

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: P631749

Luminaire Tested: GWS-SA2B-735-U-5WQ-W-GRSBK

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P631749  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-2)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA2B-735-U-5WQ-W-GRSBK  
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE V WIDE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK  
Light Source: (32) 3500K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3582 lumens  
Efficiency: N/A  
Efficacy: 77.2 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B2 - U0 - G0  
  
Input Watts (W): 46.4  
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

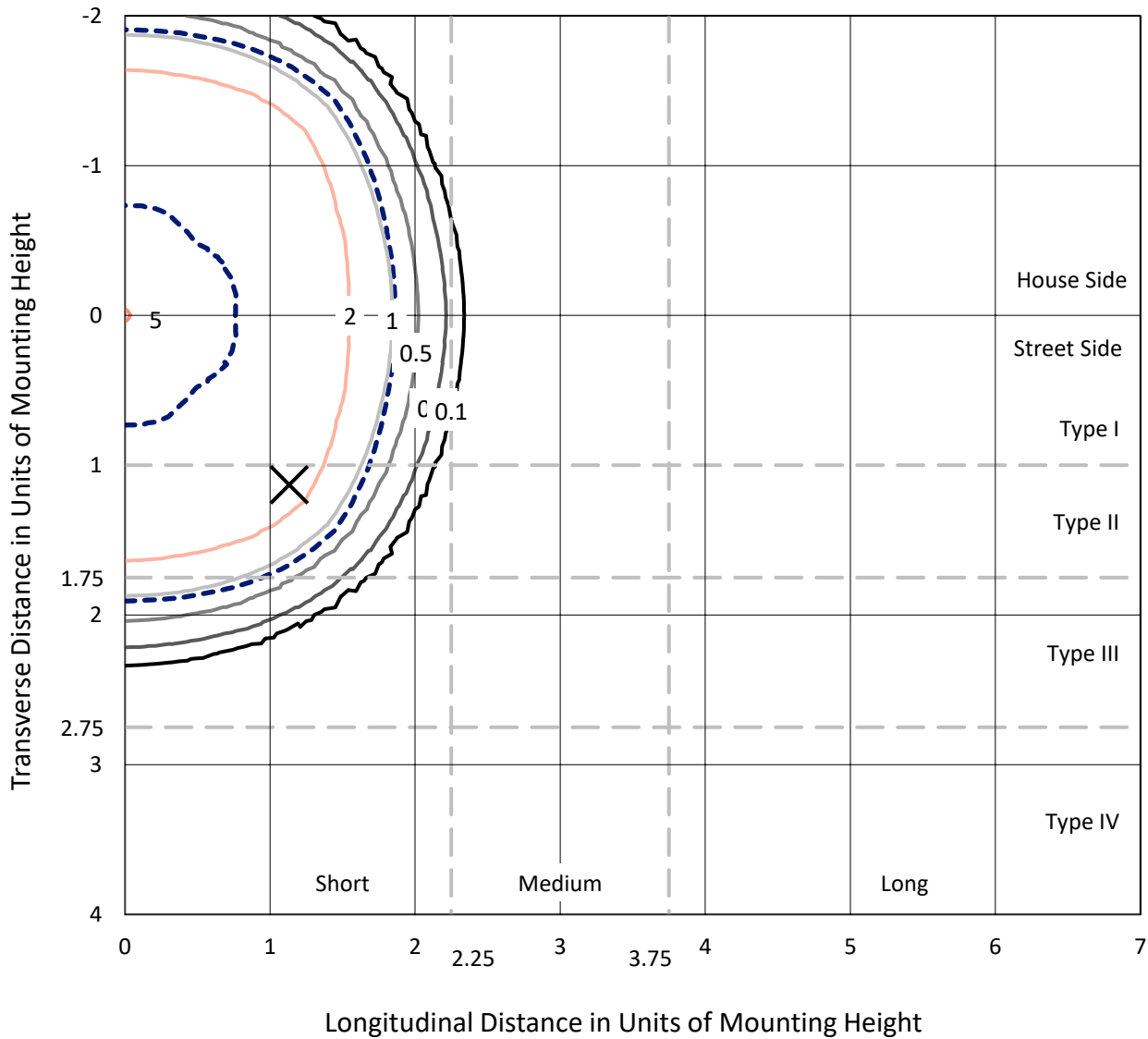


REPORT NUMBER: P631749

CATALOG NUMBER: GWS-SA2B-735-U-5WQ-W-GRSBK

### Iso-Footcandle Lines of Horizontal Illumination

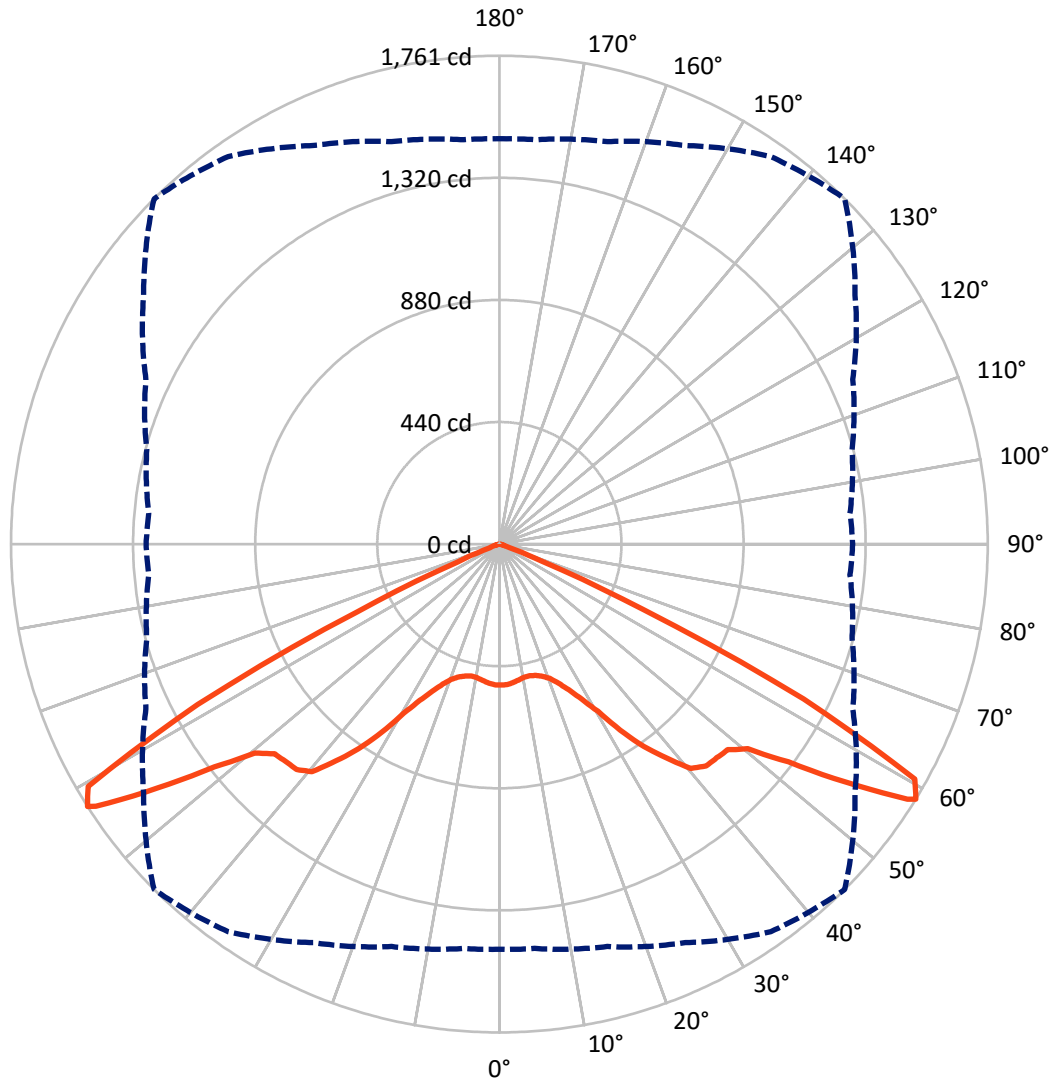
✕ Max cd  
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 5.1 fc  
 Type V - Short - N/A

REPORT NUMBER: P631749  
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### Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral    - - - Horizontal Cone Through 58-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1791.0   | 0.0    | 1791.0 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Street Side</b> | Lumens    | 1791.0   | 0.0    | 1791.0 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Total</b>       | Lumens    | 3582.0   | 0.0    | 3582.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 47.4   | 1.3       |
| 10°-20°   | 140.2  | 3.9       |
| 20°-30°   | 265.2  | 7.4       |
| 30°-40°   | 523.1  | 14.6      |
| 40°-50°   | 827.8  | 23.1      |
| 50°-60°   | 1216.8 | 34.0      |
| 60°-70°   | 543.1  | 15.2      |
| 70°-80°   | 18.2   | 0.5       |
| 80°-90°   | 0.2    | 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°    | 3582.0 | 100.0     |
| 0°-180°   | 3582.0 | 100.0     |

**Coefficient of Utilization**



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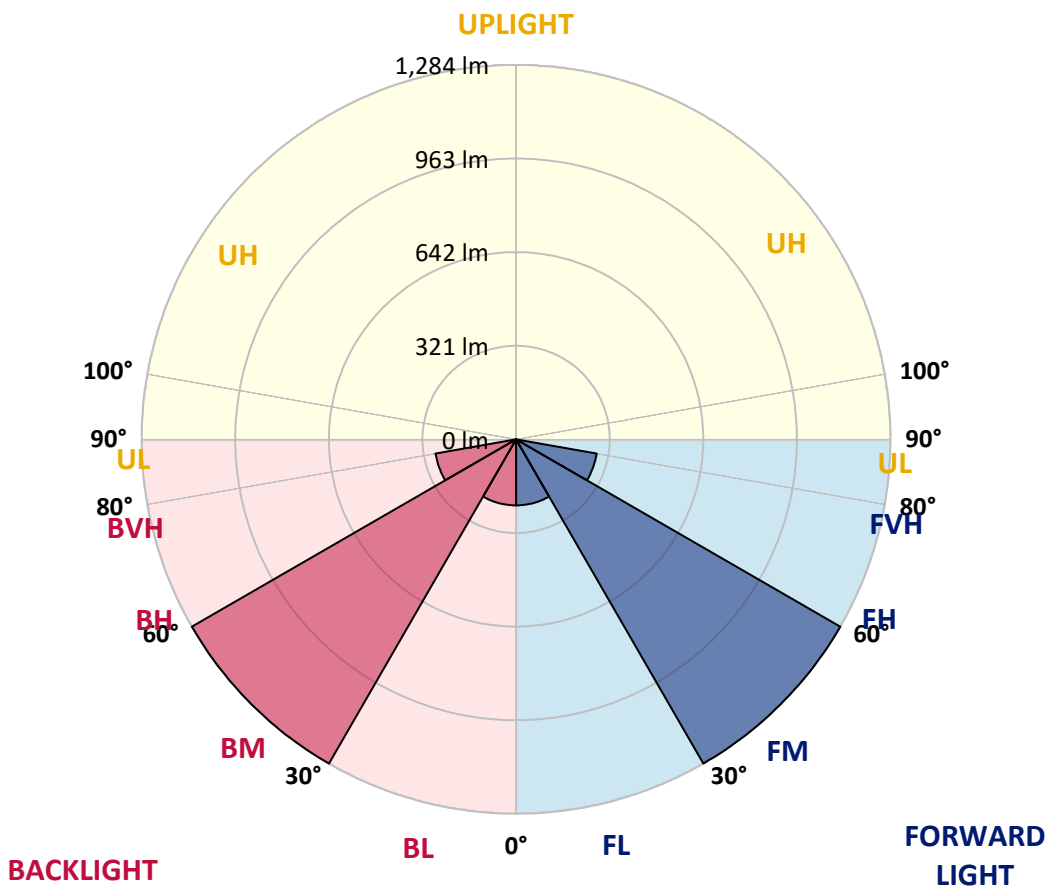
CATALOG NUMBER: GWS-SA2B-735-U-5WQ-W-GRSBK

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

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |        |
|----------------|--------|-----------|-------------------------|------|--------|
|                |        |           | B                       | U    | G      |
| FL (0°-30°)    | 226.4  | 6.3       |                         |      |        |
| FM (30°-60°)   | 1283.8 | 35.8      |                         |      |        |
| FH (60°-80°)   | 280.7  | 7.8       |                         |      | G0/660 |
| FVH (80°-90°)  | 0.1    | 0.0       |                         |      | G0/10  |
| BL (0°-30°)    | 226.4  | 6.3       | B1/500                  |      |        |
| BM (30°-60°)   | 1283.8 | 35.8      | B2/2500                 |      |        |
| BH (60°-80°)   | 280.7  | 7.8       | B1/500                  |      | G0/660 |
| BVH (80°-90°)  | 0.1    | 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-G0**

Type V Short





REPORT NUMBER: P631749

CATALOG NUMBER: GWS-SA2B-735-U-5WQ-W-GRSBK

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 85°    | 90°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 508.0  | 508.0  | 508.0  | 508.0  | 508.0  | 508.0  | 508.0  | 508.0  | 508.0  | 508.0  | 508.0  |
| 2.5°  | 503.1  | 504.1  | 505.0  | 505.5  | 506.0  | 507.5  | 508.0  | 506.5  | 506.5  | 503.6  | 507.0  |
| 5°    | 500.7  | 501.6  | 502.6  | 502.1  | 502.1  | 502.1  | 501.6  | 499.7  | 499.2  | 496.3  | 499.7  |
| 7.5°  | 496.3  | 497.2  | 497.2  | 495.8  | 494.8  | 494.8  | 494.3  | 491.9  | 491.4  | 488.5  | 491.9  |
| 10°   | 492.8  | 493.3  | 492.8  | 489.9  | 488.0  | 488.0  | 487.5  | 486.5  | 487.0  | 485.0  | 488.0  |
| 12.5° | 494.8  | 495.3  | 493.3  | 489.4  | 487.0  | 486.5  | 485.0  | 483.6  | 485.0  | 484.6  | 487.5  |
| 15°   | 501.1  | 501.6  | 498.2  | 493.3  | 491.4  | 491.4  | 487.5  | 483.6  | 485.5  | 486.0  | 489.4  |
| 17.5° | 509.0  | 509.0  | 504.6  | 500.2  | 500.7  | 500.7  | 494.3  | 487.5  | 488.0  | 489.9  | 493.3  |
| 20°   | 518.2  | 518.2  | 513.8  | 512.9  | 516.3  | 516.8  | 509.0  | 498.2  | 495.8  | 497.2  | 501.1  |
| 22.5° | 534.8  | 534.8  | 531.4  | 533.8  | 541.6  | 544.1  | 532.4  | 517.2  | 511.4  | 512.4  | 516.3  |
| 25°   | 560.7  | 560.7  | 559.7  | 565.6  | 576.8  | 582.1  | 566.5  | 546.5  | 536.8  | 535.3  | 539.7  |
| 27.5° | 604.1  | 604.6  | 603.1  | 611.9  | 626.1  | 632.4  | 610.9  | 584.6  | 572.9  | 570.4  | 574.8  |
| 30°   | 660.2  | 660.2  | 660.7  | 672.9  | 691.5  | 699.7  | 671.4  | 640.7  | 627.0  | 619.2  | 625.1  |
| 32.5° | 722.7  | 723.7  | 728.5  | 749.0  | 781.7  | 798.8  | 757.3  | 714.4  | 692.4  | 684.1  | 690.5  |
| 35°   | 825.6  | 816.4  | 810.5  | 825.6  | 873.0  | 895.4  | 842.2  | 792.0  | 775.4  | 774.4  | 790.5  |
| 37.5° | 927.6  | 922.3  | 910.1  | 925.7  | 968.1  | 978.4  | 919.8  | 877.9  | 866.1  | 872.5  | 888.6  |
| 40°   | 1008.6 | 998.9  | 982.8  | 997.4  | 1053.0 | 1063.3 | 991.1  | 949.6  | 945.2  | 959.3  | 981.3  |
| 42.5° | 1072.6 | 1058.9 | 1037.4 | 1040.8 | 1085.7 | 1093.0 | 1029.1 | 997.9  | 1000.8 | 1018.4 | 1043.3 |
| 45°   | 1101.3 | 1090.6 | 1071.6 | 1070.1 | 1098.4 | 1098.9 | 1048.6 | 1032.5 | 1040.3 | 1054.0 | 1073.5 |
| 47.5° | 1113.5 | 1108.7 | 1097.9 | 1095.5 | 1111.6 | 1107.7 | 1076.5 | 1069.6 | 1076.9 | 1080.9 | 1092.1 |
| 50°   | 1143.8 | 1143.8 | 1145.3 | 1147.2 | 1163.8 | 1159.9 | 1137.9 | 1130.1 | 1120.9 | 1107.2 | 1110.6 |
| 52.5° | 1228.7 | 1232.1 | 1246.3 | 1261.9 | 1292.1 | 1304.8 | 1269.2 | 1223.8 | 1179.4 | 1149.7 | 1149.7 |
| 55°   | 1381.9 | 1385.3 | 1401.9 | 1428.3 | 1483.9 | 1514.2 | 1431.2 | 1331.2 | 1270.2 | 1229.7 | 1235.0 |
| 57.5° | 1466.3 | 1470.2 | 1504.4 | 1575.7 | 1683.5 | 1734.7 | 1556.6 | 1408.3 | 1322.9 | 1276.5 | 1280.4 |
| 58°   | 1461.0 | 1463.4 | 1502.0 | 1585.4 | 1705.5 | 1760.6 | 1565.4 | 1405.8 | 1316.1 | 1268.7 | 1273.6 |
| 60°   | 1298.0 | 1294.6 | 1356.1 | 1475.1 | 1644.5 | 1720.6 | 1478.1 | 1283.4 | 1178.9 | 1130.6 | 1133.1 |
| 62.5° | 848.6  | 850.5  | 903.7  | 1028.1 | 1159.9 | 1231.6 | 1032.5 | 887.6  | 803.7  | 774.4  | 767.1  |
| 65°   | 354.3  | 347.9  | 380.6  | 449.9  | 529.0  | 569.0  | 488.9  | 413.8  | 362.1  | 342.6  | 347.9  |
| 67.5° | 91.3   | 88.8   | 90.8   | 113.7  | 139.1  | 164.4  | 138.1  | 105.4  | 91.7   | 92.7   | 92.7   |
| 70°   | 51.7   | 48.8   | 39.5   | 36.6   | 35.6   | 35.6   | 35.6   | 35.6   | 41.0   | 48.3   | 49.8   |
| 72.5° | 39.0   | 36.6   | 28.8   | 24.9   | 22.0   | 20.5   | 21.5   | 24.9   | 29.8   | 36.1   | 37.1   |
| 75°   | 19.5   | 19.5   | 17.6   | 16.6   | 14.6   | 13.7   | 14.2   | 15.6   | 18.1   | 20.5   | 20.0   |
| 77.5° | 3.9    | 4.4    | 4.9    | 5.9    | 4.9    | 4.9    | 4.9    | 5.9    | 5.9    | 6.3    | 5.9    |
| 80°   | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    |
| 82.5° | 0.0    | 0.5    | 0.5    | 0.0    | 0.0    | 0.0    | 0.0    | 0.5    | 0.5    | 0.5    | 0.5    |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.5    | 0.5    |
| 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    |

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           |        |               |               |

REPORT NUMBER: SP1-2101-121-7

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 12126**

**S/P: 1.36**

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

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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)