

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: P318140

Luminaire Tested: **GLEON-SA6D-750-U-T2**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P318140  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-12)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA6D-750-U-T2  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(6) 70 CRI, 5000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 45540 lumens  
Efficiency: N/A  
Efficacy: 119.2 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B3 - U0 - G5

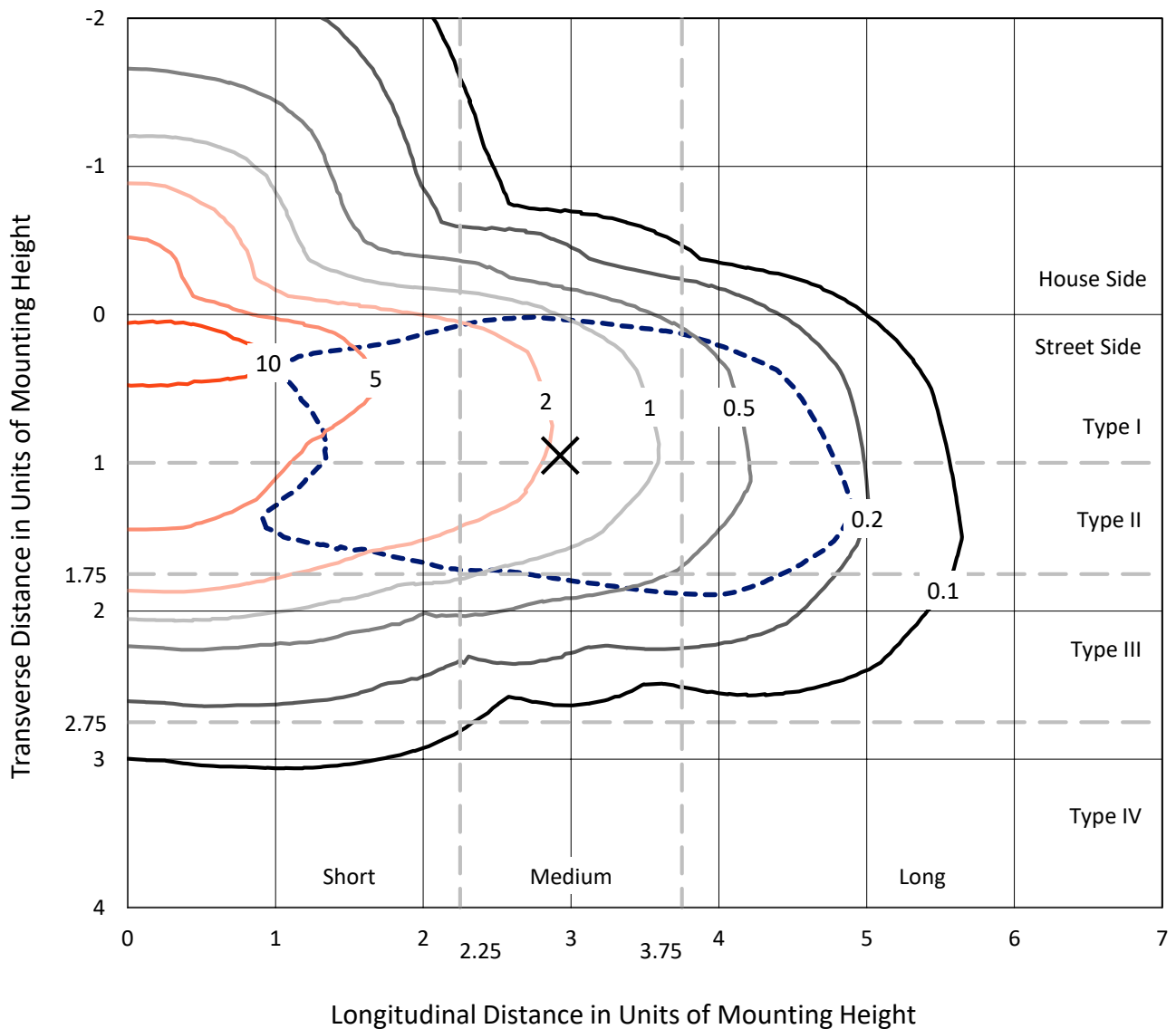
Input Watts (W): 382  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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 CATALOG NUMBER: GLEON-SA6D-750-U-T2

### Iso-Footcandle Lines of Horizontal Illumination

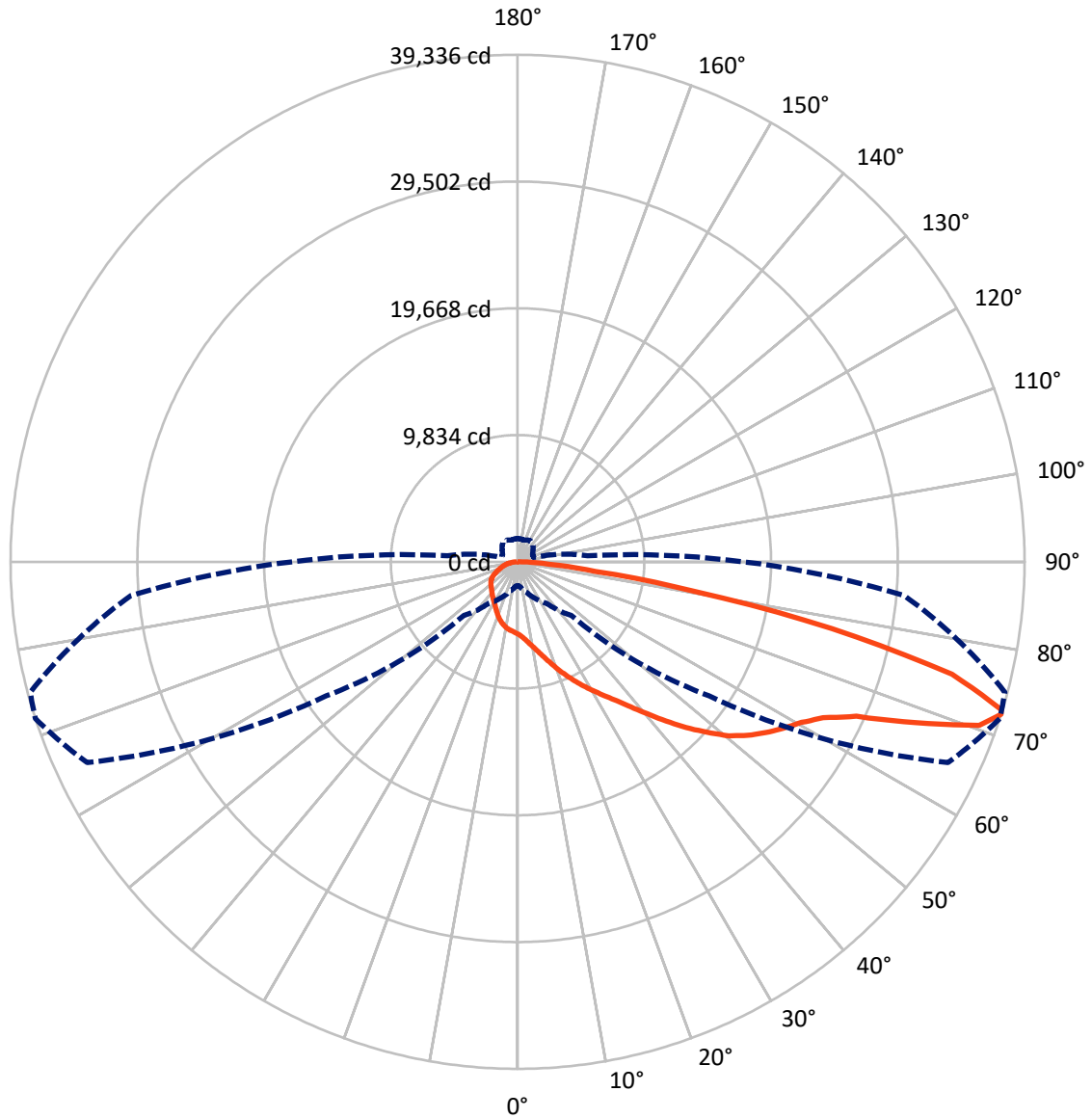
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 12.4 fc  
 Type III - Medium - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 72-Deg Lateral      - - - Horizontal Cone Through 72-Deg Vertical

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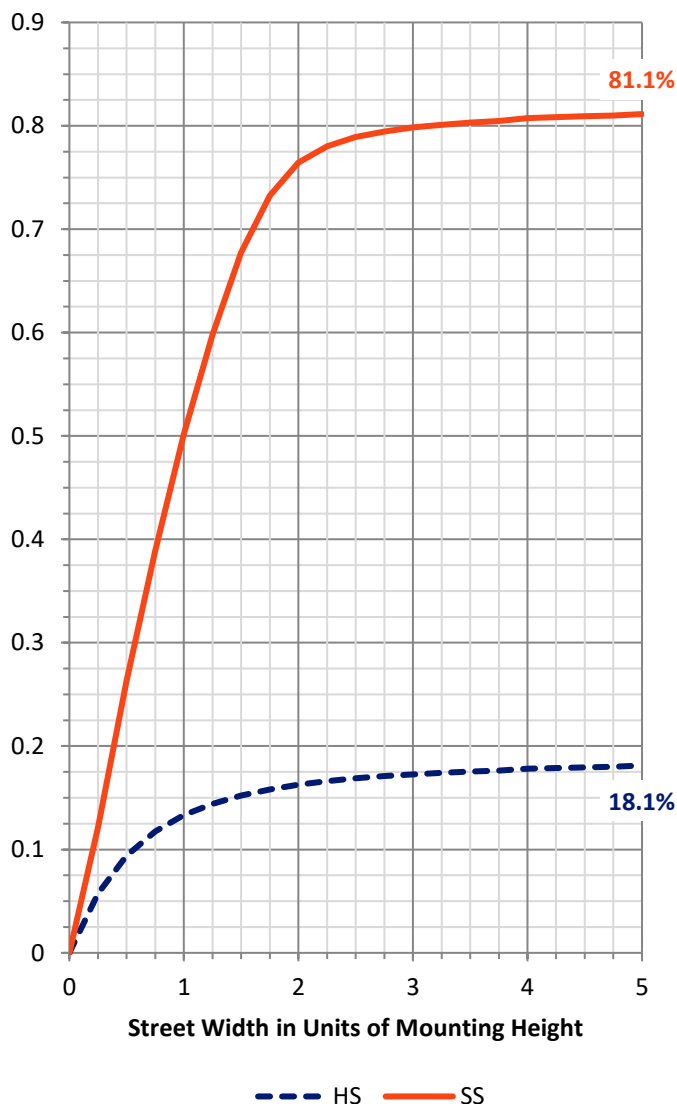
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 8448.0   | 0.0    | 8448.0  |
|                    | % Fixture | 18.6     | 0.0    | 18.6    |
| <b>Street Side</b> | Lumens    | 37092.0  | 0.0    | 37092.0 |
|                    | % Fixture | 81.4     | 0.0    | 81.4    |
| <b>Total</b>       | Lumens    | 45540.0  | 0.0    | 45540.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 561.4   | 1.2       |
| 10°-20°   | 1814.2  | 4.0       |
| 20°-30°   | 3179.0  | 7.0       |
| 30°-40°   | 4713.4  | 10.4      |
| 40°-50°   | 6893.8  | 15.1      |
| 50°-60°   | 9485.8  | 20.8      |
| 60°-70°   | 10560.5 | 23.2      |
| 70°-80°   | 7155.8  | 15.7      |
| 80°-90°   | 1176.1  | 2.6       |
| 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°    | 45540.0 | 100.0     |
| 0°-180°   | 45540.0 | 100.0     |

**Coefficient of Utilization**

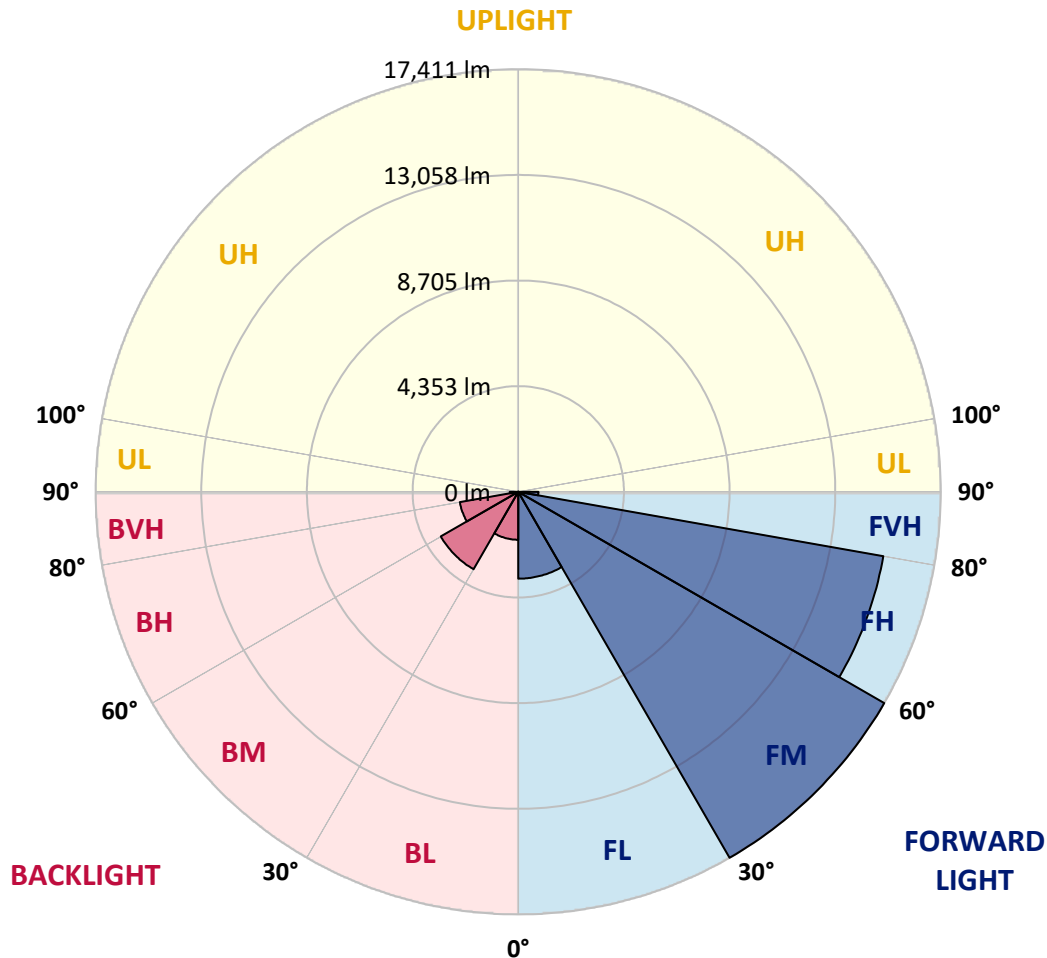


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|---------|-----------|-------------------------|------|---------|
|                |         |           | B                       | U    | G       |
| FL (0°-30°)    | 3579.7  | 7.9       |                         |      |         |
| FM (30°-60°)   | 17410.5 | 38.2      |                         |      |         |
| FH (60°-80°)   | 15272.2 | 33.5      |                         |      | G5      |
| FVH (80°-90°)  | 829.6   | 1.8       |                         |      | G5      |
| BL (0°-30°)    | 1974.8  | 4.3       | B3/2500                 |      |         |
| BM (30°-60°)   | 3682.5  | 8.1       | B3/5000                 |      |         |
| BH (60°-80°)   | 2444.1  | 5.4       | B3/2500                 |      | G3/2500 |
| BVH (80°-90°)  | 346.5   | 0.8       |                         |      | G3/500  |
| UL (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0     | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G5**  
 Type III Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 72°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 5602.6  | 5602.6  | 5602.6  | 5602.6  | 5602.6  | 5602.6  | 5602.6  | 5602.6  | 5602.6  | 5602.6  | 5602.6  |
| 2.5°  | 6189.1  | 6179.6  | 6146.7  | 6146.7  | 6084.0  | 6030.7  | 5930.3  | 5862.9  | 5782.9  | 5754.7  | 5660.6  |
| 5°    | 6788.0  | 6791.2  | 6750.4  | 6722.2  | 6629.7  | 6516.8  | 6345.9  | 6190.6  | 6035.4  | 5972.7  | 5779.8  |
| 7.5°  | 7291.4  | 7285.1  | 7274.1  | 7250.6  | 7164.4  | 7048.3  | 6817.8  | 6587.3  | 6358.4  | 6264.3  | 5931.9  |
| 10°   | 7614.4  | 7628.5  | 7637.9  | 7648.9  | 7612.8  | 7529.7  | 7311.8  | 7031.1  | 6731.6  | 6603.0  | 6113.8  |
| 12.5° | 7777.5  | 7802.6  | 7846.5  | 7921.7  | 7981.3  | 7971.9  | 7813.5  | 7515.6  | 7159.7  | 6998.2  | 6341.2  |
| 15°   | 7873.1  | 7906.1  | 7975.1  | 8109.9  | 8277.7  | 8373.3  | 8331.0  | 8061.3  | 7664.6  | 7465.4  | 6618.7  |
| 17.5° | 7932.7  | 7959.4  | 8066.0  | 8246.3  | 8495.6  | 8749.7  | 8861.0  | 8635.2  | 8235.3  | 8008.0  | 6937.0  |
| 20°   | 7973.5  | 7993.9  | 8127.2  | 8338.8  | 8661.9  | 9066.4  | 9376.9  | 9320.4  | 8864.1  | 8569.3  | 7269.4  |
| 22.5° | 8064.4  | 8081.7  | 8208.7  | 8421.9  | 8779.5  | 9301.6  | 9873.9  | 9958.6  | 9527.4  | 9193.4  | 7625.4  |
| 25°   | 8318.5  | 8318.5  | 8425.1  | 8574.0  | 8909.6  | 9505.5  | 10294.2 | 10668.9 | 10204.8 | 9815.9  | 7954.7  |
| 27.5° | 8803.0  | 8798.3  | 8837.5  | 8889.2  | 9143.2  | 9712.4  | 10668.9 | 11296.2 | 10907.3 | 10482.3 | 8274.5  |
| 30°   | 9376.9  | 9408.2  | 9412.9  | 9387.9  | 9507.0  | 9971.2  | 11015.5 | 11957.9 | 11614.5 | 11156.6 | 8602.3  |
| 32.5° | 10115.4 | 10135.8 | 10112.3 | 10029.2 | 10011.9 | 10338.1 | 11355.7 | 12650.9 | 12379.7 | 11860.7 | 8901.8  |
| 35°   | 11053.1 | 11013.9 | 10940.2 | 10770.9 | 10609.4 | 10828.9 | 11744.6 | 13344.0 | 13239.0 | 12712.1 | 9314.2  |
| 37.5° | 12058.2 | 12059.8 | 11968.9 | 11584.7 | 11362.0 | 11456.1 | 12280.9 | 14129.6 | 14278.6 | 13725.1 | 9842.6  |
| 40°   | 12864.2 | 12906.5 | 12963.0 | 12458.1 | 12169.6 | 12299.7 | 12963.0 | 15040.6 | 15507.9 | 14926.2 | 10531.0 |
| 42.5° | 13427.1 | 13475.7 | 13635.7 | 13318.9 | 13019.4 | 13260.9 | 13765.8 | 16012.8 | 16887.8 | 16312.3 | 11336.9 |
| 45°   | 14023.0 | 14049.6 | 14162.5 | 14026.1 | 13834.8 | 14378.9 | 14670.6 | 17019.5 | 18347.6 | 17789.4 | 12238.6 |
| 47.5° | 14650.2 | 14678.4 | 14794.5 | 14703.5 | 14603.2 | 15423.2 | 15614.5 | 17968.2 | 19746.3 | 19412.3 | 13201.3 |
| 50°   | 15424.8 | 15443.6 | 15553.4 | 15388.7 | 15420.1 | 16210.4 | 16458.2 | 18838.4 | 21212.4 | 20870.6 | 14167.2 |
| 52.5° | 16481.7 | 16486.4 | 16638.5 | 16489.5 | 16342.1 | 16787.4 | 17184.2 | 19658.5 | 22361.8 | 22200.3 | 15133.2 |
| 55°   | 17309.6 | 17359.8 | 17858.4 | 17827.1 | 17742.4 | 17311.2 | 17791.0 | 20439.4 | 23387.3 | 23464.2 | 16158.7 |
| 57.5° | 16781.2 | 16977.2 | 17987.0 | 18698.9 | 19392.0 | 18614.2 | 18611.1 | 21319.1 | 24340.7 | 24704.5 | 17286.1 |
| 60°   | 14697.2 | 14963.8 | 16451.9 | 18030.9 | 20199.5 | 20881.6 | 20314.0 | 22393.2 | 25303.5 | 25933.8 | 18698.9 |
| 62.5° | 10496.5 | 10935.5 | 12952.0 | 15473.4 | 19092.5 | 22383.8 | 23779.3 | 24097.6 | 26612.8 | 27357.6 | 20535.1 |
| 65°   | 5306.2  | 5638.7  | 7329.0  | 10366.3 | 15253.9 | 21402.2 | 27545.8 | 27829.6 | 28888.0 | 29549.7 | 23362.2 |
| 67.5° | 3223.9  | 3349.3  | 4174.1  | 5765.7  | 9351.8  | 16671.4 | 28775.1 | 34050.0 | 33291.1 | 33642.3 | 27393.7 |
| 70°   | 2375.6  | 2468.1  | 2982.4  | 3829.2  | 5378.4  | 9783.0  | 25002.4 | 38489.1 | 37990.5 | 37951.3 | 30372.9 |
| 72°   | 1850.3  | 1917.7  | 2372.4  | 3093.7  | 3932.6  | 5869.2  | 18121.8 | 36850.5 | 39335.9 | 39138.3 | 30100.1 |
| 72.5° | 1754.6  | 1814.2  | 2228.2  | 2911.9  | 3716.3  | 5320.4  | 16293.5 | 35745.0 | 39238.6 | 39149.3 | 29747.3 |
| 75°   | 1381.4  | 1423.8  | 1649.6  | 2251.7  | 2908.7  | 3018.5  | 8928.4  | 27701.0 | 34808.9 | 36256.2 | 26755.5 |
| 77.5° | 1143.1  | 1149.4  | 1268.5  | 1638.6  | 2267.4  | 2134.1  | 4385.8  | 19219.5 | 24925.6 | 26517.1 | 18952.9 |
| 80°   | 931.4   | 939.3   | 995.7   | 1149.4  | 1715.4  | 1579.0  | 2082.4  | 11051.5 | 13955.6 | 13972.8 | 9013.1  |
| 82.5° | 741.7   | 743.3   | 806.0   | 840.5   | 1232.5  | 1129.0  | 1193.3  | 5188.6  | 6098.1  | 5866.0  | 3239.6  |
| 85°   | 522.2   | 511.2   | 787.2   | 689.9   | 806.0   | 724.4   | 658.6   | 2054.1  | 2521.4  | 2411.6  | 1014.5  |
| 87.5° | 174.1   | 180.3   | 349.7   | 446.9   | 470.4   | 410.8   | 293.2   | 787.2   | 951.8   | 944.0   | 321.4   |
| 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: P318140  
 CATALOG NUMBER: GLEON-SA6D-750-U-T2

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 5602.6  | 5602.6 | 5602.6 | 5602.6 | 5602.6 | 5602.6 | 5602.6 | 5602.6 | 5602.6 | 5602.6 | 5602.6 |
| 2.5°  | 5630.8  | 5580.7 | 5507.0 | 5425.4 | 5361.1 | 5295.3 | 5246.7 | 5221.6 | 5193.3 | 5169.8 | 5198.1 |
| 5°    | 5690.4  | 5596.3 | 5439.5 | 5285.9 | 5173.0 | 5072.6 | 5000.5 | 4962.8 | 4928.4 | 4904.8 | 4908.0 |
| 7.5°  | 5787.6  | 5635.5 | 5372.1 | 5147.9 | 4991.1 | 4882.9 | 4809.2 | 4784.1 | 4762.1 | 4755.9 | 4763.7 |
| 10°   | 5891.1  | 5666.9 | 5282.7 | 4984.8 | 4806.0 | 4716.7 | 4683.7 | 4701.0 | 4716.7 | 4730.8 | 4746.5 |
| 12.5° | 6008.7  | 5695.1 | 5152.6 | 4793.5 | 4641.4 | 4606.9 | 4639.8 | 4715.1 | 4770.0 | 4802.9 | 4823.3 |
| 15°   | 6162.4  | 5720.2 | 5002.0 | 4602.2 | 4500.3 | 4539.5 | 4650.8 | 4781.0 | 4876.6 | 4937.8 | 4947.2 |
| 17.5° | 6303.5  | 5718.6 | 4809.2 | 4409.3 | 4385.8 | 4500.3 | 4668.1 | 4851.5 | 4980.1 | 5066.3 | 5083.6 |
| 20°   | 6449.3  | 5676.3 | 4584.9 | 4221.2 | 4269.8 | 4457.9 | 4675.9 | 4897.0 | 5052.2 | 5152.6 | 5176.1 |
| 22.5° | 6585.8  | 5602.6 | 4338.8 | 4050.2 | 4172.6 | 4401.5 | 4646.1 | 4870.3 | 5025.6 | 5107.1 | 5132.2 |
| 25°   | 6678.3  | 5474.0 | 4089.4 | 3906.0 | 4086.3 | 4332.5 | 4548.9 | 4729.2 | 4845.2 | 4886.0 | 4892.3 |
| 27.5° | 6725.3  | 5306.2 | 3854.2 | 3780.5 | 3996.9 | 4219.6 | 4368.6 | 4457.9 | 4490.9 | 4487.7 | 4481.5 |
| 30°   | 6731.6  | 5085.2 | 3652.0 | 3678.6 | 3893.4 | 4053.4 | 4123.9 | 4106.7 | 4064.4 | 3992.2 | 3998.5 |
| 32.5° | 6711.2  | 4835.8 | 3482.6 | 3581.4 | 3761.7 | 3851.1 | 3854.2 | 3771.1 | 3658.2 | 3543.8 | 3512.4 |
| 35°   | 6717.5  | 4591.2 | 3333.7 | 3471.6 | 3601.8 | 3641.0 | 3604.9 | 3482.6 | 3328.9 | 3181.6 | 3150.2 |
| 37.5° | 6786.5  | 4378.0 | 3205.1 | 3344.6 | 3424.6 | 3434.0 | 3382.3 | 3253.7 | 3140.8 | 2996.5 | 2984.0 |
| 40°   | 6951.1  | 4225.9 | 3082.8 | 3201.9 | 3247.4 | 3252.1 | 3178.4 | 3087.5 | 3096.9 | 3020.0 | 3018.5 |
| 42.5° | 7247.5  | 4160.0 | 2974.6 | 3053.0 | 3081.2 | 3090.6 | 3034.2 | 2976.1 | 3057.7 | 3007.5 | 2990.3 |
| 45°   | 7630.1  | 4175.7 | 2883.6 | 2907.1 | 2958.9 | 3002.8 | 2968.3 | 2897.7 | 2929.1 | 2711.1 | 2639.0 |
| 47.5° | 8072.3  | 4276.0 | 2811.5 | 2781.7 | 2871.1 | 2954.2 | 2900.9 | 2794.2 | 2682.9 | 2466.5 | 2425.8 |
| 50°   | 8589.7  | 4431.3 | 2745.6 | 2657.8 | 2775.4 | 2888.3 | 2835.0 | 2682.9 | 2515.1 | 2410.1 | 2396.0 |
| 52.5° | 9129.1  | 4621.0 | 2679.8 | 2521.4 | 2654.7 | 2838.2 | 2811.5 | 2657.8 | 2450.8 | 2347.4 | 2328.5 |
| 55°   | 9740.7  | 4812.3 | 2596.7 | 2363.0 | 2524.5 | 2814.6 | 2800.5 | 2566.9 | 2402.2 | 2344.2 | 2330.1 |
| 57.5° | 10501.2 | 5030.3 | 2486.9 | 2198.4 | 2402.2 | 2730.0 | 2686.1 | 2512.0 | 2352.1 | 2308.2 | 2303.5 |
| 60°   | 11492.2 | 5351.7 | 2328.5 | 2022.8 | 2253.3 | 2599.8 | 2590.4 | 2432.0 | 2272.1 | 2240.7 | 2234.5 |
| 62.5° | 12978.7 | 5883.3 | 2110.6 | 1847.2 | 2087.1 | 2378.7 | 2465.0 | 2323.8 | 2187.4 | 2185.8 | 2189.0 |
| 65°   | 15283.7 | 6683.0 | 1873.8 | 1693.5 | 1919.3 | 2192.1 | 2319.1 | 2212.5 | 2101.2 | 2132.5 | 2137.2 |
| 67.5° | 17955.6 | 7346.3 | 1641.7 | 1543.0 | 1748.4 | 2014.9 | 2187.4 | 2101.2 | 1986.7 | 2068.2 | 2069.8 |
| 70°   | 18844.7 | 6753.5 | 1437.9 | 1394.0 | 1571.2 | 1844.0 | 2044.7 | 1978.9 | 1862.8 | 1944.4 | 1936.5 |
| 72°   | 17537.0 | 5452.1 | 1306.2 | 1281.1 | 1437.9 | 1702.9 | 1917.7 | 1864.4 | 1749.9 | 1804.8 | 1784.4 |
| 72.5° | 17124.6 | 5198.1 | 1273.2 | 1252.9 | 1401.8 | 1666.8 | 1884.8 | 1836.2 | 1721.7 | 1768.7 | 1749.9 |
| 75°   | 15275.8 | 4514.4 | 1094.5 | 1099.2 | 1223.1 | 1491.2 | 1699.8 | 1684.1 | 1566.5 | 1571.2 | 1564.9 |
| 77.5° | 11079.8 | 3310.1 | 922.0  | 953.4  | 1041.2 | 1310.9 | 1513.2 | 1503.8 | 1375.2 | 1351.7 | 1346.9 |
| 80°   | 5141.6  | 1688.8 | 751.1  | 765.2  | 856.2  | 1096.1 | 1290.5 | 1278.0 | 1174.5 | 1144.7 | 1127.4 |
| 82.5° | 1760.9  | 802.8  | 564.5  | 573.9  | 663.3  | 882.8  | 1119.6 | 1111.7 | 1025.5 | 967.5  | 931.4  |
| 85°   | 628.8   | 399.9  | 395.1  | 385.7  | 473.5  | 694.6  | 975.3  | 933.0  | 806.0  | 686.8  | 683.7  |
| 87.5° | 203.8   | 170.9  | 203.8  | 202.3  | 276.0  | 470.4  | 708.8  | 603.7  | 584.9  | 486.1  | 476.7  |
| 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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LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

**Test Information**

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-4-R4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 10/28/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGRAW-EDISON  
 Catalog Number: **SA1C-750-U-5WQ**  
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

\*\*\*THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.\*\*\*TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

**Spectral Parameters**

|                           |        |           |      |      |       |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K):                  | 4884   | CRI (Ra): | 73.5 | R9:  | -28.4 |
| CIE u':                   | 0.2101 | R1:       | 70.5 | R10: | 48.6  |
| CIE v':                   | 0.4904 | R2:       | 77.7 | R11: | 73.2  |
| Duv:                      | 0.0037 | R3:       | 84.6 | R12: | 50.7  |
| CIE x:                    | 0.3493 | R4:       | 74.7 | R13: | 71.2  |
| CIE y:                    | 0.3624 | R5:       | 71.9 | R14: | 91.4  |
| CIE z:                    | 0.2884 | R6:       | 70.7 |      |       |
| Peak Wavelength (nm):     | 444    | R7:       | 81.2 |      |       |
| Dominant Wavelength (nm): | 571    | R8:       | 56.9 |      |       |
| Purity:                   | 13.7   |           |      |      |       |
| Rf:                       | 74.9   |           |      |      |       |
| Rg:                       | 96.3   |           |      |      |       |



**Test Conditions**  
 Stabilization Time: 240M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0./44%  
 Sphere Temperature (°C): 25.7

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| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/28/2019        | 12/28/2019           |
| Power Meter                    | IN0071                | 12/5/2018        | 12/5/2019            |
| AC Power Source                | IN0063                | 12/5/2018        | 12/5/2019            |
| DC Power Source                | IN0208                | 12/5/2018        | 12/5/2019            |
| Sphere Thermometer             | IN0085                | 12/5/2018        | 12/5/2019            |
| Room Thermometer               | IN0046                | 12/5/2018        | 12/5/2019            |

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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 5000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



#####

| $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 2945                                 | NR                             | 490               | 37941                                | NR                             | 620               | 88803                                | NR                             | 750               | 3908                                 | NR                             | 880               | 2997                                 | NR                             |
| 365               | 2596                                 | NR                             | 495               | 48525                                | NR                             | 625               | 80578                                | NR                             | 755               | 3988                                 | NR                             | 885               | 2927                                 | NR                             |
| 370               | 2732                                 | NR                             | 500               | 60609                                | NR                             | 630               | 73127                                | NR                             | 760               | 3335                                 | NR                             | 890               | 2649                                 | NR                             |
| 375               | 2894                                 | NR                             | 505               | 72036                                | NR                             | 635               | 66244                                | NR                             | 765               | 3438                                 | NR                             | 895               | 2828                                 | NR                             |
| 380               | 2822                                 | NR                             | 510               | 82168                                | NR                             | 640               | 59440                                | NR                             | 770               | 3427                                 | NR                             | 900               | 1407                                 | NR                             |
| 385               | 2394                                 | NR                             | 515               | 90898                                | NR                             | 645               | 52864                                | NR                             | 775               | 2759                                 | NR                             | 905               | 2224                                 | NR                             |
| 390               | 2370                                 | NR                             | 520               | 97142                                | NR                             | 650               | 47085                                | NR                             | 780               | 2340                                 | NR                             | 910               | 2905                                 | NR                             |
| 395               | 2267                                 | NR                             | 525               | 103255                               | NR                             | 655               | 41789                                | NR                             | 785               | 2412                                 | NR                             | 915               | 3350                                 | NR                             |
| 400               | 2262                                 | NR                             | 530               | 106697                               | NR                             | 660               | 37064                                | NR                             | 790               | 1999                                 | NR                             | 920               | 3114                                 | NR                             |
| 405               | 3000                                 | NR                             | 535               | 110081                               | NR                             | 665               | 32299                                | NR                             | 795               | 2054                                 | NR                             | 925               | 2834                                 | NR                             |
| 410               | 5324                                 | NR                             | 540               | 112494                               | NR                             | 670               | 28142                                | NR                             | 800               | 2331                                 | NR                             | 930               | 2271                                 | NR                             |
| 415               | 10725                                | NR                             | 545               | 115513                               | NR                             | 675               | 24505                                | NR                             | 805               | 2648                                 | NR                             | 935               | 2228                                 | NR                             |
| 420               | 22128                                | NR                             | 550               | 117203                               | NR                             | 680               | 21162                                | NR                             | 810               | 2485                                 | NR                             | 940               | 2833                                 | NR                             |
| 425               | 44095                                | NR                             | 555               | 119753                               | NR                             | 685               | 18400                                | NR                             | 815               | 2409                                 | NR                             | 945               | 2941                                 | NR                             |
| 430               | 77002                                | NR                             | 560               | 122602                               | NR                             | 690               | 16065                                | NR                             | 820               | 2221                                 | NR                             | 950               | 2323                                 | NR                             |
| 435               | 119881                               | NR                             | 565               | 124314                               | NR                             | 695               | 13860                                | NR                             | 825               | 1562                                 | NR                             | 955               | 1667                                 | NR                             |
| 440               | 164454                               | NR                             | 570               | 126775                               | NR                             | 700               | 12177                                | NR                             | 830               | 2249                                 | NR                             | 960               | 749                                  | NR                             |
| 445               | 179997                               | NR                             | 575               | 127511                               | NR                             | 705               | 10757                                | NR                             | 835               | 2573                                 | NR                             | 965               | 2669                                 | NR                             |
| 450               | 142822                               | NR                             | 580               | 127577                               | NR                             | 710               | 9601                                 | NR                             | 840               | 2764                                 | NR                             | 970               | 3968                                 | NR                             |
| 455               | 90008                                | NR                             | 585               | 126153                               | NR                             | 715               | 8944                                 | NR                             | 845               | 3109                                 | NR                             | 975               | 3886                                 | NR                             |
| 460               | 60557                                | NR                             | 590               | 123678                               | NR                             | 720               | 7947                                 | NR                             | 850               | 2963                                 | NR                             | 980               | 2788                                 | NR                             |
| 465               | 43305                                | NR                             | 595               | 119774                               | NR                             | 725               | 7062                                 | NR                             | 855               | 2336                                 | NR                             | 985               | 3496                                 | NR                             |
| 470               | 31089                                | NR                             | 600               | 115733                               | NR                             | 730               | 6004                                 | NR                             | 860               | 2118                                 | NR                             | 990               | 2913                                 | NR                             |
| 475               | 26278                                | NR                             | 605               | 109231                               | NR                             | 735               | 5594                                 | NR                             | 865               | 3144                                 | NR                             | 995               | 4659                                 | NR                             |
| 480               | 27060                                | NR                             | 610               | 102408                               | NR                             | 740               | 5165                                 | NR                             | 870               | 3069                                 | NR                             | 1000              | 1308                                 | NR                             |
| 485               | 30698                                | NR                             | 615               | 96015                                | NR                             | 745               | 4687                                 | NR                             | 875               | 3311                                 | NR                             |                   |                                      |                                |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2945          | NR            | 490    | 37941         | NR            | 620    | 88803         | NR            | 750    | 3908          | NR            | 880    | 2997          | NR            |
| 365    | 2596          | NR            | 495    | 48525         | NR            | 625    | 80578         | NR            | 755    | 3988          | NR            | 885    | 2927          | NR            |
| 370    | 2732          | NR            | 500    | 60609         | NR            | 630    | 73127         | NR            | 760    | 3335          | NR            | 890    | 2649          | NR            |
| 375    | 2894          | NR            | 505    | 72036         | NR            | 635    | 66244         | NR            | 765    | 3438          | NR            | 895    | 2828          | NR            |
| 380    | 2822          | NR            | 510    | 82168         | NR            | 640    | 59440         | NR            | 770    | 3427          | NR            | 900    | 1407          | NR            |
| 385    | 2394          | NR            | 515    | 90898         | NR            | 645    | 52864         | NR            | 775    | 2759          | NR            | 905    | 2224          | NR            |
| 390    | 2370          | NR            | 520    | 97142         | NR            | 650    | 47085         | NR            | 780    | 2340          | NR            | 910    | 2905          | NR            |
| 395    | 2267          | NR            | 525    | 103255        | NR            | 655    | 41789         | NR            | 785    | 2412          | NR            | 915    | 3350          | NR            |
| 400    | 2262          | NR            | 530    | 106697        | NR            | 660    | 37064         | NR            | 790    | 1999          | NR            | 920    | 3114          | NR            |
| 405    | 3000          | NR            | 535    | 110081        | NR            | 665    | 32299         | NR            | 795    | 2054          | NR            | 925    | 2834          | NR            |
| 410    | 5324          | NR            | 540    | 112494        | NR            | 670    | 28142         | NR            | 800    | 2331          | NR            | 930    | 2271          | NR            |
| 415    | 10725         | NR            | 545    | 115513        | NR            | 675    | 24505         | NR            | 805    | 2648          | NR            | 935    | 2228          | NR            |
| 420    | 22128         | NR            | 550    | 117203        | NR            | 680    | 21162         | NR            | 810    | 2485          | NR            | 940    | 2833          | NR            |
| 425    | 44095         | NR            | 555    | 119753        | NR            | 685    | 18400         | NR            | 815    | 2409          | NR            | 945    | 2941          | NR            |
| 430    | 77002         | NR            | 560    | 122602        | NR            | 690    | 16065         | NR            | 820    | 2221          | NR            | 950    | 2323          | NR            |
| 435    | 119881        | NR            | 565    | 124314        | NR            | 695    | 13860         | NR            | 825    | 1562          | NR            | 955    | 1667          | NR            |
| 440    | 164454        | NR            | 570    | 126775        | NR            | 700    | 12177         | NR            | 830    | 2249          | NR            | 960    | 749           | NR            |
| 445    | 179997        | NR            | 575    | 127511        | NR            | 705    | 10757         | NR            | 835    | 2573          | NR            | 965    | 2669          | NR            |
| 450    | 142822        | NR            | 580    | 127577        | NR            | 710    | 9601          | NR            | 840    | 2764          | NR            | 970    | 3968          | NR            |
| 455    | 90008         | NR            | 585    | 126153        | NR            | 715    | 8944          | NR            | 845    | 3109          | NR            | 975    | 3886          | NR            |
| 460    | 60557         | NR            | 590    | 123678        | NR            | 720    | 7947          | NR            | 850    | 2963          | NR            | 980    | 2788          | NR            |
| 465    | 43305         | NR            | 595    | 119774        | NR            | 725    | 7062          | NR            | 855    | 2336          | NR            | 985    | 3496          | NR            |
| 470    | 31089         | NR            | 600    | 115733        | NR            | 730    | 6004          | NR            | 860    | 2118          | NR            | 990    | 2913          | NR            |
| 475    | 26278         | NR            | 605    | 109231        | NR            | 735    | 5594          | NR            | 865    | 3144          | NR            | 995    | 4659          | NR            |
| 480    | 27060         | NR            | 610    | 102408        | NR            | 740    | 5165          | NR            | 870    | 3069          | NR            | 1000   | 1308          | NR            |
| 485    | 30698         | NR            | 615    | 96015         | NR            | 745    | 4687          | NR            | 875    | 3311          | NR            |        |               |               |

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9 M/P: 0.71

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2945          | NR            | 490    | 37941         | NR            | 620    | 88803         | NR            | 750    | 3908          | NR            | 880    | 2997          | NR            |
| 365    | 2596          | NR            | 495    | 48525         | NR            | 625    | 80578         | NR            | 755    | 3988          | NR            | 885    | 2927          | NR            |
| 370    | 2732          | NR            | 500    | 60609         | NR            | 630    | 73127         | NR            | 760    | 3335          | NR            | 890    | 2649          | NR            |
| 375    | 2894          | NR            | 505    | 72036         | NR            | 635    | 66244         | NR            | 765    | 3438          | NR            | 895    | 2828          | NR            |
| 380    | 2822          | NR            | 510    | 82168         | NR            | 640    | 59440         | NR            | 770    | 3427          | NR            | 900    | 1407          | NR            |
| 385    | 2394          | NR            | 515    | 90898         | NR            | 645    | 52864         | NR            | 775    | 2759          | NR            | 905    | 2224          | NR            |
| 390    | 2370          | NR            | 520    | 97142         | NR            | 650    | 47085         | NR            | 780    | 2340          | NR            | 910    | 2905          | NR            |
| 395    | 2267          | NR            | 525    | 103255        | NR            | 655    | 41789         | NR            | 785    | 2412          | NR            | 915    | 3350          | NR            |
| 400    | 2262          | NR            | 530    | 106697        | NR            | 660    | 37064         | NR            | 790    | 1999          | NR            | 920    | 3114          | NR            |
| 405    | 3000          | NR            | 535    | 110081        | NR            | 665    | 32299         | NR            | 795    | 2054          | NR            | 925    | 2834          | NR            |
| 410    | 5324          | NR            | 540    | 112494        | NR            | 670    | 28142         | NR            | 800    | 2331          | NR            | 930    | 2271          | NR            |
| 415    | 10725         | NR            | 545    | 115513        | NR            | 675    | 24505         | NR            | 805    | 2648          | NR            | 935    | 2228          | NR            |
| 420    | 22128         | NR            | 550    | 117203        | NR            | 680    | 21162         | NR            | 810    | 2485          | NR            | 940    | 2833          | NR            |
| 425    | 44095         | NR            | 555    | 119753        | NR            | 685    | 18400         | NR            | 815    | 2409          | NR            | 945    | 2941          | NR            |
| 430    | 77002         | NR            | 560    | 122602        | NR            | 690    | 16065         | NR            | 820    | 2221          | NR            | 950    | 2323          | NR            |
| 435    | 119881        | NR            | 565    | 124314        | NR            | 695    | 13860         | NR            | 825    | 1562          | NR            | 955    | 1667          | NR            |
| 440    | 164454        | NR            | 570    | 126775        | NR            | 700    | 12177         | NR            | 830    | 2249          | NR            | 960    | 749           | NR            |
| 445    | 179997        | NR            | 575    | 127511        | NR            | 705    | 10757         | NR            | 835    | 2573          | NR            | 965    | 2669          | NR            |
| 450    | 142822        | NR            | 580    | 127577        | NR            | 710    | 9601          | NR            | 840    | 2764          | NR            | 970    | 3968          | NR            |
| 455    | 90008         | NR            | 585    | 126153        | NR            | 715    | 8944          | NR            | 845    | 3109          | NR            | 975    | 3886          | NR            |
| 460    | 60557         | NR            | 590    | 123678        | NR            | 720    | 7947          | NR            | 850    | 2963          | NR            | 980    | 2788          | NR            |
| 465    | 43305         | NR            | 595    | 119774        | NR            | 725    | 7062          | NR            | 855    | 2336          | NR            | 985    | 3496          | NR            |
| 470    | 31089         | NR            | 600    | 115733        | NR            | 730    | 6004          | NR            | 860    | 2118          | NR            | 990    | 2913          | NR            |
| 475    | 26278         | NR            | 605    | 109231        | NR            | 735    | 5594          | NR            | 865    | 3144          | NR            | 995    | 4659          | NR            |
| 480    | 27060         | NR            | 610    | 102408        | NR            | 740    | 5165          | NR            | 870    | 3069          | NR            | 1000   | 1308          | NR            |
| 485    | 30698         | NR            | 615    | 96015         | NR            | 745    | 4687          | NR            | 875    | 3311          | NR            |        |               |               |

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**Summary**

$R_f = 74.9$   
 $R_g = 96.3$   
 CIE  $R_a = 73.5$   
 $R_g = -28.4$



**Color Vector Graphics**





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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 |            |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)