

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P1434830

Luminaire Tested: **GALN-SB4D-827-U-T3LG**

Issue Date: 03/24/202

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.

Report Generated By 670245763



**Test Information**

Test Method: LM-79-08  
 Report Number: P1434830  
 Test Lab: INNOVATION CENTER(G1)  
 Issue Date: 03/24/202  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: MCGRAW-EDISON  
 Catalog Number: GALN-SB4D-827-U-T3LG  
 Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 900mA 4xLight  
 Square PACKAGE 80CRI 2700K FIXTURE w/ TYPE III LOW GLARE  
 Light Source: (104) 2700K CCT, 80 CRI LEDS  
 Ballast/Driver: ELECTRONIC DRIVER  
 Luminaire Equipment:

| <u>Sample No.</u> | <u>Condition</u> | <u>Description</u> |
|-------------------|------------------|--------------------|
| a                 | good             | reflector          |
| b                 | good             | lens               |
| c                 | good             | housing            |
| d                 | good             | cord               |

**Summary**

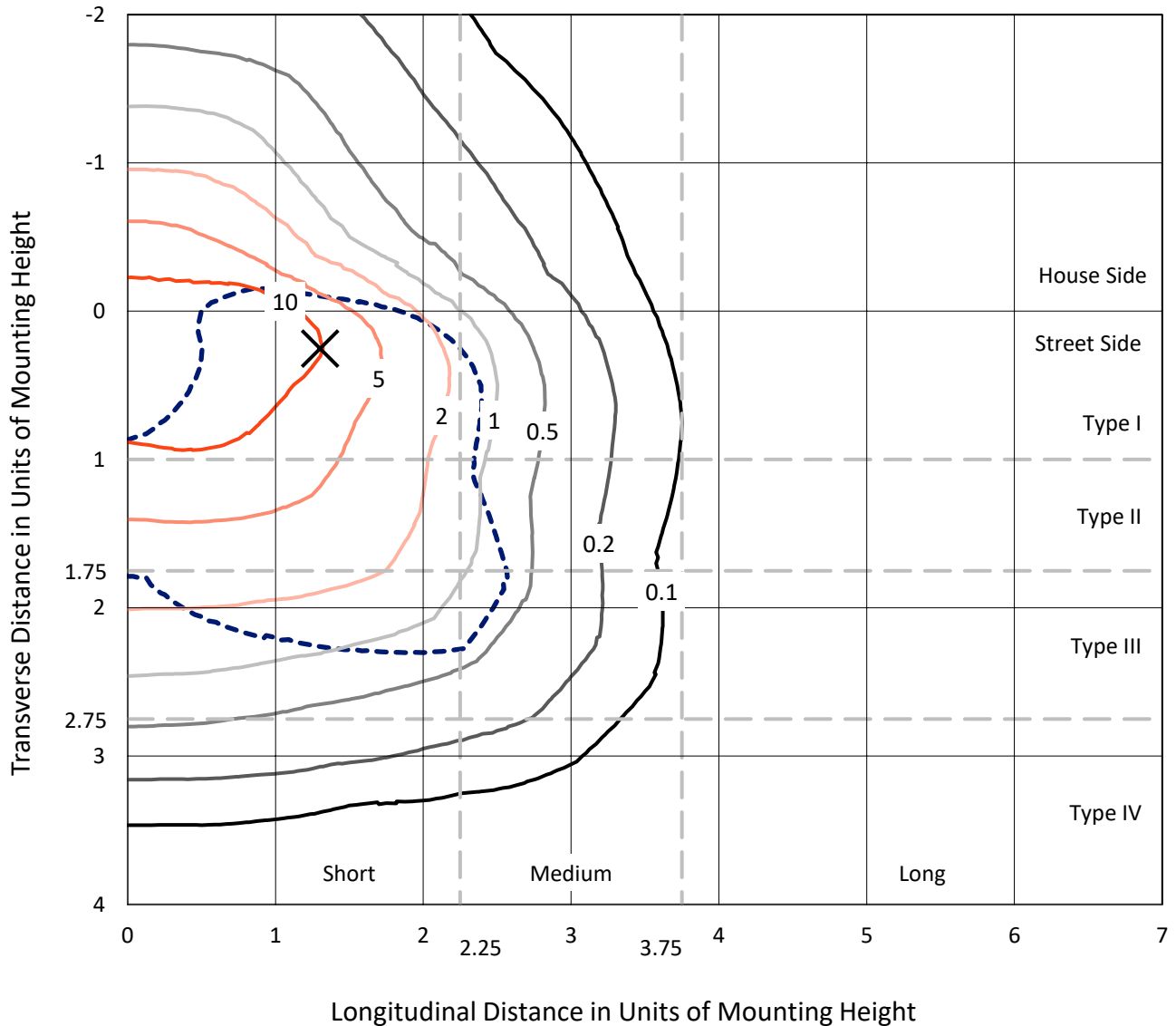
Lumens per Lamp: N/A  
 Luminaire Lumens: 34594.8 lumens  
 Efficiency: N/A  
 Efficacy: 117.8 lumens/watt  
 Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
 IES Classification: Type III - Short  
 BUG Rating: B3 - U0 - G4

Input Watts (W): 293.6  
 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

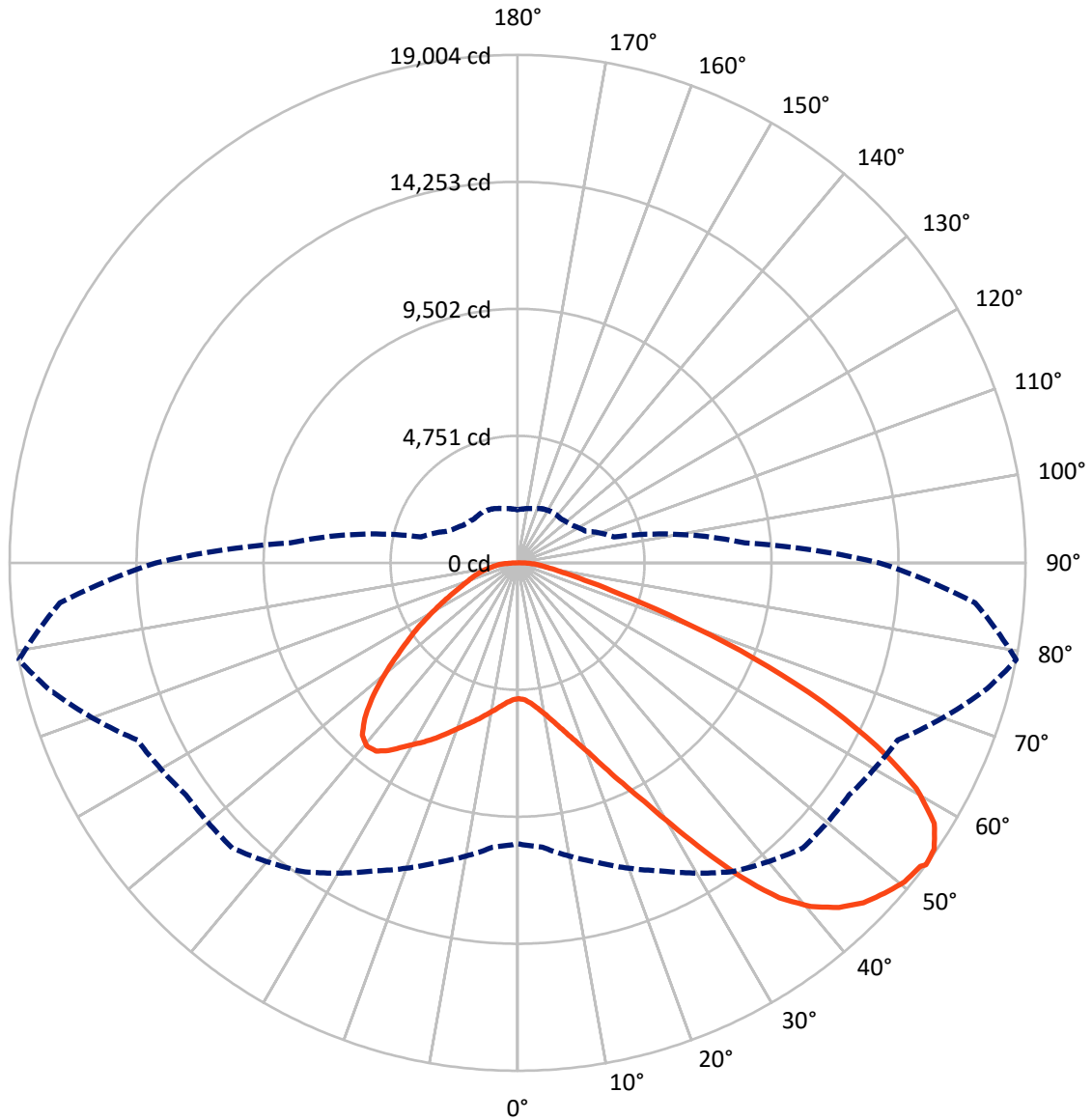
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 19.8 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    | 8721.1   | 0.0    | 8721.1  |
|                    | % Fixture | 25.2     | 0.0    | 25.2    |
| <b>Street Side</b> | Lumens    | 25873.7  | 0.0    | 25873.7 |
|                    | % Fixture | 74.8     | 0.0    | 74.8    |
| <b>Total</b>       | Lumens    | 34594.8  | 0.0    | 34594.8 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 483.9   | 1.4       |
| 10°-20°   | 1498.5  | 4.3       |
| 20°-30°   | 2865.0  | 8.3       |
| 30°-40°   | 4919.0  | 14.2      |
| 40°-50°   | 6890.0  | 19.9      |
| 50°-60°   | 7819.3  | 22.6      |
| 60°-70°   | 6857.0  | 19.8      |
| 70°-80°   | 2681.2  | 7.8       |
| 80°-90°   | 580.9   | 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°    | 34594.8 | 100.0     |
| 0°-180°   | 34594.8 | 100.0     |

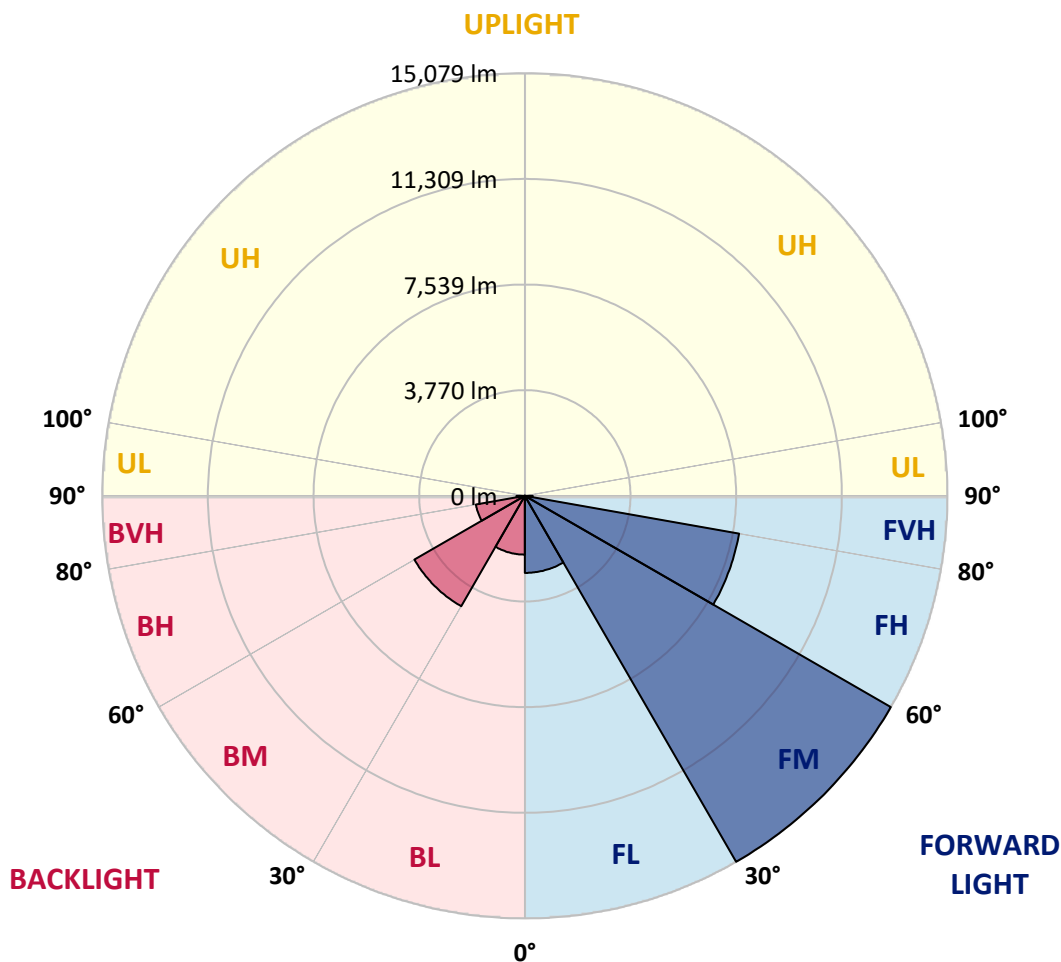


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|----------------|---------|-----------|-------------------------|------|----------|
|                |         |           | B                       | U    | G        |
| FL (0°-30°)    | 2750.0  | 7.9       |                         |      |          |
| FM (30°-60°)   | 15078.6 | 43.6      |                         |      |          |
| FH (60°-80°)   | 7763.3  | 22.4      |                         |      | G4/12000 |
| FVH (80°-90°)  | 281.8   | 0.8       |                         |      | G3/500   |
| BL (0°-30°)    | 2097.5  | 6.1       | B3/2500                 |      |          |
| BM (30°-60°)   | 4549.6  | 13.2      | B3/5000                 |      |          |
| BH (60°-80°)   | 1774.9  | 5.1       | B3/2500                 |      | G3/2500  |
| BVH (80°-90°)  | 299.2   | 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-G4**  
 Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 75°     | 79°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 5078.6  | 5078.6  | 5078.6  | 5078.6  | 5078.6  | 5078.6  | 5078.6  | 5078.6  | 5078.6  | 5078.6  | 5078.6  |
| 2.5°  | 5086.3  | 5086.3  | 5055.5  | 5086.3  | 5070.9  | 5094.0  | 5109.4  | 5109.4  | 5140.3  | 5132.5  | 5132.5  |
| 5°    | 5001.5  | 4986.1  | 4978.4  | 5032.4  | 5063.2  | 5124.8  | 5194.2  | 5225.0  | 5279.0  | 5279.0  | 5286.7  |
| 7.5°  | 4778.0  | 4770.3  | 4808.9  | 4916.8  | 5017.0  | 5171.1  | 5317.5  | 5402.3  | 5487.1  | 5502.5  | 5502.5  |
| 10°   | 4639.3  | 4631.6  | 4677.9  | 4808.9  | 4970.7  | 5194.2  | 5425.4  | 5602.6  | 5741.4  | 5779.9  | 5779.9  |
| 12.5° | 4639.3  | 4639.3  | 4677.9  | 4808.9  | 4978.4  | 5248.1  | 5564.1  | 5864.7  | 6080.5  | 6126.7  | 6111.3  |
| 15°   | 4770.3  | 4762.6  | 4808.9  | 4947.6  | 5109.4  | 5363.7  | 5749.1  | 6149.8  | 6442.7  | 6527.4  | 6535.1  |
| 17.5° | 4909.1  | 4901.4  | 4970.7  | 5148.0  | 5340.6  | 5594.9  | 5988.0  | 6481.2  | 6897.3  | 7005.2  | 7028.4  |
| 20°   | 5124.8  | 5117.1  | 5201.9  | 5371.5  | 5610.4  | 5903.2  | 6311.6  | 6874.2  | 7452.2  | 7567.8  | 7598.6  |
| 22.5° | 5371.5  | 5379.2  | 5471.6  | 5679.7  | 5918.6  | 6303.9  | 6804.9  | 7429.1  | 8122.7  | 8299.9  | 8330.8  |
| 25°   | 5887.8  | 5864.7  | 5941.7  | 6088.2  | 6342.5  | 6804.9  | 7421.4  | 8099.6  | 8924.2  | 9139.9  | 9178.5  |
| 27.5° | 6573.7  | 6535.1  | 6619.9  | 6766.3  | 6951.3  | 7382.9  | 8091.9  | 8847.1  | 9841.2  | 10111.0 | 10118.7 |
| 30°   | 7190.2  | 7167.1  | 7282.7  | 7583.2  | 7775.9  | 8107.3  | 8862.5  | 9725.6  | 10974.1 | 11367.1 | 11382.5 |
| 32.5° | 7721.9  | 7714.2  | 7930.0  | 8315.3  | 8754.6  | 9109.1  | 9841.2  | 10835.4 | 12407.5 | 12862.2 | 12762.0 |
| 35°   | 8230.6  | 8253.7  | 8523.4  | 8924.2  | 9509.9  | 10218.9 | 10958.7 | 12091.5 | 13918.0 | 14465.2 | 14303.3 |
| 37.5° | 8746.9  | 8762.3  | 9116.8  | 9633.2  | 10249.7 | 11174.5 | 12168.6 | 13455.6 | 15228.1 | 15906.3 | 15551.8 |
| 40°   | 9224.7  | 9271.0  | 9748.8  | 10303.6 | 11105.1 | 12045.3 | 13155.0 | 14403.5 | 16237.7 | 16908.1 | 16522.8 |
| 42.5° | 9702.5  | 9771.9  | 10288.2 | 11051.2 | 11906.6 | 12885.3 | 13840.9 | 14981.5 | 16885.0 | 17632.5 | 17039.1 |
| 45°   | 10195.7 | 10242.0 | 10881.6 | 11675.4 | 12646.4 | 13548.1 | 14234.0 | 15351.4 | 17332.0 | 18141.2 | 17332.0 |
| 47.5° | 10527.1 | 10619.6 | 11320.9 | 12238.0 | 13209.0 | 14056.7 | 14549.9 | 15505.5 | 17617.1 | 18472.6 | 17439.9 |
| 50°   | 10658.1 | 10789.1 | 11544.4 | 12561.6 | 13671.4 | 14534.5 | 14796.5 | 15590.3 | 17933.1 | 18765.4 | 17416.8 |
| 52.5° | 10635.0 | 10758.3 | 11582.9 | 12708.1 | 14041.3 | 14973.8 | 15035.4 | 15682.8 | 18156.6 | 18865.6 | 17216.4 |
| 53°   | 10511.7 | 10681.3 | 11606.0 | 12715.8 | 14095.2 | 15089.4 | 15143.3 | 15690.5 | 18187.4 | 19004.3 | 17185.6 |
| 55°   | 10087.8 | 10180.3 | 11367.1 | 12708.1 | 14349.6 | 15521.0 | 15443.9 | 15921.7 | 18272.2 | 18911.8 | 16846.5 |
| 57.5° | 9702.5  | 9795.0  | 10827.7 | 12561.6 | 14557.6 | 16129.8 | 15929.4 | 15883.2 | 17809.8 | 18387.8 | 15991.1 |
| 60°   | 9455.9  | 9486.7  | 10357.6 | 12099.3 | 14472.9 | 16553.6 | 16245.4 | 15428.5 | 16669.2 | 17147.0 | 14488.3 |
| 62.5° | 9247.8  | 9240.1  | 10010.8 | 11436.5 | 14149.2 | 16615.3 | 16307.0 | 14303.3 | 14996.9 | 15074.0 | 12484.6 |
| 65°   | 8777.7  | 8723.8  | 9471.3  | 10689.0 | 13478.7 | 16337.8 | 15551.8 | 12600.2 | 12777.4 | 12523.1 | 10026.2 |
| 67.5° | 7845.2  | 7729.7  | 8392.4  | 9548.4  | 12114.7 | 15551.8 | 14110.7 | 10619.6 | 10072.4 | 9563.8  | 7552.4  |
| 70°   | 5618.1  | 5618.1  | 6149.8  | 7305.8  | 9725.6  | 13440.2 | 12114.7 | 8037.9  | 6935.9  | 6481.2  | 5047.8  |
| 72.5° | 2751.2  | 2820.6  | 3375.5  | 4315.7  | 6519.7  | 9756.5  | 9278.7  | 5209.6  | 4207.8  | 3984.3  | 3236.7  |
| 75°   | 1171.4  | 1179.1  | 1441.1  | 1911.2  | 3306.1  | 5772.2  | 5810.7  | 3005.5  | 2697.3  | 2589.4  | 2142.4  |
| 77.5° | 816.9   | 832.3   | 947.9   | 1125.2  | 1572.1  | 2651.0  | 3021.0  | 1818.7  | 1811.0  | 1734.0  | 1525.9  |
| 80°   | 624.2   | 639.6   | 716.7   | 840.0   | 1055.8  | 1356.3  | 1564.4  | 1233.0  | 1294.7  | 1217.6  | 1102.0  |
| 82.5° | 470.1   | 485.5   | 539.5   | 631.9   | 755.2   | 909.4   | 878.5   | 909.4   | 955.6   | 909.4   | 793.8   |
| 85°   | 316.0   | 323.7   | 362.2   | 439.3   | 485.5   | 547.2   | 547.2   | 662.8   | 693.6   | 678.2   | 624.2   |
| 87.5° | 161.8   | 161.8   | 192.7   | 231.2   | 246.6   | 254.3   | 223.5   | 292.8   | 331.4   | 362.2   | 292.8   |
| 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: GALN-SB4D-827-U-T3LG

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 5078.6  | 5078.6  | 5078.6 | 5078.6 | 5078.6 | 5078.6 | 5078.6 | 5078.6 | 5078.6 | 5078.6 | 5078.6 |
| 2.5°  | 5132.5  | 5140.3  | 5117.1 | 5109.4 | 5101.7 | 5063.2 | 5063.2 | 5024.7 | 5017.0 | 5024.7 | 5001.5 |
| 5°    | 5302.1  | 5286.7  | 5225.0 | 5178.8 | 5124.8 | 5017.0 | 4955.3 | 4870.5 | 4847.4 | 4824.3 | 4801.2 |
| 7.5°  | 5510.2  | 5487.1  | 5379.2 | 5255.9 | 5109.4 | 4901.4 | 4785.8 | 4647.0 | 4600.8 | 4562.3 | 4546.9 |
| 10°   | 5772.2  | 5726.0  | 5556.4 | 5294.4 | 5024.7 | 4770.3 | 4608.5 | 4439.0 | 4361.9 | 4346.5 | 4308.0 |
| 12.5° | 6111.3  | 6026.5  | 5710.5 | 5302.1 | 4947.6 | 4616.2 | 4439.0 | 4308.0 | 4277.1 | 4269.4 | 4230.9 |
| 15°   | 6488.9  | 6365.6  | 5857.0 | 5309.8 | 4847.4 | 4485.2 | 4377.3 | 4308.0 | 4308.0 | 4300.2 | 4277.1 |
| 17.5° | 6951.3  | 6750.9  | 5995.7 | 5279.0 | 4724.1 | 4446.7 | 4392.7 | 4331.1 | 4315.7 | 4323.4 | 4292.5 |
| 20°   | 7506.2  | 7174.8  | 6142.1 | 5240.4 | 4670.2 | 4454.4 | 4392.7 | 4308.0 | 4269.4 | 4261.7 | 4238.6 |
| 22.5° | 8145.8  | 7660.3  | 6303.9 | 5178.8 | 4670.2 | 4446.7 | 4346.5 | 4230.9 | 4153.8 | 4123.0 | 4092.2 |
| 25°   | 8877.9  | 8222.9  | 6473.5 | 5155.7 | 4685.6 | 4415.8 | 4254.0 | 4069.0 | 3945.7 | 3899.5 | 3876.4 |
| 27.5° | 9764.2  | 8816.3  | 6596.8 | 5178.8 | 4677.9 | 4346.5 | 4092.2 | 3853.3 | 3714.5 | 3637.5 | 3622.1 |
| 30°   | 10742.9 | 9455.9  | 6681.6 | 5217.3 | 4631.6 | 4215.5 | 3899.5 | 3629.8 | 3437.1 | 3344.6 | 3321.5 |
| 32.5° | 11898.9 | 10172.6 | 6766.3 | 5217.3 | 4516.0 | 4030.5 | 3676.0 | 3383.2 | 3182.8 | 3074.9 | 3059.5 |
| 35°   | 13178.2 | 11051.2 | 6843.4 | 5209.6 | 4377.3 | 3830.1 | 3452.5 | 3152.0 | 2943.9 | 2836.0 | 2828.3 |
| 37.5° | 14264.8 | 11713.9 | 6881.9 | 5132.5 | 4184.6 | 3598.9 | 3244.4 | 2943.9 | 2728.1 | 2612.5 | 2604.8 |
| 40°   | 14935.3 | 11991.4 | 6804.9 | 4978.4 | 3953.5 | 3360.0 | 3013.3 | 2735.8 | 2520.0 | 2381.3 | 2350.5 |
| 42.5° | 15189.6 | 11860.4 | 6558.3 | 4724.1 | 3676.0 | 3121.1 | 2820.6 | 2527.7 | 2242.6 | 2127.0 | 2103.9 |
| 45°   | 15104.8 | 11351.7 | 6034.2 | 4361.9 | 3367.8 | 2905.4 | 2651.0 | 2319.7 | 2134.7 | 2034.5 | 2026.8 |
| 47.5° | 14819.7 | 10565.7 | 5379.2 | 3907.2 | 3044.1 | 2712.7 | 2427.6 | 2265.7 | 2096.2 | 1988.3 | 1980.6 |
| 50°   | 14318.7 | 9725.6  | 4593.1 | 3390.9 | 2751.2 | 2512.3 | 2373.6 | 2242.6 | 2103.9 | 2019.1 | 2003.7 |
| 52.5° | 13679.1 | 8777.7  | 3868.7 | 2889.9 | 2496.9 | 2335.1 | 2319.7 | 2227.2 | 2119.3 | 2026.8 | 1988.3 |
| 53°   | 13532.7 | 8531.1  | 3730.0 | 2805.2 | 2458.4 | 2312.0 | 2304.3 | 2227.2 | 2103.9 | 2019.1 | 1988.3 |
| 55°   | 12831.4 | 7768.2  | 3290.7 | 2504.6 | 2265.7 | 2234.9 | 2304.3 | 2219.5 | 2065.4 | 1996.0 | 1972.9 |
| 57.5° | 11706.2 | 6766.3  | 2866.8 | 2227.2 | 2065.4 | 2142.4 | 2281.1 | 2188.7 | 2019.1 | 1895.8 | 1857.3 |
| 60°   | 10349.9 | 5618.1  | 2543.2 | 2042.2 | 1918.9 | 2026.8 | 2188.7 | 2080.8 | 1849.6 | 1787.9 | 1780.2 |
| 62.5° | 8731.5  | 4546.9  | 2296.5 | 1888.1 | 1795.6 | 1903.5 | 2049.9 | 1865.0 | 1695.4 | 1649.2 | 1633.8 |
| 65°   | 6820.3  | 3614.4  | 2103.9 | 1772.5 | 1672.3 | 1757.1 | 1857.3 | 1741.7 | 1633.8 | 1595.3 | 1587.5 |
| 67.5° | 5070.9  | 2836.0  | 1949.8 | 1672.3 | 1549.0 | 1603.0 | 1718.6 | 1687.7 | 1595.3 | 1572.1 | 1564.4 |
| 70°   | 3498.8  | 2304.3  | 1811.0 | 1579.8 | 1394.9 | 1456.5 | 1633.8 | 1656.9 | 1564.4 | 1549.0 | 1541.3 |
| 72.5° | 2450.7  | 1949.8  | 1664.6 | 1479.7 | 1271.6 | 1333.2 | 1595.3 | 1595.3 | 1495.1 | 1518.2 | 1502.8 |
| 75°   | 1841.9  | 1641.5  | 1495.1 | 1356.3 | 1117.4 | 1209.9 | 1541.3 | 1525.9 | 1425.7 | 1525.9 | 1487.4 |
| 77.5° | 1387.2  | 1325.5  | 1294.7 | 1202.2 | 978.7  | 1071.2 | 1433.4 | 1402.6 | 1271.6 | 1279.3 | 1209.9 |
| 80°   | 1009.6  | 1025.0  | 1109.7 | 1025.0 | 816.9  | 886.3  | 1209.9 | 1194.5 | 1032.7 | 1063.5 | 978.7  |
| 82.5° | 724.4   | 762.9   | 947.9  | 824.6  | 593.4  | 631.9  | 832.3  | 901.7  | 809.2  | 762.9  | 778.4  |
| 85°   | 547.2   | 570.3   | 762.9  | 608.8  | 369.9  | 416.2  | 570.3  | 647.3  | 631.9  | 585.7  | 593.4  |
| 87.5° | 231.2   | 262.0   | 354.5  | 285.1  | 215.8  | 215.8  | 354.5  | 454.7  | 408.4  | 346.8  | 362.2  |
| 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: SP1-2407-184-8

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-827-U-5WQ

Data in this report applies to families of products including GSS-SB1A-827-U-5WQ

**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-8  
 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-827-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI 2700K CCT 26 LEDS

**Spectral Parameters**

CCT (K): 2756  
 CIE u': 0.2599  
 CIE v': 0.5271  
 Duv: 0.0006  
 CIE x: 0.4563  
 CIE y: 0.4112  
 CIE z: 0.1325  
 Peak Wavelength (nm): 609  
 Dominant Wavelength (nm): 583  
 Purity: 60.41121  
 Rf: 82.2  
 Rg: 99.9

|           |      |      |      |
|-----------|------|------|------|
| CRI (Ra): | 82.9 |      |      |
| R1:       | 81.6 | R9:  | 10.8 |
| R2:       | 88.8 | R10: | 74.8 |
| R3:       | 96.0 | R11: | 84.3 |
| R4:       | 83.4 | R12: | 72.1 |
| R5:       | 81.4 | R13: | 82.9 |
| R6:       | 87.0 | R14: | 97.3 |
| R7:       | 84.0 | R15: | 73.7 |
| R8:       | 60.8 |      |      |



**Test Conditions**

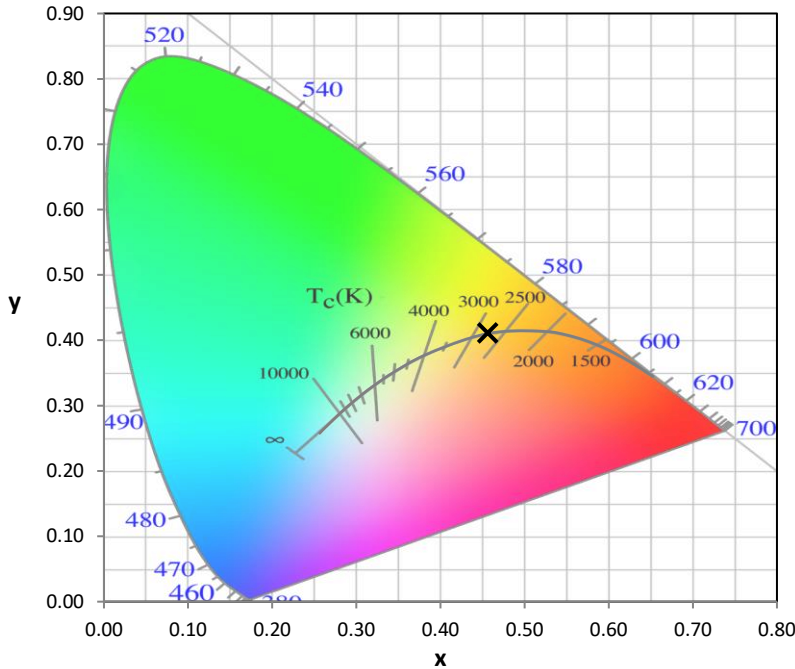
Stabilization Time: 29M  
 Operation Time: 1H 29M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-8

| 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           |

REPORT NUMBER: SP1-2407-184-8

**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

REPORT NUMBER: SP1-2407-184-8

**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               | 158                         | NR                      | 620               | 959                         | NR                      | 750               | 35                          | NR                      | 880               | 1                           | NR                      |
| 365               | 0                           | NR                      | 495               | 211                         | NR                      | 625               | 918                         | NR                      | 755               | 30                          | NR                      | 885               | 1                           | NR                      |
| 370               | 0                           | NR                      | 500               | 264                         | NR                      | 630               | 873                         | NR                      | 760               | 26                          | NR                      | 890               | 1                           | NR                      |
| 375               | 0                           | NR                      | 505               | 318                         | NR                      | 635               | 816                         | NR                      | 765               | 22                          | NR                      | 895               | 1                           | NR                      |
| 380               | 0                           | NR                      | 510               | 363                         | NR                      | 640               | 755                         | NR                      | 770               | 19                          | NR                      | 900               | 1                           | NR                      |
| 385               | 0                           | NR                      | 515               | 403                         | NR                      | 645               | 689                         | NR                      | 775               | 16                          | NR                      | 905               | 1                           | NR                      |
| 390               | 0                           | NR                      | 520               | 435                         | NR                      | 650               | 626                         | NR                      | 780               | 14                          | NR                      | 910               | 0                           | NR                      |
| 395               | 1                           | NR                      | 525               | 459                         | NR                      | 655               | 564                         | NR                      | 785               | 12                          | NR                      | 915               | 0                           | NR                      |
| 400               | 3                           | NR                      | 530               | 481                         | NR                      | 660               | 503                         | NR                      | 790               | 10                          | NR                      | 920               | 0                           | NR                      |
| 405               | 6                           | NR                      | 535               | 501                         | NR                      | 665               | 447                         | NR                      | 795               | 9                           | NR                      | 925               | 0                           | NR                      |
| 410               | 13                          | NR                      | 540               | 519                         | NR                      | 670               | 392                         | NR                      | 800               | 8                           | NR                      | 930               | 0                           | NR                      |
| 415               | 26                          | NR                      | 545               | 542                         | NR                      | 675               | 343                         | NR                      | 805               | 7                           | NR                      | 935               | 0                           | NR                      |
| 420               | 51                          | NR                      | 550               | 565                         | NR                      | 680               | 299                         | NR                      | 810               | 6                           | NR                      | 940               | 0                           | NR                      |
| 425               | 93                          | NR                      | 555               | 593                         | NR                      | 685               | 260                         | NR                      | 815               | 5                           | NR                      | 945               | 0                           | NR                      |
| 430               | 156                         | NR                      | 560               | 624                         | NR                      | 690               | 225                         | NR                      | 820               | 4                           | NR                      | 950               | 0                           | NR                      |
| 435               | 250                         | NR                      | 565               | 662                         | NR                      | 695               | 194                         | NR                      | 825               | 4                           | NR                      | 955               | 0                           | NR                      |
| 440               | 391                         | NR                      | 570               | 707                         | NR                      | 700               | 166                         | NR                      | 830               | 3                           | NR                      | 960               | 0                           | NR                      |
| 445               | 460                         | NR                      | 575               | 756                         | NR                      | 705               | 143                         | NR                      | 835               | 3                           | NR                      | 965               | 0                           | NR                      |
| 450               | 293                         | NR                      | 580               | 810                         | NR                      | 710               | 122                         | NR                      | 840               | 2                           | NR                      | 970               | 0                           | NR                      |
| 455               | 188                         | NR                      | 585               | 860                         | NR                      | 715               | 105                         | NR                      | 845               | 2                           | NR                      | 975               | 0                           | NR                      |
| 460               | 149                         | NR                      | 590               | 910                         | NR                      | 720               | 90                          | NR                      | 850               | 2                           | NR                      | 980               | 0                           | NR                      |
| 465               | 103                         | NR                      | 595               | 950                         | NR                      | 725               | 77                          | NR                      | 855               | 2                           | NR                      | 985               | 0                           | NR                      |
| 470               | 80                          | NR                      | 600               | 980                         | NR                      | 730               | 66                          | NR                      | 860               | 1                           | NR                      | 990               | 0                           | NR                      |
| 475               | 82                          | NR                      | 605               | 995                         | NR                      | 735               | 56                          | NR                      | 865               | 1                           | NR                      | 995               | 0                           | NR                      |
| 480               | 92                          | NR                      | 610               | 998                         | NR                      | 740               | 48                          | NR                      | 870               | 1                           | NR                      | 1000              | 0                           | NR                      |
| 485               | 116                         | NR                      | 615               | 985                         | NR                      | 745               | 41                          | NR                      | 875               | 1                           | NR                      |                   |                             |                         |

REPORT NUMBER: SP1-2407-184-8

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.2

| 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    | 158                      | NR            | 620    | 959                      | NR            | 750    | 35                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 211                      | NR            | 625    | 918                      | NR            | 755    | 30                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 264                      | NR            | 630    | 873                      | NR            | 760    | 26                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 318                      | NR            | 635    | 816                      | NR            | 765    | 22                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 363                      | NR            | 640    | 755                      | NR            | 770    | 19                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 403                      | NR            | 645    | 689                      | NR            | 775    | 16                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 435                      | NR            | 650    | 626                      | NR            | 780    | 14                       | NR            | 910    | 0                        | NR            |
| 395    | 1                        | NR            | 525    | 459                      | NR            | 655    | 564                      | NR            | 785    | 12                       | NR            | 915    | 0                        | NR            |
| 400    | 3                        | NR            | 530    | 481                      | NR            | 660    | 503                      | NR            | 790    | 10                       | NR            | 920    | 0                        | NR            |
| 405    | 6                        | NR            | 535    | 501                      | NR            | 665    | 447                      | NR            | 795    | 9                        | NR            | 925    | 0                        | NR            |
| 410    | 13                       | NR            | 540    | 519                      | NR            | 670    | 392                      | NR            | 800    | 8                        | NR            | 930    | 0                        | NR            |
| 415    | 26                       | NR            | 545    | 542                      | NR            | 675    | 343                      | NR            | 805    | 7                        | NR            | 935    | 0                        | NR            |
| 420    | 51                       | NR            | 550    | 565                      | NR            | 680    | 299                      | NR            | 810    | 6                        | NR            | 940    | 0                        | NR            |
| 425    | 93                       | NR            | 555    | 593                      | NR            | 685    | 260                      | NR            | 815    | 5                        | NR            | 945    | 0                        | NR            |
| 430    | 156                      | NR            | 560    | 624                      | NR            | 690    | 225                      | NR            | 820    | 4                        | NR            | 950    | 0                        | NR            |
| 435    | 250                      | NR            | 565    | 662                      | NR            | 695    | 194                      | NR            | 825    | 4                        | NR            | 955    | 0                        | NR            |
| 440    | 391                      | NR            | 570    | 707                      | NR            | 700    | 166                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 460                      | NR            | 575    | 756                      | NR            | 705    | 143                      | NR            | 835    | 3                        | NR            | 965    | 0                        | NR            |
| 450    | 293                      | NR            | 580    | 810                      | NR            | 710    | 122                      | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 188                      | NR            | 585    | 860                      | NR            | 715    | 105                      | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 149                      | NR            | 590    | 910                      | NR            | 720    | 90                       | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 103                      | NR            | 595    | 950                      | NR            | 725    | 77                       | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 80                       | NR            | 600    | 980                      | NR            | 730    | 66                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 82                       | NR            | 605    | 995                      | NR            | 735    | 56                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 92                       | NR            | 610    | 998                      | NR            | 740    | 48                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 116                      | NR            | 615    | 985                      | NR            | 745    | 41                       | NR            | 875    | 1                        | NR            |        |                          |               |

REPORT NUMBER: SP1-2407-184-8

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: NR**

**M/P: 2.16**

| 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    | 158                      | NR            | 620    | 959                      | NR            | 750    | 35                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 211                      | NR            | 625    | 918                      | NR            | 755    | 30                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 264                      | NR            | 630    | 873                      | NR            | 760    | 26                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 318                      | NR            | 635    | 816                      | NR            | 765    | 22                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 363                      | NR            | 640    | 755                      | NR            | 770    | 19                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 403                      | NR            | 645    | 689                      | NR            | 775    | 16                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 435                      | NR            | 650    | 626                      | NR            | 780    | 14                       | NR            | 910    | 0                        | NR            |
| 395    | 1                        | NR            | 525    | 459                      | NR            | 655    | 564                      | NR            | 785    | 12                       | NR            | 915    | 0                        | NR            |
| 400    | 3                        | NR            | 530    | 481                      | NR            | 660    | 503                      | NR            | 790    | 10                       | NR            | 920    | 0                        | NR            |
| 405    | 6                        | NR            | 535    | 501                      | NR            | 665    | 447                      | NR            | 795    | 9                        | NR            | 925    | 0                        | NR            |
| 410    | 13                       | NR            | 540    | 519                      | NR            | 670    | 392                      | NR            | 800    | 8                        | NR            | 930    | 0                        | NR            |
| 415    | 26                       | NR            | 545    | 542                      | NR            | 675    | 343                      | NR            | 805    | 7                        | NR            | 935    | 0                        | NR            |
| 420    | 51                       | NR            | 550    | 565                      | NR            | 680    | 299                      | NR            | 810    | 6                        | NR            | 940    | 0                        | NR            |
| 425    | 93                       | NR            | 555    | 593                      | NR            | 685    | 260                      | NR            | 815    | 5                        | NR            | 945    | 0                        | NR            |
| 430    | 156                      | NR            | 560    | 624                      | NR            | 690    | 225                      | NR            | 820    | 4                        | NR            | 950    | 0                        | NR            |
| 435    | 250                      | NR            | 565    | 662                      | NR            | 695    | 194                      | NR            | 825    | 4                        | NR            | 955    | 0                        | NR            |
| 440    | 391                      | NR            | 570    | 707                      | NR            | 700    | 166                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 460                      | NR            | 575    | 756                      | NR            | 705    | 143                      | NR            | 835    | 3                        | NR            | 965    | 0                        | NR            |
| 450    | 293                      | NR            | 580    | 810                      | NR            | 710    | 122                      | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 188                      | NR            | 585    | 860                      | NR            | 715    | 105                      | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 149                      | NR            | 590    | 910                      | NR            | 720    | 90                       | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 103                      | NR            | 595    | 950                      | NR            | 725    | 77                       | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 80                       | NR            | 600    | 980                      | NR            | 730    | 66                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 82                       | NR            | 605    | 995                      | NR            | 735    | 56                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 92                       | NR            | 610    | 998                      | NR            | 740    | 48                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 116                      | NR            | 615    | 985                      | NR            | 745    | 41                       | NR            | 875    | 1                        | NR            |        |                          |               |

**Summary**

$R_f = 82.2$   
 $R_g = 99.9$   
 $CIE R_a = 82.9$   
 $R_9 = 10.8$



**Color Vector Graphics**



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 76 | CES51 = 89 | CES76 = 75 |
| CES02 = 63 | CES27 = 89 | CES52 = 91 | CES77 = 87 |
| CES03 = 31 | CES28 = 90 | CES53 = 82 | CES78 = 76 |
| CES04 = 71 | CES29 = 68 | CES54 = 88 | CES79 = 91 |
| CES05 = 50 | CES30 = 69 | CES55 = 87 | CES80 = 90 |
| CES06 = 52 | CES31 = 72 | CES56 = 80 | CES81 = 74 |
| CES07 = 43 | CES32 = 71 | CES57 = 78 | CES82 = 95 |
| CES08 = 42 | CES33 = 71 | CES58 = 80 | CES83 = 90 |
| CES09 = 29 | CES34 = 84 | CES59 = 93 | CES84 = 94 |
| CES10 = 77 | CES35 = 92 | CES60 = 96 | CES85 = 83 |
| CES11 = 59 | CES36 = 92 | CES61 = 94 | CES86 = 69 |
| CES12 = 66 | CES37 = 89 | CES62 = 84 | CES87 = 85 |
| CES13 = 44 | CES38 = 75 | CES63 = 79 | CES88 = 84 |
| CES14 = 74 | CES39 = 93 | CES64 = 85 | CES89 = 74 |
| CES15 = 72 | CES40 = 89 | CES65 = 79 | CES90 = 81 |
| CES16 = 48 | CES41 = 85 | CES66 = 83 | CES91 = 96 |
| CES17 = 50 | CES42 = 88 | CES67 = 82 | CES92 = 72 |
| CES18 = 57 | CES43 = 81 | CES68 = 86 | CES93 = 84 |
| CES19 = 73 | CES44 = 98 | CES69 = 92 | CES94 = 63 |
| CES20 = 67 | CES45 = 87 | CES70 = 81 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 81 | CES96 = 85 |
| CES22 = 79 | CES47 = 76 | CES72 = 93 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 75 | CES98 = 82 |
| CES24 = 91 | CES49 = 81 | CES74 = 91 | CES99 = 76 |
| CES25 = 72 | CES50 = 88 | CES75 = 79 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)