

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: P636220

Luminaire Tested: GWS-SA3F-735-U-SL3-W-HSS

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P636220  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-34)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA3F-735-U-SL3-W-HSS  
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD  
Light Source: (48) 3500K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

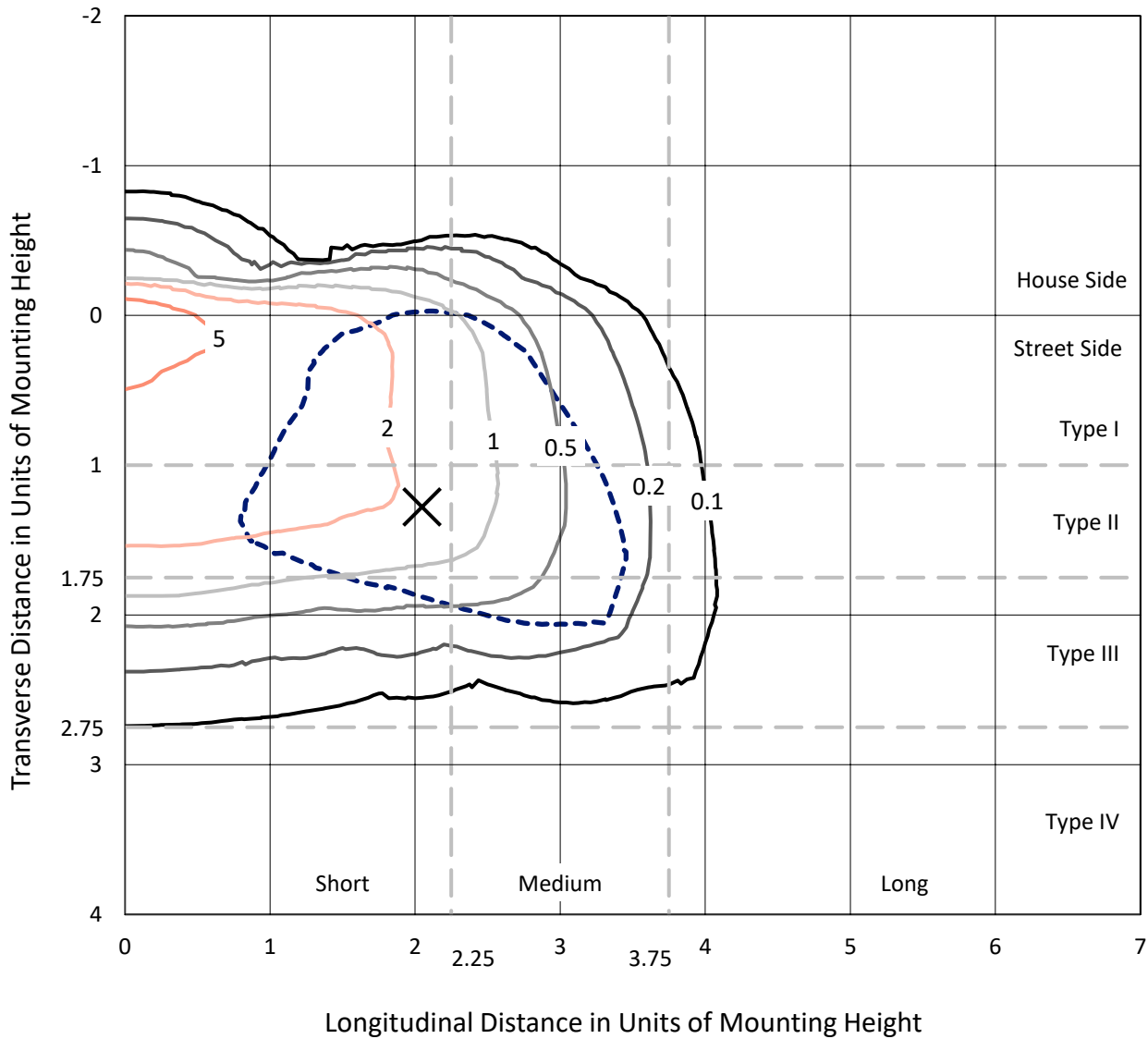
Lumens per Lamp: N/A  
Luminaire Lumens: 19531.7 lumens  
Efficiency: N/A  
Efficacy: 106.6 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B2 - U0 - G3  
  
Input Watts (W): 183.2  
Input Voltage (V): 120  
Input Current (Ain): 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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### Iso-Footcandle Lines of Horizontal Illumination

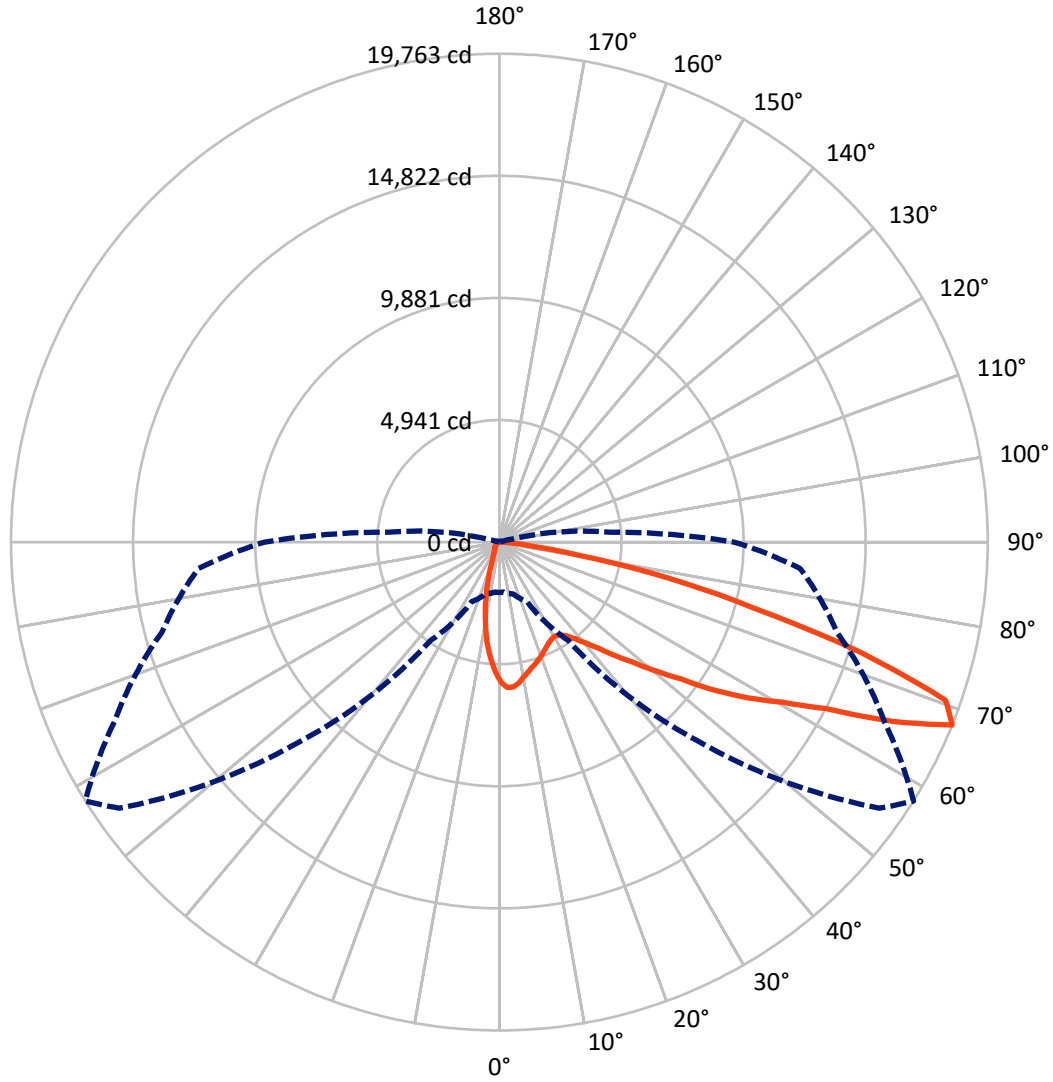
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 9 fc  
 Type III - Short - N/A

REPORT NUMBER: P636220  
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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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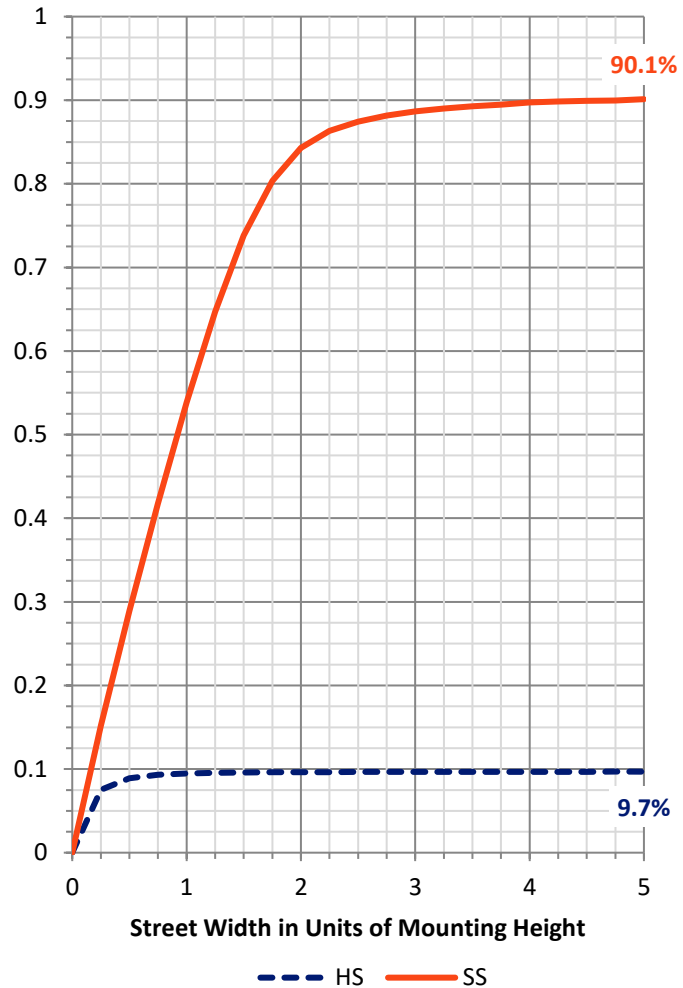
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 1908.1   | 0.0    | 1908.1  |
|                    | % Fixture | 9.8      | 0.0    | 9.8     |
| <b>Street Side</b> | Lumens    | 17623.6  | 0.0    | 17623.6 |
|                    | % Fixture | 90.2     | 0.0    | 90.2    |
| <b>Total</b>       | Lumens    | 19531.7  | 0.0    | 19531.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 457.8   | 2.3       |
| 10°-20°   | 953.0   | 4.9       |
| 20°-30°   | 1285.2  | 6.6       |
| 30°-40°   | 1805.9  | 9.2       |
| 40°-50°   | 2789.1  | 14.3      |
| 50°-60°   | 4460.1  | 22.8      |
| 60°-70°   | 5281.1  | 27.0      |
| 70°-80°   | 2336.2  | 12.0      |
| 80°-90°   | 163.3   | 0.8       |
| 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°    | 19531.7 | 100.0     |
| 0°-180°   | 19531.7 | 100.0     |

**Coefficient of Utilization**



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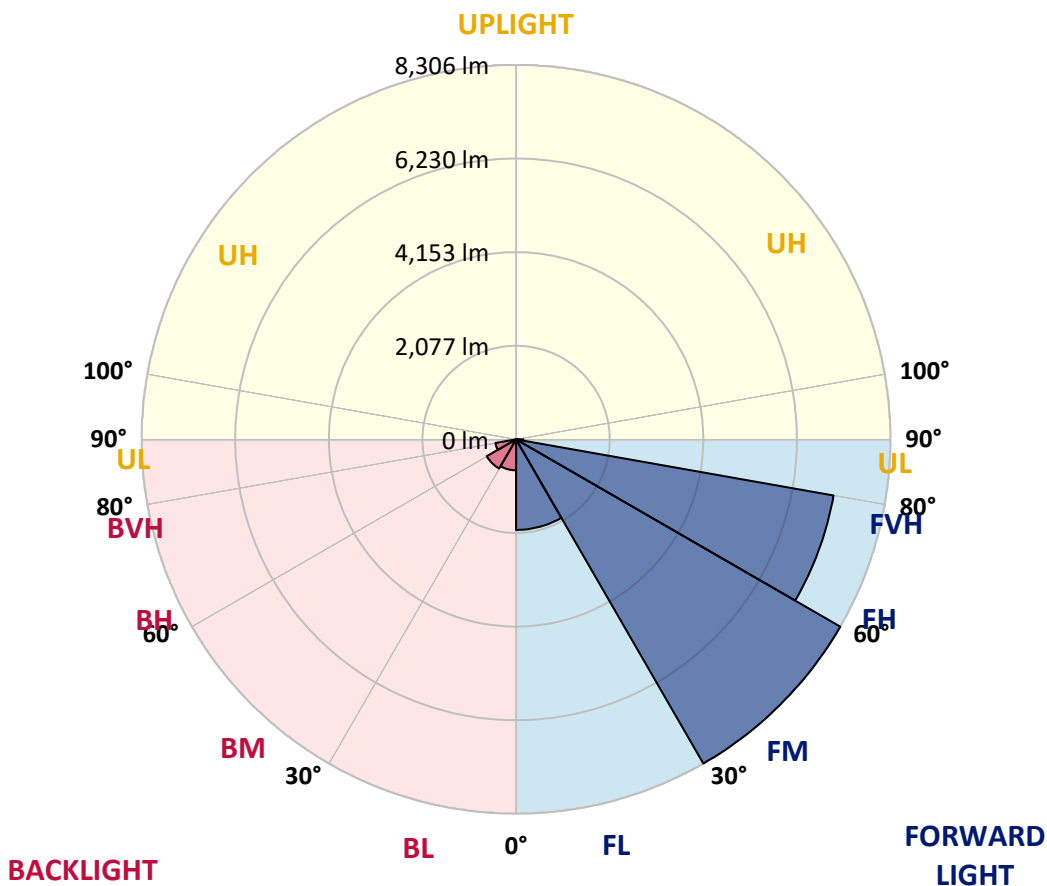
CATALOG NUMBER: GWS-SA3F-735-U-SL3-W-HSS

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

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 2009.3 | 10.3      |                         |      |         |
| FM (30°-60°)   | 8306.4 | 42.5      |                         |      |         |
| FH (60°-80°)   | 7151.5 | 36.6      |                         |      | G3/7500 |
| FVH (80°-90°)  | 156.4  | 0.8       |                         |      | G2/225  |
| BL (0°-30°)    | 686.6  | 3.5       | B2/1000                 |      |         |
| BM (30°-60°)   | 748.7  | 3.8       | B1/1000                 |      |         |
| BH (60°-80°)   | 465.8  | 2.4       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 7.0    | 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-G3**

Type III Short





REPORT NUMBER: P636220

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°     | 45°     | 55°     | 58°     | 65°     | 75°     | 85°     |
|-------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 5633.9 | 5633.9 | 5633.9 | 5633.9 | 5633.9  | 5633.9  | 5633.9  | 5633.9  | 5633.9  | 5633.9  | 5633.9  |
| 2.5°  | 5926.0 | 5936.4 | 5950.2 | 5967.5 | 5964.0  | 5948.5  | 5929.5  | 5886.3  | 5858.6  | 5772.2  | 5666.7  |
| 5°    | 5735.9 | 5734.1 | 5768.7 | 5801.5 | 5860.3  | 5891.4  | 5934.7  | 5894.9  | 5881.1  | 5777.3  | 5606.2  |
| 7.5°  | 5364.2 | 5383.2 | 5423.0 | 5474.8 | 5559.5  | 5651.1  | 5754.9  | 5742.8  | 5784.3  | 5715.1  | 5502.5  |
| 10°   | 4999.4 | 4989.1 | 5051.3 | 5129.1 | 5258.7  | 5376.3  | 5526.7  | 5525.0  | 5633.9  | 5626.9  | 5384.9  |
| 12.5° | 4679.6 | 4677.9 | 4726.3 | 4814.5 | 4966.6  | 5130.8  | 5334.8  | 5340.0  | 5474.8  | 5530.1  | 5284.7  |
| 15°   | 4409.9 | 4413.4 | 4460.1 | 4551.7 | 4709.0  | 4909.5  | 5146.4  | 5189.6  | 5341.7  | 5454.1  | 5186.1  |
| 17.5° | 4218.0 | 4219.8 | 4247.4 | 4327.0 | 4480.8  | 4695.2  | 4980.4  | 5039.2  | 5234.5  | 5397.0  | 5106.6  |
| 20°   | 4129.9 | 4123.0 | 4128.2 | 4167.9 | 4287.2  | 4482.5  | 4811.0  | 4887.1  | 5136.0  | 5357.3  | 5034.0  |
| 22.5° | 4142.0 | 4131.6 | 4107.4 | 4102.2 | 4155.8  | 4304.5  | 4631.2  | 4724.6  | 5028.8  | 5333.1  | 4968.3  |
| 25°   | 4249.2 | 4226.7 | 4192.1 | 4140.3 | 4119.5  | 4193.8  | 4473.9  | 4570.7  | 4928.5  | 5334.8  | 4918.2  |
| 27.5° | 4413.4 | 4389.2 | 4346.0 | 4276.8 | 4195.6  | 4164.5  | 4366.7  | 4458.3  | 4857.7  | 5374.6  | 4894.0  |
| 30°   | 4622.6 | 4603.5 | 4562.1 | 4479.1 | 4370.2  | 4242.2  | 4344.2  | 4420.3  | 4823.1  | 5455.8  | 4904.3  |
| 32.5° | 4869.8 | 4855.9 | 4821.4 | 4745.3 | 4620.8  | 4425.5  | 4420.3  | 4479.1  | 4850.8  | 5573.4  | 4944.1  |
| 35°   | 5108.3 | 5113.5 | 5115.2 | 5073.8 | 4940.6  | 4703.8  | 4629.5  | 4650.2  | 4964.8  | 5749.7  | 5034.0  |
| 37.5° | 5365.9 | 5353.8 | 5416.0 | 5445.4 | 5317.5  | 5065.1  | 4952.7  | 4954.5  | 5182.7  | 6010.7  | 5203.4  |
| 40°   | 5561.3 | 5564.7 | 5699.5 | 5820.6 | 5767.0  | 5523.2  | 5362.5  | 5360.7  | 5518.0  | 6368.6  | 5476.5  |
| 42.5° | 5744.5 | 5767.0 | 5965.8 | 6173.2 | 6247.6  | 6031.5  | 5915.6  | 5872.4  | 5988.2  | 6852.6  | 5886.3  |
| 45°   | 5939.8 | 5972.7 | 6251.0 | 6546.6 | 6742.0  | 6614.0  | 6522.4  | 6539.7  | 6553.5  | 7416.2  | 6437.7  |
| 47.5° | 6168.0 | 6188.8 | 6532.8 | 6949.4 | 7314.2  | 7281.3  | 7286.5  | 7265.8  | 7258.8  | 8126.7  | 7167.2  |
| 50°   | 6444.6 | 6493.0 | 6888.9 | 7386.8 | 7884.6  | 8102.5  | 8175.1  | 8183.7  | 8071.3  | 8901.1  | 7922.7  |
| 52.5° | 7032.4 | 7091.2 | 7430.0 | 7865.6 | 8507.0  | 8965.1  | 9260.7  | 9201.9  | 9029.0  | 9651.4  | 8750.7  |
| 55°   | 7725.6 | 7770.5 | 8097.3 | 8548.5 | 9267.6  | 9910.7  | 10612.5 | 10588.3 | 10164.8 | 10441.4 | 9431.8  |
| 57.5° | 7791.3 | 7841.4 | 8347.9 | 9039.4 | 10244.3 | 11079.3 | 11817.4 | 11895.2 | 11274.6 | 11001.5 | 10040.3 |
| 60°   | 7053.1 | 7155.1 | 7846.6 | 8776.6 | 10617.7 | 12650.7 | 13138.2 | 13153.7 | 12088.9 | 11570.2 | 10783.7 |
| 62.5° | 5652.9 | 5701.3 | 6397.9 | 7611.5 | 10042.1 | 13566.9 | 15155.6 | 14827.1 | 13134.7 | 12450.2 | 11960.9 |
| 65°   | 2963.0 | 3160.1 | 3766.9 | 5110.1 | 8143.9  | 13247.1 | 17582.7 | 17492.8 | 15015.6 | 13710.4 | 12877.1 |
| 67.5° | 2033.0 | 2031.2 | 2174.7 | 2663.9 | 4855.9  | 11406.0 | 18773.8 | 19762.6 | 17190.3 | 14142.6 | 12213.3 |
| 70°   | 1547.2 | 1552.4 | 1680.3 | 1998.4 | 2515.3  | 7592.5  | 17466.9 | 19157.5 | 17594.8 | 12840.8 | 9877.8  |
| 72.5° | 1026.9 | 1037.2 | 1249.9 | 1614.6 | 2008.8  | 3721.9  | 13573.8 | 15328.5 | 14804.7 | 10313.5 | 6952.9  |
| 75°   | 613.7  | 622.3  | 774.5  | 1173.8 | 1785.8  | 2083.1  | 8624.5  | 10597.0 | 10190.7 | 7108.4  | 3727.1  |
| 77.5° | 252.4  | 259.3  | 397.6  | 731.2  | 1306.9  | 1618.1  | 4769.5  | 6933.8  | 6104.1  | 2826.4  | 1018.2  |
| 80°   | 105.5  | 108.9  | 191.9  | 511.7  | 942.1   | 1014.8  | 2209.3  | 3258.6  | 2501.4  | 608.5   | 311.2   |
| 82.5° | 38.0   | 39.8   | 70.9   | 281.8  | 586.0   | 764.1   | 1115.0  | 1287.9  | 705.3   | 198.8   | 167.7   |
| 85°   | 1.7    | 1.7    | 17.3   | 95.1   | 223.0   | 216.1   | 637.9   | 617.1   | 233.4   | 83.0    | 100.3   |
| 87.5° | 0.0    | 0.0    | 1.7    | 1.7    | 3.5     | 8.6     | 60.5    | 107.2   | 50.1    | 20.7    | 43.2    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |



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 CATALOG NUMBER: GWS-SA3F-735-U-SL3-W-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 5633.9  | 5633.9 | 5633.9 | 5633.9 | 5633.9 | 5633.9 | 5633.9 | 5633.9 | 5633.9 | 5633.9 | 5633.9 |
| 2.5°  | 5597.6  | 5505.9 | 5405.7 | 5312.3 | 5163.7 | 5075.5 | 4966.6 | 4918.2 | 4849.0 | 4831.7 | 4842.1 |
| 5°    | 5483.5  | 5326.1 | 5085.9 | 4868.0 | 4586.3 | 4359.8 | 4131.6 | 4034.8 | 3910.3 | 3827.4 | 3792.8 |
| 7.5°  | 5322.7  | 5117.0 | 4741.8 | 4346.0 | 3958.7 | 3545.6 | 3231.0 | 3023.5 | 2835.1 | 2731.4 | 2710.6 |
| 10°   | 5160.2  | 4892.2 | 4354.6 | 3787.6 | 3187.7 | 2693.3 | 2268.1 | 1953.4 | 1697.6 | 1581.8 | 1491.9 |
| 12.5° | 4992.5  | 4658.9 | 3960.5 | 3220.6 | 2523.9 | 1849.7 | 1324.2 | 1018.2 | 835.0  | 762.4  | 774.5  |
| 15°   | 4838.7  | 4434.1 | 3569.8 | 2653.6 | 1777.1 | 1116.7 | 731.2  | 617.1  | 573.9  | 560.1  | 558.4  |
| 17.5° | 4691.7  | 4221.5 | 3180.8 | 2102.1 | 1172.1 | 684.6  | 560.1  | 532.4  | 520.3  | 513.4  | 513.4  |
| 20°   | 4558.6  | 4017.5 | 2800.5 | 1583.5 | 757.2  | 542.8  | 506.5  | 492.7  | 482.3  | 477.1  | 477.1  |
| 22.5° | 4434.1  | 3820.4 | 2428.8 | 1120.2 | 558.4  | 487.5  | 465.0  | 451.2  | 439.1  | 432.2  | 432.2  |
| 25°   | 4321.8  | 3642.4 | 2074.4 | 771.0  | 480.6  | 446.0  | 421.8  | 406.2  | 385.5  | 373.4  | 373.4  |
| 27.5° | 4240.5  | 3483.3 | 1733.9 | 561.8  | 433.9  | 401.1  | 373.4  | 352.7  | 330.2  | 316.4  | 312.9  |
| 30°   | 4192.1  | 3348.5 | 1389.9 | 461.6  | 390.7  | 357.8  | 326.7  | 300.8  | 274.9  | 261.0  | 259.3  |
| 32.5° | 4164.5  | 3224.0 | 1075.3 | 402.8  | 354.4  | 316.4  | 281.8  | 254.1  | 228.2  | 212.6  | 210.9  |
| 35°   | 4174.8  | 3127.2 | 805.6  | 363.0  | 319.8  | 280.1  | 242.0  | 214.4  | 191.9  | 178.1  | 174.6  |
| 37.5° | 4264.7  | 3084.0 | 605.0  | 331.9  | 290.4  | 248.9  | 209.2  | 183.2  | 162.5  | 152.1  | 150.4  |
| 40°   | 4439.3  | 3092.7 | 475.4  | 307.7  | 266.2  | 217.8  | 179.8  | 155.6  | 140.0  | 131.4  | 129.7  |
| 42.5° | 4710.7  | 3165.3 | 392.4  | 287.0  | 240.3  | 190.2  | 155.6  | 136.6  | 121.0  | 112.4  | 110.6  |
| 45°   | 5115.2  | 3315.7 | 342.3  | 262.8  | 212.6  | 164.2  | 134.8  | 117.6  | 103.7  | 93.4   | 91.6   |
| 47.5° | 5701.3  | 3576.7 | 309.4  | 240.3  | 188.4  | 141.8  | 115.8  | 98.5   | 86.4   | 77.8   | 76.1   |
| 50°   | 6325.3  | 3889.6 | 281.8  | 217.8  | 167.7  | 122.7  | 98.5   | 81.2   | 70.9   | 62.2   | 60.5   |
| 52.5° | 6990.9  | 4226.7 | 261.0  | 197.1  | 148.7  | 105.5  | 83.0   | 67.4   | 57.0   | 48.4   | 46.7   |
| 55°   | 7630.5  | 4565.5 | 236.8  | 183.2  | 126.2  | 89.9   | 69.1   | 55.3   | 44.9   | 38.0   | 38.0   |
| 57.5° | 8252.9  | 4876.7 | 210.9  | 160.8  | 103.7  | 76.1   | 57.0   | 44.9   | 36.3   | 31.1   | 29.4   |
| 60°   | 8996.2  | 5307.1 | 181.5  | 136.6  | 86.4   | 64.0   | 46.7   | 36.3   | 29.4   | 24.2   | 24.2   |
| 62.5° | 10100.8 | 5754.9 | 155.6  | 114.1  | 72.6   | 53.6   | 38.0   | 29.4   | 24.2   | 20.7   | 19.0   |
| 65°   | 10462.1 | 5512.8 | 131.4  | 93.4   | 58.8   | 43.2   | 31.1   | 25.9   | 20.7   | 19.0   | 17.3   |
| 67.5° | 9497.5  | 4518.8 | 108.9  | 76.1   | 48.4   | 36.3   | 27.7   | 22.5   | 19.0   | 17.3   | 15.6   |
| 70°   | 7411.0  | 3206.8 | 84.7   | 57.0   | 39.8   | 29.4   | 24.2   | 20.7   | 17.3   | 15.6   | 15.6   |
| 72.5° | 5040.9  | 1896.4 | 67.4   | 43.2   | 32.8   | 25.9   | 20.7   | 19.0   | 17.3   | 15.6   | 13.8   |
| 75°   | 2482.4  | 674.2  | 51.9   | 32.8   | 25.9   | 22.5   | 19.0   | 17.3   | 15.6   | 13.8   | 13.8   |
| 77.5° | 669.0   | 186.7  | 39.8   | 25.9   | 20.7   | 17.3   | 17.3   | 17.3   | 15.6   | 12.1   | 12.1   |
| 80°   | 226.5   | 77.8   | 29.4   | 19.0   | 17.3   | 13.8   | 12.1   | 15.6   | 13.8   | 12.1   | 10.4   |
| 82.5° | 124.5   | 38.0   | 20.7   | 15.6   | 12.1   | 10.4   | 10.4   | 10.4   | 10.4   | 8.6    | 8.6    |
| 85°   | 79.5    | 20.7   | 13.8   | 12.1   | 12.1   | 8.6    | 6.9    | 6.9    | 5.2    | 5.2    | 5.2    |
| 87.5° | 36.3    | 12.1   | 12.1   | 10.4   | 10.4   | 8.6    | 5.2    | 3.5    | 1.7    | 1.7    | 1.7    |
| 90°   | 0.0     | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

All Brands

Data applicable to all product families using SA light engines

Report Number: SP1-2101-121-7

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

Test Date: 03/04/2021

**Test Information**

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

PROGRAMMED @ 615mA.

**Spectral Parameters**

CCT (K): 3388  
 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            |

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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

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**Photopic Flux vs. Wavelength**



#####

| λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 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           |        |               |               |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 12126**

**S/P: 1.36**

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2672          | 0.0           | 490    | 34553         | 53.2          | 620    | 136720        | 1.7           | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 71.7          | 625    | 126308        | 1.1           | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 91.4          | 630    | 114625        | 0.6           | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 110.0         | 635    | 103216        | 0.4           | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 125.1         | 640    | 92605         | 0.2           | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 135.7         | 645    | 83234         | 0.1           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 140.8         | 650    | 73263         | 0.1           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 139.6         | 655    | 64627         | 0.1           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 135.7         | 660    | 56614         | 0.0           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.1           | 535    | 103269        | 128.7         | 665    | 49537         | 0.0           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.2           | 540    | 107316        | 118.6         | 670    | 42866         | 0.0           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.6           | 545    | 113101        | 108.4         | 675    | 36708         | 0.0           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 2.0           | 550    | 120690        | 98.7          | 680    | 31814         | 0.0           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 5.9           | 555    | 128583        | 87.9          | 685    | 27485         | 0.0           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 14.3          | 560    | 137796        | 77.0          | 690    | 23698         | 0.0           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 30.5          | 565    | 146577        | 65.8          | 695    | 20309         | 0.0           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 55.5          | 570    | 154581        | 54.6          | 700    | 17890         | 0.0           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 77.4          | 575    | 162633        | 44.3          | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 73.6          | 580    | 168101        | 34.6          | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 53.7          | 585    | 173145        | 26.5          | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 41.9          | 590    | 174675        | 19.5          | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 34.3          | 595    | 173724        | 13.9          | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 27.9          | 600    | 171241        | 9.7           | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 27.1          | 605    | 165134        | 6.5           | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 31.3          | 610    | 156652        | 4.2           | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 40.0          | 615    | 147879        | 2.7           | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

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**Melanopic Flux vs. Wavelength**



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

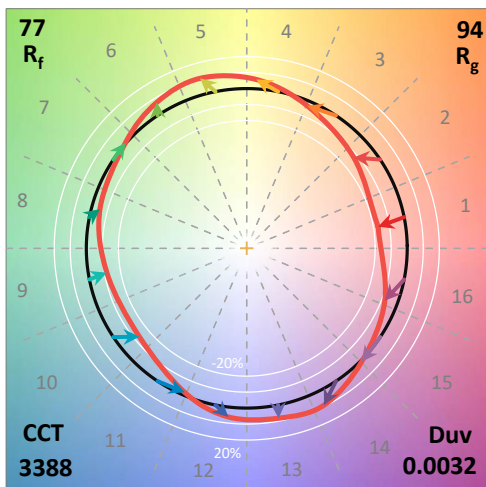
| λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 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)