

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: P635742

Luminaire Tested: GWS-SA3E-735-U-T2R-W-GRSBK

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P635742  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-12)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA3E-735-U-T2R-W-GRSBK  
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK  
Light Source: (48) 3500K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

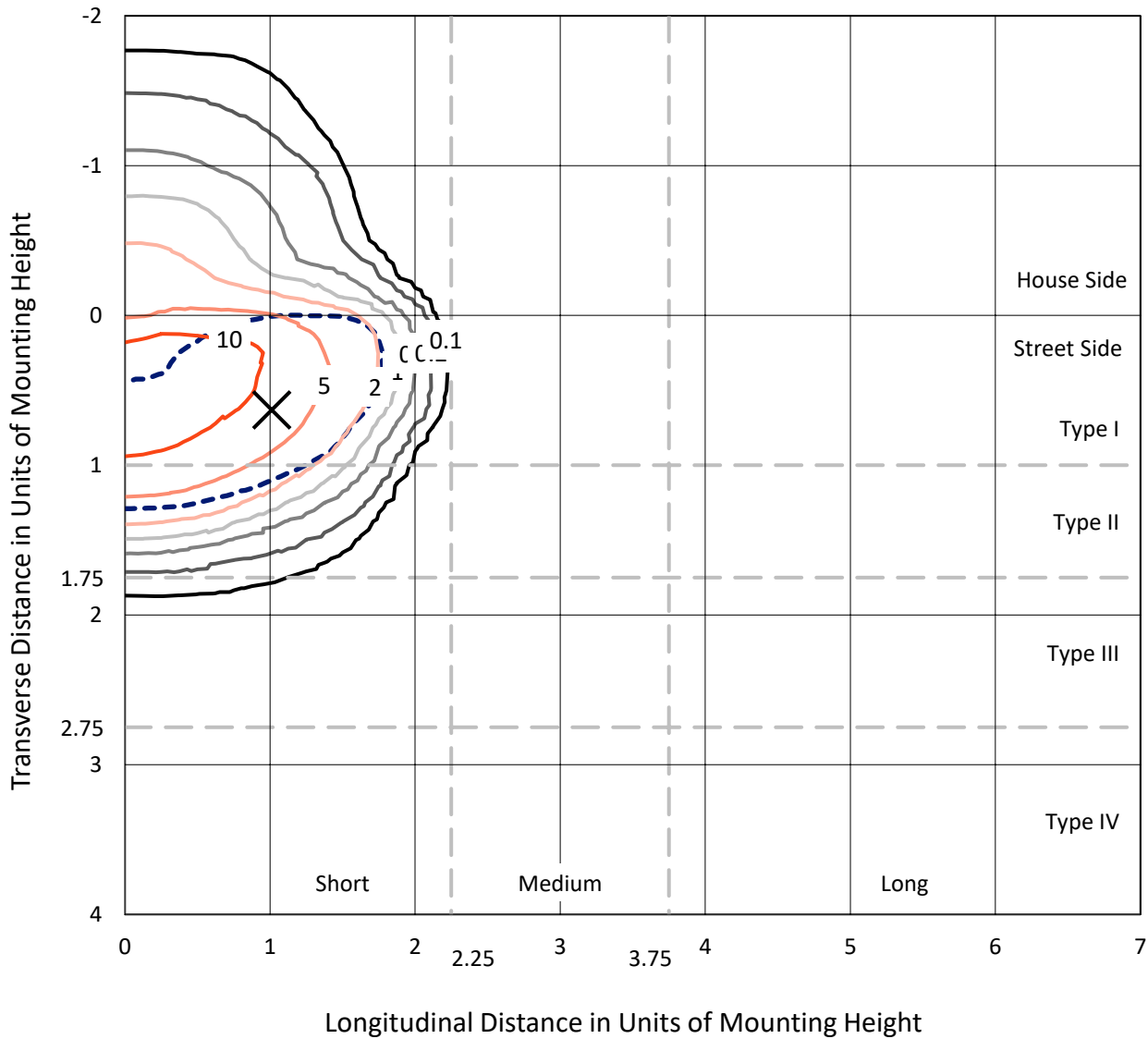
Lumens per Lamp: N/A  
Luminaire Lumens: 14539.9 lumens  
Efficiency: N/A  
Efficacy: 91.3 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B2 - U0 - G1  
  
Input Watts (W): 159.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 0  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



REPORT NUMBER: P635742  
 CATALOG NUMBER: GWS-SA3E-735-U-T2R-W-GRSBK

### Iso-Footcandle Lines of Horizontal Illumination

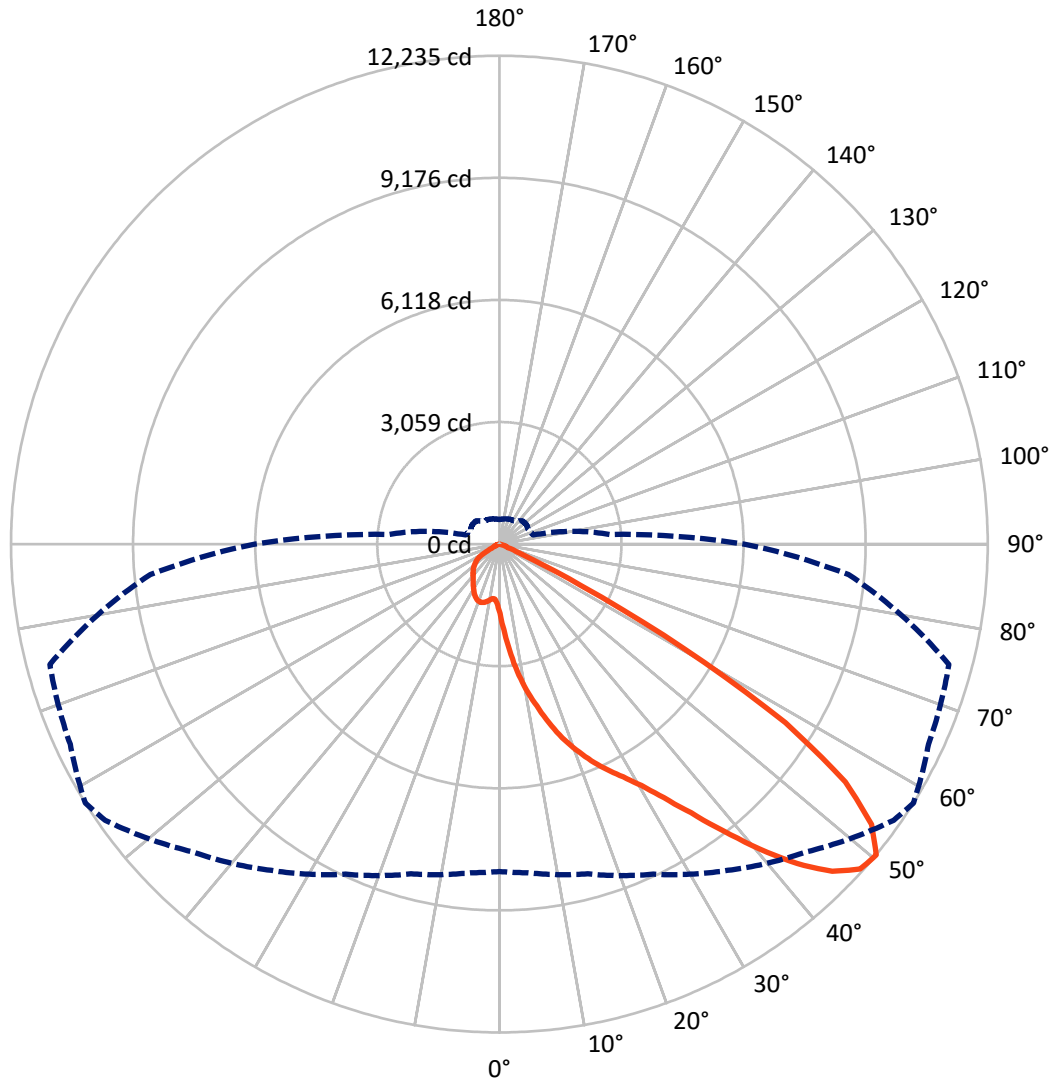
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 13.3 fc  
 Type II - Short - N/A

REPORT NUMBER: P635742  
CATALOG NUMBER: GWS-SA3E-735-U-T2R-W-GRSBK

### Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral    - - - Horizontal Cone Through 50-Deg Vertical

REPORT NUMBER: P635742

CATALOG NUMBER: GWS-SA3E-735-U-T2R-W-GRSBK

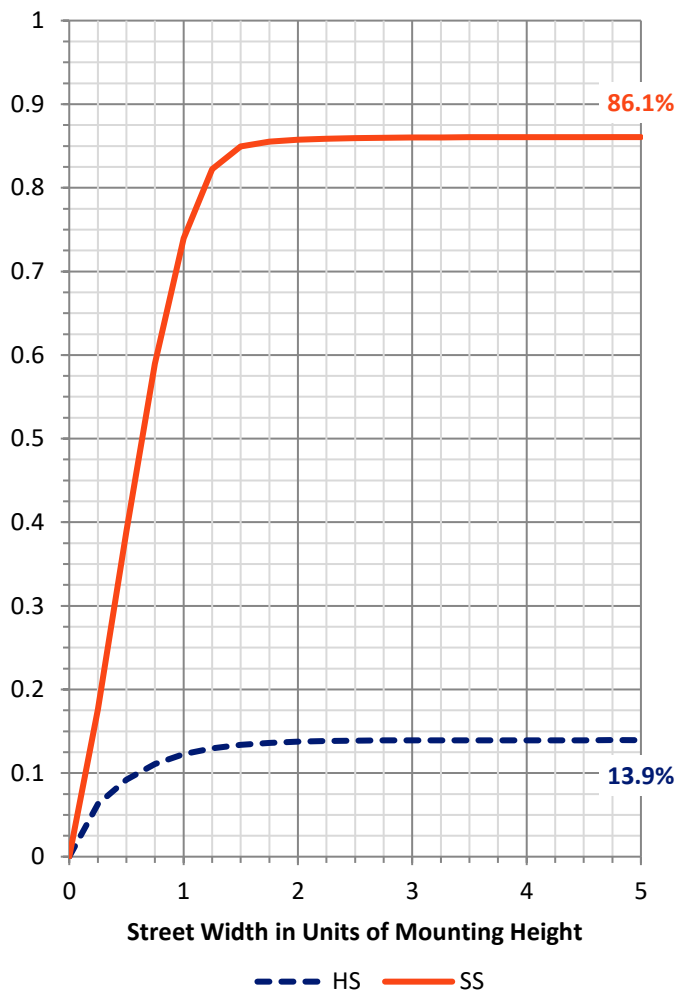
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 2036.5   | 0.0    | 2036.5  |
|                    | % Fixture | 14.0     | 0.0    | 14.0    |
| <b>Street Side</b> | Lumens    | 12503.4  | 0.0    | 12503.4 |
|                    | % Fixture | 86.0     | 0.0    | 86.0    |
| <b>Total</b>       | Lumens    | 14539.9  | 0.0    | 14539.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 215.2   | 1.5       |
| 10°-20°   | 851.8   | 5.9       |
| 20°-30°   | 1723.5  | 11.9      |
| 30°-40°   | 3049.2  | 21.0      |
| 40°-50°   | 4445.0  | 30.6      |
| 50°-60°   | 3562.8  | 24.5      |
| 60°-70°   | 641.9   | 4.4       |
| 70°-80°   | 50.6    | 0.3       |
| 80°-90°   | 0.0     | 0.0       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 14539.9 | 100.0     |
| 0°-180°   | 14539.9 | 100.0     |

**Coefficient of Utilization**



REPORT NUMBER: P635742

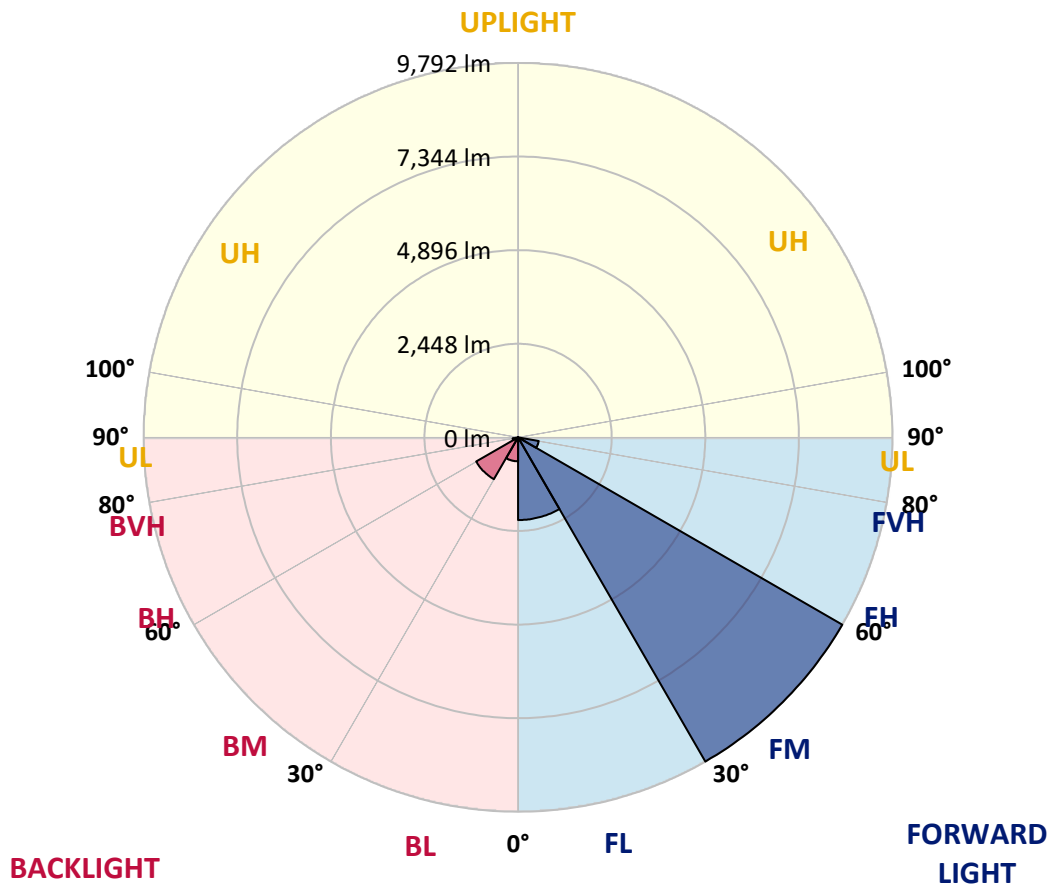
CATALOG NUMBER: GWS-SA3E-735-U-T2R-W-GRSBK

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

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |        |
|----------------|--------|-----------|-------------------------|------|--------|
|                |        |           | B                       | U    | G      |
| FL (0°-30°)    | 2163.5 | 14.9      |                         |      |        |
| FM (30°-60°)   | 9792.2 | 67.3      |                         |      |        |
| FH (60°-80°)   | 547.7  | 3.8       |                         |      | G0/660 |
| FVH (80°-90°)  | 0.0    | 0.0       |                         |      | G0/10  |
| BL (0°-30°)    | 627.0  | 4.3       | B2/1000                 |      |        |
| BM (30°-60°)   | 1264.8 | 8.7       | B2/2500                 |      |        |
| BH (60°-80°)   | 144.7  | 1.0       | B1/500                  |      | G1/500 |
| BVH (80°-90°)  | 0.0    | 0.0       |                         |      | G0/10  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |        |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |        |

**BUG Rating: B2-U0-G1**

Type II Short





REPORT NUMBER: P635742

CATALOG NUMBER: GWS-SA3E-735-U-T2R-W-GRSBK

**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 58°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 1736.8  | 1736.8  | 1736.8  | 1736.8  | 1736.8  | 1736.8  | 1736.8  | 1736.8  | 1736.8  | 1736.8  | 1736.8 |
| 2.5°  | 2570.2  | 2529.7  | 2506.4  | 2487.8  | 2405.4  | 2274.7  | 2189.2  | 2144.1  | 2069.5  | 1943.6  | 1834.7 |
| 5°    | 3353.8  | 3324.3  | 3269.8  | 3232.5  | 3126.8  | 2941.8  | 2750.5  | 2674.3  | 2504.9  | 2220.3  | 1965.3 |
| 7.5°  | 3873.1  | 3851.4  | 3831.1  | 3781.4  | 3681.9  | 3514.0  | 3302.5  | 3223.2  | 2962.0  | 2557.7  | 2139.5 |
| 10°   | 4272.7  | 4255.6  | 4232.3  | 4230.7  | 4153.0  | 4002.2  | 3795.4  | 3713.0  | 3430.0  | 2924.7  | 2344.7 |
| 12.5° | 4624.1  | 4610.1  | 4605.5  | 4649.0  | 4599.2  | 4487.3  | 4263.4  | 4160.8  | 3860.7  | 3299.4  | 2571.7 |
| 15°   | 4865.1  | 4862.0  | 4882.2  | 4967.7  | 4995.7  | 4944.4  | 4756.3  | 4645.9  | 4300.7  | 3675.7  | 2822.1 |
| 17.5° | 4975.5  | 4984.8  | 5023.7  | 5171.4  | 5295.8  | 5339.4  | 5194.7  | 5101.5  | 4737.6  | 4056.6  | 3089.5 |
| 20°   | 5163.7  | 5160.5  | 5183.9  | 5323.8  | 5476.2  | 5631.7  | 5588.1  | 5508.8  | 5179.2  | 4459.3  | 3386.5 |
| 22.5° | 5693.9  | 5648.8  | 5599.0  | 5620.8  | 5675.2  | 5857.1  | 5938.0  | 5897.5  | 5634.8  | 4872.9  | 3692.8 |
| 25°   | 6508.6  | 6462.0  | 6301.8  | 6146.3  | 6043.7  | 6126.1  | 6236.5  | 6256.7  | 6087.2  | 5297.4  | 4013.1 |
| 27.5° | 7373.1  | 7331.1  | 7150.7  | 6917.5  | 6623.7  | 6480.6  | 6563.0  | 6603.4  | 6531.9  | 5802.7  | 4353.6 |
| 30°   | 8183.2  | 8127.2  | 7929.7  | 7640.5  | 7300.0  | 7080.8  | 6987.5  | 7015.5  | 7057.5  | 6401.3  | 4753.2 |
| 32.5° | 8886.0  | 8844.0  | 8607.6  | 8302.9  | 7974.8  | 7746.3  | 7528.6  | 7575.2  | 7677.8  | 7133.6  | 5264.7 |
| 35°   | 9481.5  | 9459.7  | 9209.4  | 8906.2  | 8559.4  | 8442.8  | 8256.2  | 8265.6  | 8368.2  | 8018.4  | 5888.2 |
| 37.5° | 9999.2  | 9961.9  | 9734.9  | 9453.5  | 9178.3  | 9159.6  | 9108.3  | 9113.0  | 9165.8  | 9049.2  | 6605.0 |
| 40°   | 10325.8 | 10291.5 | 10129.8 | 9955.7  | 9759.8  | 9762.9  | 10028.8 | 10049.0 | 9988.3  | 10061.4 | 7362.2 |
| 42.5° | 10448.6 | 10423.7 | 10336.6 | 10338.2 | 10318.0 | 10409.7 | 10908.8 | 10946.1 | 10728.5 | 10856.0 | 8009.0 |
| 45°   | 10235.6 | 10224.7 | 10230.9 | 10454.8 | 10697.4 | 10980.3 | 11628.7 | 11694.0 | 11386.2 | 11383.0 | 8514.4 |
| 47.5° | 9548.3  | 9526.6  | 9708.5  | 10089.4 | 10650.7 | 11201.1 | 12064.1 | 12165.1 | 11846.4 | 11684.7 | 8831.5 |
| 50°   | 8201.8  | 8264.0  | 8551.7  | 9123.9  | 9977.5  | 10897.9 | 12059.4 | 12235.1 | 11863.5 | 11658.3 | 8778.7 |
| 52.5° | 5941.1  | 5928.6  | 6558.4  | 7345.1  | 8383.7  | 9927.7  | 11418.8 | 11675.4 | 11448.4 | 11398.6 | 8660.5 |
| 55°   | 3232.5  | 3346.0  | 3770.5  | 4812.3  | 6109.0  | 8091.4  | 9955.7  | 10515.4 | 10778.2 | 11303.8 | 8873.5 |
| 57.5° | 1187.9  | 1237.7  | 1503.5  | 2240.5  | 3234.1  | 5031.5  | 7604.8  | 8449.0  | 9260.7  | 11039.4 | 8837.8 |
| 60°   | 478.9   | 488.2   | 594.0   | 824.1   | 1358.9  | 2560.8  | 4561.9  | 5311.4  | 6076.3  | 8450.6  | 6782.3 |
| 62.5° | 348.3   | 360.7   | 402.7   | 482.0   | 687.2   | 1119.5  | 1966.9  | 2287.2  | 2500.2  | 4185.7  | 3341.4 |
| 65°   | 281.4   | 290.8   | 325.0   | 360.7   | 454.0   | 601.7   | 634.4   | 611.1   | 607.9   | 1082.2  | 766.5  |
| 67.5° | 233.2   | 242.6   | 267.4   | 292.3   | 326.5   | 300.1   | 217.7   | 228.6   | 186.6   | 185.0   | 150.8  |
| 70°   | 171.0   | 181.9   | 206.8   | 233.2   | 195.9   | 80.9    | 125.9   | 186.6   | 141.5   | 118.2   | 115.1  |
| 72.5° | 129.1   | 136.8   | 160.1   | 152.4   | 57.5    | 31.1    | 84.0    | 135.3   | 108.8   | 87.1    | 85.5   |
| 75°   | 96.4    | 101.1   | 80.9    | 24.9    | 6.2     | 7.8     | 31.1    | 56.0    | 60.6    | 49.8    | 49.8   |
| 77.5° | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 3.1     | 4.7     | 6.2     | 7.8     | 9.3    |
| 80°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |
| 82.5° | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |
| 85°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |
| 87.5° | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 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    |



REPORT NUMBER: P635742

CATALOG NUMBER: GWS-SA3E-735-U-T2R-W-GRSBK

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1736.8 | 1736.8 | 1736.8 | 1736.8 | 1736.8 | 1736.8 | 1736.8 | 1736.8 | 1736.8 | 1736.8 | 1736.8 |
| 2.5°  | 1772.5 | 1707.2 | 1613.9 | 1536.2 | 1477.1 | 1419.6 | 1376.0 | 1332.5 | 1331.0 | 1309.2 | 1304.5 |
| 5°    | 1847.2 | 1729.0 | 1558.0 | 1435.1 | 1360.5 | 1315.4 | 1284.3 | 1268.8 | 1261.0 | 1253.2 | 1250.1 |
| 7.5°  | 1954.4 | 1785.0 | 1548.6 | 1418.0 | 1355.8 | 1326.3 | 1304.5 | 1295.2 | 1290.5 | 1284.3 | 1282.8 |
| 10°   | 2086.6 | 1865.8 | 1582.8 | 1450.7 | 1396.3 | 1368.3 | 1344.9 | 1331.0 | 1323.2 | 1312.3 | 1309.2 |
| 12.5° | 2245.2 | 1965.3 | 1637.3 | 1505.1 | 1447.6 | 1410.2 | 1379.2 | 1358.9 | 1348.1 | 1334.1 | 1331.0 |
| 15°   | 2416.2 | 2072.6 | 1697.9 | 1554.8 | 1486.4 | 1438.2 | 1399.4 | 1368.3 | 1348.1 | 1331.0 | 1326.3 |
| 17.5° | 2593.5 | 2181.5 | 1752.3 | 1589.1 | 1505.1 | 1447.6 | 1391.6 | 1349.6 | 1324.7 | 1303.0 | 1296.7 |
| 20°   | 2792.5 | 2293.4 | 1788.1 | 1595.3 | 1498.9 | 1422.7 | 1357.4 | 1304.5 | 1279.6 | 1250.1 | 1243.9 |
| 22.5° | 3000.9 | 2397.6 | 1803.6 | 1581.3 | 1464.7 | 1376.0 | 1306.1 | 1251.7 | 1215.9 | 1184.8 | 1175.5 |
| 25°   | 3203.0 | 2490.9 | 1795.9 | 1542.4 | 1413.4 | 1310.7 | 1239.2 | 1183.2 | 1144.4 | 1113.3 | 1105.5 |
| 27.5° | 3417.6 | 2568.6 | 1767.9 | 1484.9 | 1343.4 | 1239.2 | 1170.8 | 1122.6 | 1086.8 | 1052.6 | 1044.9 |
| 30°   | 3658.6 | 2640.1 | 1722.8 | 1414.9 | 1261.0 | 1166.1 | 1113.3 | 1080.6 | 1041.7 | 1006.0 | 995.1  |
| 32.5° | 3949.3 | 2703.9 | 1657.5 | 1331.0 | 1187.9 | 1102.4 | 1072.8 | 1048.0 | 1002.9 | 965.6  | 957.8  |
| 35°   | 4282.1 | 2756.7 | 1575.1 | 1243.9 | 1116.4 | 1062.0 | 1055.7 | 1023.1 | 964.0  | 920.5  | 911.1  |
| 37.5° | 4667.7 | 2808.1 | 1477.1 | 1158.4 | 1063.5 | 1043.3 | 1044.9 | 988.9  | 917.4  | 864.5  | 858.3  |
| 40°   | 5082.8 | 2859.4 | 1368.3 | 1083.7 | 1015.3 | 1032.4 | 1018.4 | 939.1  | 822.5  | 771.2  | 765.0  |
| 42.5° | 5515.0 | 2915.3 | 1257.9 | 1013.8 | 974.9  | 990.4  | 970.2  | 839.6  | 755.7  | 729.2  | 726.1  |
| 45°   | 5905.3 | 2982.2 | 1138.1 | 943.8  | 934.5  | 929.8  | 895.6  | 760.3  | 724.6  | 705.9  | 704.3  |
| 47.5° | 6186.7 | 2971.3 | 1010.7 | 876.9  | 890.9  | 875.4  | 771.2  | 723.0  | 693.5  | 668.6  | 662.4  |
| 50°   | 6135.4 | 2781.6 | 878.5  | 802.3  | 835.0  | 821.0  | 693.5  | 679.5  | 653.0  | 626.6  | 617.3  |
| 52.5° | 6004.8 | 2523.5 | 763.4  | 723.0  | 774.3  | 741.7  | 640.6  | 626.6  | 603.3  | 569.1  | 558.2  |
| 55°   | 6074.8 | 2281.0 | 673.2  | 659.3  | 712.1  | 614.2  | 581.5  | 559.7  | 534.9  | 497.6  | 492.9  |
| 57.5° | 5849.3 | 1861.2 | 541.1  | 550.4  | 629.7  | 524.0  | 510.0  | 475.8  | 433.8  | 408.9  | 405.8  |
| 60°   | 4048.8 | 999.8  | 339.0  | 349.8  | 455.6  | 440.0  | 457.1  | 426.0  | 374.7  | 351.4  | 346.7  |
| 62.5° | 1859.6 | 401.2  | 185.0  | 177.3  | 239.4  | 298.5  | 391.8  | 388.7  | 325.0  | 287.6  | 284.5  |
| 65°   | 450.9  | 183.5  | 132.2  | 124.4  | 135.3  | 178.8  | 255.0  | 306.3  | 262.8  | 219.2  | 214.6  |
| 67.5° | 146.2  | 149.3  | 121.3  | 113.5  | 119.7  | 133.7  | 152.4  | 169.5  | 167.9  | 153.9  | 150.8  |
| 70°   | 116.6  | 135.3  | 111.9  | 102.6  | 102.6  | 107.3  | 102.6  | 82.4   | 71.5   | 77.7   | 80.9   |
| 72.5° | 87.1   | 102.6  | 88.6   | 79.3   | 76.2   | 74.6   | 63.7   | 46.6   | 32.7   | 29.5   | 28.0   |
| 75°   | 51.3   | 57.5   | 54.4   | 46.6   | 43.5   | 38.9   | 31.1   | 20.2   | 10.9   | 7.8    | 4.7    |
| 77.5° | 9.3    | 10.9   | 12.4   | 9.3    | 7.8    | 6.2    | 4.7    | 1.6    | 0.0    | 0.0    | 0.0    |
| 80°   | 0.0    | 1.6    | 1.6    | 1.6    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 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    |



Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



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  
 CIE u': 0.2371  
 CIE v': 0.5177  
 Duv: 0.0032  
 CIE x: 0.4153  
 CIE y: 0.4030  
 CIE z: 0.1817  
 Peak Wavelength (nm): 590  
 Dominant Wavelength (nm): 580  
 Purity: 45.7  
  
 Rf: 76.9  
 Rg: 94.4

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 73.1 |      |       |
| R1:       | 68.9 | R9:  | -34.6 |
| R2:       | 81.1 | R10: | 57.8  |
| R3:       | 93.1 | R11: | 68.6  |
| R4:       | 71.6 | R12: | 53.9  |
| R5:       | 69.4 | R13: | 70.9  |
| R6:       | 75.0 | R14: | 96.2  |
| R7:       | 79.5 |      |       |
| R8:       | 46.4 |      |       |

**Test Conditions**

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

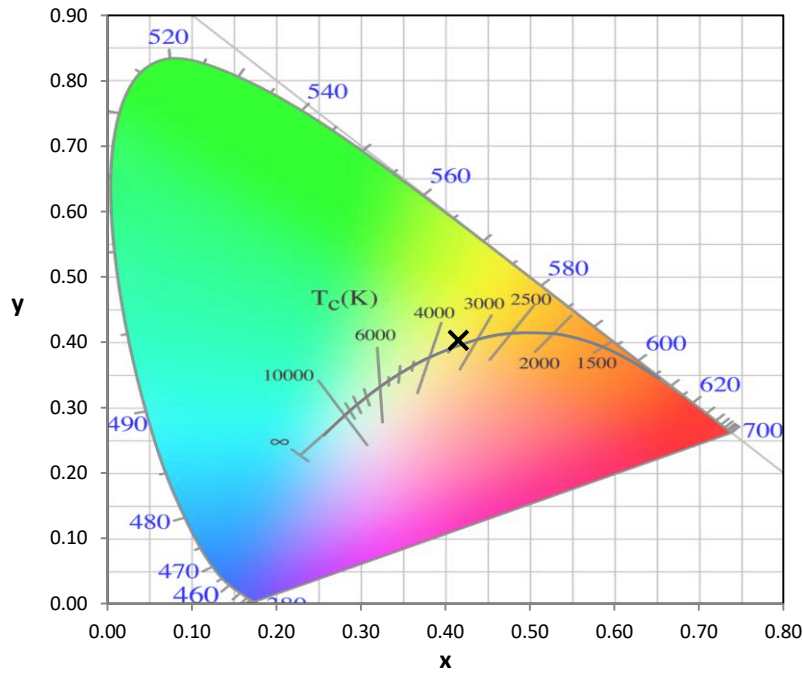


REPORT NUMBER: SP1-2101-121-7

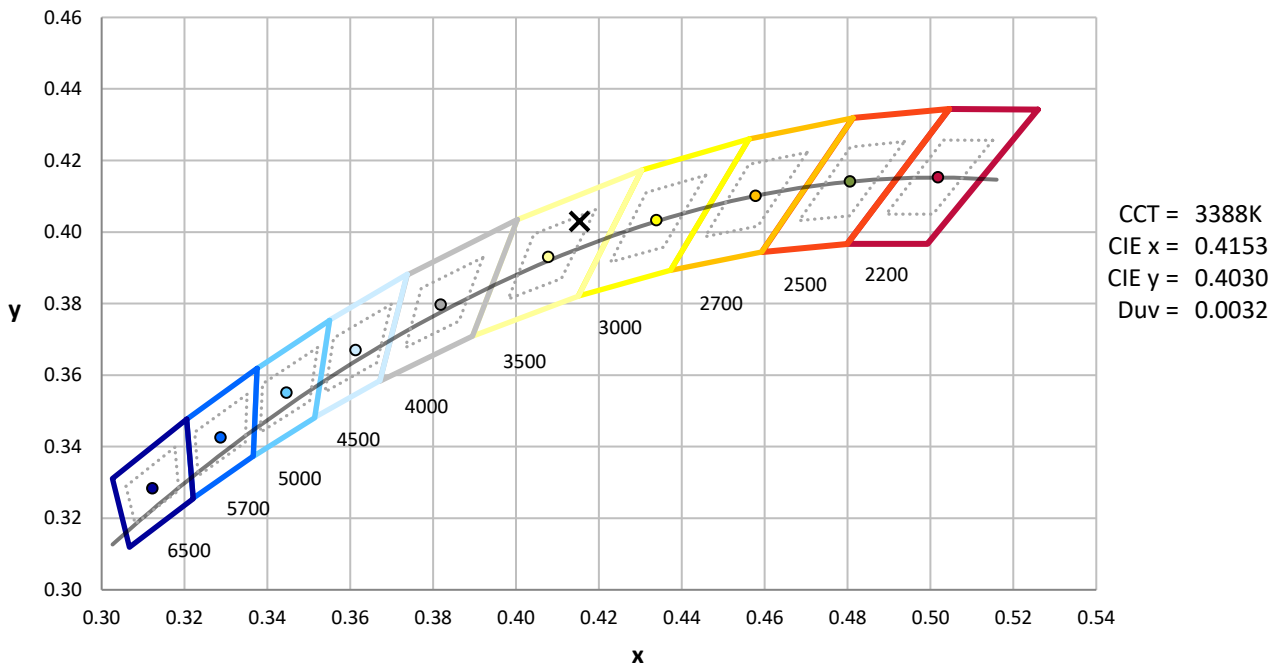
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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            |

REPORT NUMBER: SP1-2101-121-7

**CIE 1931 Chromaticity Diagram**



**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



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**

| $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 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)