

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: P637287

Luminaire Tested: GWS-SA4C-740-U-T3-W-GRSWH

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P637287  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-25)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA4C-740-U-T3-W-GRSWH  
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH  
Light Source: (64) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

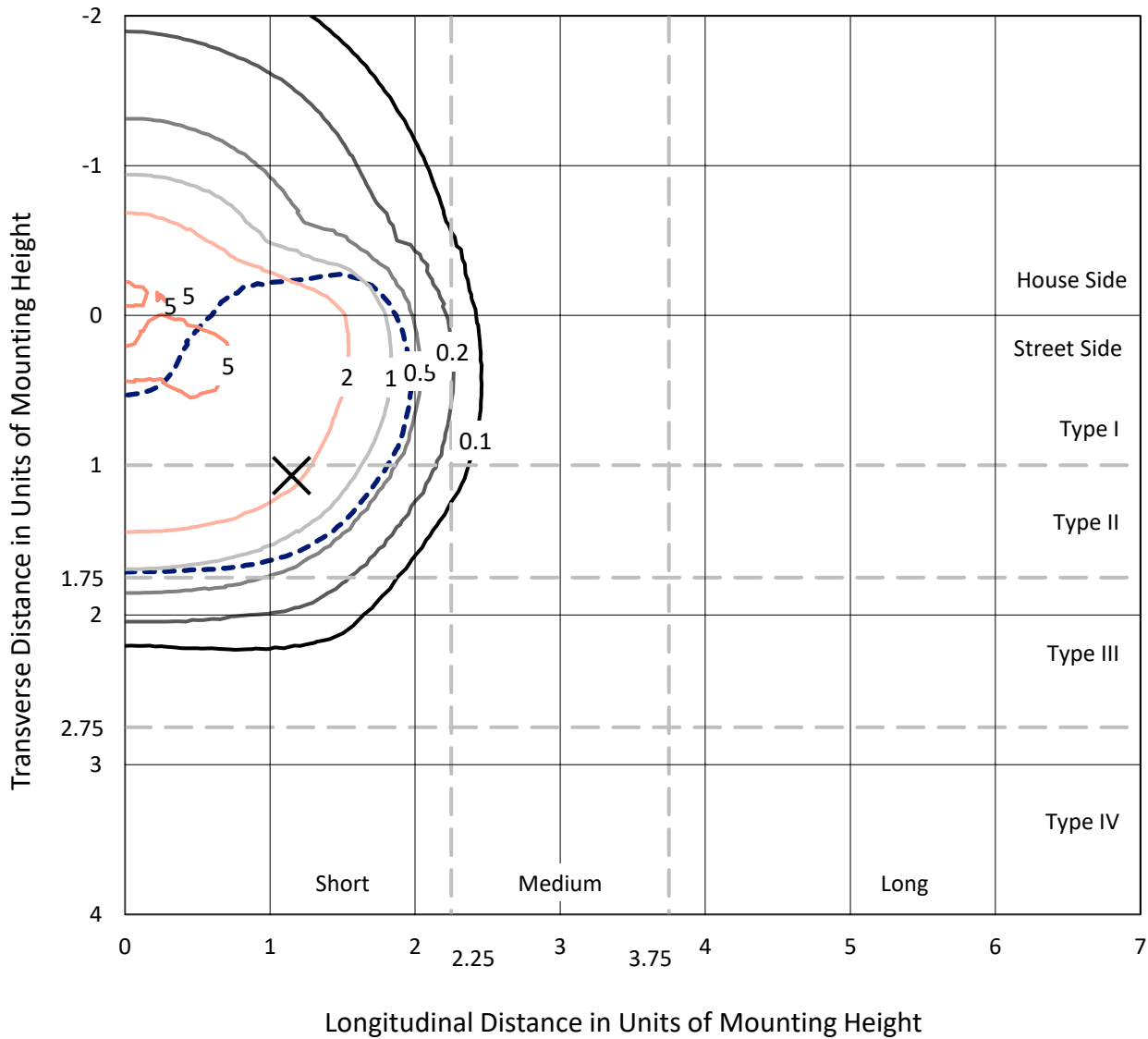
Lumens per Lamp: N/A  
Luminaire Lumens: 16568 lumens  
Efficiency: N/A  
Efficacy: 128.9 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B3 - U0 - G2  
  
Input Watts (W): 128.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
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: P637287  
 CATALOG NUMBER: GWS-SA4C-740-U-T3-W-GRSWH

### Iso-Footcandle Lines of Horizontal Illumination

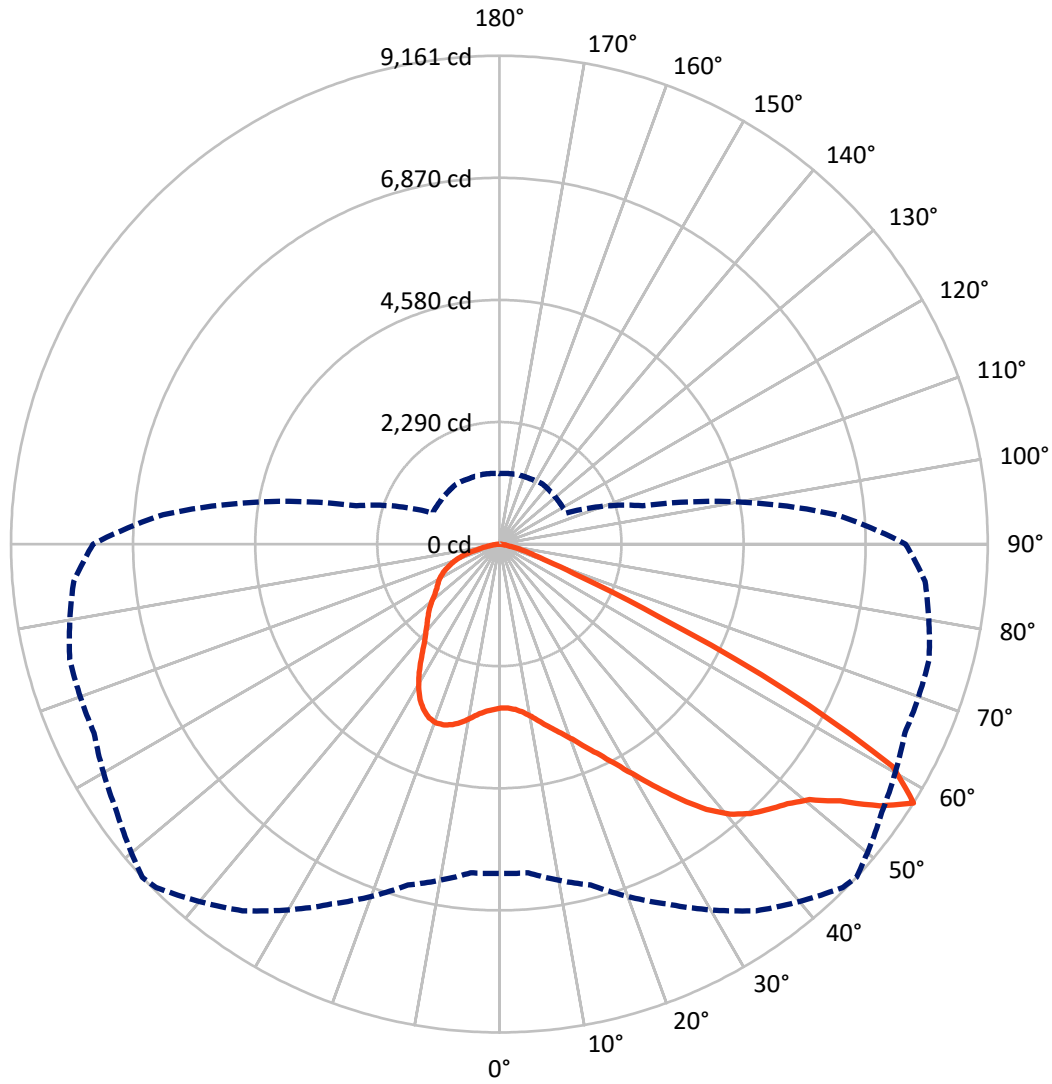
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.5 fc  
 Type II - Short - N/A

REPORT NUMBER: P637287  
CATALOG NUMBER: GWS-SA4C-740-U-T3-W-GRSWH

### Luminous Intensity Polar Plot



— Vertical Plane Through 47-Deg Lateral    - - - Horizontal Cone Through 57.5-Deg Vertical

REPORT NUMBER: P637287  
 CATALOG NUMBER: GWS-SA4C-740-U-T3-W-GRSWH

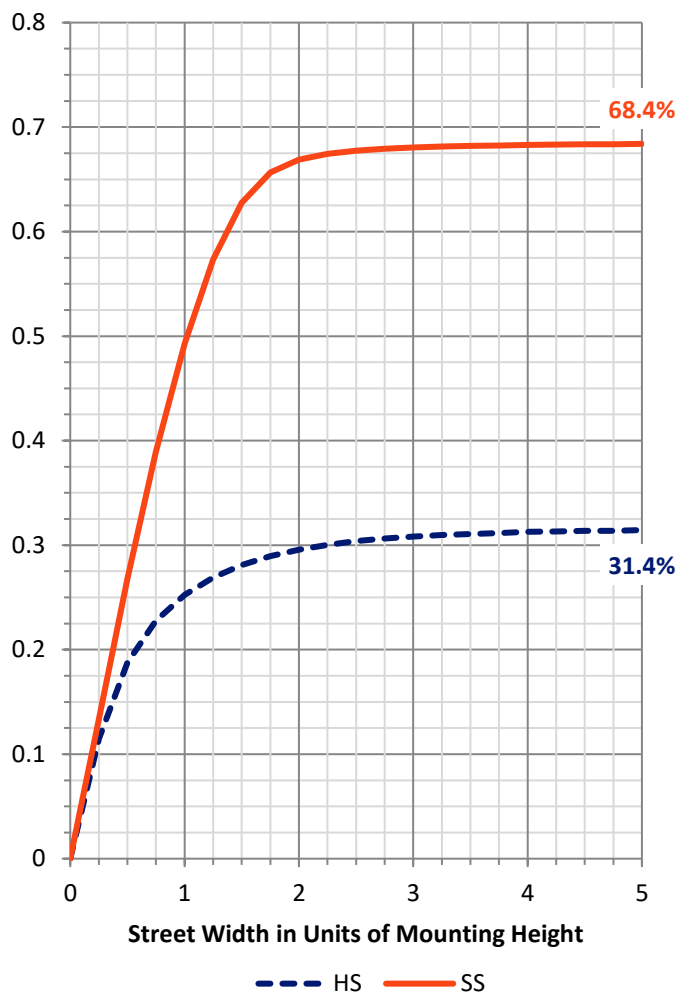
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 5243.7   | 0.0    | 5243.7  |
|                    | % Fixture | 31.6     | 0.0    | 31.6    |
| <b>Street Side</b> | Lumens    | 11324.3  | 0.0    | 11324.3 |
|                    | % Fixture | 68.4     | 0.0    | 68.4    |
| <b>Total</b>       | Lumens    | 16568.0  | 0.0    | 16568.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 303.1   | 1.8       |
| 10°-20°   | 996.8   | 6.0       |
| 20°-30°   | 1794.8  | 10.8      |
| 30°-40°   | 2710.8  | 16.4      |
| 40°-50°   | 3650.4  | 22.0      |
| 50°-60°   | 4386.4  | 26.5      |
| 60°-70°   | 2136.3  | 12.9      |
| 70°-80°   | 526.3   | 3.2       |
| 80°-90°   | 63.3    | 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°    | 16568.0 | 100.0     |
| 0°-180°   | 16568.0 | 100.0     |

**Coefficient of Utilization**

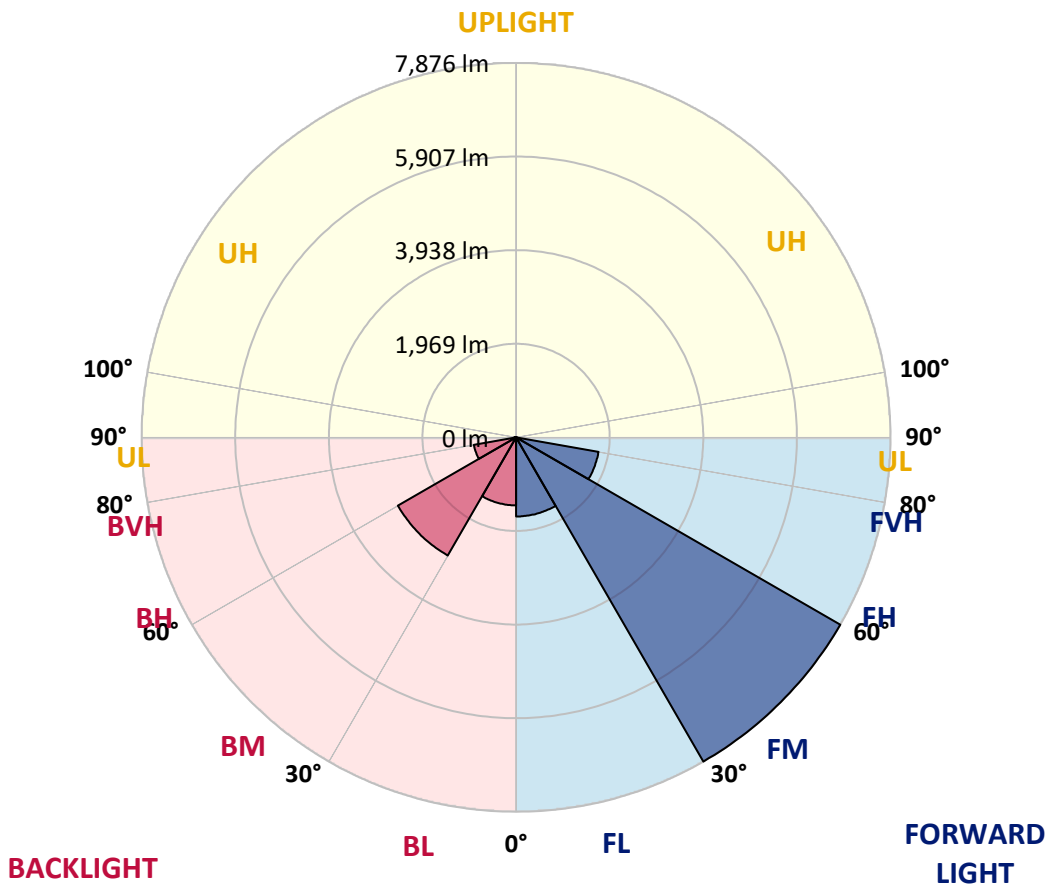


REPORT NUMBER: P637287  
 CATALOG NUMBER: GWS-SA4C-740-U-T3-W-GRSWH

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

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 1664.2 | 10.0      |                         |      |         |
| FM (30°-60°)   | 7875.7 | 47.5      |                         |      |         |
| FH (60°-80°)   | 1760.7 | 10.6      |                         |      | G1/1800 |
| FVH (80°-90°)  | 23.8   | 0.1       |                         |      | G1/100  |
| BL (0°-30°)    | 1430.4 | 8.6       | B3/2500                 |      |         |
| BM (30°-60°)   | 2872.0 | 17.3      | B3/5000                 |      |         |
| BH (60°-80°)   | 901.9  | 5.4       | B2/1000                 |      | G2/1000 |
| BVH (80°-90°)  | 39.5   | 0.2       |                         |      | G1/100  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G2**  
 Type II Short





REPORT NUMBER: P637287

CATALOG NUMBER: GWS-SA4C-740-U-T3-W-GRSWH

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 47°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 |
| 2.5°  | 3067.0 | 3065.6 | 3065.6 | 3074.0 | 3074.0 | 3076.7 | 3080.9 | 3085.1 | 3086.5 | 3079.5 | 3064.2 |
| 5°    | 3100.4 | 3100.4 | 3100.4 | 3107.3 | 3107.3 | 3110.1 | 3115.7 | 3117.1 | 3115.7 | 3104.6 | 3089.3 |
| 7.5°  | 3153.3 | 3153.3 | 3154.7 | 3163.0 | 3170.0 | 3174.1 | 3183.9 | 3182.5 | 3178.3 | 3160.2 | 3140.7 |
| 10°   | 3239.5 | 3243.7 | 3247.9 | 3257.6 | 3271.6 | 3281.3 | 3288.3 | 3288.3 | 3282.7 | 3254.9 | 3229.8 |
| 12.5° | 3362.0 | 3367.6 | 3371.7 | 3380.1 | 3391.2 | 3407.9 | 3423.2 | 3423.2 | 3416.3 | 3381.5 | 3343.9 |
| 15°   | 3505.3 | 3510.9 | 3509.5 | 3512.3 | 3533.2 | 3556.8 | 3569.3 | 3577.7 | 3580.5 | 3531.8 | 3473.3 |
| 17.5° | 3669.5 | 3675.1 | 3669.5 | 3661.2 | 3664.0 | 3701.5 | 3723.8 | 3754.4 | 3772.5 | 3707.1 | 3613.9 |
| 20°   | 3818.4 | 3812.9 | 3812.9 | 3818.4 | 3826.8 | 3872.7 | 3906.1 | 3956.2 | 3978.5 | 3899.1 | 3754.4 |
| 22.5° | 3975.7 | 3988.2 | 3982.6 | 3982.6 | 4016.0 | 4092.6 | 4132.9 | 4198.3 | 4222.0 | 4119.0 | 3924.2 |
| 25°   | 4178.8 | 4190.0 | 4187.2 | 4190.0 | 4228.9 | 4337.5 | 4377.8 | 4498.9 | 4522.6 | 4375.1 | 4112.1 |
| 27.5° | 4401.5 | 4419.6 | 4427.9 | 4425.2 | 4487.8 | 4629.7 | 4679.8 | 4848.2 | 4891.3 | 4661.7 | 4312.4 |
| 30°   | 4690.9 | 4710.4 | 4717.4 | 4714.6 | 4788.4 | 4981.8 | 5038.8 | 5230.9 | 5292.1 | 5001.3 | 4567.1 |
| 32.5° | 5026.3 | 5045.8 | 5066.7 | 5075.0 | 5169.6 | 5367.2 | 5449.3 | 5648.3 | 5736.0 | 5393.7 | 4874.6 |
| 35°   | 5358.9 | 5375.6 | 5415.9 | 5481.3 | 5610.8 | 5812.5 | 5884.9 | 6081.1 | 6166.0 | 5801.4 | 5246.2 |
| 37.5° | 5726.3 | 5737.4 | 5772.2 | 5862.6 | 6049.1 | 6241.1 | 6313.5 | 6501.4 | 6511.1 | 6195.2 | 5666.4 |
| 40°   | 6128.4 | 6128.4 | 6121.5 | 6210.5 | 6405.3 | 6598.8 | 6661.4 | 6769.9 | 6712.9 | 6498.6 | 6075.5 |
| 42.5° | 6469.4 | 6463.8 | 6469.4 | 6552.8 | 6697.6 | 6854.8 | 6909.1 | 6888.2 | 6815.8 | 6731.0 | 6445.7 |
| 45°   | 6776.9 | 6781.1 | 6831.2 | 6895.2 | 6970.3 | 7063.5 | 7095.6 | 6977.3 | 6911.9 | 6917.4 | 6742.1 |
| 47.5° | 6985.6 | 6989.8 | 7106.7 | 7213.8 | 7259.8 | 7289.0 | 7275.1 | 7110.9 | 7077.5 | 7140.1 | 6970.3 |
| 50°   | 7013.5 | 7035.7 | 7237.5 | 7457.4 | 7571.5 | 7575.6 | 7536.7 | 7336.3 | 7326.6 | 7397.5 | 7092.8 |
| 52.5° | 7019.0 | 7041.3 | 7293.2 | 7689.7 | 7986.1 | 8048.8 | 8004.2 | 7795.5 | 7693.9 | 7623.0 | 7243.1 |
| 55°   | 6998.1 | 7023.2 | 7301.5 | 7845.6 | 8413.4 | 8663.8 | 8668.0 | 8373.0 | 8048.8 | 8001.5 | 7671.7 |
| 57.5° | 6178.5 | 6188.3 | 6619.6 | 7449.0 | 8396.7 | 9106.4 | 9160.6 | 8759.9 | 8389.7 | 8345.2 | 8015.4 |
| 60°   | 4304.1 | 4343.1 | 4812.0 | 5907.2 | 7053.8 | 8304.8 | 8480.2 | 8363.3 | 8115.6 | 7791.3 | 6877.1 |
| 62.5° | 2155.5 | 2188.9 | 2659.3 | 3694.6 | 4864.9 | 5852.9 | 6040.8 | 6164.6 | 6223.0 | 5875.2 | 4682.6 |
| 65°   | 928.2  | 953.2  | 1245.4 | 1930.1 | 2753.9 | 3231.2 | 3296.6 | 3445.5 | 3810.1 | 3399.6 | 2522.9 |
| 67.5° | 620.6  | 637.3  | 786.2  | 1177.3 | 1622.6 | 1653.2 | 1643.4 | 1675.4 | 1754.8 | 1448.6 | 1139.7 |
| 70°   | 475.9  | 489.8  | 590.0  | 862.8  | 1166.1 | 997.7  | 944.9  | 857.2  | 931.0  | 949.0  | 924.0  |
| 72.5° | 345.1  | 356.2  | 431.4  | 588.6  | 730.6  | 637.3  | 629.0  | 673.5  | 773.7  | 801.5  | 786.2  |
| 75°   | 222.6  | 228.2  | 274.1  | 322.8  | 377.1  | 409.1  | 425.8  | 506.5  | 608.1  | 629.0  | 610.9  |
| 77.5° | 148.9  | 153.1  | 179.5  | 207.3  | 214.3  | 215.7  | 221.3  | 257.4  | 327.0  | 366.0  | 361.8  |
| 80°   | 77.9   | 77.9   | 87.7   | 87.7   | 100.2  | 119.7  | 125.2  | 148.9  | 180.9  | 200.4  | 201.8  |
| 82.5° | 30.6   | 32.0   | 37.6   | 41.7   | 50.1   | 61.2   | 65.4   | 77.9   | 94.6   | 108.5  | 121.1  |
| 85°   | 12.5   | 13.9   | 15.3   | 18.1   | 22.3   | 27.8   | 29.2   | 33.4   | 44.5   | 55.7   | 62.6   |
| 87.5° | 0.0    | 0.0    | 1.4    | 1.4    | 2.8    | 4.2    | 4.2    | 5.6    | 7.0    | 12.5   | 16.7   |
| 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: P637287

CATALOG NUMBER: GWS-SA4C-740-U-T3-W-GRSWH

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 | 3072.6 |
| 2.5°  | 3082.3 | 3064.2 | 3082.3 | 3087.9 | 3103.2 | 3108.7 | 3099.0 | 3097.6 | 3097.6 | 3083.7 | 3079.5 |
| 5°    | 3103.2 | 3086.5 | 3104.6 | 3112.9 | 3135.2 | 3149.1 | 3151.9 | 3163.0 | 3170.0 | 3164.4 | 3163.0 |
| 7.5°  | 3154.7 | 3133.8 | 3153.3 | 3165.8 | 3195.0 | 3217.3 | 3227.0 | 3252.1 | 3270.2 | 3267.4 | 3266.0 |
| 10°   | 3245.1 | 3217.3 | 3239.5 | 3260.4 | 3292.4 | 3318.9 | 3320.3 | 3334.2 | 3352.3 | 3346.7 | 3343.9 |
| 12.5° | 3349.5 | 3323.0 | 3348.1 | 3369.0 | 3406.5 | 3417.7 | 3399.6 | 3394.0 | 3396.8 | 3389.8 | 3384.3 |
| 15°   | 3477.5 | 3439.9 | 3462.2 | 3485.9 | 3506.7 | 3494.2 | 3455.2 | 3439.9 | 3438.5 | 3428.8 | 3423.2 |
| 17.5° | 3605.5 | 3558.2 | 3574.9 | 3587.4 | 3577.7 | 3538.7 | 3490.0 | 3463.6 | 3451.1 | 3431.6 | 3426.0 |
| 20°   | 3732.2 | 3672.3 | 3669.5 | 3659.8 | 3615.3 | 3544.3 | 3478.9 | 3426.0 | 3394.0 | 3367.6 | 3357.8 |
| 22.5° | 3876.9 | 3793.4 | 3751.6 | 3707.1 | 3609.7 | 3494.2 | 3395.4 | 3320.3 | 3268.8 | 3235.4 | 3224.2 |
| 25°   | 4032.7 | 3914.5 | 3828.2 | 3739.1 | 3554.0 | 3387.1 | 3249.3 | 3146.3 | 3085.1 | 3048.9 | 3036.4 |
| 27.5° | 4187.2 | 4024.4 | 3895.0 | 3743.3 | 3442.7 | 3232.6 | 3047.5 | 2908.4 | 2847.1 | 2817.9 | 2808.2 |
| 30°   | 4395.9 | 4170.5 | 3974.3 | 3689.0 | 3296.6 | 3018.3 | 2787.3 | 2646.7 | 2606.4 | 2585.5 | 2577.2 |
| 32.5° | 4636.7 | 4355.6 | 4080.0 | 3574.9 | 3110.1 | 2767.8 | 2524.3 | 2426.9 | 2399.0 | 2358.7 | 2357.3 |
| 35°   | 4953.9 | 4620.0 | 4180.2 | 3406.5 | 2875.0 | 2499.2 | 2322.5 | 2252.9 | 2202.8 | 2138.8 | 2133.3 |
| 37.5° | 5324.1 | 4949.8 | 4234.5 | 3192.2 | 2600.8 | 2278.0 | 2172.2 | 2094.3 | 2013.6 | 1928.7 | 1917.6 |
| 40°   | 5706.8 | 5335.2 | 4238.7 | 2939.0 | 2332.3 | 2131.9 | 2042.8 | 1941.2 | 1841.0 | 1746.4 | 1733.9 |
| 42.5° | 6108.9 | 5694.3 | 4164.9 | 2646.7 | 2112.4 | 2005.2 | 1914.8 | 1786.8 | 1674.0 | 1610.0 | 1603.1 |
| 45°   | 6468.0 | 5983.7 | 3997.9 | 2339.2 | 1949.6 | 1899.5 | 1784.0 | 1646.2 | 1586.4 | 1540.5 | 1530.7 |
| 47.5° | 6750.4 | 6175.7 | 3772.5 | 2063.7 | 1817.4 | 1790.9 | 1640.6 | 1569.7 | 1523.8 | 1482.0 | 1472.3 |
| 50°   | 6889.6 | 6218.9 | 3478.9 | 1839.6 | 1694.9 | 1662.9 | 1559.9 | 1505.7 | 1475.1 | 1441.7 | 1433.3 |
| 52.5° | 7062.2 | 6267.6 | 3225.6 | 1651.8 | 1575.2 | 1532.1 | 1493.1 | 1450.0 | 1427.7 | 1406.9 | 1399.9 |
| 55°   | 7458.7 | 6451.3 | 3092.0 | 1501.5 | 1461.1 | 1441.7 | 1436.1 | 1399.9 | 1392.9 | 1379.0 | 1366.5 |
| 57.5° | 7620.2 | 6333.0 | 2776.2 | 1379.0 | 1370.7 | 1373.5 | 1387.4 | 1354.0 | 1347.0 | 1330.3 | 1322.0 |
| 60°   | 6128.4 | 4787.0 | 1880.0 | 1273.3 | 1295.5 | 1313.6 | 1327.5 | 1294.1 | 1284.4 | 1281.6 | 1270.5 |
| 62.5° | 3927.0 | 2944.5 | 1312.2 | 1174.5 | 1207.9 | 1230.1 | 1238.5 | 1206.5 | 1199.5 | 1221.8 | 1223.2 |
| 65°   | 2044.2 | 1604.5 | 1064.5 | 1068.7 | 1096.5 | 1129.9 | 1146.6 | 1135.5 | 1132.7 | 1156.4 | 1157.8 |
| 67.5° | 1043.7 | 981.0  | 928.2  | 943.5  | 965.7  | 1008.9 | 1047.8 | 1096.5 | 1113.2 | 1116.0 | 1117.4 |
| 70°   | 889.2  | 861.4  | 834.9  | 844.7  | 868.3  | 892.0  | 929.6  | 953.2  | 925.4  | 918.4  | 915.6  |
| 72.5° | 757.0  | 736.1  | 723.6  | 734.7  | 747.3  | 743.1  | 732.0  | 743.1  | 747.3  | 748.7  | 750.0  |
| 75°   | 588.6  | 573.3  | 563.6  | 565.0  | 565.0  | 549.7  | 528.8  | 516.3  | 502.4  | 491.2  | 491.2  |
| 77.5° | 360.4  | 363.2  | 372.9  | 371.5  | 370.2  | 364.6  | 343.7  | 332.6  | 299.2  | 289.4  | 289.4  |
| 80°   | 206.0  | 210.1  | 219.9  | 222.6  | 222.6  | 215.7  | 194.8  | 182.3  | 167.0  | 160.0  | 158.6  |
| 82.5° | 125.2  | 130.8  | 136.4  | 139.2  | 140.5  | 132.2  | 114.1  | 104.4  | 96.0   | 89.1   | 89.1   |
| 85°   | 65.4   | 68.2   | 73.8   | 75.1   | 71.0   | 62.6   | 52.9   | 48.7   | 40.4   | 39.0   | 39.0   |
| 87.5° | 18.1   | 19.5   | 22.3   | 18.1   | 16.7   | 12.5   | 7.0    | 5.6    | 2.8    | 1.4    | 1.4    |
| 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 LUMINIAIRES 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            |

REPORT NUMBER: SP1-2101-121-2

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

REPORT NUMBER: SP1-2101-121-2

**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)