

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: P632338

Luminaire Tested: GWS-SA2C-740-U-T3-W-HSS

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P632338  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-26)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA2C-740-U-T3-W-HSS  
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS WITH HOUSE SIDE SHIELD  
Light Source: (32) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

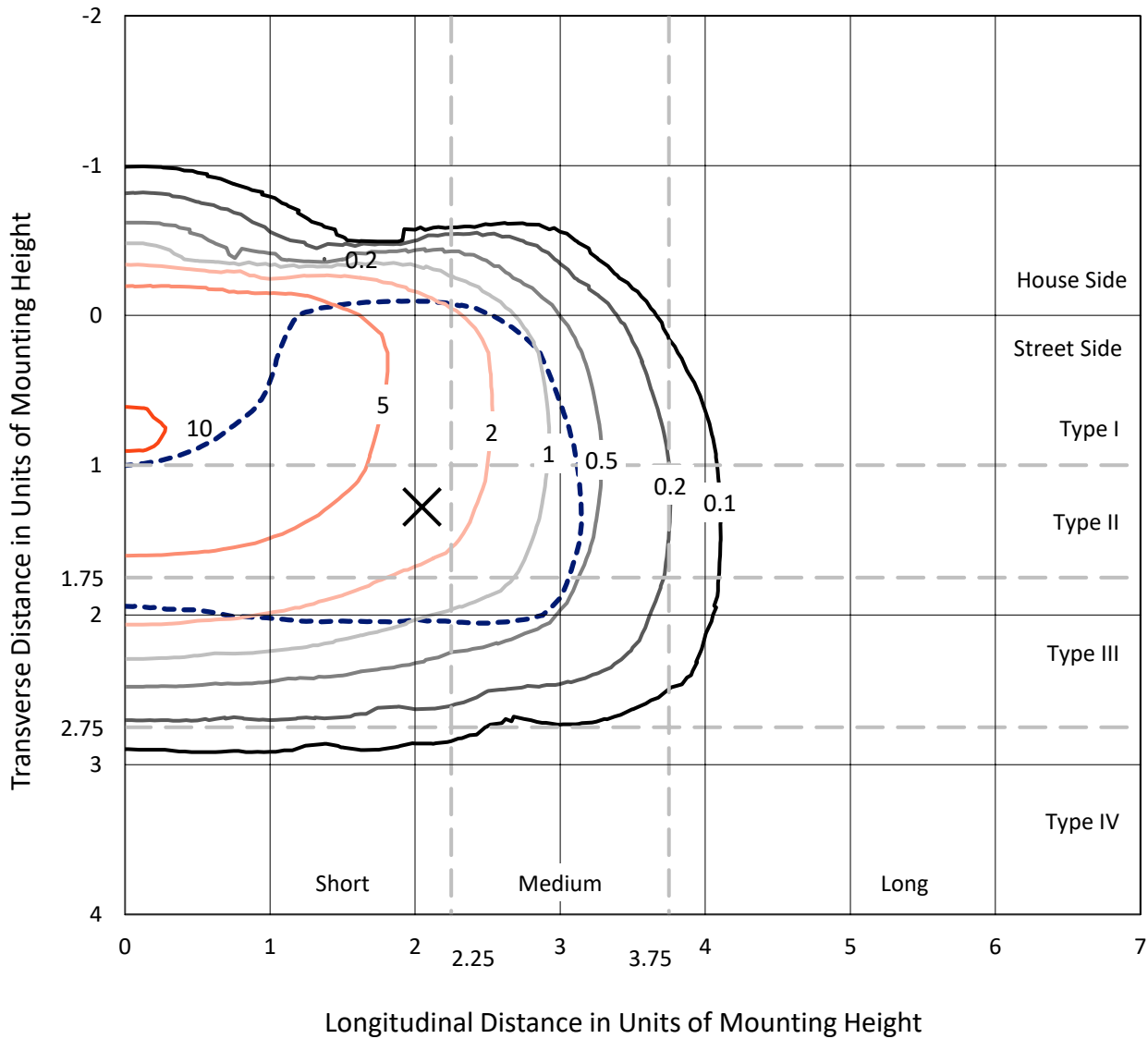
Lumens per Lamp: N/A  
Luminaire Lumens: 6794.7 lumens  
Efficiency: N/A  
Efficacy: 107.5 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B1 - U0 - G2  
  
Input Watts (W): 63.2  
Input Voltage (V): 120  
Input Current (Ain): 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



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 CATALOG NUMBER: GWS-SA2C-740-U-T3-W-HSS

### Iso-Footcandle Lines of Horizontal Illumination

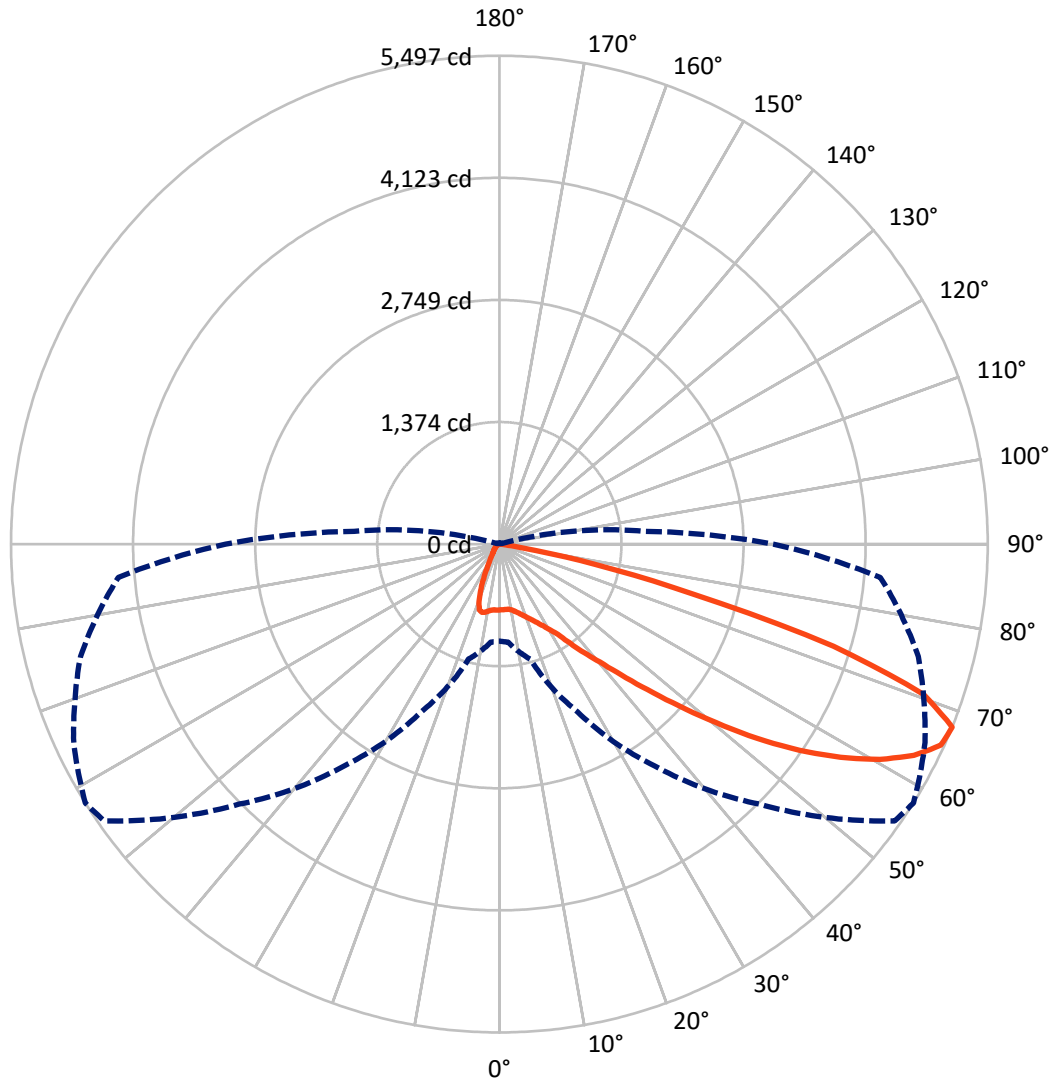
✕ Max cd  
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 10.3 fc  
 Type III - Short - N/A

REPORT NUMBER: P632338  
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### Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral    - - - Horizontal Cone Through 67.5-Deg Vertical

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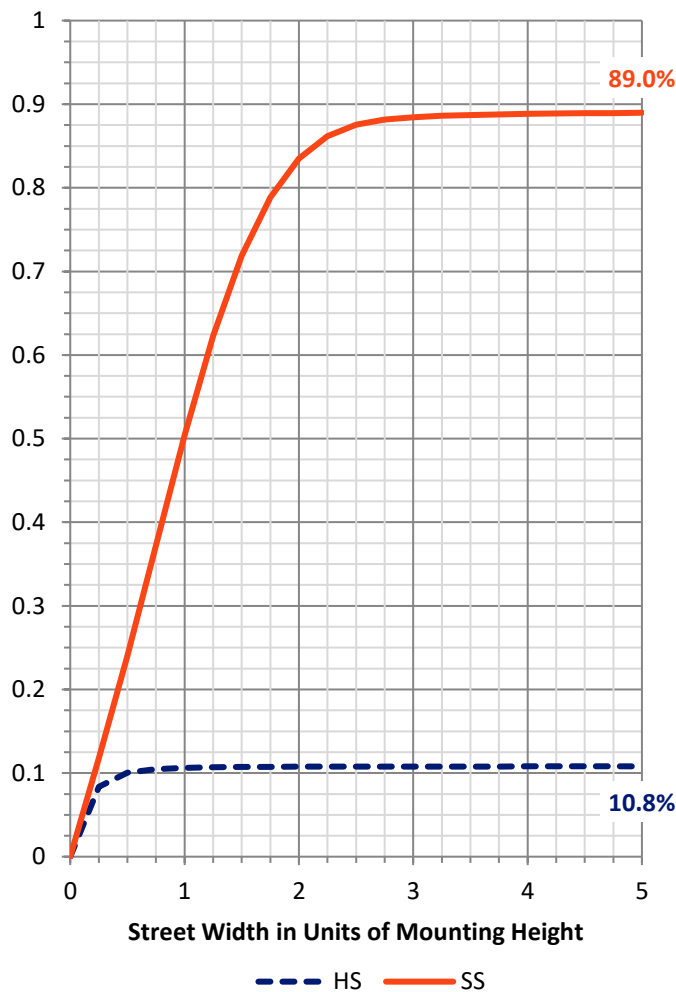
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 741.3    | 0.0    | 741.3  |
|                    | % Fixture | 10.9     | 0.0    | 10.9   |
| <b>Street Side</b> | Lumens    | 6053.4   | 0.0    | 6053.4 |
|                    | % Fixture | 89.1     | 0.0    | 89.1   |
| <b>Total</b>       | Lumens    | 6794.7   | 0.0    | 6794.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 69.6   | 1.0       |
| 10°-20°   | 195.3  | 2.9       |
| 20°-30°   | 340.9  | 5.0       |
| 30°-40°   | 608.8  | 9.0       |
| 40°-50°   | 1112.7 | 16.4      |
| 50°-60°   | 1850.5 | 27.2      |
| 60°-70°   | 2010.0 | 29.6      |
| 70°-80°   | 590.2  | 8.7       |
| 80°-90°   | 16.8   | 0.2       |
| 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°    | 6794.7 | 100.0     |
| 0°-180°   | 6794.7 | 100.0     |

**Coefficient of Utilization**



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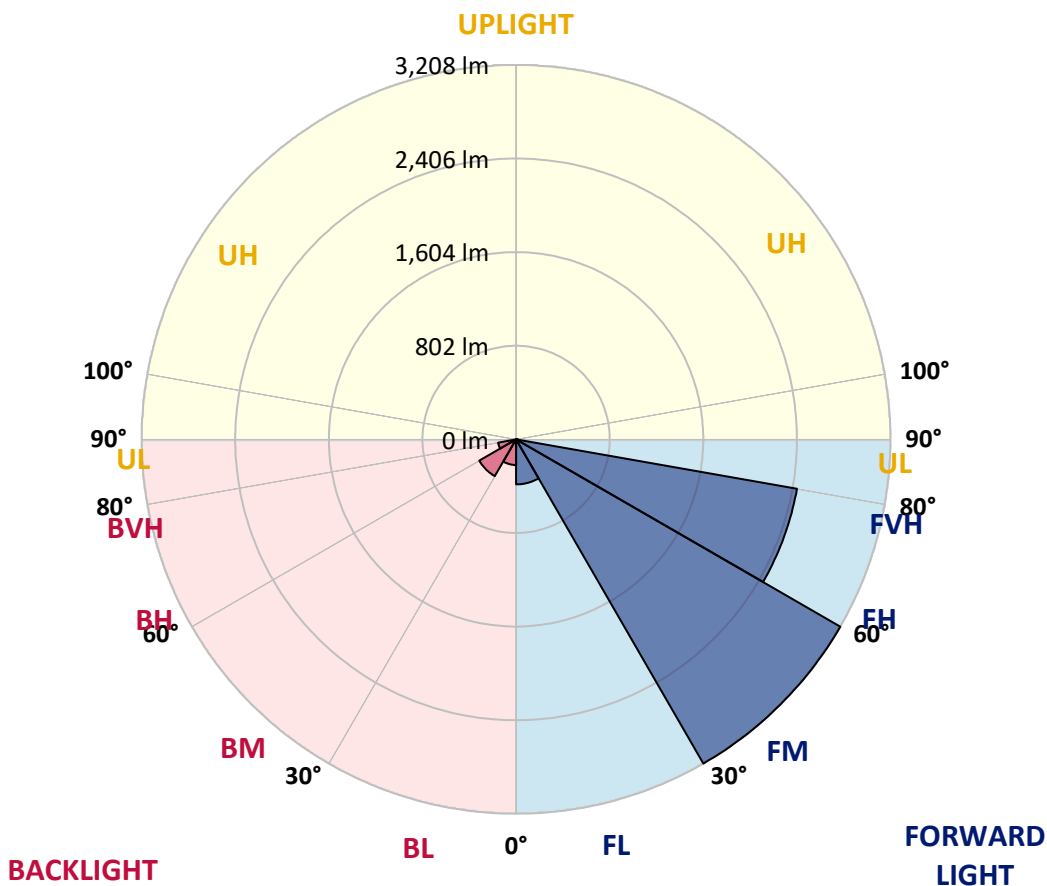
CATALOG NUMBER: GWS-SA2C-740-U-T3-W-HSS

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

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 385.8  | 5.7       |                         |      |         |
| FM (30°-60°)   | 3207.9 | 47.2      |                         |      |         |
| FH (60°-80°)   | 2443.7 | 36.0      |                         |      | G2/5000 |
| FVH (80°-90°)  | 16.0   | 0.2       |                         |      | G1/100  |
| BL (0°-30°)    | 219.9  | 3.2       | B1/500                  |      |         |
| BM (30°-60°)   | 364.1  | 5.4       | B1/1000                 |      |         |
| BH (60°-80°)   | 156.5  | 2.3       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 0.8    | 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-G2**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 58°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 740.4  | 740.4  | 740.4  | 740.4  | 740.4  | 740.4  | 740.4  | 740.4  | 740.4  | 740.4  | 740.4  |
| 2.5°  | 726.5  | 725.2  | 725.2  | 730.5  | 731.1  | 733.8  | 739.8  | 740.4  | 743.7  | 742.4  | 737.8  |
| 5°    | 688.7  | 689.3  | 693.3  | 702.6  | 710.6  | 720.5  | 735.1  | 738.4  | 745.7  | 749.7  | 747.1  |
| 7.5°  | 653.5  | 654.2  | 660.1  | 674.7  | 690.0  | 709.9  | 733.8  | 740.4  | 755.0  | 765.6  | 766.3  |
| 10°   | 640.2  | 639.6  | 645.5  | 662.1  | 682.0  | 709.9  | 744.4  | 753.0  | 774.9  | 793.5  | 796.8  |
| 12.5° | 644.2  | 643.6  | 649.5  | 664.8  | 686.7  | 721.8  | 763.0  | 774.9  | 802.8  | 831.3  | 837.3  |
| 15°   | 660.1  | 659.5  | 663.5  | 676.1  | 699.9  | 736.4  | 786.9  | 804.8  | 839.9  | 874.4  | 883.7  |
| 17.5° | 707.9  | 704.6  | 700.6  | 701.9  | 715.9  | 753.7  | 817.4  | 839.3  | 883.1  | 924.2  | 932.2  |
| 20°   | 792.8  | 784.2  | 773.6  | 759.7  | 753.0  | 778.9  | 852.5  | 877.8  | 930.8  | 977.9  | 979.3  |
| 22.5° | 920.9  | 917.6  | 893.0  | 852.5  | 824.0  | 824.7  | 893.7  | 922.9  | 987.9  | 1039.6 | 1032.3 |
| 25°   | 1099.4 | 1097.4 | 1059.5 | 993.2  | 918.9  | 893.7  | 946.1  | 975.9  | 1055.6 | 1110.6 | 1087.4 |
| 27.5° | 1320.9 | 1307.0 | 1262.6 | 1173.0 | 1062.2 | 983.2  | 1012.4 | 1039.0 | 1127.2 | 1179.0 | 1135.2 |
| 30°   | 1514.0 | 1514.7 | 1472.9 | 1379.3 | 1254.6 | 1117.9 | 1093.4 | 1116.6 | 1192.9 | 1247.3 | 1194.2 |
| 32.5° | 1699.8 | 1705.8 | 1660.0 | 1575.7 | 1439.0 | 1293.7 | 1209.5 | 1213.5 | 1277.2 | 1336.2 | 1271.8 |
| 35°   | 1872.3 | 1876.9 | 1845.1 | 1773.4 | 1646.0 | 1477.5 | 1371.4 | 1369.4 | 1403.9 | 1464.3 | 1380.0 |
| 37.5° | 2065.3 | 2070.0 | 2038.8 | 1974.5 | 1855.0 | 1687.8 | 1555.1 | 1552.5 | 1566.4 | 1615.5 | 1519.3 |
| 40°   | 2271.0 | 2279.6 | 2245.1 | 2190.7 | 2076.6 | 1935.3 | 1768.8 | 1744.9 | 1731.0 | 1788.7 | 1699.8 |
| 42.5° | 2479.3 | 2492.6 | 2480.7 | 2426.3 | 2328.7 | 2212.0 | 2046.1 | 2009.0 | 1979.1 | 2051.4 | 1957.2 |
| 45°   | 2738.1 | 2754.0 | 2748.7 | 2706.9 | 2631.3 | 2536.4 | 2379.8 | 2336.7 | 2322.8 | 2389.8 | 2277.7 |
| 47.5° | 2986.9 | 3004.1 | 3023.4 | 3014.1 | 2960.4 | 2916.6 | 2742.7 | 2718.2 | 2714.2 | 2785.9 | 2612.0 |
| 50°   | 3172.0 | 3187.9 | 3261.6 | 3314.6 | 3351.1 | 3341.8 | 3191.2 | 3154.7 | 3148.8 | 3194.6 | 2965.0 |
| 52.5° | 3304.7 | 3319.9 | 3421.5 | 3587.3 | 3721.3 | 3794.3 | 3642.4 | 3634.4 | 3601.9 | 3586.0 | 3295.4 |
| 55°   | 3407.5 | 3428.8 | 3535.6 | 3786.4 | 4056.4 | 4218.3 | 4123.4 | 4094.9 | 4011.3 | 3919.7 | 3601.9 |
| 57.5° | 3428.1 | 3436.7 | 3587.3 | 3925.7 | 4316.5 | 4578.5 | 4578.5 | 4528.8 | 4367.5 | 4240.8 | 3956.2 |
| 60°   | 3243.6 | 3270.2 | 3473.9 | 3914.4 | 4427.9 | 4814.1 | 4956.0 | 4921.5 | 4703.9 | 4548.0 | 4297.2 |
| 62.5° | 2834.3 | 2864.1 | 3112.3 | 3644.4 | 4316.5 | 4862.5 | 5242.0 | 5236.7 | 4991.2 | 4802.1 | 4579.9 |
| 65°   | 2173.5 | 2195.4 | 2411.7 | 3048.6 | 3845.4 | 4676.1 | 5446.3 | 5460.9 | 5218.1 | 4970.0 | 4677.4 |
| 67.5° | 1092.1 | 1107.3 | 1340.8 | 2082.6 | 3047.9 | 4139.3 | 5432.4 | 5497.4 | 5287.1 | 4881.1 | 4305.2 |
| 70°   | 381.5  | 396.7  | 506.9  | 893.7  | 1855.0 | 3160.7 | 4962.7 | 5068.8 | 4881.7 | 4166.5 | 3176.0 |
| 72.5° | 130.7  | 138.0  | 210.3  | 331.7  | 721.8  | 1873.6 | 3773.7 | 3933.6 | 3598.6 | 2797.1 | 1825.2 |
| 75°   | 74.3   | 79.0   | 112.8  | 179.8  | 302.5  | 616.4  | 2141.0 | 2239.2 | 2097.9 | 1524.6 | 751.0  |
| 77.5° | 50.4   | 54.4   | 70.3   | 102.2  | 167.2  | 198.4  | 873.1  | 1099.4 | 958.7  | 497.6  | 191.7  |
| 80°   | 29.9   | 32.5   | 43.1   | 60.4   | 85.6   | 77.0   | 187.1  | 248.8  | 320.5  | 148.6  | 57.7   |
| 82.5° | 13.9   | 15.9   | 27.9   | 39.8   | 43.1   | 32.5   | 55.1   | 67.0   | 90.2   | 73.0   | 23.9   |
| 85°   | 0.0    | 0.0    | 9.3    | 16.6   | 15.9   | 9.3    | 15.3   | 16.6   | 24.5   | 36.5   | 9.3    |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.7    | 1.3    | 2.0    | 4.0    | 7.3    | 4.0    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



REPORT NUMBER: P632338  
 CATALOG NUMBER: GWS-SA2C-740-U-T3-W-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 740.4  | 740.4  | 740.4  | 740.4 | 740.4 | 740.4 | 740.4 | 740.4 | 740.4 | 740.4 | 740.4 |
| 2.5°  | 743.1  | 738.4  | 743.7  | 741.1 | 743.7 | 743.1 | 737.8 | 734.4 | 734.4 | 728.5 | 726.5 |
| 5°    | 752.4  | 747.7  | 749.0  | 743.1 | 741.7 | 738.4 | 731.8 | 729.1 | 729.1 | 723.2 | 721.2 |
| 7.5°  | 772.9  | 765.6  | 764.3  | 752.4 | 747.1 | 737.8 | 725.8 | 721.2 | 720.5 | 714.5 | 712.6 |
| 10°   | 805.4  | 796.8  | 790.8  | 775.6 | 760.3 | 741.7 | 716.5 | 695.3 | 683.4 | 667.4 | 666.1 |
| 12.5° | 845.2  | 834.6  | 825.3  | 802.1 | 776.9 | 735.1 | 660.8 | 583.2 | 535.4 | 497.6 | 500.2 |
| 15°   | 889.7  | 879.7  | 865.1  | 830.0 | 778.2 | 669.4 | 514.2 | 394.8 | 336.4 | 305.2 | 303.9 |
| 17.5° | 938.1  | 923.5  | 899.6  | 851.9 | 736.4 | 511.5 | 334.4 | 236.2 | 205.7 | 195.1 | 192.4 |
| 20°   | 983.2  | 965.3  | 935.5  | 856.5 | 615.7 | 346.3 | 209.0 | 183.1 | 177.8 | 174.5 | 174.5 |
| 22.5° | 1031.0 | 1008.5 | 964.0  | 820.7 | 457.8 | 221.6 | 177.8 | 171.8 | 167.9 | 163.2 | 162.5 |
| 25°   | 1079.4 | 1050.3 | 989.9  | 727.2 | 299.9 | 174.5 | 166.5 | 159.9 | 152.6 | 145.3 | 143.3 |
| 27.5° | 1120.6 | 1082.8 | 1009.8 | 587.8 | 192.4 | 157.2 | 151.9 | 140.7 | 130.7 | 122.7 | 121.4 |
| 30°   | 1169.7 | 1121.2 | 1018.4 | 429.9 | 151.3 | 138.7 | 130.7 | 118.8 | 106.8 | 98.9  | 96.2  |
| 32.5° | 1235.4 | 1182.3 | 1005.1 | 280.0 | 134.0 | 122.1 | 109.5 | 95.5  | 83.6  | 75.0  | 73.6  |
| 35°   | 1337.5 | 1274.5 | 944.1  | 178.5 | 121.4 | 105.5 | 90.2  | 75.6  | 65.7  | 59.0  | 57.7  |
| 37.5° | 1462.3 | 1403.9 | 843.9  | 134.0 | 108.8 | 91.6  | 73.6  | 59.7  | 52.4  | 47.8  | 46.4  |
| 40°   | 1647.4 | 1565.8 | 719.9  | 117.4 | 96.2  | 77.6  | 60.4  | 49.1  | 43.8  | 39.8  | 38.5  |
| 42.5° | 1887.5 | 1756.8 | 577.2  | 106.8 | 84.3  | 65.0  | 49.1  | 40.5  | 35.8  | 33.2  | 32.5  |
| 45°   | 2168.2 | 1943.3 | 426.6  | 96.2  | 73.0  | 53.7  | 40.5  | 33.2  | 29.9  | 27.9  | 27.2  |
| 47.5° | 2455.5 | 2106.5 | 294.6  | 84.9  | 62.4  | 44.5  | 33.8  | 28.5  | 25.9  | 23.2  | 22.6  |
| 50°   | 2762.0 | 2244.5 | 201.0  | 73.6  | 53.1  | 36.5  | 29.2  | 25.9  | 22.6  | 20.6  | 19.9  |
| 52.5° | 2986.9 | 2295.6 | 140.0  | 63.7  | 45.1  | 31.2  | 25.9  | 23.2  | 20.6  | 17.9  | 17.2  |
| 55°   | 3194.6 | 2294.2 | 106.2  | 53.7  | 38.5  | 27.2  | 23.2  | 20.6  | 17.9  | 15.9  | 15.3  |
| 57.5° | 3401.5 | 2276.3 | 83.6   | 45.8  | 33.2  | 24.5  | 20.6  | 17.9  | 16.6  | 13.9  | 13.3  |
| 60°   | 3535.6 | 2208.7 | 65.0   | 38.5  | 28.5  | 21.2  | 17.9  | 15.9  | 13.9  | 11.9  | 11.3  |
| 62.5° | 3606.6 | 2114.4 | 49.8   | 30.5  | 23.2  | 18.6  | 15.9  | 13.9  | 11.9  | 10.0  | 9.3   |
| 65°   | 3510.4 | 1947.2 | 39.1   | 23.9  | 17.9  | 15.9  | 13.3  | 11.3  | 9.3   | 7.3   | 6.6   |
| 67.5° | 3083.8 | 1642.1 | 30.5   | 19.2  | 13.9  | 11.9  | 11.3  | 9.3   | 6.6   | 5.3   | 4.6   |
| 70°   | 2179.5 | 1124.6 | 23.9   | 14.6  | 10.6  | 9.3   | 8.6   | 7.3   | 5.3   | 4.0   | 3.3   |
| 72.5° | 1196.2 | 567.3  | 17.2   | 10.6  | 8.0   | 7.3   | 6.6   | 6.0   | 4.6   | 3.3   | 3.3   |
| 75°   | 460.4  | 155.9  | 12.6   | 7.3   | 5.3   | 5.3   | 4.6   | 4.6   | 4.0   | 2.7   | 2.7   |
| 77.5° | 120.1  | 46.4   | 8.0    | 4.6   | 3.3   | 3.3   | 3.3   | 2.7   | 2.7   | 2.0   | 2.0   |
| 80°   | 38.5   | 15.3   | 4.6    | 3.3   | 2.7   | 2.0   | 2.0   | 1.3   | 2.0   | 1.3   | 1.3   |
| 82.5° | 12.6   | 5.3    | 2.7    | 2.7   | 2.0   | 1.3   | 1.3   | 0.7   | 0.7   | 0.0   | 0.0   |
| 85°   | 4.6    | 2.7    | 2.0    | 1.3   | 1.3   | 1.3   | 0.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 2.7    | 1.3    | 1.3    | 1.3   | 1.3   | 0.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 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

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| 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**



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| 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)