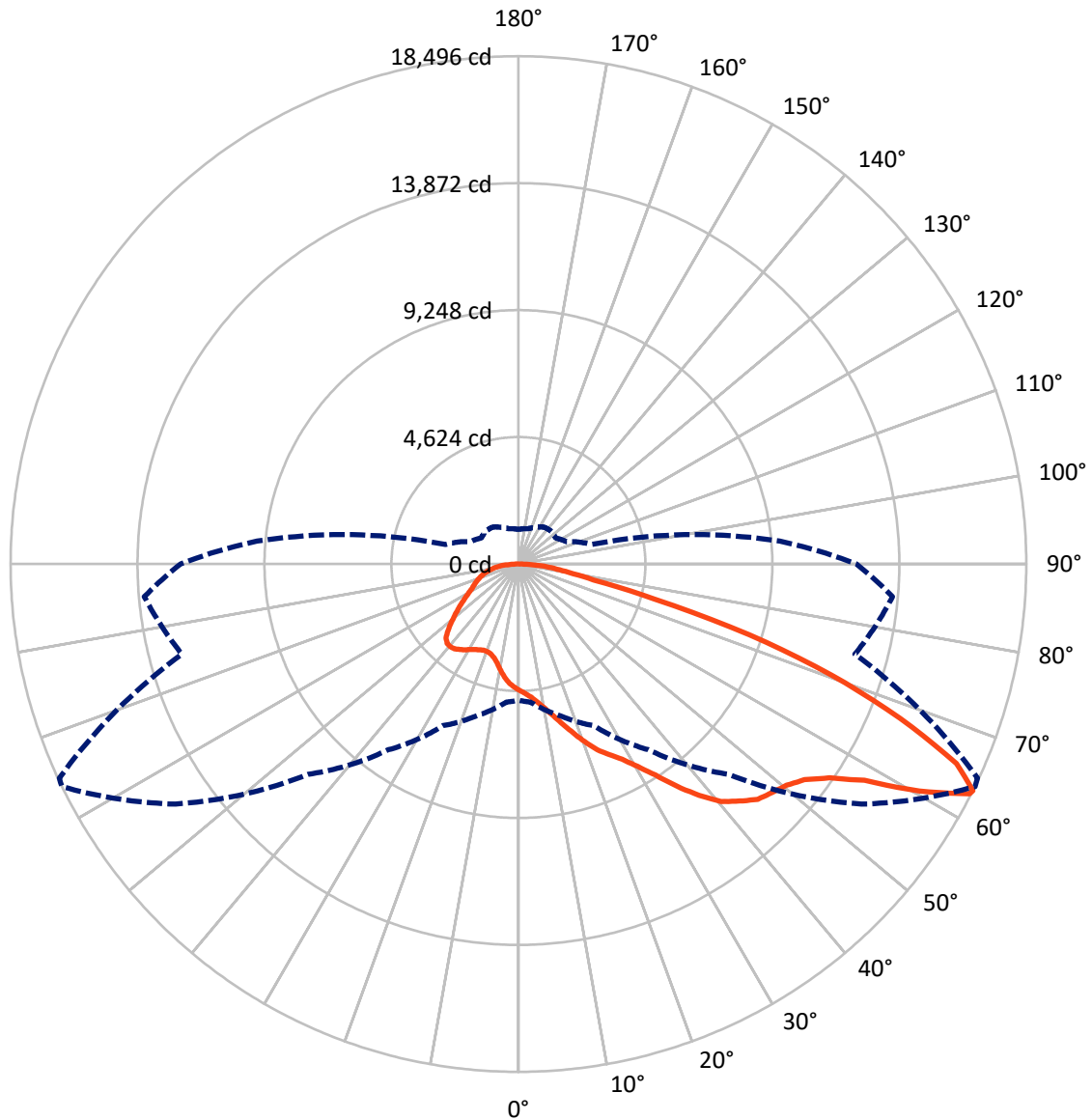


Based on 30 foot mounting height. Maximum calculated value = 7.9 fc  
 Type II - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 64-Deg Lateral    - - - Horizontal Cone Through 63-Deg Vertical

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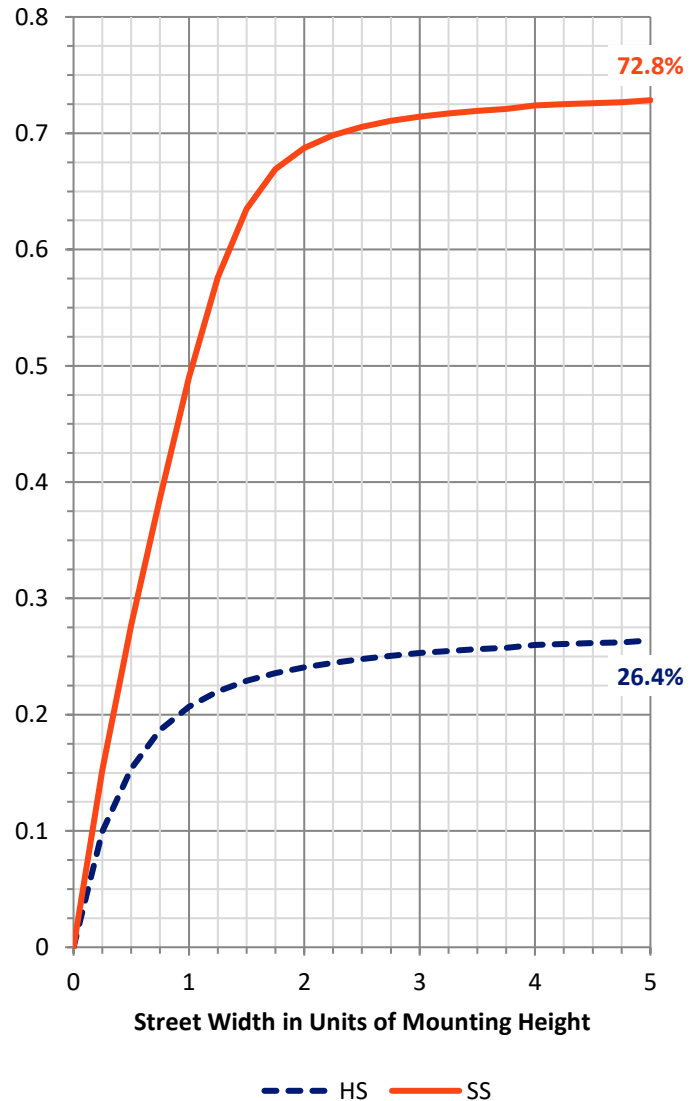
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 8109.7   | 0.0    | 8109.7  |
|                    | % Fixture | 26.9     | 0.0    | 26.9    |
| <b>Street Side</b> | Lumens    | 22074.8  | 0.0    | 22074.8 |
|                    | % Fixture | 73.1     | 0.0    | 73.1    |
| <b>Total</b>       | Lumens    | 30184.5  | 0.0    | 30184.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 422.1   | 1.4       |
| 10°-20°   | 1299.3  | 4.3       |
| 20°-30°   | 2375.9  | 7.9       |
| 30°-40°   | 4087.0  | 13.5      |
| 40°-50°   | 6027.2  | 20.0      |
| 50°-60°   | 7224.0  | 23.9      |
| 60°-70°   | 5798.0  | 19.2      |
| 70°-80°   | 2329.8  | 7.7       |
| 80°-90°   | 621.2   | 2.1       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 30184.5 | 100.0     |
| 0°-180°   | 30184.5 | 100.0     |



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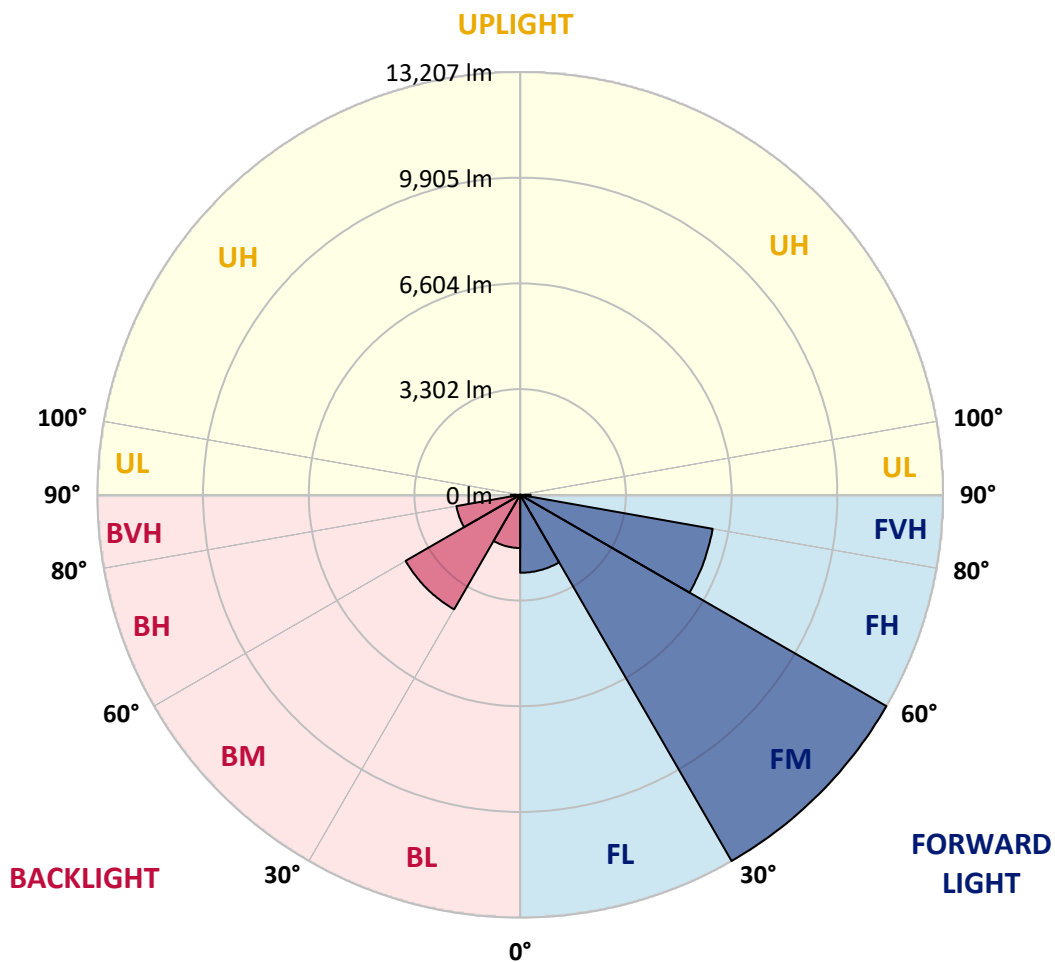
CATALOG NUMBER: GLAN-SB9B-927-U-T2LG

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

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|---------|-----------|-------------------------|------|---------|
|                |         |           | B                       | U    | G       |
| FL (0°-30°)    | 2435.3  | 8.1       |                         |      |         |
| FM (30°-60°)   | 13207.3 | 43.8      |                         |      |         |
| FH (60°-80°)   | 6105.7  | 20.2      |                         |      | G3/7500 |
| FVH (80°-90°)  | 326.4   | 1.1       |                         |      | G3/500  |
| BL (0°-30°)    | 1662.0  | 5.5       | B3/2500                 |      |         |
| BM (30°-60°)   | 4130.9  | 13.7      | B3/5000                 |      |         |
| BH (60°-80°)   | 2022.0  | 6.7       | B3/2500                 |      | G3/2500 |
| BVH (80°-90°)  | 294.8   | 1.0       |                         |      | 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 II Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 4596.8  | 4596.8  | 4596.8  | 4596.8  | 4596.8  | 4596.8  | 4596.8  | 4596.8  | 4596.8  | 4596.8  | 4596.8  |
| 2.5°  | 4786.6  | 4793.4  | 4773.0  | 4766.3  | 4779.8  | 4752.7  | 4745.9  | 4718.8  | 4705.2  | 4678.1  | 4644.2  |
| 5°    | 4922.2  | 4929.0  | 4915.4  | 4915.4  | 4929.0  | 4908.6  | 4901.9  | 4874.7  | 4861.2  | 4834.1  | 4766.3  |
| 7.5°  | 4915.4  | 4922.2  | 4935.7  | 4990.0  | 5057.8  | 5084.9  | 5105.2  | 5084.9  | 5078.1  | 5037.4  | 4969.6  |
| 10°   | 4806.9  | 4813.7  | 4847.6  | 4929.0  | 5098.5  | 5220.5  | 5349.3  | 5349.3  | 5362.9  | 5329.0  | 5206.9  |
| 12.5° | 4657.8  | 4664.6  | 4745.9  | 4874.7  | 5098.5  | 5308.6  | 5573.1  | 5681.5  | 5674.8  | 5654.4  | 5512.0  |
| 15°   | 4298.4  | 4298.4  | 4420.5  | 4664.6  | 5023.9  | 5369.7  | 5762.9  | 6054.4  | 6061.2  | 6081.5  | 5912.1  |
| 17.5° | 3993.3  | 4000.1  | 4101.8  | 4318.8  | 4786.6  | 5335.8  | 5966.3  | 6468.0  | 6488.3  | 6603.6  | 6359.5  |
| 20°   | 4020.5  | 4020.5  | 4054.4  | 4149.3  | 4529.0  | 5200.2  | 6081.5  | 6908.7  | 6976.5  | 7247.7  | 6942.6  |
| 22.5° | 4230.6  | 4230.6  | 4257.8  | 4251.0  | 4481.5  | 5112.0  | 6156.1  | 7349.4  | 7471.4  | 8034.2  | 7640.9  |
| 25°   | 4617.1  | 4610.3  | 4583.2  | 4542.5  | 4678.1  | 5206.9  | 6325.6  | 7688.4  | 7925.7  | 8902.0  | 8447.7  |
| 27.5° | 5091.7  | 5078.1  | 5037.4  | 4969.6  | 5064.6  | 5491.7  | 6617.2  | 8047.7  | 8305.3  | 9851.2  | 9302.0  |
| 30°   | 5681.5  | 5640.9  | 5600.2  | 5512.0  | 5613.7  | 5959.5  | 7051.1  | 8556.2  | 8800.3  | 10929.2 | 10332.5 |
| 32.5° | 6379.9  | 6427.3  | 6291.7  | 6169.7  | 6278.2  | 6596.8  | 7695.2  | 9159.6  | 9424.0  | 12054.6 | 11403.8 |
| 35°   | 7424.0  | 7566.3  | 7525.7  | 6908.7  | 7010.4  | 7362.9  | 8447.7  | 9939.3  | 10176.6 | 13078.4 | 12502.1 |
| 37.5° | 8454.5  | 8420.6  | 8454.5  | 7939.2  | 7776.5  | 8203.6  | 9254.5  | 10685.1 | 10915.6 | 13912.3 | 13471.6 |
| 40°   | 9281.7  | 9383.3  | 9383.3  | 8963.0  | 8752.8  | 9037.6  | 9986.8  | 11369.9 | 11593.6 | 14373.3 | 14169.9 |
| 42.5° | 10183.4 | 10196.9 | 10169.8 | 9803.7  | 9722.3  | 9796.9  | 10630.8 | 11803.8 | 11986.8 | 14610.6 | 14644.5 |
| 45°   | 11200.4 | 11193.6 | 11078.3 | 10773.2 | 10651.2 | 10583.4 | 11030.9 | 12224.1 | 12407.2 | 14719.1 | 14902.2 |
| 47.5° | 12041.1 | 12075.0 | 12081.7 | 11756.3 | 11552.9 | 11261.4 | 11376.6 | 12434.3 | 12644.5 | 14597.1 | 14956.4 |
| 50°   | 12088.5 | 12142.8 | 12400.4 | 12495.3 | 12454.6 | 11986.8 | 11695.3 | 12658.0 | 12868.2 | 14624.2 | 15153.0 |
| 52.5° | 11790.2 | 11844.4 | 12176.7 | 12569.9 | 13044.5 | 12820.7 | 12197.0 | 13044.5 | 13261.4 | 14888.6 | 15600.5 |
| 55°   | 10990.2 | 11078.3 | 11573.2 | 12122.4 | 12969.9 | 13288.6 | 13085.2 | 13742.8 | 13946.2 | 15098.8 | 16122.5 |
| 57.5° | 9566.4  | 9674.9  | 10359.7 | 11234.3 | 12393.6 | 13180.1 | 14373.3 | 14861.5 | 15031.0 | 15247.9 | 16129.3 |
| 60°   | 7152.8  | 7240.9  | 8312.1  | 9491.8  | 11234.3 | 12502.1 | 15139.5 | 16780.2 | 16875.1 | 14441.1 | 15214.0 |
| 62.5° | 5268.0  | 5356.1  | 6074.8  | 6922.3  | 8827.4  | 11254.6 | 15288.6 | 18441.3 | 18454.8 | 12983.5 | 13953.0 |
| 63°   | 4962.9  | 5051.0  | 5701.9  | 6495.1  | 8257.9  | 10834.2 | 15241.2 | 18495.5 | 18448.0 | 12685.1 | 13675.0 |
| 65°   | 3864.5  | 4020.5  | 4698.5  | 5301.9  | 6190.0  | 8624.0  | 14631.0 | 17532.8 | 17600.6 | 11803.8 | 12278.4 |
| 67.5° | 2630.6  | 2745.8  | 3606.9  | 4305.2  | 4678.1  | 5491.7  | 12000.4 | 15003.9 | 15112.3 | 10888.5 | 9796.9  |
| 70°   | 2034.0  | 2088.2  | 2589.9  | 3410.3  | 3783.2  | 3491.6  | 7824.0  | 12081.7 | 12081.7 | 8502.0  | 6942.6  |
| 72.5° | 1593.3  | 1613.6  | 1952.6  | 2664.5  | 3044.2  | 2684.8  | 4359.5  | 8786.7  | 8461.3  | 5044.2  | 4630.7  |
| 75°   | 1139.0  | 1166.1  | 1471.2  | 1986.5  | 2427.2  | 2115.3  | 2786.5  | 5118.8  | 4922.2  | 2901.8  | 3091.6  |
| 77.5° | 901.7   | 915.3   | 1098.3  | 1464.5  | 1966.2  | 1613.6  | 2122.1  | 2793.3  | 2766.2  | 2040.7  | 1986.5  |
| 80°   | 711.9   | 739.0   | 861.0   | 1050.9  | 1518.7  | 1261.1  | 1579.7  | 1844.1  | 1789.9  | 1403.4  | 1274.6  |
| 82.5° | 508.5   | 555.9   | 664.4   | 800.0   | 1125.5  | 901.7   | 1037.3  | 1301.7  | 1301.7  | 1057.7  | 840.7   |
| 85°   | 311.9   | 352.6   | 393.2   | 494.9   | 800.0   | 583.1   | 549.2   | 840.7   | 861.0   | 793.2   | 542.4   |
| 87.5° | 149.2   | 162.7   | 189.8   | 210.2   | 291.5   | 264.4   | 217.0   | 318.7   | 325.4   | 352.6   | 223.7   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |



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CATALOG NUMBER: GLAN-SB9B-927-U-T2LG

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4596.8  | 4596.8  | 4596.8 | 4596.8 | 4596.8 | 4596.8 | 4596.8 | 4596.8 | 4596.8 | 4596.8 | 4596.8 |
| 2.5°  | 4637.4  | 4623.9  | 4556.1 | 4488.3 | 4413.7 | 4345.9 | 4278.1 | 4223.9 | 4162.8 | 4176.4 | 4183.2 |
| 5°    | 4725.6  | 4691.7  | 4542.5 | 4366.2 | 4135.7 | 3918.8 | 3708.6 | 3559.4 | 3464.5 | 3437.4 | 3383.2 |
| 7.5°  | 4915.4  | 4834.1  | 4562.9 | 4190.0 | 3762.8 | 3423.8 | 3227.2 | 3139.1 | 3112.0 | 3118.7 | 3105.2 |
| 10°   | 5132.4  | 5010.3  | 4590.0 | 3979.8 | 3437.4 | 3206.9 | 3179.8 | 3234.0 | 3261.1 | 3288.2 | 3295.0 |
| 12.5° | 5417.1  | 5220.5  | 4576.4 | 3749.3 | 3281.5 | 3240.8 | 3342.5 | 3444.2 | 3505.2 | 3545.9 | 3539.1 |
| 15°   | 5749.3  | 5484.9  | 4535.7 | 3559.4 | 3261.1 | 3369.6 | 3498.4 | 3613.7 | 3688.3 | 3728.9 | 3708.6 |
| 17.5° | 6149.3  | 5796.8  | 4488.3 | 3437.4 | 3322.1 | 3451.0 | 3586.6 | 3701.8 | 3783.2 | 3810.3 | 3790.0 |
| 20°   | 6644.3  | 6149.3  | 4406.9 | 3383.2 | 3369.6 | 3484.9 | 3606.9 | 3715.4 | 3783.2 | 3810.3 | 3783.2 |
| 22.5° | 7227.3  | 6569.7  | 4339.1 | 3383.2 | 3389.9 | 3484.9 | 3573.0 | 3654.4 | 3715.4 | 3735.7 | 3701.8 |
| 25°   | 7973.1  | 7057.9  | 4312.0 | 3437.4 | 3396.7 | 3451.0 | 3498.4 | 3545.9 | 3579.8 | 3593.3 | 3579.8 |
| 27.5° | 8732.5  | 7620.6  | 4325.6 | 3505.2 | 3389.9 | 3403.5 | 3403.5 | 3410.3 | 3417.1 | 3423.8 | 3417.1 |
| 30°   | 9607.1  | 8190.1  | 4379.8 | 3593.3 | 3403.5 | 3335.7 | 3315.4 | 3274.7 | 3240.8 | 3213.7 | 3186.5 |
| 32.5° | 10454.6 | 8732.5  | 4474.7 | 3722.2 | 3389.9 | 3261.1 | 3220.4 | 3118.7 | 3023.8 | 2942.5 | 2942.5 |
| 35°   | 11369.9 | 9295.2  | 4644.2 | 3817.1 | 3376.4 | 3193.3 | 3078.1 | 2962.8 | 2861.1 | 2745.8 | 2745.8 |
| 37.5° | 12156.3 | 9776.6  | 4779.8 | 3925.5 | 3362.8 | 3112.0 | 2928.9 | 2800.1 | 2691.6 | 2576.4 | 2562.8 |
| 40°   | 12705.5 | 10054.6 | 4861.2 | 3966.2 | 3315.4 | 3003.5 | 2786.5 | 2623.8 | 2467.9 | 2311.9 | 2305.2 |
| 42.5° | 12969.9 | 10041.0 | 4813.7 | 3952.7 | 3227.2 | 2867.9 | 2664.5 | 2447.5 | 2237.4 | 2095.0 | 2081.4 |
| 45°   | 13112.3 | 9952.9  | 4630.7 | 3837.4 | 3084.8 | 2725.5 | 2508.6 | 2278.0 | 2067.9 | 1939.0 | 1911.9 |
| 47.5° | 13085.2 | 9735.9  | 4379.8 | 3552.7 | 2895.0 | 2569.6 | 2352.6 | 2115.3 | 1945.8 | 1871.2 | 1871.2 |
| 50°   | 13159.7 | 9566.4  | 4095.0 | 3227.2 | 2637.4 | 2386.5 | 2210.2 | 1993.3 | 1891.6 | 1796.7 | 1762.8 |
| 52.5° | 13492.0 | 9708.8  | 3851.0 | 2922.1 | 2393.3 | 2210.2 | 2088.2 | 1905.1 | 1776.3 | 1715.3 | 1695.0 |
| 55°   | 13932.6 | 10013.9 | 3620.5 | 2650.9 | 2156.0 | 2054.3 | 1993.3 | 1823.8 | 1674.6 | 1613.6 | 1579.7 |
| 57.5° | 14014.0 | 10224.1 | 3396.7 | 2386.5 | 1959.4 | 1932.3 | 1911.9 | 1681.4 | 1559.4 | 1511.9 | 1484.8 |
| 60°   | 13451.3 | 10068.1 | 3105.2 | 2149.2 | 1803.4 | 1817.0 | 1762.8 | 1593.3 | 1450.9 | 1403.4 | 1376.3 |
| 62.5° | 12495.3 | 9661.3  | 2813.6 | 1945.8 | 1681.4 | 1708.5 | 1654.3 | 1484.8 | 1342.4 | 1295.0 | 1281.4 |
| 63°   | 12305.5 | 9552.8  | 2745.8 | 1925.5 | 1654.3 | 1688.2 | 1640.7 | 1471.2 | 1328.9 | 1281.4 | 1261.1 |
| 65°   | 11173.2 | 8902.0  | 2508.6 | 1817.0 | 1566.2 | 1566.2 | 1572.9 | 1403.4 | 1281.4 | 1261.1 | 1247.5 |
| 67.5° | 9112.2  | 7430.7  | 2250.9 | 1688.2 | 1471.2 | 1491.6 | 1525.5 | 1430.6 | 1383.1 | 1369.5 | 1356.0 |
| 70°   | 6888.4  | 5593.4  | 2027.2 | 1566.2 | 1369.5 | 1437.3 | 1667.8 | 1627.2 | 1450.9 | 1328.9 | 1301.7 |
| 72.5° | 4881.5  | 3810.3  | 1830.6 | 1444.1 | 1247.5 | 1417.0 | 1728.9 | 1552.6 | 1308.5 | 1166.1 | 1139.0 |
| 75°   | 3267.9  | 2454.3  | 1634.0 | 1315.3 | 1111.9 | 1308.5 | 1634.0 | 1417.0 | 1139.0 | 1105.1 | 1064.4 |
| 77.5° | 2054.3  | 1749.2  | 1437.3 | 1166.1 | 962.7  | 1166.1 | 1484.8 | 1261.1 | 983.1  | 996.6  | 935.6  |
| 80°   | 1254.3  | 1247.5  | 1206.8 | 989.9  | 772.9  | 928.8  | 1247.5 | 1064.4 | 786.5  | 786.5  | 698.3  |
| 82.5° | 745.8   | 901.7   | 1023.8 | 820.4  | 562.7  | 664.4  | 901.7  | 800.0  | 657.6  | 637.3  | 596.6  |
| 85°   | 501.7   | 610.2   | 813.6  | 630.5  | 359.3  | 406.8  | 623.7  | 671.2  | 603.4  | 528.8  | 494.9  |
| 87.5° | 183.1   | 244.1   | 372.9  | 257.6  | 155.9  | 244.1  | 467.8  | 488.2  | 366.1  | 284.8  | 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    |

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: SP1-2407-184-13

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

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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 2700K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

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