

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: P318409

Luminaire Tested: **GLEON-SA5C-740-U-T3**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P318409  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-14)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA5C-740-U-T3  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(5) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 35358 lumens  
Efficiency: N/A  
Efficacy: 126.7 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B3 - U0 - G4

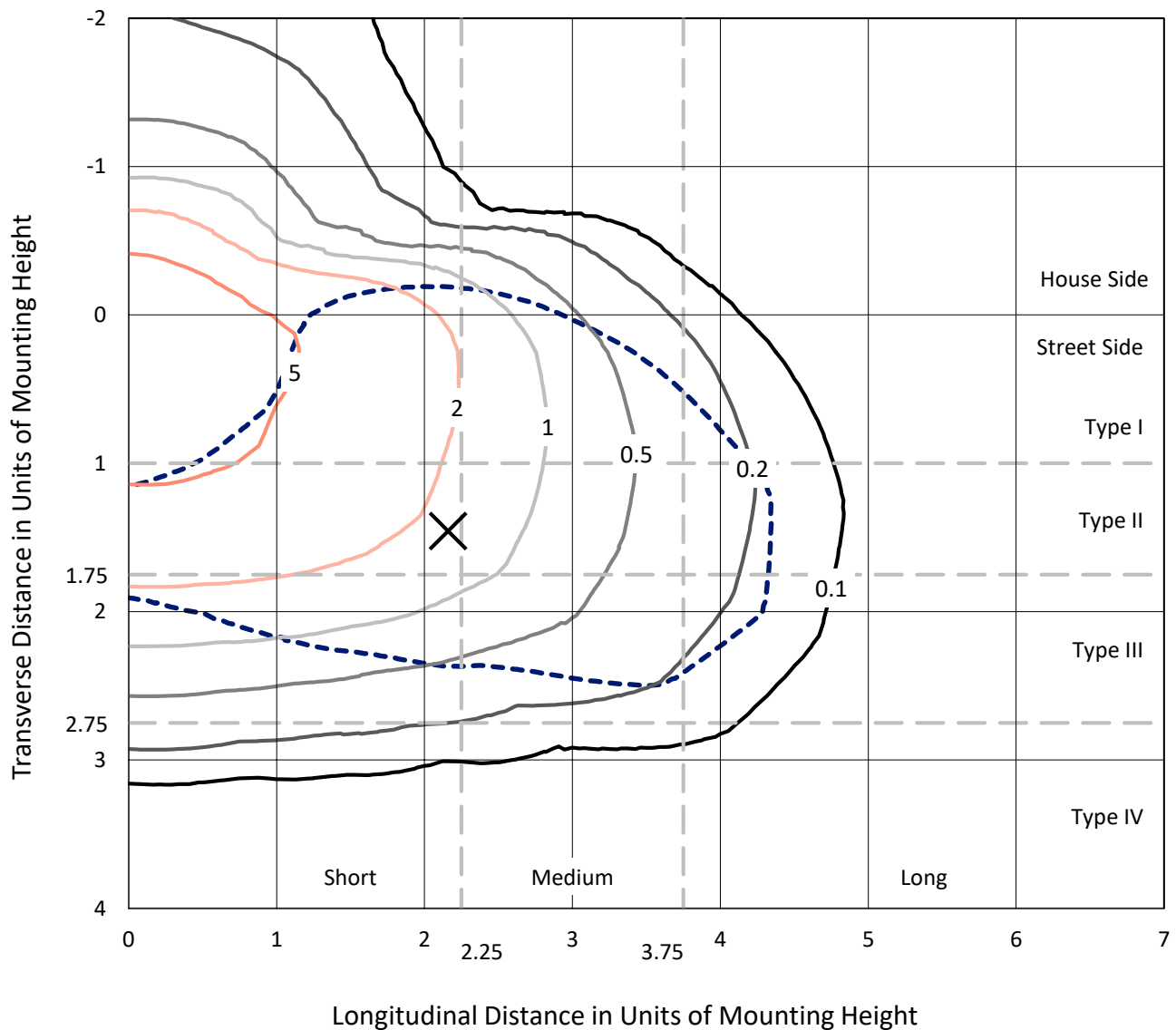
Input Watts (W): 279  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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CATALOG NUMBER: GLEON-SA5C-740-U-T3

## Iso-Footcandle Lines of Horizontal Illumination

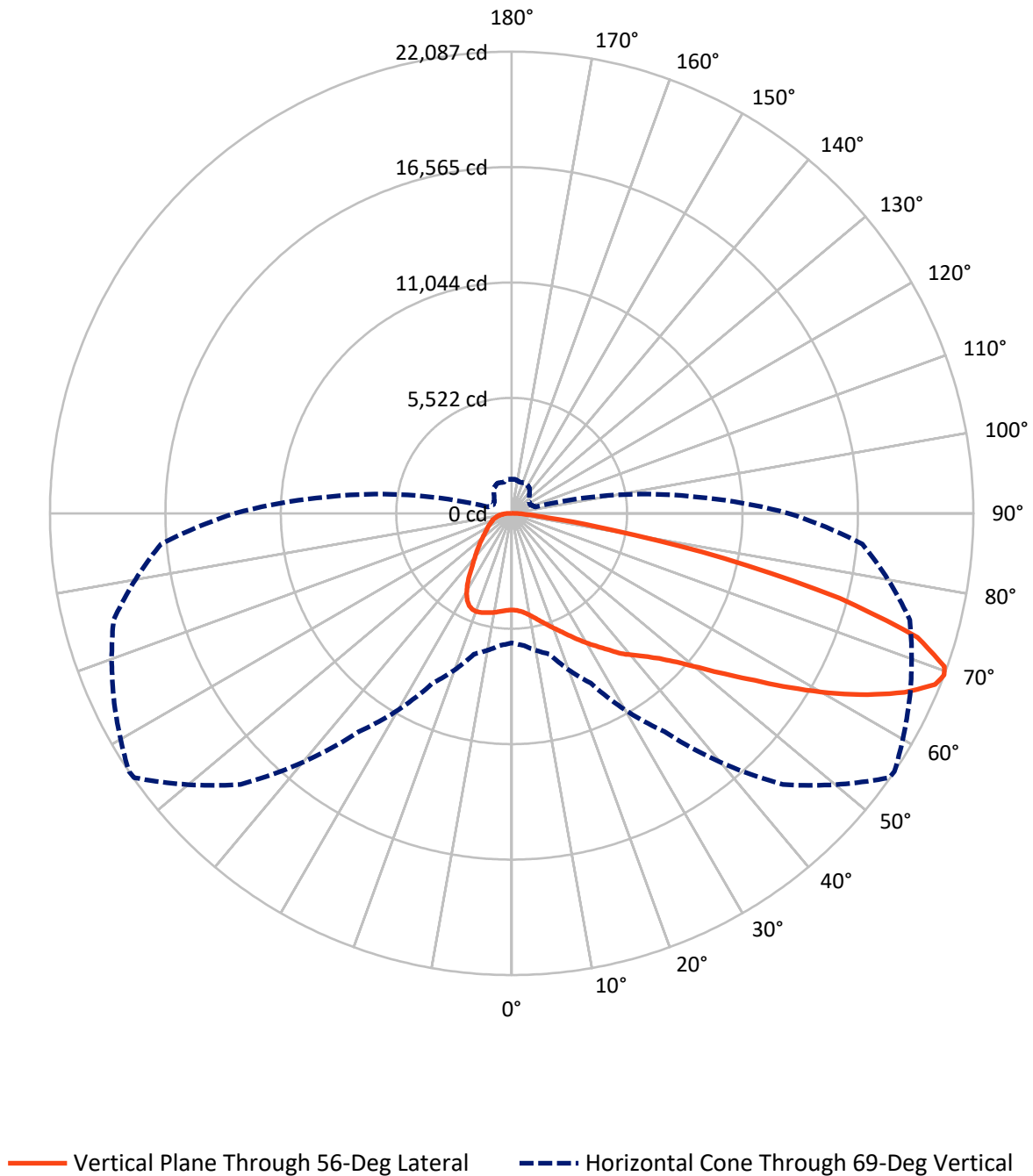
× Max cd  
- - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8 fc  
Type III - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 7874.2   | 0.0    | 7874.2  |
|                    | % Fixture | 22.3     | 0.0    | 22.3    |
| <b>Street Side</b> | Lumens    | 27483.8  | 0.0    | 27483.8 |
|                    | % Fixture | 77.7     | 0.0    | 77.7    |
| <b>Total</b>       | Lumens    | 35358.0  | 0.0    | 35358.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 454.0   | 1.3       |
| 10°-20°   | 1459.9  | 4.1       |
| 20°-30°   | 2548.4  | 7.2       |
| 30°-40°   | 3660.7  | 10.4      |
| 40°-50°   | 5066.2  | 14.3      |
| 50°-60°   | 7422.8  | 21.0      |
| 60°-70°   | 9049.7  | 25.6      |
| 70°-80°   | 5003.3  | 14.2      |
| 80°-90°   | 693.0   | 2.0       |
| 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°    | 35358.0 | 100.0     |
| 0°-180°   | 35358.0 | 100.0     |

**Coefficient of Utilization**



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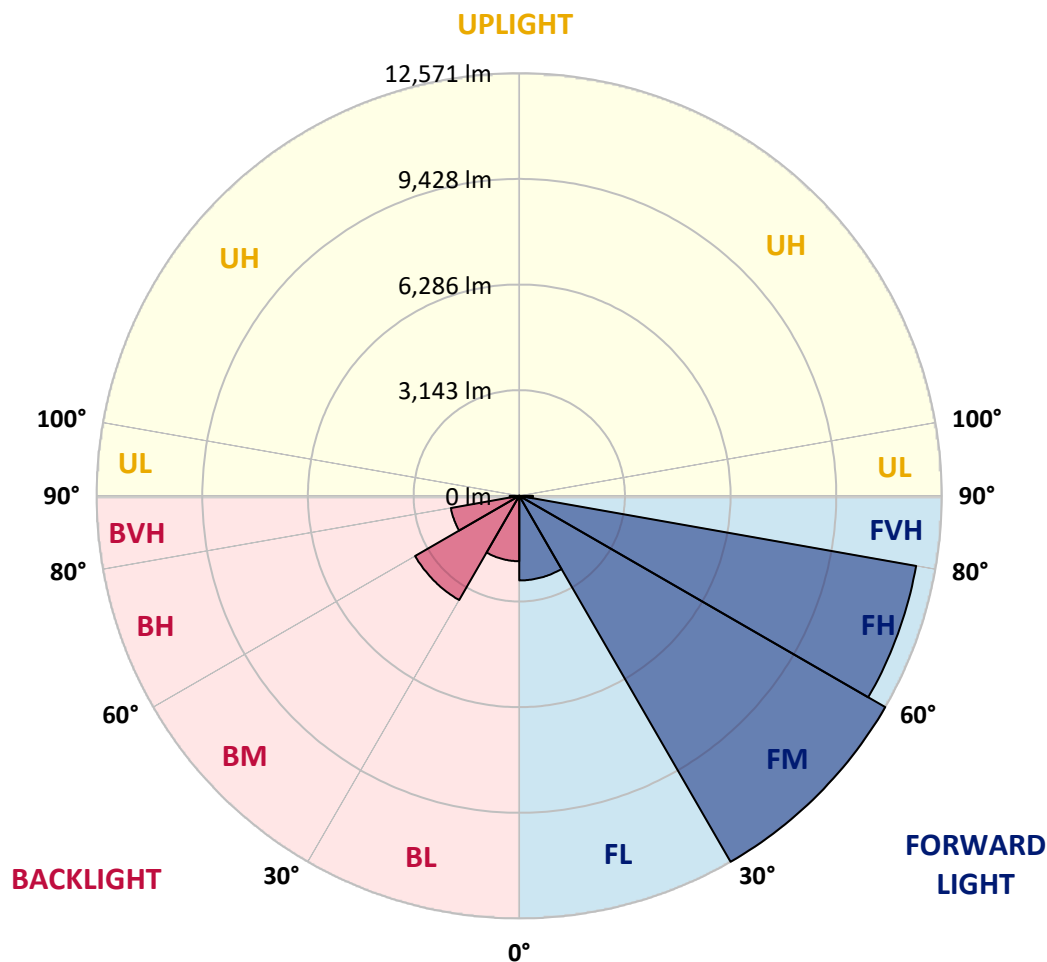
CATALOG NUMBER: GLEON-SA5C-740-U-T3

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 2516.4  | 7.1       |                         |      |          |
| FM   | (30°-60°)   | 12571.1 | 35.6      |                         |      |          |
| FH   | (60°-80°)   | 11988.1 | 33.9      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 408.2   | 1.2       |                         |      | G3/500   |
| BL   | (0°-30°)    | 1945.9  | 5.5       | B3/2500                 |      |          |
| BM   | (30°-60°)   | 3578.6  | 10.1      | B3/5000                 |      |          |
| BH   | (60°-80°)   | 2064.9  | 5.8       | B3/2500                 |      | G3/2500  |
| BVH  | (80°-90°)   | 284.8   | 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-G4**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 56°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 4622.5  | 4622.5  | 4622.5  | 4622.5  | 4622.5  | 4622.5  | 4622.5  | 4622.5  | 4622.5  | 4622.5  | 4622.5  |
| 2.5°  | 4651.8  | 4656.6  | 4653.0  | 4662.7  | 4651.8  | 4659.1  | 4653.0  | 4653.0  | 4649.3  | 4638.4  | 4626.2  |
| 5°    | 4724.8  | 4734.6  | 4728.5  | 4738.2  | 4724.8  | 4727.3  | 4716.3  | 4716.3  | 4705.4  | 4682.2  | 4657.8  |
| 7.5°  | 4839.3  | 4850.3  | 4845.4  | 4855.2  | 4836.9  | 4836.9  | 4822.3  | 4821.1  | 4799.1  | 4761.4  | 4733.4  |
| 10°   | 4975.8  | 4990.4  | 4985.5  | 5000.1  | 4985.5  | 4990.4  | 4975.8  | 4975.8  | 4946.5  | 4892.9  | 4857.6  |
| 12.5° | 5174.3  | 5192.6  | 5179.2  | 5178.0  | 5171.9  | 5181.6  | 5169.4  | 5167.0  | 5140.2  | 5067.1  | 5018.4  |
| 15°   | 5439.8  | 5459.3  | 5431.3  | 5428.9  | 5394.8  | 5391.1  | 5391.1  | 5387.5  | 5370.4  | 5282.7  | 5202.3  |
| 17.5° | 5745.6  | 5751.7  | 5727.3  | 5688.3  | 5644.5  | 5616.5  | 5612.8  | 5622.6  | 5622.6  | 5520.2  | 5392.3  |
| 20°   | 6045.2  | 6056.2  | 6036.7  | 5992.8  | 5936.8  | 5895.4  | 5866.2  | 5885.7  | 5884.4  | 5762.6  | 5581.1  |
| 22.5° | 6371.7  | 6397.2  | 6368.0  | 6312.0  | 6246.2  | 6199.9  | 6148.8  | 6165.8  | 6167.0  | 6017.2  | 5766.3  |
| 25°   | 6794.3  | 6771.2  | 6752.9  | 6673.7  | 6579.9  | 6532.4  | 6484.9  | 6502.0  | 6497.1  | 6291.3  | 5957.5  |
| 27.5° | 7168.3  | 7173.1  | 7148.8  | 7064.7  | 6956.3  | 6851.6  | 6849.1  | 6860.1  | 6841.8  | 6576.3  | 6137.8  |
| 30°   | 7603.1  | 7605.5  | 7571.4  | 7495.9  | 7377.8  | 7242.6  | 7210.9  | 7229.2  | 7190.2  | 6846.7  | 6327.8  |
| 32.5° | 8035.5  | 8047.7  | 8009.9  | 7918.6  | 7823.6  | 7659.1  | 7595.8  | 7608.0  | 7510.5  | 7123.2  | 6523.9  |
| 35°   | 8414.3  | 8431.4  | 8419.2  | 8358.3  | 8254.8  | 8113.5  | 8038.0  | 8030.6  | 7910.1  | 7461.8  | 6783.4  |
| 37.5° | 8800.5  | 8816.3  | 8802.9  | 8751.7  | 8710.3  | 8560.5  | 8520.3  | 8520.3  | 8310.8  | 7807.7  | 7113.5  |
| 40°   | 9197.5  | 9221.9  | 9206.1  | 9135.4  | 9100.1  | 9031.9  | 8935.7  | 8912.5  | 8686.0  | 8223.1  | 7651.8  |
| 42.5° | 9566.6  | 9598.3  | 9661.6  | 9620.2  | 9548.3  | 9558.1  | 9364.4  | 9352.2  | 9186.6  | 8837.0  | 8327.9  |
| 45°   | 10090.4 | 10136.7 | 10243.9 | 10212.2 | 10197.6 | 10144.0 | 9913.8  | 9902.8  | 9839.5  | 9662.8  | 9167.1  |
| 47.5° | 10661.7 | 10725.0 | 10918.7 | 10924.8 | 11081.9 | 10980.8 | 10667.7 | 10630.0 | 10644.6 | 10651.9 | 10191.5 |
| 50°   | 11187.9 | 11257.3 | 11575.2 | 11725.0 | 12095.3 | 12117.2 | 11616.6 | 11582.5 | 11639.8 | 11807.8 | 11385.2 |
| 52.5° | 11608.1 | 11695.8 | 12092.9 | 12555.7 | 13190.3 | 13370.6 | 12784.7 | 12759.1 | 12801.8 | 13091.7 | 12734.8 |
| 55°   | 11916.3 | 12011.3 | 12443.7 | 13286.6 | 14300.0 | 14617.9 | 14129.5 | 14105.1 | 14131.9 | 14501.0 | 14202.5 |
| 57.5° | 11988.1 | 12011.3 | 12638.6 | 13778.7 | 15236.7 | 16000.4 | 15775.1 | 15726.3 | 15594.8 | 15916.4 | 15822.6 |
| 60°   | 11650.7 | 11743.3 | 12477.8 | 13951.6 | 15961.4 | 17363.4 | 17495.0 | 17434.0 | 17065.0 | 17328.1 | 17252.6 |
| 62.5° | 10966.2 | 11131.8 | 11877.3 | 13688.5 | 16245.2 | 18476.7 | 19182.0 | 19108.9 | 18473.1 | 18643.6 | 18280.6 |
| 65°   | 9848.0  | 9918.6  | 10701.8 | 12781.1 | 15884.7 | 19189.3 | 20686.3 | 20649.7 | 19849.5 | 19582.7 | 18470.6 |
| 67.5° | 7847.9  | 7980.7  | 8645.8  | 10884.6 | 14409.6 | 19105.2 | 21849.5 | 21845.9 | 20748.4 | 19931.1 | 17797.0 |
| 69°   | 6199.9  | 6337.6  | 6970.9  | 8966.1  | 12750.6 | 18336.6 | 22044.4 | 22087.0 | 21001.7 | 19719.1 | 16834.8 |
| 70°   | 4942.9  | 5102.4  | 5537.3  | 7552.0  | 11278.0 | 17323.2 | 21882.4 | 21959.1 | 20953.0 | 19369.5 | 15946.8 |
| 72.5° | 2103.6  | 2232.7  | 2542.1  | 3892.9  | 6873.5  | 12935.8 | 20007.8 | 20297.7 | 19823.9 | 17727.6 | 13179.4 |
| 75°   | 918.4   | 958.6   | 1098.7  | 1587.1  | 3051.2  | 7040.4  | 15674.0 | 16209.9 | 16950.5 | 14984.5 | 9817.5  |
| 77.5° | 672.4   | 689.4   | 766.2   | 931.8   | 1369.1  | 2659.0  | 10079.4 | 10391.2 | 12224.4 | 10904.0 | 6022.1  |
| 80°   | 520.1   | 532.3   | 592.0   | 684.5   | 894.1   | 1075.5  | 4596.9  | 4864.9  | 6873.5  | 5600.6  | 2508.0  |
| 82.5° | 414.1   | 422.7   | 464.1   | 504.3   | 617.6   | 651.7   | 1526.2  | 1693.1  | 2537.2  | 1546.9  | 663.8   |
| 85°   | 384.9   | 394.7   | 409.3   | 367.9   | 395.9   | 382.5   | 660.2   | 690.6   | 766.2   | 607.8   | 277.7   |
| 87.5° | 174.2   | 205.9   | 405.6   | 286.2   | 210.7   | 168.1   | 270.4   | 282.6   | 317.9   | 319.1   | 123.0   |
| 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: P318409

CATALOG NUMBER: GLEON-SA5C-740-U-T3

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4622.5  | 4622.5  | 4622.5 | 4622.5 | 4622.5 | 4622.5 | 4622.5 | 4622.5 | 4622.5 | 4622.5 | 4622.5 |
| 2.5°  | 4633.5  | 4629.8  | 4635.9 | 4621.3 | 4639.6 | 4638.4 | 4632.3 | 4634.7 | 4646.9 | 4645.7 | 4646.9 |
| 5°    | 4661.5  | 4659.1  | 4666.4 | 4655.4 | 4677.3 | 4684.6 | 4685.9 | 4696.8 | 4710.2 | 4713.9 | 4713.9 |
| 7.5°  | 4732.2  | 4732.2  | 4735.8 | 4721.2 | 4735.8 | 4734.6 | 4728.5 | 4739.5 | 4752.9 | 4754.1 | 4752.9 |
| 10°   | 4854.0  | 4855.2  | 4849.1 | 4811.3 | 4799.1 | 4766.3 | 4735.8 | 4737.0 | 4754.1 | 4767.5 | 4771.1 |
| 12.5° | 5007.4  | 5002.6  | 4975.8 | 4906.3 | 4855.2 | 4788.2 | 4756.5 | 4755.3 | 4772.3 | 4783.3 | 4787.0 |
| 15°   | 5182.8  | 5169.4  | 5100.0 | 4986.7 | 4896.6 | 4830.8 | 4779.7 | 4767.5 | 4757.7 | 4745.6 | 4746.8 |
| 17.5° | 5348.5  | 5318.0  | 5202.3 | 5045.2 | 4950.2 | 4862.5 | 4763.8 | 4684.6 | 4629.8 | 4598.2 | 4588.4 |
| 20°   | 5516.6  | 5456.9  | 5290.0 | 5100.0 | 4979.4 | 4819.9 | 4629.8 | 4469.1 | 4369.2 | 4322.9 | 4314.4 |
| 22.5° | 5670.1  | 5573.8  | 5371.6 | 5157.3 | 4956.3 | 4676.1 | 4377.7 | 4143.8 | 4005.0 | 3942.9 | 3947.7 |
| 25°   | 5819.9  | 5685.9  | 5456.9 | 5197.4 | 4839.3 | 4422.8 | 4026.9 | 3739.4 | 3578.7 | 3509.2 | 3506.8 |
| 27.5° | 5951.4  | 5799.2  | 5549.5 | 5164.6 | 4621.3 | 4062.2 | 3611.5 | 3331.4 | 3197.4 | 3137.7 | 3128.0 |
| 30°   | 6102.5  | 5941.7  | 5672.5 | 5039.1 | 4302.2 | 3645.6 | 3205.9 | 3008.6 | 2913.6 | 2853.9 | 2842.9 |
| 32.5° | 6286.4  | 6135.4  | 5773.6 | 4811.3 | 3894.1 | 3210.8 | 2889.2 | 2751.6 | 2665.1 | 2598.1 | 2585.9 |
| 35°   | 6554.4  | 6391.1  | 5799.2 | 4484.9 | 3445.9 | 2867.3 | 2656.6 | 2515.3 | 2398.4 | 2311.9 | 2303.3 |
| 37.5° | 6890.5  | 6711.5  | 5740.7 | 4062.2 | 3011.0 | 2644.4 | 2462.9 | 2288.7 | 2136.5 | 2014.7 | 1995.2 |
| 40°   | 7375.3  | 7104.9  | 5578.7 | 3575.0 | 2690.7 | 2472.7 | 2274.1 | 2075.6 | 1886.8 | 1744.3 | 1716.2 |
| 42.5° | 7957.6  | 7566.6  | 5330.2 | 3090.2 | 2455.6 | 2298.5 | 2086.5 | 1840.5 | 1660.2 | 1559.1 | 1544.5 |
| 45°   | 8698.1  | 8046.5  | 4985.5 | 2666.3 | 2224.2 | 2124.3 | 1884.3 | 1657.8 | 1545.7 | 1471.4 | 1459.2 |
| 47.5° | 9543.5  | 8584.9  | 4623.7 | 2321.6 | 2028.1 | 1961.1 | 1722.3 | 1576.2 | 1487.2 | 1428.8 | 1417.8 |
| 50°   | 10582.5 | 9192.7  | 4240.1 | 2039.0 | 1830.7 | 1765.0 | 1645.6 | 1531.1 | 1460.5 | 1415.4 | 1404.4 |
| 52.5° | 11754.2 | 9878.4  | 3963.6 | 1816.1 | 1667.5 | 1620.0 | 1605.4 | 1506.7 | 1449.5 | 1415.4 | 1404.4 |
| 55°   | 13016.2 | 10576.4 | 3665.1 | 1628.5 | 1526.2 | 1539.6 | 1578.6 | 1509.2 | 1470.2 | 1428.8 | 1412.9 |
| 57.5° | 14279.3 | 11297.5 | 3332.6 | 1470.2 | 1414.2 | 1479.9 | 1560.3 | 1514.0 | 1481.2 | 1441.0 | 1426.3 |
| 60°   | 15278.1 | 11754.2 | 2817.4 | 1337.4 | 1325.2 | 1414.2 | 1516.5 | 1477.5 | 1434.9 | 1436.1 | 1433.7 |
| 62.5° | 15744.6 | 11729.9 | 2248.5 | 1219.3 | 1236.3 | 1325.2 | 1445.8 | 1420.3 | 1384.9 | 1432.4 | 1436.1 |
| 65°   | 15482.7 | 11145.2 | 1750.3 | 1112.1 | 1141.3 | 1232.7 | 1372.8 | 1392.2 | 1404.4 | 1495.8 | 1508.0 |
| 67.5° | 14384.0 | 10007.6 | 1355.7 | 1018.3 | 1054.8 | 1169.3 | 1380.1 | 1516.5 | 1532.3 | 1628.5 | 1627.3 |
| 69°   | 13247.6 | 8940.5  | 1177.9 | 969.6  | 1012.2 | 1185.2 | 1475.1 | 1595.7 | 1536.0 | 1638.3 | 1623.7 |
| 70°   | 12295.1 | 8096.4  | 1082.9 | 936.7  | 992.7  | 1213.2 | 1538.4 | 1594.4 | 1517.7 | 1605.4 | 1581.0 |
| 72.5° | 9469.2  | 5824.7  | 918.4  | 875.8  | 926.9  | 1160.8 | 1556.7 | 1559.1 | 1475.1 | 1492.1 | 1450.7 |
| 75°   | 6494.7  | 3681.0  | 801.5  | 793.0  | 827.1  | 1046.3 | 1498.2 | 1489.7 | 1364.2 | 1339.9 | 1305.8 |
| 77.5° | 3581.1  | 1869.7  | 680.9  | 713.8  | 736.9  | 926.9  | 1361.8 | 1349.6 | 1246.1 | 1194.9 | 1182.7 |
| 80°   | 1381.3  | 818.5   | 574.9  | 634.6  | 649.2  | 802.7  | 1193.7 | 1182.7 | 1096.3 | 1030.5 | 1012.2 |
| 82.5° | 521.3   | 428.8   | 475.0  | 549.3  | 544.5  | 662.6  | 1011.0 | 1004.9 | 920.9  | 824.6  | 795.4  |
| 85°   | 241.2   | 257.0   | 376.4  | 453.1  | 417.8  | 490.9  | 808.8  | 819.8  | 717.4  | 602.9  | 602.9  |
| 87.5° | 102.3   | 143.7   | 266.8  | 342.3  | 281.4  | 331.3  | 593.2  | 566.4  | 520.1  | 360.5  | 338.6  |
| 90°   | 0.0     | 0.0     | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW, INVUE, LUMARK AND STREETWORKS

DATA VALID FOR LUMINAIRES UTILIZING SA LIGHT ENGINES

Report Number: SP1-2101-121-2

Luminaire Tested: IFLD-S-SA2A-740-U-T3R-HSS

Test Date: 03/05/2021

### Test Information

Test Method: LM-79-08  
 Report Number: SP1-2101-121-2  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry:  $4\pi$   
 Issue Date: 03/05/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2A-740-U-T3R-HSS**  
 Description: STREETWORKS INF FLOOD

SHIELD, DRIVER PROGRAMMED @ 615mA.

### Spectral Parameters

|                           |         |           |      |      |       |
|---------------------------|---------|-----------|------|------|-------|
| CCT (K):                  | 3905    | CRI (Ra): | 71.2 |      |       |
| CIE u':                   | 0.2273  | R1:       | 68.9 | R9:  | -29.7 |
| CIE v':                   | 0.5024  | R2:       | 77.0 | R10: | 46.2  |
| Duv:                      | -0.0008 | R3:       | 84.0 | R11: | 68.8  |
| CIE x:                    | 0.3841  | R4:       | 71.6 | R12: | 45.6  |
| CIE y:                    | 0.3774  | R5:       | 68.9 | R13: | 69.5  |
| CIE z:                    | 0.2385  | R6:       | 68.3 | R14: | 90.7  |
| Peak Wavelength (nm):     | 443     | R7:       | 78.7 |      |       |
| Dominant Wavelength (nm): | 579     | R8:       | 52.2 |      |       |
| Purity:                   | 28.7    |           |      |      |       |
| Rf:                       | 71.7    |           |      |      |       |
| Rg:                       | 96.9    |           |      |      |       |



### Test Conditions

Stabilization Time: 211M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.8/312%  
 Sphere Temperature (°C): 24.1

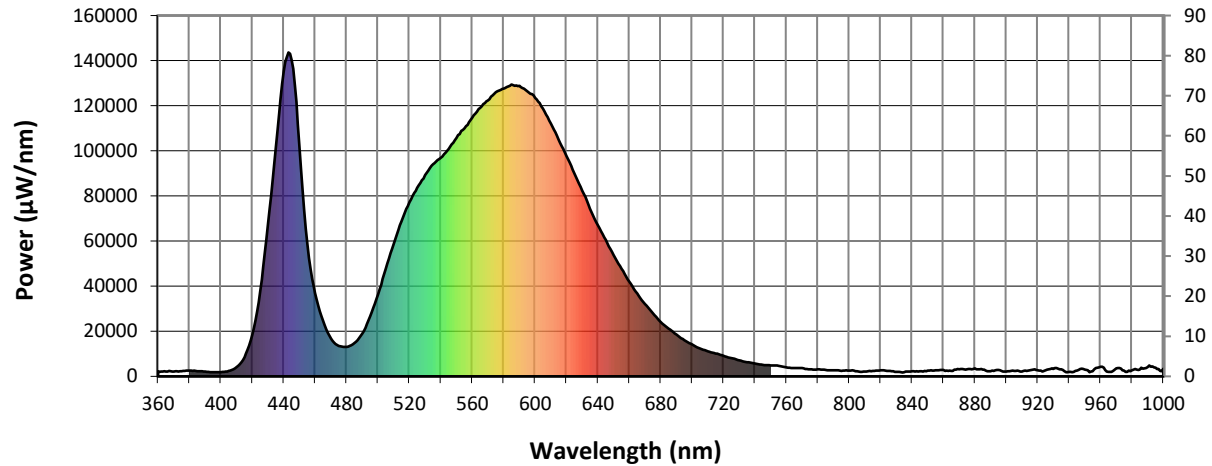
REPORT NUMBER: SP1-2101-121-2

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 1/31/2021        | 7/31/2021            |
| Power Meter                    | IN0071                | 12/1/2020        | 12/1/2021            |
| AC Power Source                | IN0063                | 12/1/2020        | 12/1/2021            |
| DC Power Source                | IN0208                | 12/1/2020        | 12/1/2021            |
| Sphere Thermometer             | IN0085                | 12/1/2020        | 12/1/2021            |
| Room Thermometer               | IN0046                | 12/1/2020        | 12/1/2021            |



REPORT NUMBER: SP1-2101-121-2

### Photopic Flux vs. Wavelength



#####

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2304             | 0.0              | 490       | 19043            | 2.7              | 620       | 97577            | 25.4             | 750       | 4830             | 0.0              | 880       | 3505             | 0.0              |
| 365       | 2150             | 0.0              | 495       | 26606            | 4.8              | 625       | 90158            | 19.9             | 755       | 4664             | 0.0              | 885       | 2991             | 0.0              |
| 370       | 2146             | 0.0              | 500       | 36376            | 8.0              | 630       | 82240            | 14.9             | 760       | 4006             | 0.0              | 890       | 2327             | 0.0              |
| 375       | 2332             | 0.0              | 505       | 47714            | 13.3             | 635       | 74361            | 11.2             | 765       | 3715             | 0.0              | 895       | 2775             | 0.0              |
| 380       | 2527             | 0.0              | 510       | 58741            | 20.2             | 640       | 66994            | 8.0              | 770       | 3696             | 0.0              | 900       | 2141             | 0.0              |
| 385       | 2304             | 0.0              | 515       | 68716            | 28.5             | 645       | 60405            | 5.8              | 775       | 3117             | 0.0              | 905       | 2421             | 0.0              |
| 390       | 2064             | 0.0              | 520       | 77136            | 37.4             | 650       | 53806            | 3.9              | 780       | 3062             | 0.0              | 910       | 2200             | 0.0              |
| 395       | 1856             | 0.0              | 525       | 83567            | 44.9             | 655       | 47610            | 2.7              | 785       | 2907             | 0.0              | 915       | 2716             | 0.0              |
| 400       | 1856             | 0.0              | 530       | 89283            | 52.6             | 660       | 42018            | 1.8              | 790       | 2655             | 0.0              | 920       | 2656             | 0.0              |
| 405       | 2374             | 0.0              | 535       | 94097            | 58.4             | 665       | 36742            | 1.2              | 795       | 2467             | 0.0              | 925       | 2671             | 0.0              |
| 410       | 4084             | 0.0              | 540       | 96845            | 63.1             | 670       | 32105            | 0.7              | 800       | 2609             | 0.0              | 930       | 3292             | 0.0              |
| 415       | 8543             | 0.0              | 545       | 100829           | 67.1             | 675       | 27946            | 0.5              | 805       | 2293             | 0.0              | 935       | 3188             | 0.0              |
| 420       | 18394            | 0.1              | 550       | 105648           | 71.8             | 680       | 24146            | 0.3              | 810       | 2188             | 0.0              | 940       | 1997             | 0.0              |
| 425       | 37987            | 0.2              | 555       | 110017           | 75.1             | 685       | 21191            | 0.2              | 815       | 2386             | 0.0              | 945       | 2623             | 0.0              |
| 430       | 67605            | 0.5              | 560       | 114586           | 77.9             | 690       | 18544            | 0.1              | 820       | 2712             | 0.0              | 950       | 2969             | 0.0              |
| 435       | 102160           | 1.2              | 565       | 118987           | 79.1             | 695       | 16058            | 0.1              | 825       | 2473             | 0.0              | 955       | 2277             | 0.0              |
| 440       | 135103           | 2.1              | 570       | 122326           | 79.5             | 700       | 14133            | 0.0              | 830       | 1969             | 0.0              | 960       | 4267             | 0.0              |
| 445       | 140126           | 2.9              | 575       | 125968           | 78.4             | 705       | 12309            | 0.0              | 835       | 1917             | 0.0              | 965       | 2034             | 0.0              |
| 450       | 102339           | 2.7              | 580       | 127613           | 75.8             | 710       | 11142            | 0.0              | 840       | 2248             | 0.0              | 970       | 3586             | 0.0              |
| 455       | 58751            | 2.0              | 585       | 129466           | 71.9             | 715       | 10143            | 0.0              | 845       | 2266             | 0.0              | 975       | 2505             | 0.0              |
| 460       | 36892            | 1.5              | 590       | 128813           | 66.6             | 720       | 9072             | 0.0              | 850       | 2558             | 0.0              | 980       | 2666             | 0.0              |
| 465       | 24637            | 1.3              | 595       | 126387           | 59.9             | 725       | 8130             | 0.0              | 855       | 2767             | 0.0              | 985       | 2934             | 0.0              |
| 470       | 16738            | 1.0              | 600       | 123477           | 53.2             | 730       | 7149             | 0.0              | 860       | 2826             | 0.0              | 990       | 4120             | 0.0              |
| 475       | 13456            | 1.1              | 605       | 118718           | 46.0             | 735       | 6311             | 0.0              | 865       | 2385             | 0.0              | 995       | 3858             | 0.0              |
| 480       | 13081            | 1.2              | 610       | 112091           | 38.5             | 740       | 5711             | 0.0              | 870       | 3194             | 0.0              | 1000      | 3405             | 0.0              |
| 485       | 14734            | 1.7              | 615       | 105039           | 31.7             | 745       | 5111             | 0.0              | 875       | 3189             | 0.0              |           |                  |                  |

REPORT NUMBER: SP1-2101-121-2

### Scotopic Flux vs. Wavelength



Scotopic Lumens: 10425.8

S/P: 1.47

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2304             | 0.0              | 490       | 19043            | 29.3             | 620       | 97577            | 1.2              | 750       | 4830             | 0.0              | 880       | 3505             | 0.0              |
| 365       | 2150             | 0.0              | 495       | 26606            | 43.0             | 625       | 90158            | 0.8              | 755       | 4664             | 0.0              | 885       | 2991             | 0.0              |
| 370       | 2146             | 0.0              | 500       | 36376            | 60.8             | 630       | 82240            | 0.5              | 760       | 4006             | 0.0              | 890       | 2327             | 0.0              |
| 375       | 2332             | 0.0              | 505       | 47714            | 81.1             | 635       | 74361            | 0.3              | 765       | 3715             | 0.0              | 895       | 2775             | 0.0              |
| 380       | 2527             | 0.0              | 510       | 58741            | 99.6             | 640       | 66994            | 0.2              | 770       | 3696             | 0.0              | 900       | 2141             | 0.0              |
| 385       | 2304             | 0.0              | 515       | 68716            | 113.9            | 645       | 60405            | 0.1              | 775       | 3117             | 0.0              | 905       | 2421             | 0.0              |
| 390       | 2064             | 0.0              | 520       | 77136            | 122.6            | 650       | 53806            | 0.1              | 780       | 3062             | 0.0              | 910       | 2200             | 0.0              |
| 395       | 1856             | 0.0              | 525       | 83567            | 125.0            | 655       | 47610            | 0.0              | 785       | 2907             | 0.0              | 915       | 2716             | 0.0              |
| 400       | 1856             | 0.0              | 530       | 89283            | 123.1            | 660       | 42018            | 0.0              | 790       | 2655             | 0.0              | 920       | 2656             | 0.0              |
| 405       | 2374             | 0.1              | 535       | 94097            | 117.3            | 665       | 36742            | 0.0              | 795       | 2467             | 0.0              | 925       | 2671             | 0.0              |
| 410       | 4084             | 0.2              | 540       | 96845            | 107.0            | 670       | 32105            | 0.0              | 800       | 2609             | 0.0              | 930       | 3292             | 0.0              |
| 415       | 8543             | 0.9              | 545       | 100829           | 96.7             | 675       | 27946            | 0.0              | 805       | 2293             | 0.0              | 935       | 3188             | 0.0              |
| 420       | 18394            | 3.0              | 550       | 105648           | 86.4             | 680       | 24146            | 0.0              | 810       | 2188             | 0.0              | 940       | 1997             | 0.0              |
| 425       | 37987            | 9.3              | 555       | 110017           | 75.2             | 685       | 21191            | 0.0              | 815       | 2386             | 0.0              | 945       | 2623             | 0.0              |
| 430       | 67605            | 23.0             | 560       | 114586           | 64.0             | 690       | 18544            | 0.0              | 820       | 2712             | 0.0              | 950       | 2969             | 0.0              |
| 435       | 102160           | 45.7             | 565       | 118987           | 53.4             | 695       | 16058            | 0.0              | 825       | 2473             | 0.0              | 955       | 2277             | 0.0              |
| 440       | 135103           | 75.5             | 570       | 122326           | 43.2             | 700       | 14133            | 0.0              | 830       | 1969             | 0.0              | 960       | 4267             | 0.0              |
| 445       | 140126           | 93.8             | 575       | 125968           | 34.3             | 705       | 12309            | 0.0              | 835       | 1917             | 0.0              | 965       | 2034             | 0.0              |
| 450       | 102339           | 79.3             | 580       | 127613           | 26.3             | 710       | 11142            | 0.0              | 840       | 2248             | 0.0              | 970       | 3586             | 0.0              |
| 455       | 58751            | 51.3             | 585       | 129466           | 19.8             | 715       | 10143            | 0.0              | 845       | 2266             | 0.0              | 975       | 2505             | 0.0              |
| 460       | 36892            | 35.6             | 590       | 128813           | 14.3             | 720       | 9072             | 0.0              | 850       | 2558             | 0.0              | 980       | 2666             | 0.0              |
| 465       | 24637            | 26.0             | 595       | 126387           | 10.1             | 725       | 8130             | 0.0              | 855       | 2767             | 0.0              | 985       | 2934             | 0.0              |
| 470       | 16738            | 19.3             | 600       | 123477           | 7.0              | 730       | 7149             | 0.0              | 860       | 2826             | 0.0              | 990       | 4120             | 0.0              |
| 475       | 13456            | 16.8             | 605       | 118718           | 4.7              | 735       | 6311             | 0.0              | 865       | 2385             | 0.0              | 995       | 3858             | 0.0              |
| 480       | 13081            | 17.7             | 610       | 112091           | 3.0              | 740       | 5711             | 0.0              | 870       | 3194             | 0.0              | 1000      | 3405             | 0.0              |
| 485       | 14734            | 21.4             | 615       | 105039           | 1.9              | 745       | 5111             | 0.0              | 875       | 3189             | 0.0              |           |                  |                  |

REPORT NUMBER: SP1-2101-121-2

### Melanopic Flux vs. Wavelength



Melanopic Lumens: 3927.2 M/P: 0.55

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2304             | 0.0              | 490       | 19043            | 15.8             | 620       | 97577            | 0.1              | 750       | 4830             | 0.0              | 880       | 3505             | 0.0              |
| 365       | 2150             | 0.0              | 495       | 26606            | 22.0             | 625       | 90158            | 0.0              | 755       | 4664             | 0.0              | 885       | 2991             | 0.0              |
| 370       | 2146             | 0.0              | 500       | 36376            | 29.2             | 630       | 82240            | 0.0              | 760       | 4006             | 0.0              | 890       | 2327             | 0.0              |
| 375       | 2332             | 0.0              | 505       | 47714            | 36.6             | 635       | 74361            | 0.0              | 765       | 3715             | 0.0              | 895       | 2775             | 0.0              |
| 380       | 2527             | 0.0              | 510       | 58741            | 42.2             | 640       | 66994            | 0.0              | 770       | 3696             | 0.0              | 900       | 2141             | 0.0              |
| 385       | 2304             | 0.0              | 515       | 68716            | 44.9             | 645       | 60405            | 0.0              | 775       | 3117             | 0.0              | 905       | 2421             | 0.0              |
| 390       | 2064             | 0.0              | 520       | 77136            | 44.9             | 650       | 53806            | 0.0              | 780       | 3062             | 0.0              | 910       | 2200             | 0.0              |
| 395       | 1856             | 0.0              | 525       | 83567            | 42.4             | 655       | 47610            | 0.0              | 785       | 2907             | 0.0              | 915       | 2716             | 0.0              |
| 400       | 1856             | 0.0              | 530       | 89283            | 38.6             | 660       | 42018            | 0.0              | 790       | 2655             | 0.0              | 920       | 2656             | 0.0              |
| 405       | 2374             | 0.0              | 535       | 94097            | 33.9             | 665       | 36742            | 0.0              | 795       | 2467             | 0.0              | 925       | 2671             | 0.0              |
| 410       | 4084             | 0.2              | 540       | 96845            | 28.3             | 670       | 32105            | 0.0              | 800       | 2609             | 0.0              | 930       | 3292             | 0.0              |
| 415       | 8543             | 0.6              | 545       | 100829           | 23.4             | 675       | 27946            | 0.0              | 805       | 2293             | 0.0              | 935       | 3188             | 0.0              |
| 420       | 18394            | 2.1              | 550       | 105648           | 19.0             | 680       | 24146            | 0.0              | 810       | 2188             | 0.0              | 940       | 1997             | 0.0              |
| 425       | 37987            | 5.9              | 555       | 110017           | 14.8             | 685       | 21191            | 0.0              | 815       | 2386             | 0.0              | 945       | 2623             | 0.0              |
| 430       | 67605            | 14.3             | 560       | 114586           | 11.3             | 690       | 18544            | 0.0              | 820       | 2712             | 0.0              | 950       | 2969             | 0.0              |
| 435       | 102160           | 27.3             | 565       | 118987           | 8.4              | 695       | 16058            | 0.0              | 825       | 2473             | 0.0              | 955       | 2277             | 0.0              |
| 440       | 135103           | 45.1             | 570       | 122326           | 6.0              | 700       | 14133            | 0.0              | 830       | 1969             | 0.0              | 960       | 4267             | 0.0              |
| 445       | 140126           | 55.3             | 575       | 125968           | 4.2              | 705       | 12309            | 0.0              | 835       | 1917             | 0.0              | 965       | 2034             | 0.0              |
| 450       | 102339           | 47.2             | 580       | 127613           | 2.9              | 710       | 11142            | 0.0              | 840       | 2248             | 0.0              | 970       | 3586             | 0.0              |
| 455       | 58751            | 30.8             | 585       | 129466           | 1.9              | 715       | 10143            | 0.0              | 845       | 2266             | 0.0              | 975       | 2505             | 0.0              |
| 460       | 36892            | 21.7             | 590       | 128813           | 1.3              | 720       | 9072             | 0.0              | 850       | 2558             | 0.0              | 980       | 2666             | 0.0              |
| 465       | 24637            | 16.1             | 595       | 126387           | 0.8              | 725       | 8130             | 0.0              | 855       | 2767             | 0.0              | 985       | 2934             | 0.0              |
| 470       | 16738            | 12.0             | 600       | 123477           | 0.5              | 730       | 7149             | 0.0              | 860       | 2826             | 0.0              | 990       | 4120             | 0.0              |
| 475       | 13456            | 10.3             | 605       | 118718           | 0.3              | 735       | 6311             | 0.0              | 865       | 2385             | 0.0              | 995       | 3858             | 0.0              |
| 480       | 13081            | 10.5             | 610       | 112091           | 0.2              | 740       | 5711             | 0.0              | 870       | 3194             | 0.0              | 1000      | 3405             | 0.0              |
| 485       | 14734            | 12.1             | 615       | 105039           | 0.1              | 745       | 5111             | 0.0              | 875       | 3189             | 0.0              |           |                  |                  |

### Summary

$R_f = 71.7$   
 $R_g = 96.9$   
 CIE  $R_a = 71.2$   
 $R_g = -29.7$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 55 | CES51 = 86 | CES76 = 45 |
| CES02 = 61 | CES27 = 80 | CES52 = 87 | CES77 = 68 |
| CES03 = 30 | CES28 = 79 | CES53 = 74 | CES78 = 49 |
| CES04 = 70 | CES29 = 51 | CES54 = 81 | CES79 = 77 |
| CES05 = 47 | CES30 = 60 | CES55 = 80 | CES80 = 75 |
| CES06 = 50 | CES31 = 56 | CES56 = 69 | CES81 = 75 |
| CES07 = 40 | CES32 = 52 | CES57 = 67 | CES82 = 90 |
| CES08 = 39 | CES33 = 62 | CES58 = 69 | CES83 = 85 |
| CES09 = 29 | CES34 = 65 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 81 | CES60 = 91 | CES85 = 83 |
| CES11 = 57 | CES36 = 92 | CES61 = 85 | CES86 = 72 |
| CES12 = 63 | CES37 = 74 | CES62 = 81 | CES87 = 77 |
| CES13 = 42 | CES38 = 69 | CES63 = 72 | CES88 = 77 |
| CES14 = 74 | CES39 = 92 | CES64 = 69 | CES89 = 72 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 75 |
| CES16 = 46 | CES41 = 84 | CES66 = 63 | CES91 = 91 |
| CES17 = 49 | CES42 = 75 | CES67 = 60 | CES92 = 66 |
| CES18 = 56 | CES43 = 70 | CES68 = 67 | CES93 = 80 |
| CES19 = 72 | CES44 = 98 | CES69 = 77 | CES94 = 56 |
| CES20 = 65 | CES45 = 80 | CES70 = 57 | CES95 = 72 |
| CES21 = 86 | CES46 = 77 | CES71 = 53 | CES96 = 78 |
| CES22 = 78 | CES47 = 74 | CES72 = 84 | CES97 = 83 |
| CES23 = 92 | CES48 = 66 | CES73 = 47 | CES98 = 73 |
| CES24 = 91 | CES49 = 76 | CES74 = 96 | CES99 = 63 |
| CES25 = 72 | CES50 = 85 | CES75 = 52 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**


(END OF REPORT)