

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: P635257

Luminaire Tested: GWS-SA3D-735-U-T3R-W-HSS

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P635257  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-18)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA3D-735-U-T3R-W-HSS  
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III ROADWAY OPTICS WITH HOUSE SIDE SHIELD  
Light Source: (48) 3500K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

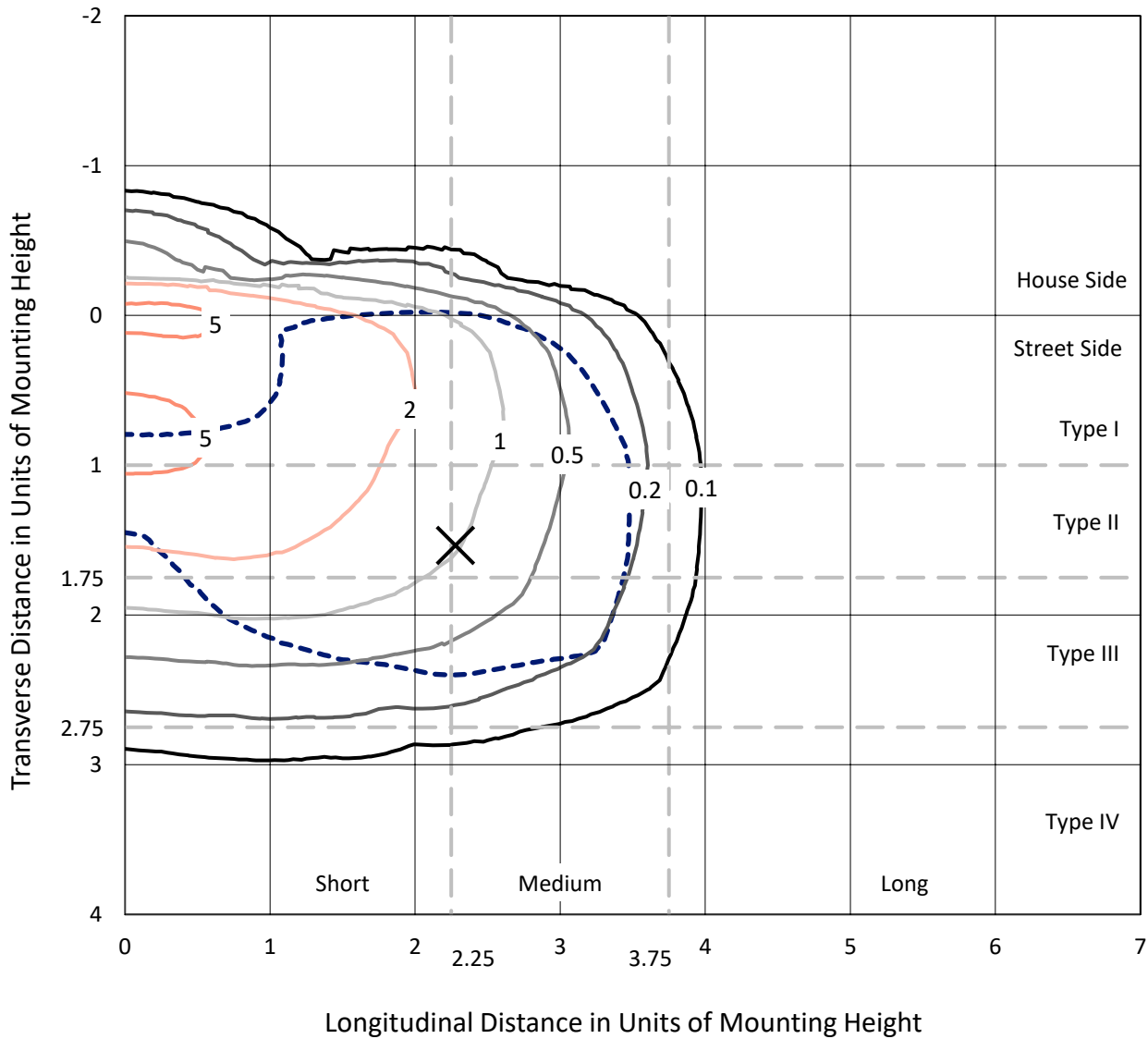
Lumens per Lamp: N/A  
Luminaire Lumens: 13587.4 lumens  
Efficiency: N/A  
Efficacy: 112.5 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B1 - U0 - G3  
  
Input Watts (W): 120.8  
Input Voltage (V): 120  
Input Current (Ain): 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



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### Iso-Footcandle Lines of Horizontal Illumination

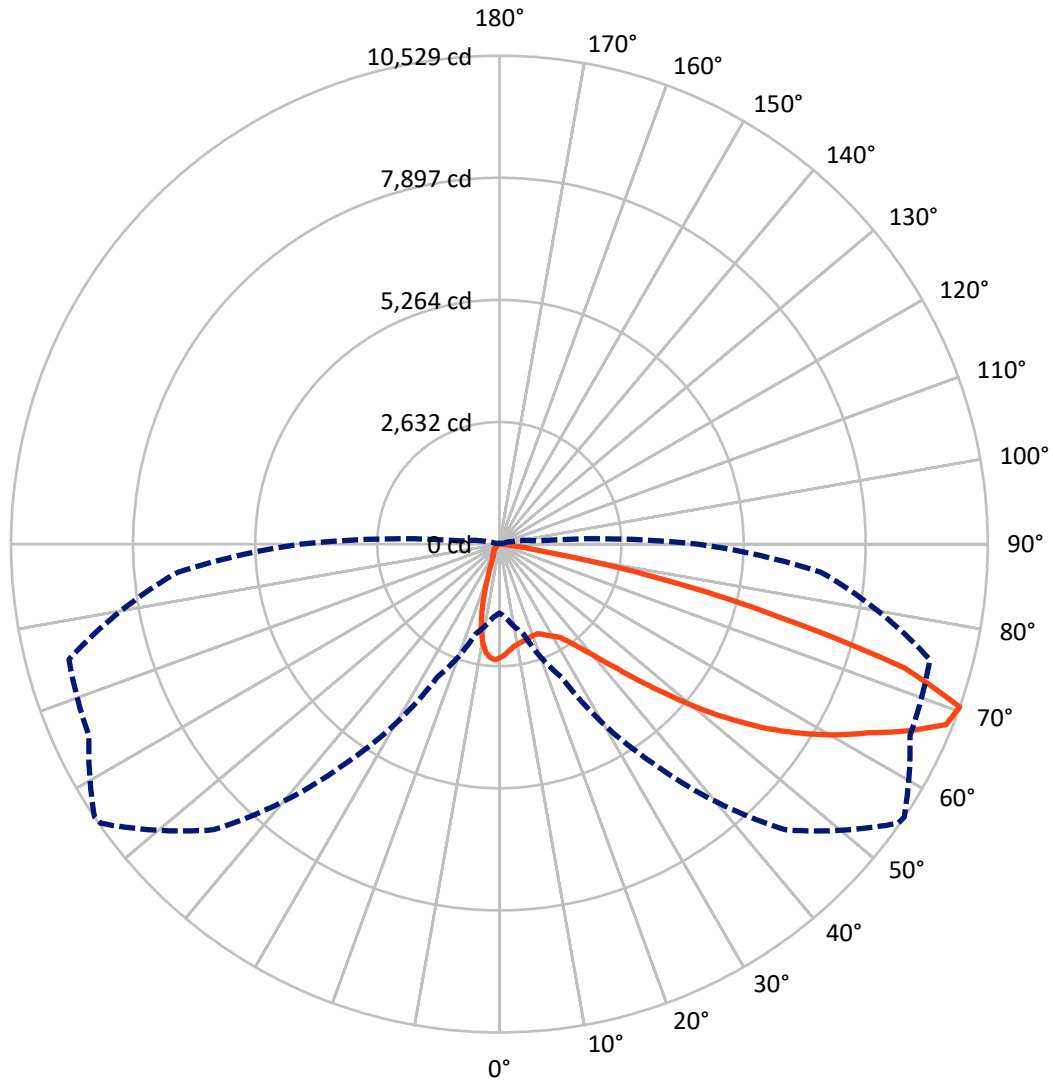
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 6.5 fc  
 Type III - Medium - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 56-Deg Lateral    - - - Horizontal Cone Through 70-Deg Vertical

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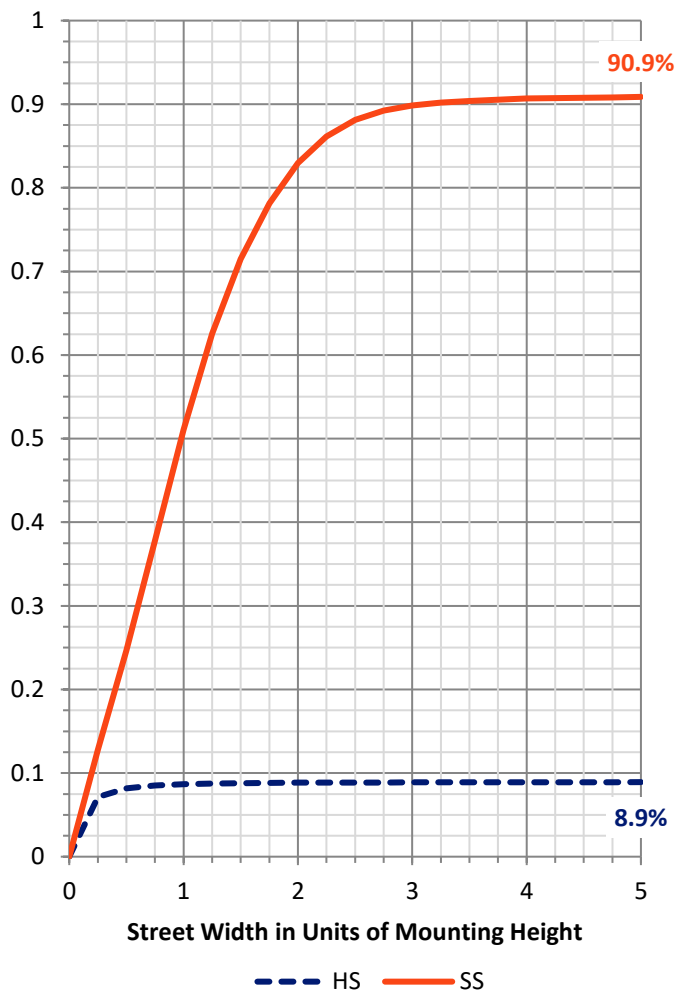
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 1220.4   | 0.0    | 1220.4  |
|                    | % Fixture | 9.0      | 0.0    | 9.0     |
| <b>Street Side</b> | Lumens    | 12367.0  | 0.0    | 12367.0 |
|                    | % Fixture | 91.0     | 0.0    | 91.0    |
| <b>Total</b>       | Lumens    | 13587.4  | 0.0    | 13587.4 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 210.3   | 1.5       |
| 10°-20°   | 473.1   | 3.5       |
| 20°-30°   | 749.4   | 5.5       |
| 30°-40°   | 1292.3  | 9.5       |
| 40°-50°   | 2182.3  | 16.1      |
| 50°-60°   | 3206.5  | 23.6      |
| 60°-70°   | 3801.5  | 28.0      |
| 70°-80°   | 1621.1  | 11.9      |
| 80°-90°   | 50.9    | 0.4       |
| 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°    | 13587.4 | 100.0     |
| 0°-180°   | 13587.4 | 100.0     |

**Coefficient of Utilization**



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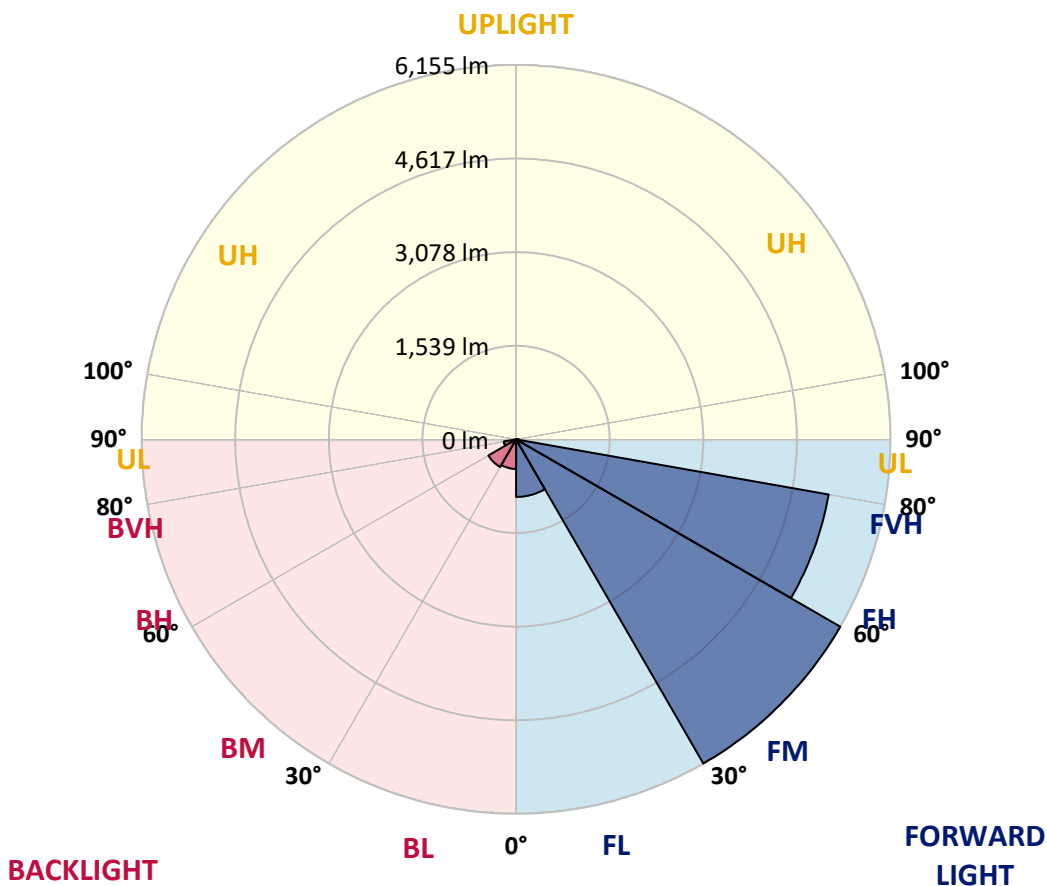
CATALOG NUMBER: GWS-SA3D-735-U-T3R-W-HSS

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

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 946.8  | 7.0       |                         |      |         |
| FM (30°-60°)   | 6155.4 | 45.3      |                         |      |         |
| FH (60°-80°)   | 5219.0 | 38.4      |                         |      | G3/7500 |
| FVH (80°-90°)  | 45.7   | 0.3       |                         |      | G1/100  |
| BL (0°-30°)    | 486.0  | 3.6       | B1/500                  |      |         |
| BM (30°-60°)   | 525.6  | 3.9       | B1/1000                 |      |         |
| BH (60°-80°)   | 203.6  | 1.5       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 5.2    | 0.0       |                         |      | G0/10   |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G3**

Type III Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°     | 56°     | 65°    | 75°     | 85°    |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|--------|---------|--------|
| 0°    | 2449.9 | 2449.9 | 2449.9 | 2449.9 | 2449.9 | 2449.9 | 2449.9  | 2449.9  | 2449.9 | 2449.9  | 2449.9 |
| 2.5°  | 2280.7 | 2277.0 | 2279.5 | 2298.1 | 2333.0 | 2349.2 | 2376.5  | 2381.5  | 2403.9 | 2432.5  | 2443.7 |
| 5°    | 2132.7 | 2120.2 | 2126.4 | 2152.6 | 2192.4 | 2237.2 | 2288.2  | 2301.9  | 2357.9 | 2421.3  | 2468.6 |
| 7.5°  | 1997.0 | 1983.3 | 1998.3 | 2039.3 | 2095.3 | 2143.9 | 2219.8  | 2228.5  | 2318.1 | 2430.0  | 2515.9 |
| 10°   | 1784.3 | 1788.0 | 1817.9 | 1890.0 | 1975.9 | 2076.7 | 2178.7  | 2191.1  | 2301.9 | 2458.7  | 2591.8 |
| 12.5° | 1621.3 | 1612.6 | 1644.9 | 1727.0 | 1847.7 | 1994.5 | 2147.6  | 2163.8  | 2303.1 | 2502.2  | 2688.8 |
| 15°   | 1545.4 | 1542.9 | 1556.6 | 1616.3 | 1733.3 | 1906.2 | 2119.0  | 2140.1  | 2319.3 | 2542.0  | 2780.9 |
| 17.5° | 1547.9 | 1544.1 | 1542.9 | 1577.7 | 1664.8 | 1840.3 | 2087.9  | 2115.2  | 2333.0 | 2585.6  | 2878.0 |
| 20°   | 1656.1 | 1638.7 | 1607.6 | 1591.4 | 1643.7 | 1798.0 | 2066.7  | 2097.8  | 2352.9 | 2631.6  | 2981.2 |
| 22.5° | 1882.6 | 1888.8 | 1805.4 | 1718.3 | 1693.4 | 1802.9 | 2064.2  | 2100.3  | 2396.4 | 2703.8  | 3108.2 |
| 25°   | 2335.5 | 2325.5 | 2171.2 | 1975.9 | 1840.3 | 1860.2 | 2107.8  | 2151.3  | 2482.3 | 2807.0  | 3227.6 |
| 27.5° | 2902.9 | 2911.6 | 2700.0 | 2389.0 | 2105.3 | 1978.4 | 2187.4  | 2231.0  | 2581.8 | 2871.7  | 3307.2 |
| 30°   | 3521.3 | 3512.5 | 3286.1 | 2941.4 | 2481.1 | 2175.0 | 2267.0  | 2305.6  | 2631.6 | 2906.6  | 3389.4 |
| 32.5° | 4106.1 | 4086.1 | 3862.2 | 3501.3 | 2960.1 | 2484.8 | 2376.5  | 2398.9  | 2697.6 | 2982.5  | 3500.1 |
| 35°   | 4605.0 | 4603.8 | 4408.4 | 4023.9 | 3452.8 | 2873.0 | 2564.4  | 2583.1  | 2820.7 | 3103.2  | 3663.1 |
| 37.5° | 5120.1 | 5102.7 | 4883.7 | 4532.8 | 3959.2 | 3298.5 | 2851.8  | 2844.4  | 3014.8 | 3281.1  | 3863.4 |
| 40°   | 5543.2 | 5532.0 | 5364.0 | 5026.8 | 4485.6 | 3768.9 | 3200.2  | 3177.8  | 3245.0 | 3527.5  | 4142.1 |
| 42.5° | 5856.7 | 5858.0 | 5805.7 | 5600.4 | 5043.0 | 4312.6 | 3638.2  | 3603.4  | 3602.1 | 3899.5  | 4510.4 |
| 45°   | 6094.4 | 6110.6 | 6188.9 | 6157.8 | 5701.2 | 4945.9 | 4199.4  | 4163.3  | 4102.3 | 4382.3  | 4932.2 |
| 47.5° | 6205.1 | 6226.3 | 6462.7 | 6587.1 | 6277.3 | 5574.3 | 4867.5  | 4791.6  | 4672.2 | 5024.3  | 5403.8 |
| 50°   | 6193.9 | 6231.2 | 6561.0 | 6939.2 | 6799.9 | 6211.3 | 5595.4  | 5559.3  | 5364.0 | 5703.7  | 5870.4 |
| 52.5° | 5940.1 | 6019.7 | 6567.2 | 7153.2 | 7201.8 | 6798.6 | 6348.2  | 6281.0  | 6186.5 | 6412.9  | 6308.4 |
| 55°   | 5250.8 | 5347.8 | 6304.7 | 7221.7 | 7515.3 | 7311.3 | 7084.8  | 7030.1  | 6873.3 | 7082.3  | 6690.4 |
| 57.5° | 4876.2 | 4959.6 | 5752.2 | 7188.1 | 7781.6 | 7785.3 | 7740.5  | 7695.7  | 7566.3 | 7744.3  | 7138.3 |
| 60°   | 4651.0 | 4734.4 | 5457.3 | 7064.9 | 8023.0 | 8285.5 | 8356.4  | 8351.5  | 8164.8 | 8497.0  | 7663.4 |
| 62.5° | 4321.3 | 4435.8 | 5150.0 | 6745.1 | 8194.7 | 8778.2 | 8992.3  | 8958.7  | 8750.9 | 9280.9  | 8183.5 |
| 65°   | 3655.6 | 3755.2 | 4520.4 | 6217.6 | 8093.9 | 9186.4 | 9681.6  | 9699.0  | 9458.9 | 10018.8 | 8594.1 |
| 67.5° | 2563.2 | 2636.6 | 3396.8 | 5110.2 | 7409.6 | 9320.7 | 10387.1 | 10385.8 | 9976.5 | 10397.0 | 8412.4 |
| 70°   | 1485.6 | 1586.4 | 2007.0 | 3159.2 | 5764.6 | 8709.8 | 10492.8 | 10528.9 | 9766.2 | 9606.9  | 6961.6 |
| 72.5° | 574.8  | 658.2  | 1137.3 | 1678.5 | 3006.1 | 6671.7 | 9025.9  | 9131.6  | 8173.5 | 7410.8  | 4845.1 |
| 75°   | 171.7  | 191.6  | 535.0  | 893.4  | 1206.9 | 3222.6 | 6110.6  | 6140.4  | 5606.6 | 4622.4  | 2483.5 |
| 77.5° | 128.2  | 141.8  | 233.9  | 451.7  | 423.0  | 976.7  | 3161.7  | 3452.8  | 2976.3 | 1651.1  | 684.3  |
| 80°   | 87.1   | 103.3  | 166.7  | 220.2  | 156.8  | 260.1  | 888.4   | 975.5   | 908.3  | 370.8   | 171.7  |
| 82.5° | 38.6   | 49.8   | 118.2  | 110.7  | 57.2   | 74.7   | 273.7   | 291.2   | 187.9  | 112.0   | 59.7   |
| 85°   | 3.7    | 5.0    | 44.8   | 48.5   | 21.2   | 17.4   | 57.2    | 57.2    | 41.1   | 38.6    | 24.9   |
| 87.5° | 0.0    | 0.0    | 1.2    | 2.5    | 2.5    | 3.7    | 5.0     | 6.2     | 7.5    | 10.0    | 12.4   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0     | 0.0     | 0.0    | 0.0     | 0.0    |



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CATALOG NUMBER: GWS-SA3D-735-U-T3R-W-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 2449.9 | 2449.9 | 2449.9 | 2449.9 | 2449.9 | 2449.9 | 2449.9 | 2449.9 | 2449.9 | 2449.9 | 2449.9 |
| 2.5°  | 2472.3 | 2457.4 | 2476.1 | 2491.0 | 2494.7 | 2467.4 | 2451.2 | 2427.5 | 2422.6 | 2423.8 | 2417.6 |
| 5°    | 2505.9 | 2498.5 | 2512.2 | 2496.0 | 2453.7 | 2374.0 | 2305.6 | 2229.7 | 2188.7 | 2165.0 | 2162.5 |
| 7.5°  | 2568.1 | 2564.4 | 2549.5 | 2476.1 | 2344.2 | 2167.5 | 1997.0 | 1830.3 | 1727.0 | 1689.7 | 1683.5 |
| 10°   | 2660.2 | 2652.8 | 2591.8 | 2417.6 | 2136.4 | 1796.7 | 1510.5 | 1271.6 | 1126.1 | 1083.7 | 1031.5 |
| 12.5° | 2766.0 | 2751.1 | 2617.9 | 2291.9 | 1822.8 | 1352.5 | 995.4  | 727.9  | 602.2  | 564.9  | 564.9  |
| 15°   | 2868.0 | 2835.7 | 2603.0 | 2084.1 | 1437.1 | 879.7  | 556.2  | 420.6  | 382.0  | 372.0  | 372.0  |
| 17.5° | 2972.5 | 2910.3 | 2544.5 | 1800.4 | 992.9  | 520.1  | 370.8  | 344.7  | 339.7  | 340.9  | 342.2  |
| 20°   | 3070.8 | 2973.8 | 2441.2 | 1459.5 | 633.3  | 363.3  | 332.2  | 326.0  | 323.5  | 326.0  | 324.8  |
| 22.5° | 3177.8 | 3032.3 | 2284.5 | 1087.5 | 411.8  | 327.2  | 316.0  | 311.1  | 308.6  | 312.3  | 312.3  |
| 25°   | 3283.6 | 3074.6 | 2076.7 | 731.6  | 327.2  | 304.8  | 298.6  | 293.6  | 291.2  | 292.4  | 292.4  |
| 27.5° | 3338.3 | 3058.4 | 1804.2 | 466.6  | 293.6  | 282.4  | 276.2  | 270.0  | 266.3  | 265.0  | 266.3  |
| 30°   | 3375.7 | 3008.6 | 1470.7 | 332.2  | 266.3  | 252.6  | 246.4  | 241.4  | 231.4  | 225.2  | 227.7  |
| 32.5° | 3434.2 | 2958.8 | 1108.6 | 278.7  | 243.9  | 222.7  | 212.8  | 200.3  | 186.6  | 180.4  | 180.4  |
| 35°   | 3503.8 | 2890.4 | 777.7  | 251.3  | 220.2  | 197.8  | 179.2  | 158.0  | 141.8  | 136.9  | 136.9  |
| 37.5° | 3595.9 | 2825.7 | 517.6  | 232.7  | 200.3  | 176.7  | 150.6  | 125.7  | 108.3  | 105.8  | 104.5  |
| 40°   | 3734.0 | 2771.0 | 364.6  | 219.0  | 182.9  | 154.3  | 123.2  | 97.1   | 84.6   | 80.9   | 80.9   |
| 42.5° | 3913.2 | 2715.0 | 288.7  | 205.3  | 168.0  | 133.1  | 98.3   | 77.1   | 67.2   | 64.7   | 63.5   |
| 45°   | 4134.7 | 2649.0 | 251.3  | 192.9  | 153.0  | 110.7  | 78.4   | 64.7   | 57.2   | 54.7   | 54.7   |
| 47.5° | 4374.8 | 2559.4 | 233.9  | 176.7  | 135.6  | 89.6   | 65.9   | 56.0   | 52.3   | 51.0   | 49.8   |
| 50°   | 4611.2 | 2438.7 | 219.0  | 161.8  | 115.7  | 73.4   | 57.2   | 51.0   | 48.5   | 47.3   | 47.3   |
| 52.5° | 4817.8 | 2298.1 | 200.3  | 144.3  | 94.6   | 63.5   | 51.0   | 47.3   | 44.8   | 42.3   | 41.1   |
| 55°   | 4994.5 | 2145.1 | 176.7  | 124.4  | 77.1   | 56.0   | 47.3   | 43.5   | 41.1   | 38.6   | 37.3   |
| 57.5° | 5222.2 | 2058.0 | 141.8  | 100.8  | 63.5   | 49.8   | 43.5   | 39.8   | 37.3   | 33.6   | 33.6   |
| 60°   | 5474.7 | 1994.5 | 105.8  | 79.6   | 54.7   | 46.0   | 39.8   | 36.1   | 33.6   | 29.9   | 29.9   |
| 62.5° | 5677.6 | 1900.0 | 83.4   | 64.7   | 47.3   | 41.1   | 36.1   | 32.4   | 29.9   | 26.1   | 26.1   |
| 65°   | 5754.7 | 1704.6 | 68.4   | 51.0   | 38.6   | 36.1   | 32.4   | 29.9   | 26.1   | 22.4   | 22.4   |
| 67.5° | 5406.3 | 1313.9 | 57.2   | 41.1   | 32.4   | 31.1   | 28.6   | 27.4   | 22.4   | 19.9   | 18.7   |
| 70°   | 4281.5 | 801.3  | 47.3   | 33.6   | 27.4   | 26.1   | 26.1   | 23.6   | 19.9   | 18.7   | 17.4   |
| 72.5° | 2934.0 | 413.1  | 38.6   | 27.4   | 23.6   | 23.6   | 22.4   | 21.2   | 18.7   | 17.4   | 17.4   |
| 75°   | 1524.2 | 138.1  | 29.9   | 21.2   | 18.7   | 19.9   | 19.9   | 18.7   | 17.4   | 17.4   | 16.2   |
| 77.5° | 436.7  | 62.2   | 22.4   | 16.2   | 14.9   | 14.9   | 16.2   | 16.2   | 16.2   | 14.9   | 14.9   |
| 80°   | 113.2  | 36.1   | 16.2   | 12.4   | 12.4   | 12.4   | 12.4   | 13.7   | 14.9   | 13.7   | 13.7   |
| 82.5° | 46.0   | 19.9   | 11.2   | 10.0   | 10.0   | 10.0   | 10.0   | 11.2   | 12.4   | 12.4   | 12.4   |
| 85°   | 28.6   | 10.0   | 8.7    | 8.7    | 8.7    | 7.5    | 7.5    | 8.7    | 8.7    | 10.0   | 10.0   |
| 87.5° | 17.4   | 7.5    | 7.5    | 7.5    | 7.5    | 6.2    | 6.2    | 6.2    | 6.2    | 6.2    | 6.2    |
| 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

All Brands

Data applicable to all product families using SA light engines

Report Number: SP1-2101-121-7

Luminaire Tested: IFLD-S-SA2A-735-U-T2

Test Date: 03/04/2021

**Test Information**

Test Method: LM-79-08  
 Report Number: SP1-2101-121-7  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry: 4π  
 Issue Date: 03/04/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2A-735-U-T2**  
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

**Spectral Parameters**

|                           |        |           |      |      |       |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K):                  | 3388   | CRI (Ra): | 73.1 | R9:  | -34.6 |
| CIE u':                   | 0.2371 | R1:       | 68.9 | R10: | 57.8  |
| CIE v':                   | 0.5177 | R2:       | 81.1 | R11: | 68.6  |
| Duv:                      | 0.0032 | R3:       | 93.1 | R12: | 53.9  |
| CIE x:                    | 0.4153 | R4:       | 71.6 | R13: | 70.9  |
| CIE y:                    | 0.4030 | R5:       | 69.4 | R14: | 96.2  |
| CIE z:                    | 0.1817 | R6:       | 75.0 |      |       |
| Peak Wavelength (nm):     | 590    | R7:       | 79.5 |      |       |
| Dominant Wavelength (nm): | 580    | R8:       | 46.4 |      |       |
| Purity:                   | 45.7   |           |      |      |       |
| Rf:                       | 76.9   |           |      |      |       |
| Rg:                       | 94.4   |           |      |      |       |



**Test Conditions**

Stabilization Time: 81M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0/30%  
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2101-121-7

| 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 = 3388K  
 CIE x = 0.4153  
 CIE y = 0.4030  
 Duv = 0.0032

Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2101-121-7

**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    | 2672          | 0.0           | 490    | 34553         | 4.9           | 620    | 136720        | 35.6          | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 8.0           | 625    | 126308        | 27.9          | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 12.1          | 630    | 114625        | 20.7          | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 18.1          | 635    | 103216        | 15.5          | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 25.4          | 640    | 92605         | 11.1          | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 33.9          | 645    | 83234         | 8.0           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 43.0          | 650    | 73263         | 5.4           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 50.1          | 655    | 64627         | 3.7           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 57.9          | 660    | 56614         | 2.4           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.0           | 535    | 103269        | 64.0          | 665    | 49537         | 1.6           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.0           | 540    | 107316        | 69.9          | 670    | 42866         | 0.9           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.0           | 545    | 113101        | 75.3          | 675    | 36708         | 0.6           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 0.0           | 550    | 120690        | 82.0          | 680    | 31814         | 0.4           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 0.1           | 555    | 128583        | 87.8          | 685    | 27485         | 0.2           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 0.3           | 560    | 137796        | 93.6          | 690    | 23698         | 0.1           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 0.8           | 565    | 146577        | 97.5          | 695    | 20309         | 0.1           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 1.6           | 570    | 154581        | 100.5         | 700    | 17890         | 0.1           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 2.4           | 575    | 162633        | 101.2         | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 2.5           | 580    | 168101        | 99.9          | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 2.1           | 585    | 173145        | 96.2          | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 1.8           | 590    | 174675        | 90.3          | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 1.7           | 595    | 173724        | 82.3          | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 1.5           | 600    | 171241        | 73.8          | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 1.7           | 605    | 165134        | 64.0          | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 2.2           | 610    | 156652        | 53.8          | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 3.3           | 615    | 147879        | 44.6          | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

REPORT NUMBER: SP1-2101-121-7

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 12126**

**S/P: 1.36**

| 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    | 2672          | 0.0           | 490    | 34553         | 53.2          | 620    | 136720        | 1.7           | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 71.7          | 625    | 126308        | 1.1           | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 91.4          | 630    | 114625        | 0.6           | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 110.0         | 635    | 103216        | 0.4           | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 125.1         | 640    | 92605         | 0.2           | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 135.7         | 645    | 83234         | 0.1           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 140.8         | 650    | 73263         | 0.1           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 139.6         | 655    | 64627         | 0.1           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 135.7         | 660    | 56614         | 0.0           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.1           | 535    | 103269        | 128.7         | 665    | 49537         | 0.0           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.2           | 540    | 107316        | 118.6         | 670    | 42866         | 0.0           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.6           | 545    | 113101        | 108.4         | 675    | 36708         | 0.0           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 2.0           | 550    | 120690        | 98.7          | 680    | 31814         | 0.0           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 5.9           | 555    | 128583        | 87.9          | 685    | 27485         | 0.0           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 14.3          | 560    | 137796        | 77.0          | 690    | 23698         | 0.0           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 30.5          | 565    | 146577        | 65.8          | 695    | 20309         | 0.0           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 55.5          | 570    | 154581        | 54.6          | 700    | 17890         | 0.0           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 77.4          | 575    | 162633        | 44.3          | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 73.6          | 580    | 168101        | 34.6          | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 53.7          | 585    | 173145        | 26.5          | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 41.9          | 590    | 174675        | 19.5          | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 34.3          | 595    | 173724        | 13.9          | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 27.9          | 600    | 171241        | 9.7           | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 27.1          | 605    | 165134        | 6.5           | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 31.3          | 610    | 156652        | 4.2           | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 40.0          | 615    | 147879        | 2.7           | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

REPORT NUMBER: SP1-2101-121-7

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 4490.7 M/P: 0.5**

| 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    | 2672          | 0.0           | 490    | 34553         | 28.8          | 620    | 136720        | 0.1           | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 36.6          | 625    | 126308        | 0.1           | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 43.9          | 630    | 114625        | 0.0           | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 49.6          | 635    | 103216        | 0.0           | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 53.0          | 640    | 92605         | 0.0           | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 53.5          | 645    | 83234         | 0.0           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 51.6          | 650    | 73263         | 0.0           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 47.3          | 655    | 64627         | 0.0           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 42.5          | 660    | 56614         | 0.0           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.0           | 535    | 103269        | 37.2          | 665    | 49537         | 0.0           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.1           | 540    | 107316        | 31.4          | 670    | 42866         | 0.0           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.4           | 545    | 113101        | 26.3          | 675    | 36708         | 0.0           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 1.4           | 550    | 120690        | 21.7          | 680    | 31814         | 0.0           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 3.7           | 555    | 128583        | 17.3          | 685    | 27485         | 0.0           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 8.9           | 560    | 137796        | 13.6          | 690    | 23698         | 0.0           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 18.2          | 565    | 146577        | 10.3          | 695    | 20309         | 0.0           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 33.2          | 570    | 154581        | 7.6           | 700    | 17890         | 0.0           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 45.6          | 575    | 162633        | 5.4           | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 43.8          | 580    | 168101        | 3.8           | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 32.2          | 585    | 173145        | 2.6           | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 25.6          | 590    | 174675        | 1.7           | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 21.2          | 595    | 173724        | 1.1           | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 17.4          | 600    | 171241        | 0.7           | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 16.6          | 605    | 165134        | 0.5           | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 18.6          | 610    | 156652        | 0.3           | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 22.7          | 615    | 147879        | 0.2           | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

**Summary**

$R_f = 76.9$   
 $R_g = 94.4$   
 CIE  $R_a = 73.1$   
 $R_g = -34.6$



**Color Vector Graphics**





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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 68 | CES51 = 90 | CES76 = 63 |
| CES02 = 62 | CES27 = 88 | CES52 = 89 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 80 | CES78 = 65 |
| CES04 = 70 | CES29 = 67 | CES54 = 84 | CES79 = 87 |
| CES05 = 48 | CES30 = 74 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 71 | CES56 = 75 | CES81 = 75 |
| CES07 = 40 | CES32 = 67 | CES57 = 74 | CES82 = 94 |
| CES08 = 39 | CES33 = 74 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 78 | CES59 = 87 | CES84 = 89 |
| CES10 = 75 | CES35 = 89 | CES60 = 93 | CES85 = 80 |
| CES11 = 58 | CES36 = 98 | CES61 = 86 | CES86 = 66 |
| CES12 = 64 | CES37 = 86 | CES62 = 89 | CES87 = 79 |
| CES13 = 43 | CES38 = 82 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 95 | CES64 = 74 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 68 | CES90 = 77 |
| CES16 = 47 | CES41 = 89 | CES66 = 71 | CES91 = 88 |
| CES17 = 50 | CES42 = 88 | CES67 = 69 | CES92 = 60 |
| CES18 = 56 | CES43 = 82 | CES68 = 74 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 82 | CES94 = 52 |
| CES20 = 65 | CES45 = 87 | CES70 = 67 | CES95 = 69 |
| CES21 = 86 | CES46 = 82 | CES71 = 66 | CES96 = 78 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 85 |
| CES23 = 92 | CES48 = 72 | CES73 = 59 | CES98 = 76 |
| CES24 = 91 | CES49 = 82 | CES74 = 97 | CES99 = 63 |
| CES25 = 72 | CES50 = 88 | CES75 = 66 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)