

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



Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P642245

Luminaire Tested: GWS-SA6C-740-U-T4FT-W

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P642245  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-54)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA6C-740-U-T4FT-W  
Description: GALLEON WALL SLIM LUMINAIRE. (6) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV FORWARD THROW OPTICS  
Light Source: (96) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

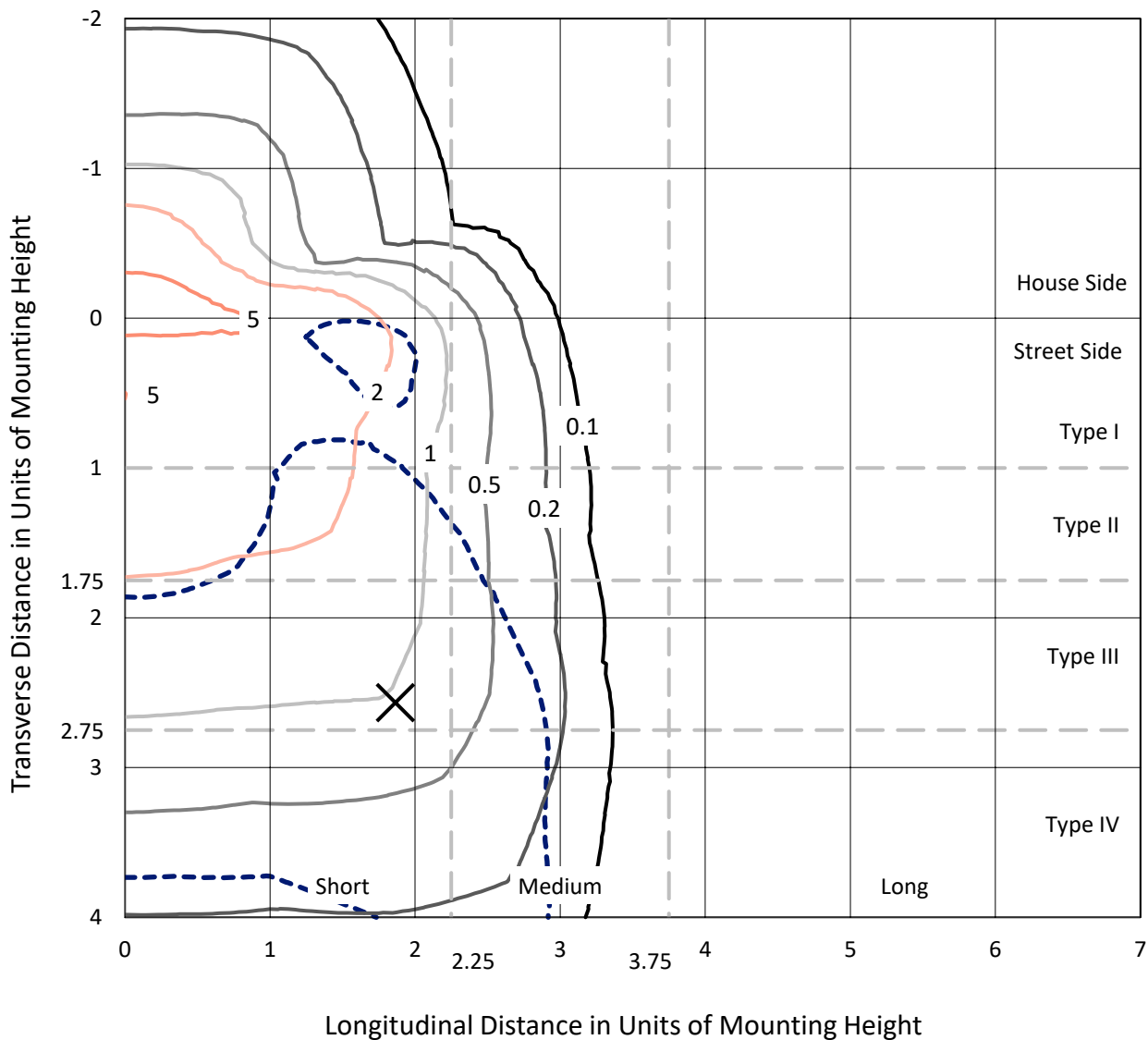
Lumens per Lamp: N/A  
Luminaire Lumens: 27426.8 lumens  
Efficiency: N/A  
Efficacy: 145.0 lumens/watt  
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B3 - U0 - G4  
  
Input Watts (W): 189.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 0  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



REPORT NUMBER: P642245  
 CATALOG NUMBER: GWS-SA6C-740-U-T4FT-W

### Iso-Footcandle Lines of Horizontal Illumination

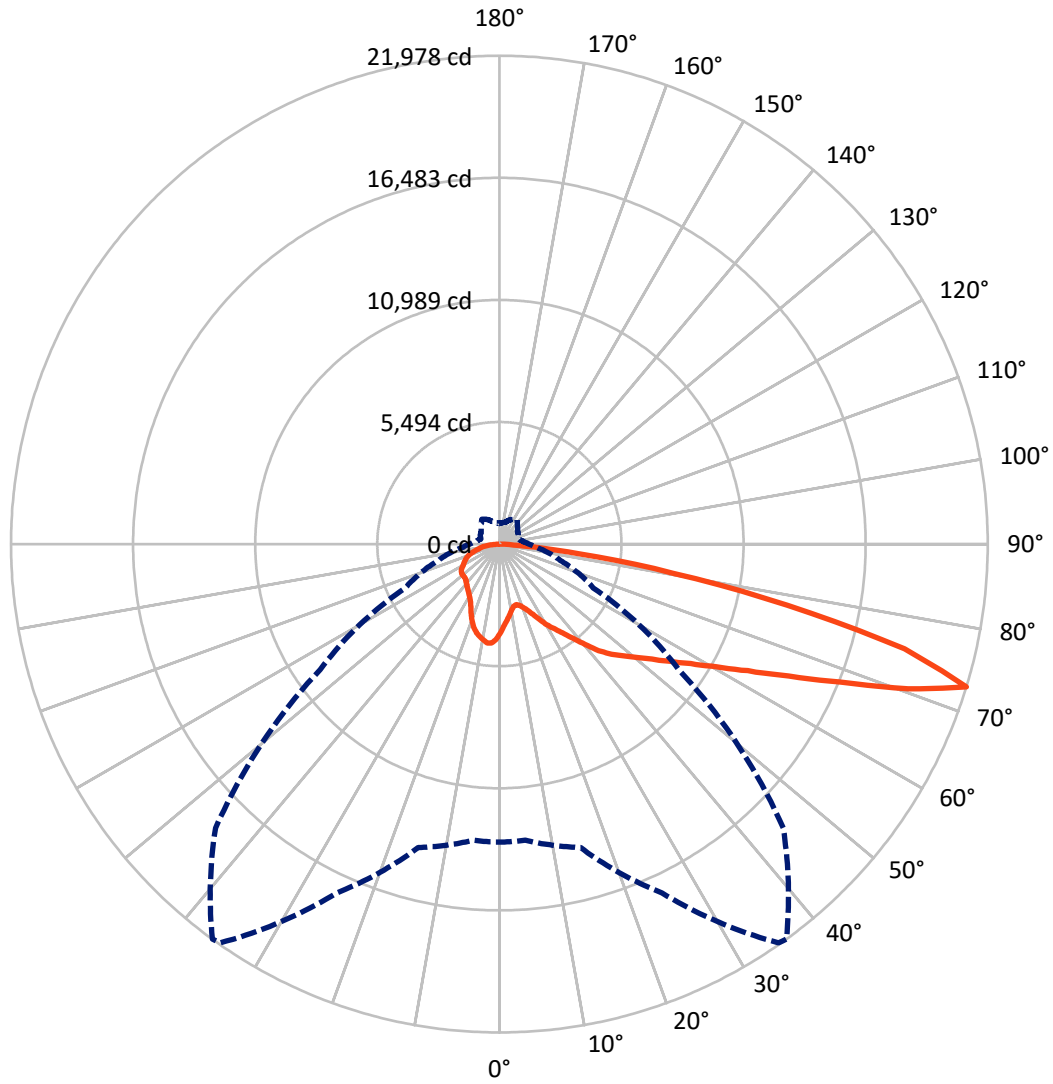
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 6.8 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 36-Deg Lateral    - - - Horizontal Cone Through 72.5-Deg Vertical



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 6323.1   | 0.0    | 6323.1  |
|                    | % Fixture | 23.1     | 0.0    | 23.1    |
| <b>Street Side</b> | Lumens    | 21103.7  | 0.0    | 21103.7 |
|                    | % Fixture | 76.9     | 0.0    | 76.9    |
| <b>Total</b>       | Lumens    | 27426.8  | 0.0    | 27426.8 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 375.2   | 1.4       |
| 10°-20°   | 1058.6  | 3.9       |
| 20°-30°   | 1753.2  | 6.4       |
| 30°-40°   | 2625.5  | 9.6       |
| 40°-50°   | 3830.4  | 14.0      |
| 50°-60°   | 5451.8  | 19.9      |
| 60°-70°   | 6888.0  | 25.1      |
| 70°-80°   | 4908.3  | 17.9      |
| 80°-90°   | 535.8   | 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°    | 27426.8 | 100.0     |
| 0°-180°   | 27426.8 | 100.0     |

**Coefficient of Utilization**



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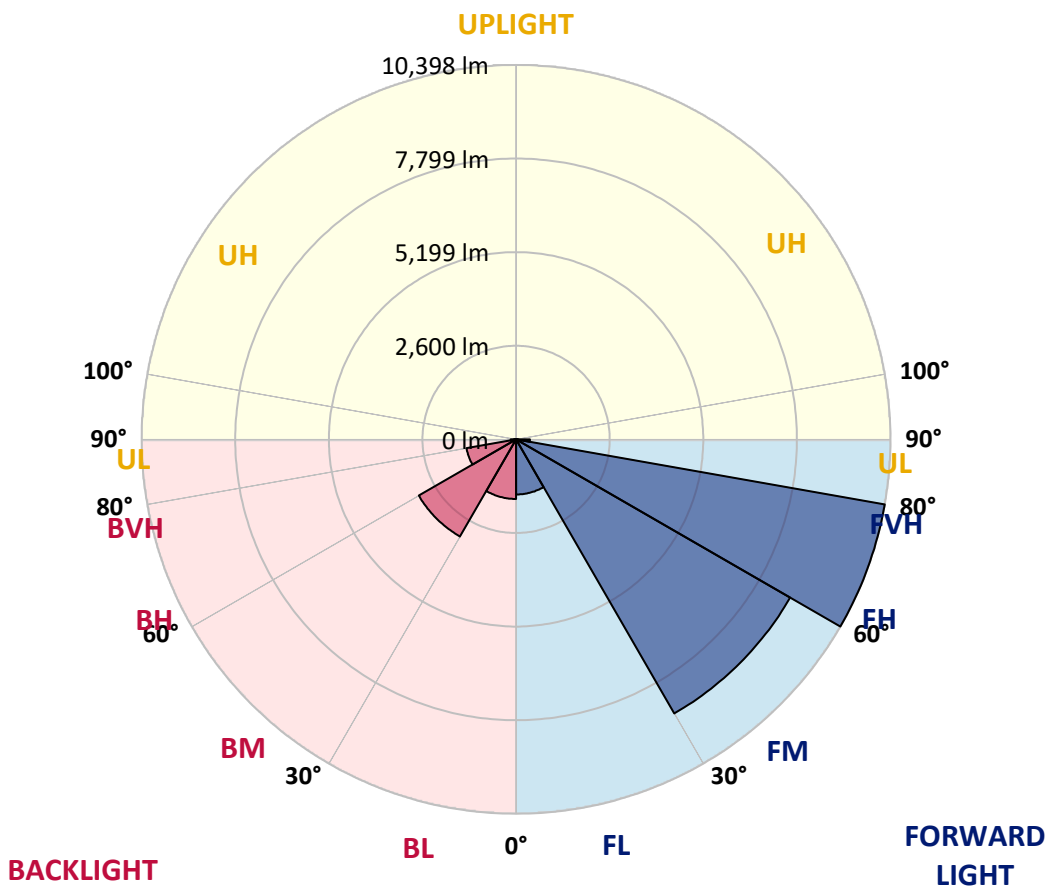
CATALOG NUMBER: GWS-SA6C-740-U-T4FT-W

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

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|----------------|---------|-----------|-------------------------|------|----------|
|                |         |           | B                       | U    | G        |
| FL (0°-30°)    | 1531.2  | 5.6       |                         |      |          |
| FM (30°-60°)   | 8789.6  | 32.0      |                         |      |          |
| FH (60°-80°)   | 10398.4 | 37.9      |                         |      | G4/12000 |
| FVH (80°-90°)  | 384.6   | 1.4       |                         |      | G3/500   |
| BL (0°-30°)    | 1655.8  | 6.0       | B3/2500                 |      |          |
| BM (30°-60°)   | 3118.2  | 11.4      | B3/5000                 |      |          |
| BH (60°-80°)   | 1397.9  | 5.1       | B3/2500                 |      | G3/2500  |
| BVH (80°-90°)  | 151.2   | 0.6       |                         |      | G2/225   |
| UL (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B3-U0-G4**

Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 36°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 4014.0  | 4014.0  | 4014.0  | 4014.0  | 4014.0  | 4014.0  | 4014.0  | 4014.0  | 4014.0  | 4014.0  | 4014.0  |
| 2.5°  | 3661.9  | 3655.8  | 3643.6  | 3680.2  | 3716.8  | 3712.8  | 3763.7  | 3812.5  | 3865.4  | 3920.4  | 3993.7  |
| 5°    | 3368.8  | 3364.7  | 3354.5  | 3409.5  | 3464.4  | 3462.4  | 3545.9  | 3625.3  | 3733.1  | 3851.2  | 3997.8  |
| 7.5°  | 3075.7  | 3065.5  | 3079.7  | 3148.9  | 3226.3  | 3234.4  | 3348.4  | 3478.7  | 3635.4  | 3812.5  | 4020.1  |
| 10°   | 2817.2  | 2815.1  | 2821.2  | 2898.6  | 3014.6  | 3022.7  | 3169.3  | 3350.5  | 3558.1  | 3794.2  | 4071.0  |
| 12.5° | 2750.0  | 2745.9  | 2729.6  | 2768.3  | 2855.8  | 2868.0  | 3028.8  | 3250.7  | 3505.2  | 3804.4  | 4140.2  |
| 15°   | 2859.9  | 2849.7  | 2792.7  | 2774.4  | 2817.2  | 2827.3  | 2963.7  | 3191.7  | 3474.6  | 3822.7  | 4227.8  |
| 17.5° | 3049.2  | 3043.1  | 2935.2  | 2859.9  | 2888.4  | 2896.5  | 2998.3  | 3181.5  | 3466.5  | 3859.3  | 4335.6  |
| 20°   | 3326.0  | 3299.6  | 3130.6  | 3016.6  | 3016.6  | 3028.8  | 3089.9  | 3226.3  | 3476.7  | 3904.1  | 4457.8  |
| 22.5° | 3692.4  | 3639.5  | 3401.3  | 3246.6  | 3205.9  | 3222.2  | 3248.7  | 3338.2  | 3519.4  | 3979.4  | 4610.4  |
| 25°   | 4103.6  | 4054.7  | 3771.8  | 3554.0  | 3497.0  | 3503.1  | 3480.7  | 3497.0  | 3613.0  | 4083.2  | 4799.7  |
| 27.5° | 4541.2  | 4508.7  | 4207.4  | 3930.6  | 3841.0  | 3841.0  | 3761.6  | 3723.0  | 3743.3  | 4201.3  | 5011.4  |
| 30°   | 4932.1  | 4887.3  | 4632.8  | 4329.5  | 4211.5  | 4211.5  | 4060.9  | 3977.4  | 3928.5  | 4345.8  | 5294.4  |
| 32.5° | 5137.6  | 5111.2  | 4942.2  | 4710.2  | 4565.7  | 4543.3  | 4413.0  | 4315.3  | 4201.3  | 4559.6  | 5677.1  |
| 35°   | 5406.3  | 5400.2  | 5298.4  | 5117.3  | 4934.1  | 4901.5  | 4812.0  | 4734.6  | 4537.2  | 4826.2  | 6185.9  |
| 37.5° | 5744.2  | 5734.0  | 5717.8  | 5609.9  | 5390.0  | 5383.9  | 5304.6  | 5210.9  | 4954.4  | 5210.9  | 6802.7  |
| 40°   | 6122.8  | 6104.5  | 6084.2  | 6082.1  | 5949.8  | 5927.4  | 5921.3  | 5815.5  | 5457.2  | 5675.0  | 7445.9  |
| 42.5° | 6643.9  | 6580.8  | 6389.5  | 6475.0  | 6572.7  | 6552.3  | 6629.7  | 6470.9  | 6084.2  | 6226.6  | 8054.5  |
| 45°   | 7285.1  | 7130.4  | 6751.8  | 6776.2  | 7022.5  | 7063.2  | 7331.9  | 7293.2  | 6774.2  | 6863.8  | 8695.7  |
| 47.5° | 7669.8  | 7535.5  | 7183.3  | 7163.0  | 7470.3  | 7521.2  | 8105.4  | 8178.7  | 7517.2  | 7631.1  | 9487.5  |
| 50°   | 7985.3  | 7891.7  | 7602.6  | 7631.1  | 7956.8  | 8007.7  | 8872.8  | 9029.5  | 8217.4  | 8416.9  | 10407.6 |
| 52.5° | 8366.0  | 8231.6  | 8007.7  | 8142.1  | 8541.0  | 8602.1  | 9725.7  | 9894.6  | 8848.4  | 9279.9  | 11360.2 |
| 55°   | 8579.7  | 8524.7  | 8528.8  | 8734.4  | 9235.1  | 9318.6  | 10619.3 | 10590.8 | 9426.5  | 10018.8 | 12076.7 |
| 57.5° | 9072.3  | 9051.9  | 9239.2  | 9316.6  | 10045.3 | 10153.1 | 11512.9 | 11268.6 | 9951.6  | 10590.8 | 12420.7 |
| 60°   | 9941.5  | 9890.6  | 10053.4 | 10171.5 | 11046.7 | 11199.4 | 12510.3 | 11932.2 | 10307.8 | 11016.2 | 12304.7 |
| 62.5° | 11162.8 | 11099.7 | 11105.8 | 11293.0 | 12388.1 | 12548.9 | 13619.6 | 12485.8 | 10417.8 | 11081.3 | 11569.9 |
| 65°   | 12681.3 | 12589.7 | 12485.8 | 12740.3 | 14169.2 | 14303.6 | 14826.7 | 12888.9 | 10155.2 | 10454.4 | 10035.1 |
| 67.5° | 14283.2 | 14207.9 | 14085.8 | 14619.1 | 16475.5 | 16556.9 | 16180.3 | 12854.3 | 9322.7  | 8777.1  | 7038.8  |
| 70°   | 14376.8 | 14395.2 | 14973.2 | 16902.9 | 19486.0 | 19506.3 | 17460.6 | 12158.1 | 7549.7  | 5689.3  | 3507.2  |
| 72.5° | 13412.0 | 13381.5 | 14134.6 | 17320.2 | 21908.2 | 21977.5 | 18065.2 | 9849.9  | 4665.4  | 2837.5  | 1644.7  |
| 75°   | 10894.1 | 10947.0 | 11738.8 | 15154.4 | 18777.6 | 18838.7 | 14726.9 | 5807.3  | 2216.7  | 1388.2  | 1052.4  |
| 77.5° | 4689.8  | 4985.0  | 6546.2  | 10676.3 | 13448.6 | 13259.3 | 7590.4  | 2353.1  | 1182.6  | 989.3   | 806.1   |
| 80°   | 1353.6  | 1469.6  | 2332.7  | 5076.6  | 8058.6  | 7916.1  | 3004.4  | 881.4   | 824.4   | 743.0   | 578.1   |
| 82.5° | 437.6   | 484.5   | 854.9   | 2021.3  | 3611.0  | 3606.9  | 1139.9  | 521.1   | 539.4   | 504.8   | 372.5   |
| 85°   | 122.1   | 140.5   | 262.6   | 612.7   | 1117.5  | 1095.1  | 329.8   | 246.3   | 287.0   | 291.1   | 185.2   |
| 87.5° | 0.0     | 0.0     | 2.0     | 4.1     | 4.1     | 4.1     | 8.1     | 36.6    | 83.5    | 105.8   | 75.3    |
| 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: P642245  
 CATALOG NUMBER: GWS-SA6C-740-U-T4FT-W

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4014.0  | 4014.0 | 4014.0 | 4014.0 | 4014.0 | 4014.0 | 4014.0 | 4014.0 | 4014.0 | 4014.0 | 4014.0 |
| 2.5°  | 4038.5  | 4032.4 | 4115.8 | 4180.9 | 4242.0 | 4282.7 | 4294.9 | 4303.1 | 4319.4 | 4327.5 | 4319.4 |
| 5°    | 4067.0  | 4097.5 | 4235.9 | 4337.7 | 4419.1 | 4468.0 | 4470.0 | 4465.9 | 4478.1 | 4468.0 | 4461.8 |
| 7.5°  | 4128.0  | 4187.1 | 4362.1 | 4470.0 | 4522.9 | 4524.9 | 4476.1 | 4419.1 | 4390.6 | 4366.2 | 4358.0 |
| 10°   | 4209.4  | 4297.0 | 4488.3 | 4559.6 | 4543.3 | 4468.0 | 4360.1 | 4270.5 | 4219.6 | 4183.0 | 4174.8 |
| 12.5° | 4321.4  | 4419.1 | 4600.3 | 4598.2 | 4496.5 | 4362.1 | 4235.9 | 4128.0 | 4054.7 | 4012.0 | 3997.8 |
| 15°   | 4427.2  | 4551.4 | 4681.7 | 4586.0 | 4425.2 | 4262.4 | 4099.5 | 3955.0 | 3857.3 | 3790.1 | 3777.9 |
| 17.5° | 4557.5  | 4689.8 | 4740.7 | 4547.3 | 4335.6 | 4126.0 | 3908.2 | 3718.9 | 3586.6 | 3507.2 | 3501.1 |
| 20°   | 4708.1  | 4826.2 | 4769.2 | 4480.2 | 4219.6 | 3944.8 | 3649.7 | 3438.0 | 3295.5 | 3218.1 | 3224.3 |
| 22.5° | 4883.2  | 4968.7 | 4777.4 | 4388.6 | 4058.8 | 3688.4 | 3358.6 | 3155.0 | 3059.4 | 3018.7 | 3020.7 |
| 25°   | 5070.5  | 5125.4 | 4763.1 | 4264.4 | 3812.5 | 3374.9 | 3059.4 | 2965.7 | 2957.6 | 2947.4 | 2951.5 |
| 27.5° | 5292.3  | 5280.1 | 4720.4 | 4089.3 | 3480.7 | 3010.5 | 2849.7 | 2874.1 | 2906.7 | 2902.6 | 2906.7 |
| 30°   | 5589.5  | 5473.5 | 4665.4 | 3847.1 | 3085.8 | 2705.2 | 2725.6 | 2794.8 | 2837.5 | 2841.6 | 2853.8 |
| 32.5° | 5929.5  | 5687.2 | 4577.9 | 3517.4 | 2709.3 | 2534.2 | 2609.5 | 2693.0 | 2743.9 | 2754.1 | 2770.3 |
| 35°   | 6334.5  | 5931.5 | 4423.2 | 3106.2 | 2438.5 | 2432.4 | 2501.6 | 2558.6 | 2613.6 | 2617.7 | 2617.7 |
| 37.5° | 6800.7  | 6175.8 | 4176.9 | 2652.3 | 2271.6 | 2344.9 | 2410.0 | 2422.3 | 2436.5 | 2424.3 | 2430.4 |
| 40°   | 7228.1  | 6411.9 | 3826.8 | 2239.1 | 2135.3 | 2267.6 | 2322.5 | 2281.8 | 2237.0 | 2206.5 | 2212.6 |
| 42.5° | 7586.4  | 6572.7 | 3362.7 | 1950.0 | 1996.8 | 2198.4 | 2241.1 | 2157.6 | 2070.1 | 2013.1 | 2021.3 |
| 45°   | 7989.4  | 6721.3 | 2817.2 | 1754.6 | 1878.8 | 2149.5 | 2178.0 | 2070.1 | 1958.2 | 1872.7 | 1860.5 |
| 47.5° | 8545.1  | 7024.6 | 2332.7 | 1618.2 | 1795.3 | 2123.0 | 2169.9 | 2023.3 | 1876.7 | 1748.5 | 1734.3 |
| 50°   | 9231.1  | 7454.1 | 1927.6 | 1528.7 | 1756.6 | 2108.8 | 2167.8 | 1972.4 | 1797.4 | 1646.7 | 1636.6 |
| 52.5° | 9980.1  | 7873.4 | 1628.4 | 1459.5 | 1718.0 | 2066.0 | 2157.6 | 1915.4 | 1713.9 | 1551.1 | 1538.8 |
| 55°   | 10478.8 | 8038.2 | 1426.9 | 1394.3 | 1654.9 | 1998.9 | 2116.9 | 1860.5 | 1587.7 | 1439.1 | 1420.8 |
| 57.5° | 10625.4 | 7826.6 | 1286.4 | 1335.3 | 1573.5 | 1905.2 | 2039.6 | 1744.4 | 1510.4 | 1392.3 | 1378.0 |
| 60°   | 10373.0 | 7293.2 | 1198.9 | 1286.4 | 1483.9 | 1785.1 | 1905.2 | 1677.3 | 1449.3 | 1343.4 | 1333.3 |
| 62.5° | 9660.6  | 6470.9 | 1131.7 | 1235.6 | 1392.3 | 1658.9 | 1819.8 | 1595.8 | 1382.1 | 1298.7 | 1284.4 |
| 65°   | 8227.6  | 5306.6 | 1076.8 | 1182.6 | 1304.8 | 1538.8 | 1726.1 | 1514.4 | 1308.8 | 1245.7 | 1229.5 |
| 67.5° | 5754.4  | 3727.0 | 1017.8 | 1119.5 | 1217.2 | 1422.8 | 1628.4 | 1439.1 | 1233.5 | 1186.7 | 1170.4 |
| 70°   | 2813.1  | 1976.5 | 946.5  | 1046.3 | 1123.6 | 1304.8 | 1530.7 | 1347.5 | 1133.8 | 1107.3 | 1084.9 |
| 72.5° | 1339.4  | 1105.3 | 863.1  | 946.5  | 995.4  | 1148.0 | 1367.9 | 1215.2 | 1015.7 | 958.7  | 920.1  |
| 75°   | 897.7   | 785.7  | 753.1  | 828.5  | 840.7  | 962.8  | 1172.5 | 1048.3 | 895.6  | 830.5  | 797.9  |
| 77.5° | 679.9   | 600.5  | 633.0  | 700.2  | 675.8  | 791.8  | 964.8  | 934.3  | 808.1  | 749.1  | 732.8  |
| 80°   | 478.3   | 437.6  | 502.8  | 543.5  | 525.2  | 673.8  | 869.2  | 800.0  | 665.6  | 600.5  | 588.3  |
| 82.5° | 301.3   | 293.1  | 370.5  | 376.6  | 382.7  | 533.3  | 714.5  | 629.0  | 517.0  | 425.4  | 394.9  |
| 85°   | 150.6   | 166.9  | 221.9  | 221.9  | 219.8  | 274.8  | 407.1  | 354.2  | 278.9  | 221.9  | 215.8  |
| 87.5° | 50.9    | 71.2   | 95.7   | 77.3   | 59.0   | 46.8   | 52.9   | 65.1   | 69.2   | 67.2   | 67.2   |
| 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: 4π  
 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 | R9:  | -29.7 |
| CIE u':                   | 0.2273  | R1:       | 68.9 | R10: | 46.2  |
| CIE v':                   | 0.5024  | R2:       | 77.0 | R11: | 68.8  |
| Duv:                      | -0.0008 | R3:       | 84.0 | R12: | 45.6  |
| CIE x:                    | 0.3841  | R4:       | 71.6 | R13: | 69.5  |
| CIE y:                    | 0.3774  | R5:       | 68.9 | R14: | 90.7  |
| CIE z:                    | 0.2385  | R6:       | 68.3 |      |       |
| 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



CCT = 3905K  
 CIE x = 0.3841  
 CIE y = 0.3774  
 Duv = -0.0008

Point lies inside the ANSI 4000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



#####

| 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    | 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 (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    | 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 (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    | 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)