

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: P317450

Luminaire Tested: **GLEON-SA6C-740-U-T2R**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P317450  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-8)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA6C-740-U-T2R  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(6) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II  
ROADWAY OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 44073 lumens  
Efficiency: N/A  
Efficacy: 132.4 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B3 - U0 - G4

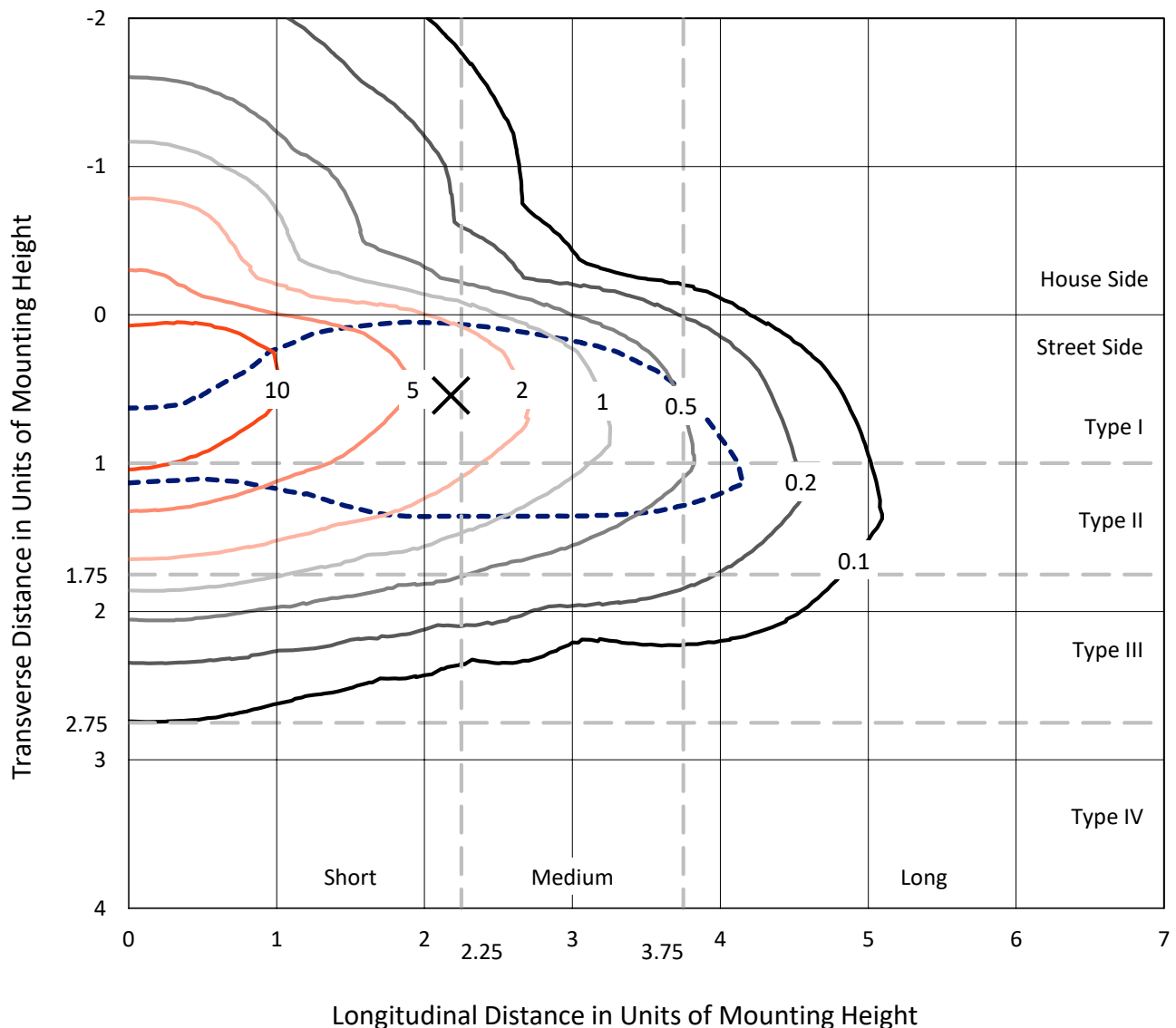
Input Watts (W): 333  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



REPORT NUMBER: P317450  
 CATALOG NUMBER: GLEON-SA6C-740-U-T2R

## Iso-Footcandle Lines of Horizontal Illumination

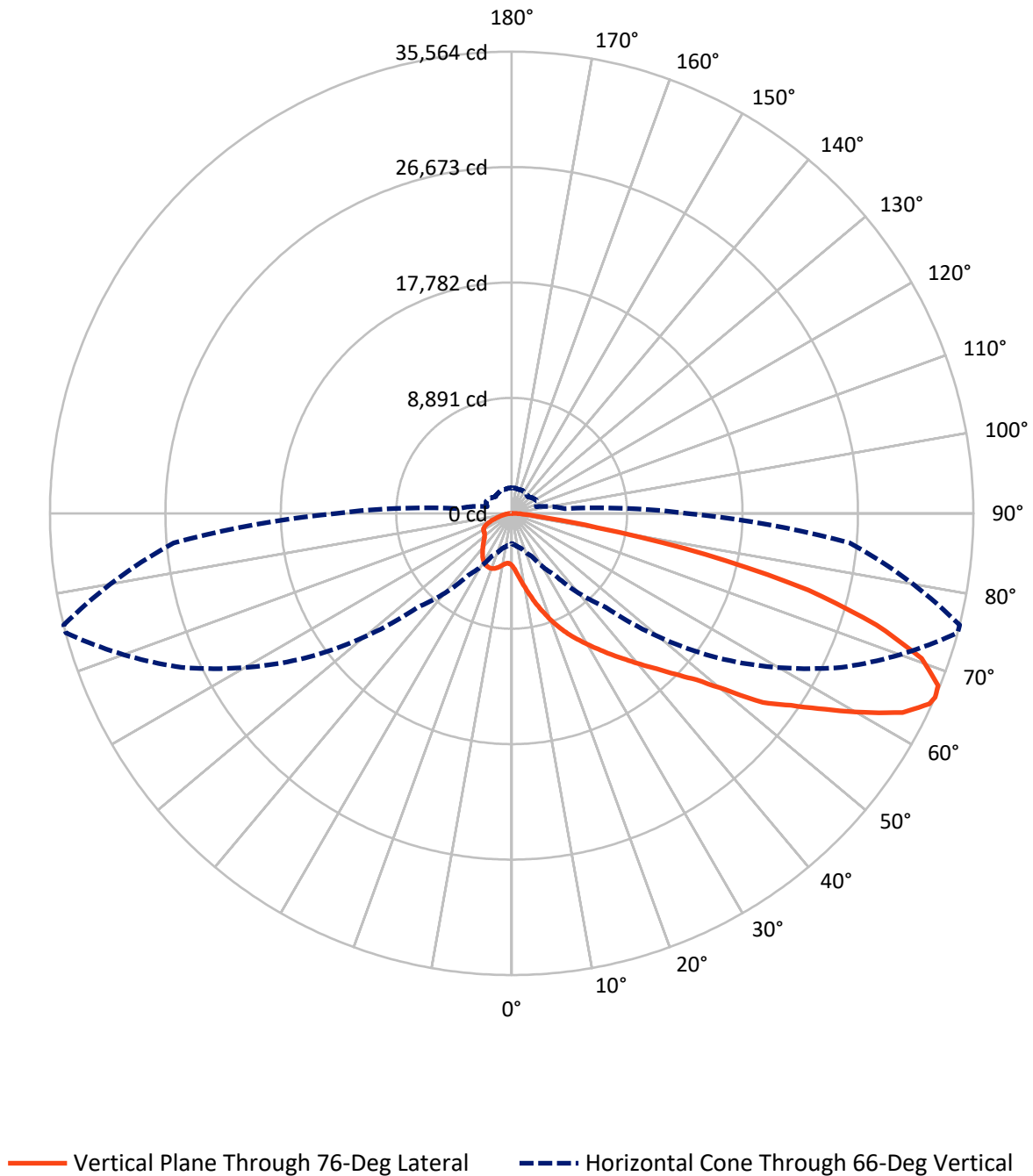
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 17.1 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: GLEON-SA6C-740-U-T2R

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 7416.0   | 0.0    | 7416.0  |
|                    | % Fixture | 16.8     | 0.0    | 16.8    |
| <b>Street Side</b> | Lumens    | 36657.0  | 0.0    | 36657.0 |
|                    | % Fixture | 83.2     | 0.0    | 83.2    |
| <b>Total</b>       | Lumens    | 44073.0  | 0.0    | 44073.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 486.7   | 1.1       |
| 10°-20°   | 1922.0  | 4.4       |
| 20°-30°   | 3734.9  | 8.5       |
| 30°-40°   | 6096.2  | 13.8      |
| 40°-50°   | 8328.9  | 18.9      |
| 50°-60°   | 9701.5  | 22.0      |
| 60°-70°   | 8697.6  | 19.7      |
| 70°-80°   | 4395.4  | 10.0      |
| 80°-90°   | 709.8   | 1.6       |
| 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°    | 44073.0 | 100.0     |
| 0°-180°   | 44073.0 | 100.0     |

**Coefficient of Utilization**



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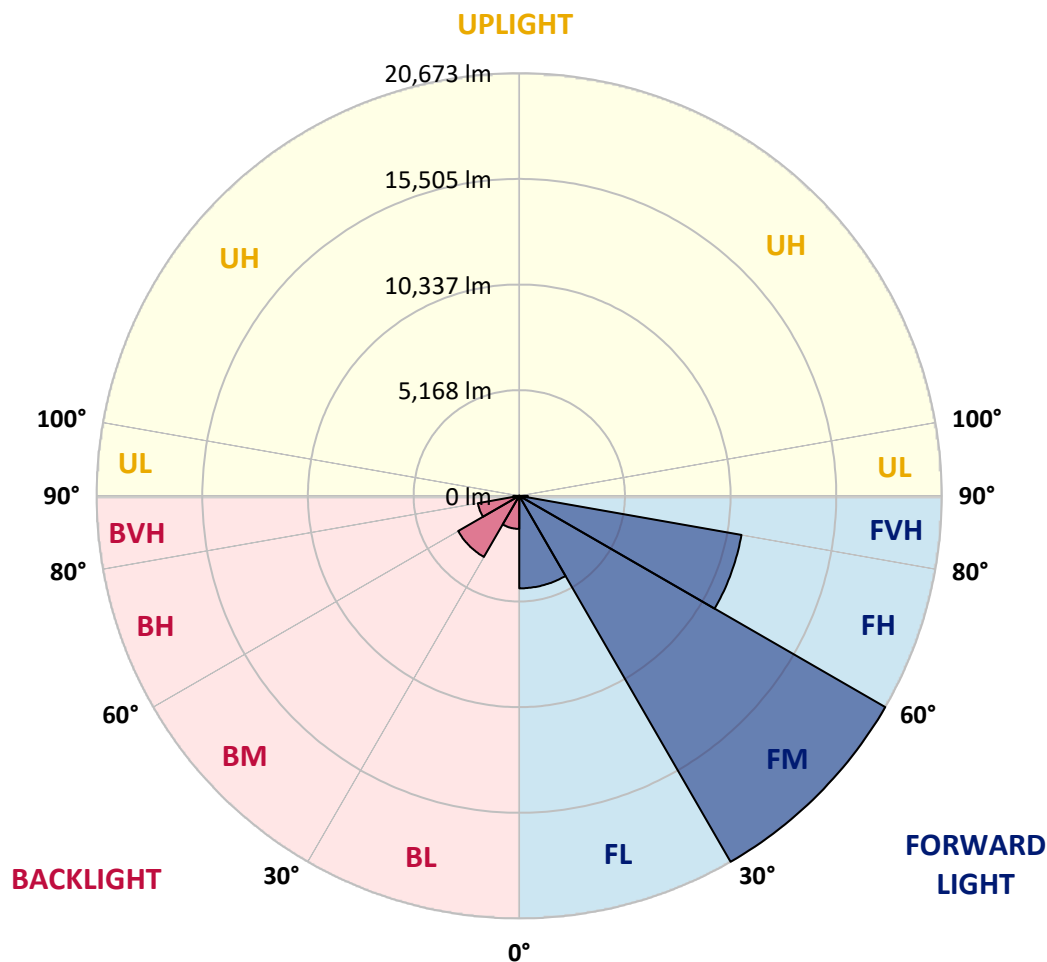
CATALOG NUMBER: GLEON-SA6C-740-U-T2R

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 4526.2  | 10.3      |                         |      |          |
| FM   | (30°-60°)   | 20673.3 | 46.9      |                         |      |          |
| FH   | (60°-80°)   | 11038.4 | 25.0      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 419.2   | 1.0       |                         |      | G3/500   |
| BL   | (0°-30°)    | 1617.5  | 3.7       | B3/2500                 |      |          |
| BM   | (30°-60°)   | 3453.3  | 7.8       | B3/5000                 |      |          |
| BH   | (60°-80°)   | 2054.6  | 4.7       | B3/2500                 |      | G3/2500  |
| BVH  | (80°-90°)   | 290.6   | 0.7       |                         |      | 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 II Short



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CATALOG NUMBER: GLEON-SA6C-740-U-T2R

**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 75°     | 76°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 4024.9  | 4024.9  | 4024.9  | 4024.9  | 4024.9  | 4024.9  | 4024.9  | 4024.9  | 4024.9  | 4024.9  | 4024.9  |
| 2.5°  | 5343.0  | 5262.2  | 5254.8  | 5136.6  | 5109.6  | 4883.7  | 4717.6  | 4544.1  | 4346.5  | 4307.6  | 4152.0  |
| 5°    | 6863.2  | 6855.7  | 6752.5  | 6559.5  | 6408.4  | 6022.3  | 5640.8  | 5236.8  | 4793.9  | 4722.1  | 4372.0  |
| 7.5°  | 8230.8  | 8218.8  | 8139.5  | 7931.5  | 7713.1  | 7238.8  | 6694.1  | 6074.7  | 5356.5  | 5250.3  | 4669.7  |
| 10°   | 9269.1  | 9264.7  | 9237.7  | 9085.1  | 8899.6  | 8444.7  | 7843.2  | 6997.9  | 6010.4  | 5865.2  | 5042.3  |
| 12.5° | 10071.1 | 10080.1 | 10098.1 | 10044.2 | 9955.9  | 9568.4  | 8951.9  | 7976.4  | 6707.6  | 6564.0  | 5456.8  |
| 15°   | 10614.3 | 10641.2 | 10734.0 | 10810.3 | 10856.6 | 10618.7 | 10021.7 | 8977.4  | 7488.6  | 7316.6  | 5916.1  |
| 17.5° | 10888.1 | 10918.0 | 11078.1 | 11308.5 | 11521.0 | 11497.0 | 11022.7 | 9932.0  | 8238.2  | 8072.2  | 6409.8  |
| 20°   | 11124.5 | 11146.9 | 11326.5 | 11603.3 | 11978.8 | 12144.9 | 11878.6 | 10850.7 | 9059.7  | 8862.2  | 6933.5  |
| 22.5° | 11809.7 | 11838.2 | 11892.0 | 12049.1 | 12381.3 | 12686.5 | 12557.9 | 11720.0 | 9812.3  | 9628.2  | 7430.3  |
| 25°   | 13132.4 | 13166.8 | 13050.1 | 12917.0 | 12979.8 | 13192.3 | 13216.2 | 12513.0 | 10575.4 | 10367.4 | 7964.4  |
| 27.5° | 14725.9 | 14775.3 | 14576.3 | 14233.6 | 13934.4 | 13852.1 | 13823.7 | 13162.3 | 11304.0 | 11063.1 | 8492.6  |
| 30°   | 16286.5 | 16371.7 | 16112.9 | 15668.5 | 15119.4 | 14733.4 | 14447.6 | 13798.2 | 12022.2 | 11791.8 | 8990.8  |
| 32.5° | 17811.1 | 17776.7 | 17401.2 | 16967.2 | 16323.9 | 15840.6 | 15149.3 | 14480.5 | 12830.2 | 12565.3 | 9486.1  |
| 35°   | 18855.5 | 18867.5 | 18518.8 | 18004.1 | 17390.7 | 17019.6 | 16089.0 | 15216.7 | 13654.6 | 13410.7 | 10048.7 |
| 37.5° | 19744.3 | 19688.9 | 19293.9 | 18813.6 | 18285.4 | 18126.8 | 17188.7 | 16027.6 | 14547.8 | 14281.5 | 10647.2 |
| 40°   | 20040.5 | 19976.2 | 19717.3 | 19371.7 | 18948.3 | 18934.8 | 18402.1 | 16946.3 | 15557.8 | 15294.5 | 11322.0 |
| 42.5° | 19861.0 | 19778.7 | 19672.4 | 19578.2 | 19448.0 | 19507.8 | 19542.3 | 18023.6 | 16668.0 | 16373.2 | 12103.0 |
| 45°   | 19198.1 | 19073.9 | 19148.8 | 19353.7 | 19636.5 | 19974.7 | 20571.7 | 19216.1 | 17911.4 | 17664.5 | 13020.2 |
| 47.5° | 18179.2 | 18067.0 | 18300.4 | 18738.8 | 19507.8 | 20363.7 | 21545.7 | 20532.8 | 19395.6 | 19150.2 | 14326.4 |
| 50°   | 16745.8 | 16778.7 | 17112.4 | 17909.9 | 19072.4 | 20543.2 | 22745.7 | 22275.9 | 21553.2 | 21324.3 | 16108.4 |
| 52.5° | 14393.7 | 14399.7 | 15339.4 | 16648.6 | 18300.4 | 20450.5 | 23411.5 | 24503.8 | 24499.3 | 24222.5 | 17805.1 |
| 55°   | 12209.2 | 12342.4 | 13086.0 | 14826.1 | 17049.5 | 20079.4 | 23876.8 | 25587.0 | 26433.9 | 26109.2 | 19386.7 |
| 57.5° | 10075.6 | 10153.4 | 10858.1 | 12605.7 | 15264.5 | 19090.4 | 24354.1 | 26887.3 | 28663.3 | 28458.3 | 21352.7 |
| 60°   | 7648.7  | 7768.4  | 8497.1  | 10111.5 | 12981.3 | 17335.3 | 24399.0 | 28244.3 | 31328.1 | 31121.6 | 23547.7 |
| 62.5° | 4964.5  | 5171.0  | 5853.3  | 7365.9  | 10219.3 | 14811.2 | 23357.6 | 29131.6 | 33853.7 | 33780.4 | 25495.8 |
| 65°   | 2853.3  | 3008.9  | 3483.2  | 4650.3  | 7050.2  | 11642.2 | 20881.4 | 28790.5 | 35408.3 | 35366.4 | 26224.4 |
| 66°   | 2331.1  | 2428.4  | 2792.0  | 3634.3  | 5817.3  | 10223.7 | 19442.0 | 28070.8 | 35562.4 | 35563.9 | 26140.6 |
| 67.5° | 1864.3  | 1907.7  | 2070.8  | 2601.9  | 4292.7  | 8103.6  | 16870.0 | 26483.3 | 35370.9 | 35423.2 | 25600.5 |
| 70°   | 1542.6  | 1565.1  | 1615.9  | 1744.6  | 2343.1  | 4886.7  | 11974.3 | 22358.2 | 33448.2 | 33488.6 | 23492.3 |
| 72.5° | 1384.0  | 1397.5  | 1416.9  | 1434.9  | 1653.3  | 2730.6  | 7313.6  | 17885.9 | 29326.1 | 29378.5 | 20279.9 |
| 75°   | 1253.8  | 1261.3  | 1258.3  | 1259.8  | 1387.0  | 1740.1  | 3779.5  | 13353.9 | 23712.3 | 23607.5 | 15535.4 |
| 77.5° | 1101.2  | 1108.7  | 1093.7  | 1096.7  | 1226.9  | 1337.6  | 1880.8  | 9348.4  | 16002.2 | 15263.0 | 8752.9  |
| 80°   | 930.7   | 936.6   | 930.7   | 941.1   | 1068.3  | 1010.0  | 1093.7  | 5259.2  | 7075.7  | 6692.6  | 3112.2  |
| 82.5° | 703.2   | 728.7   | 746.6   | 788.5   | 879.8   | 718.2   | 731.7   | 2048.3  | 2154.6  | 2051.3  | 954.6   |
| 85°   | 308.2   | 375.6   | 562.6   | 603.0   | 661.3   | 430.9   | 480.3   | 834.9   | 876.8   | 849.9   | 347.1   |
| 87.5° | 80.8    | 88.3    | 278.3   | 350.1   | 366.6   | 194.5   | 249.9   | 380.0   | 401.0   | 380.0   | 115.2   |
| 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: P317450

CATALOG NUMBER: GLEON-SA6C-740-U-T2R

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4024.9  | 4024.9 | 4024.9 | 4024.9 | 4024.9 | 4024.9 | 4024.9 | 4024.9 | 4024.9 | 4024.9 | 4024.9 |
| 2.5°  | 4069.7  | 3996.4 | 3864.8 | 3748.1 | 3659.8 | 3599.9 | 3540.1 | 3510.2 | 3492.2 | 3474.2 | 3477.2 |
| 5°    | 4199.9  | 4051.8 | 3825.9 | 3665.8 | 3576.0 | 3519.1 | 3489.2 | 3477.2 | 3469.8 | 3451.8 | 3451.8 |
| 7.5°  | 4395.9  | 4186.5 | 3875.2 | 3710.7 | 3640.3 | 3596.9 | 3579.0 | 3573.0 | 3564.0 | 3543.1 | 3546.1 |
| 10°   | 4642.8  | 4349.5 | 3978.5 | 3818.4 | 3754.0 | 3706.2 | 3680.7 | 3671.7 | 3655.3 | 3631.4 | 3634.3 |
| 12.5° | 4933.1  | 4551.5 | 4114.6 | 3947.1 | 3869.3 | 3804.9 | 3763.0 | 3737.6 | 3709.2 | 3677.7 | 3679.2 |
| 15°   | 5250.3  | 4771.5 | 4261.3 | 4062.3 | 3956.0 | 3866.3 | 3798.9 | 3755.5 | 3710.7 | 3671.7 | 3670.3 |
| 17.5° | 5572.0  | 4983.9 | 4373.5 | 4125.1 | 3981.5 | 3863.3 | 3772.0 | 3704.7 | 3649.3 | 3601.4 | 3596.9 |
| 20°   | 5919.1  | 5175.5 | 4436.3 | 4119.1 | 3933.6 | 3792.9 | 3671.7 | 3588.0 | 3526.6 | 3478.7 | 3471.3 |
| 22.5° | 6272.2  | 5355.0 | 4446.8 | 4057.8 | 3827.4 | 3655.3 | 3528.1 | 3435.3 | 3372.5 | 3323.1 | 3305.2 |
| 25°   | 6595.4  | 5494.2 | 4403.4 | 3939.6 | 3679.2 | 3493.7 | 3369.5 | 3275.2 | 3224.4 | 3166.0 | 3148.1 |
| 27.5° | 6890.1  | 5591.4 | 4316.6 | 3788.5 | 3513.1 | 3330.6 | 3213.9 | 3133.1 | 3077.7 | 3032.9 | 3017.9 |
| 30°   | 7155.0  | 5643.8 | 4174.5 | 3608.9 | 3342.6 | 3176.5 | 3077.7 | 3022.4 | 2974.5 | 2917.6 | 2907.2 |
| 32.5° | 7406.3  | 5643.8 | 3991.9 | 3412.9 | 3173.5 | 3040.3 | 2982.0 | 2947.6 | 2893.7 | 2838.3 | 2823.4 |
| 35°   | 7657.7  | 5609.4 | 3776.5 | 3207.9 | 3017.9 | 2943.1 | 2940.1 | 2899.7 | 2817.4 | 2742.6 | 2723.1 |
| 37.5° | 7922.5  | 5539.0 | 3534.1 | 3016.4 | 2890.7 | 2899.7 | 2925.1 | 2835.4 | 2718.7 | 2612.4 | 2584.0 |
| 40°   | 8221.8  | 5441.8 | 3282.7 | 2850.3 | 2784.5 | 2880.2 | 2884.7 | 2742.6 | 2515.2 | 2417.9 | 2392.5 |
| 42.5° | 8573.4  | 5344.5 | 3049.3 | 2703.7 | 2700.7 | 2821.9 | 2808.4 | 2542.1 | 2405.9 | 2356.6 | 2343.1 |
| 45°   | 9035.7  | 5289.2 | 2827.9 | 2564.5 | 2634.9 | 2727.6 | 2678.3 | 2431.4 | 2374.5 | 2346.1 | 2334.1 |
| 47.5° | 9764.4  | 5317.6 | 2624.4 | 2453.8 | 2569.0 | 2633.4 | 2435.9 | 2386.5 | 2346.1 | 2311.7 | 2299.7 |
| 50°   | 10677.1 | 5301.1 | 2459.8 | 2377.5 | 2494.2 | 2534.6 | 2326.6 | 2328.1 | 2307.2 | 2268.3 | 2250.3 |
| 52.5° | 11363.9 | 5172.5 | 2353.6 | 2334.1 | 2428.4 | 2359.6 | 2257.8 | 2271.3 | 2260.8 | 2203.9 | 2184.5 |
| 55°   | 12026.7 | 5061.7 | 2299.7 | 2317.7 | 2380.5 | 2141.1 | 2177.0 | 2209.9 | 2199.5 | 2144.1 | 2135.1 |
| 57.5° | 12851.1 | 5040.8 | 2266.8 | 2322.1 | 2340.1 | 2031.9 | 2099.2 | 2142.6 | 2135.1 | 2111.2 | 2106.7 |
| 60°   | 13861.1 | 5046.8 | 2236.9 | 2329.6 | 2295.2 | 1951.1 | 2025.9 | 2081.3 | 2085.7 | 2081.3 | 2078.3 |
| 62.5° | 14416.2 | 4883.7 | 2162.1 | 2308.7 | 2215.9 | 1880.8 | 1949.6 | 2030.4 | 2031.9 | 2040.9 | 2039.4 |
| 65°   | 13944.9 | 4395.9 | 2022.9 | 2235.4 | 2082.8 | 1822.4 | 1883.8 | 1972.0 | 1949.6 | 1990.0 | 1990.0 |
| 66°   | 13487.0 | 4114.6 | 1954.1 | 2187.5 | 2025.9 | 1800.0 | 1862.8 | 1942.1 | 1913.7 | 1969.0 | 1969.0 |
| 67.5° | 12551.9 | 3640.3 | 1829.9 | 2085.7 | 1945.1 | 1768.5 | 1838.9 | 1892.7 | 1853.8 | 1936.1 | 1930.1 |
| 70°   | 10843.2 | 2815.9 | 1580.0 | 1855.3 | 1811.9 | 1722.2 | 1805.9 | 1794.0 | 1737.1 | 1862.8 | 1838.9 |
| 72.5° | 9142.0  | 2139.6 | 1268.8 | 1553.1 | 1609.9 | 1663.8 | 1759.6 | 1668.3 | 1596.5 | 1684.8 | 1632.4 |
| 75°   | 7093.6  | 1608.4 | 1002.5 | 1207.5 | 1360.1 | 1572.5 | 1704.2 | 1523.2 | 1419.9 | 1410.9 | 1382.5 |
| 77.5° | 3834.8  | 1104.2 | 794.5  | 921.7  | 1080.3 | 1458.8 | 1666.8 | 1367.6 | 1211.9 | 1176.0 | 1153.6 |
| 80°   | 1518.7  | 718.2  | 577.5  | 698.7  | 755.6  | 1294.2 | 1577.0 | 1186.5 | 999.5  | 963.6  | 929.2  |
| 82.5° | 626.9   | 424.9  | 372.6  | 468.3  | 492.3  | 1107.2 | 1415.4 | 972.5  | 772.1  | 1068.3 | 1134.1 |
| 85°   | 269.3   | 233.4  | 221.4  | 242.4  | 278.3  | 776.5  | 1126.7 | 742.1  | 833.4  | 743.6  | 591.0  |
| 87.5° | 80.8    | 98.8   | 94.3   | 92.8   | 101.7  | 185.5  | 600.0  | 413.0  | 612.0  | 231.9  | 173.6  |
| 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            |

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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 4000K 4-step quadrangle

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### 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              |           |                  |                  |

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### 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)