

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: P640177

Luminaire Tested: GWS-SA5D-735-U-SL2-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P640177
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-27)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5D-735-U-SL2-W
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL LIGHT ELIMINATOR OPTICS
Light Source: (80) 3500K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 29116.2 lumens
Efficiency: N/A
Efficacy: 142.3 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G4

Input Watts (W): 204.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT

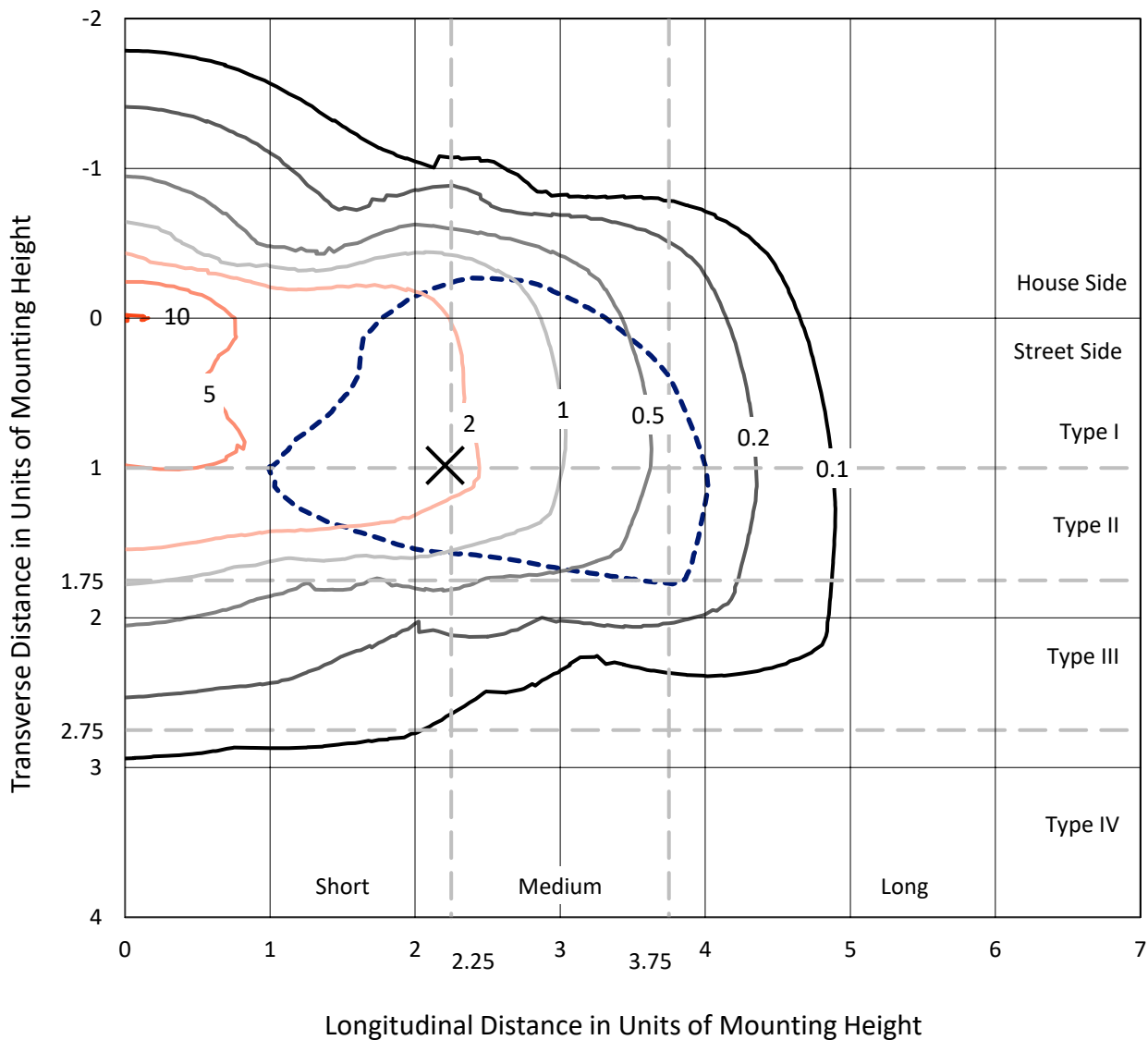


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CATALOG NUMBER: GWS-SA5D-735-U-SL2-W

Iso-Footcandle Lines of Horizontal Illumination

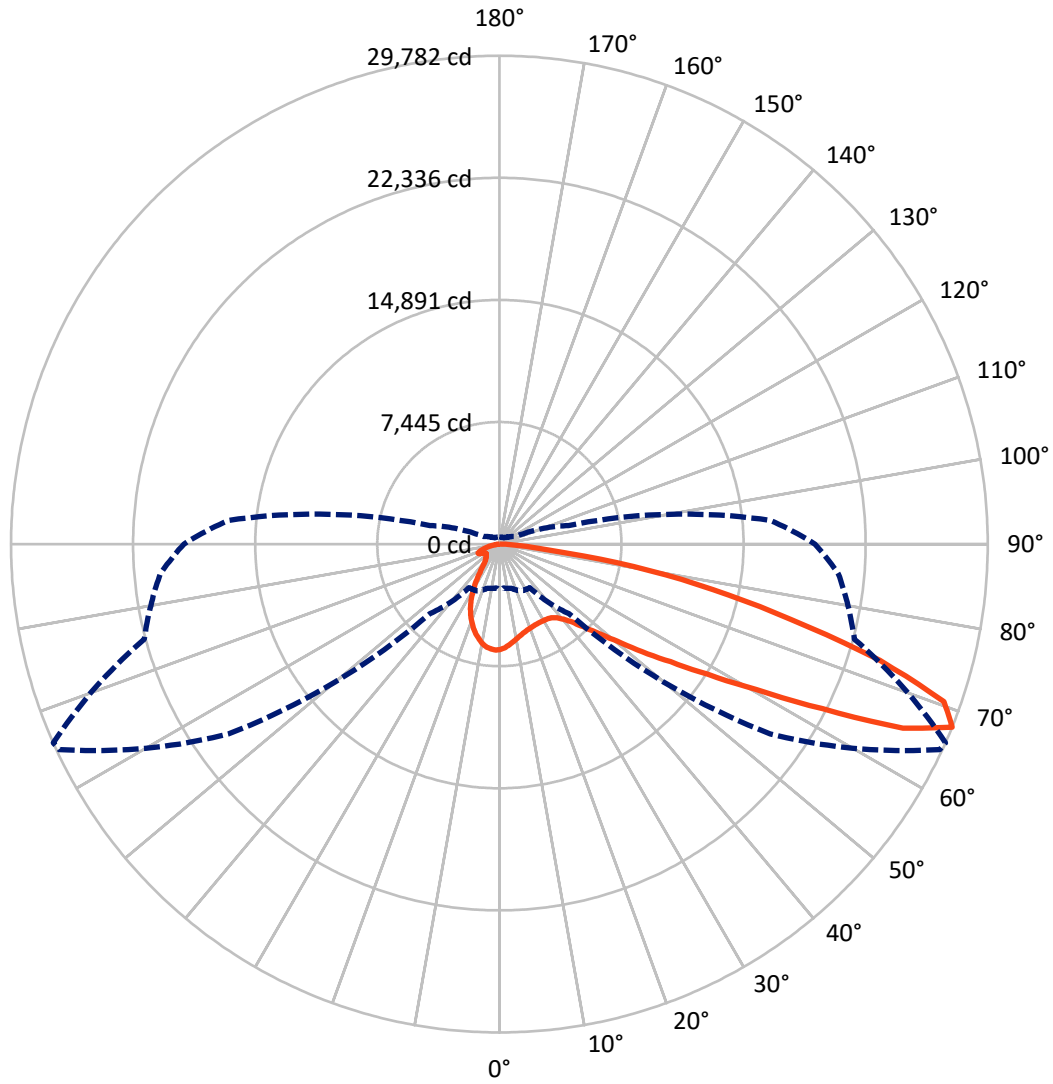
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 10.3 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 66-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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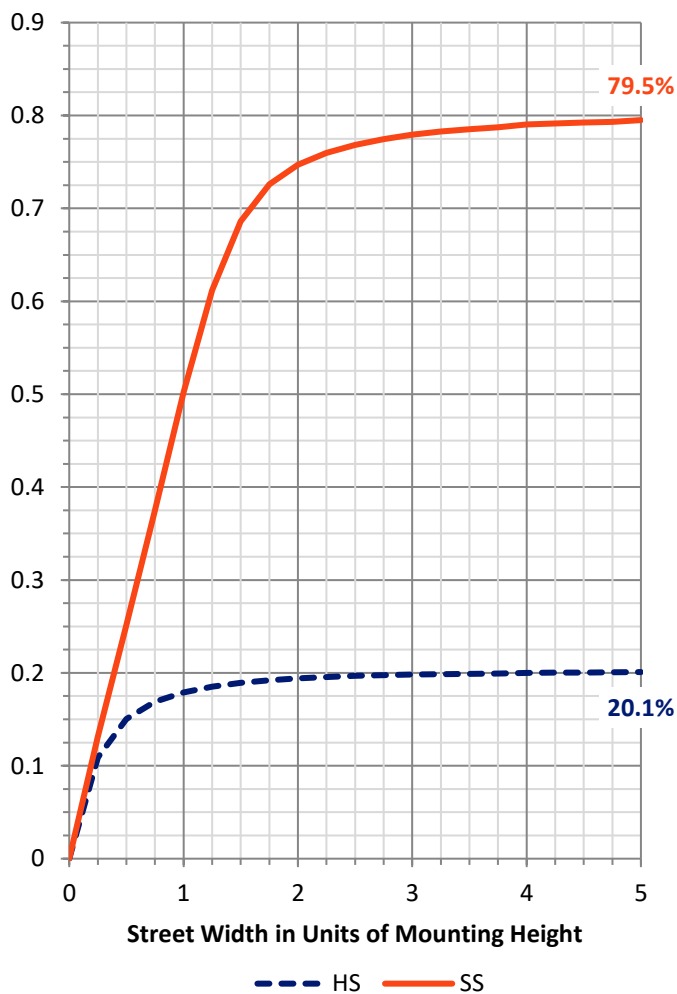
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 5908.4 | 0.0 | 5908.4 |
| | % Fixture | 20.3 | 0.0 | 20.3 |
| Street Side | Lumens | 23207.9 | 0.0 | 23207.9 |
| | % Fixture | 79.7 | 0.0 | 79.7 |
| Total | Lumens | 29116.2 | 0.0 | 29116.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 564.6 | 1.9 |
| 10°-20° | 1387.7 | 4.8 |
| 20°-30° | 1907.4 | 6.6 |
| 30°-40° | 2607.8 | 9.0 |
| 40°-50° | 3951.5 | 13.6 |
| 50°-60° | 6142.7 | 21.1 |
| 60°-70° | 7478.6 | 25.7 |
| 70°-80° | 4555.6 | 15.6 |
| 80°-90° | 520.4 | 1.8 |
| 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° | 29116.2 | 100.0 |
| 0°-180° | 29116.2 | 100.0 |

Coefficient of Utilization



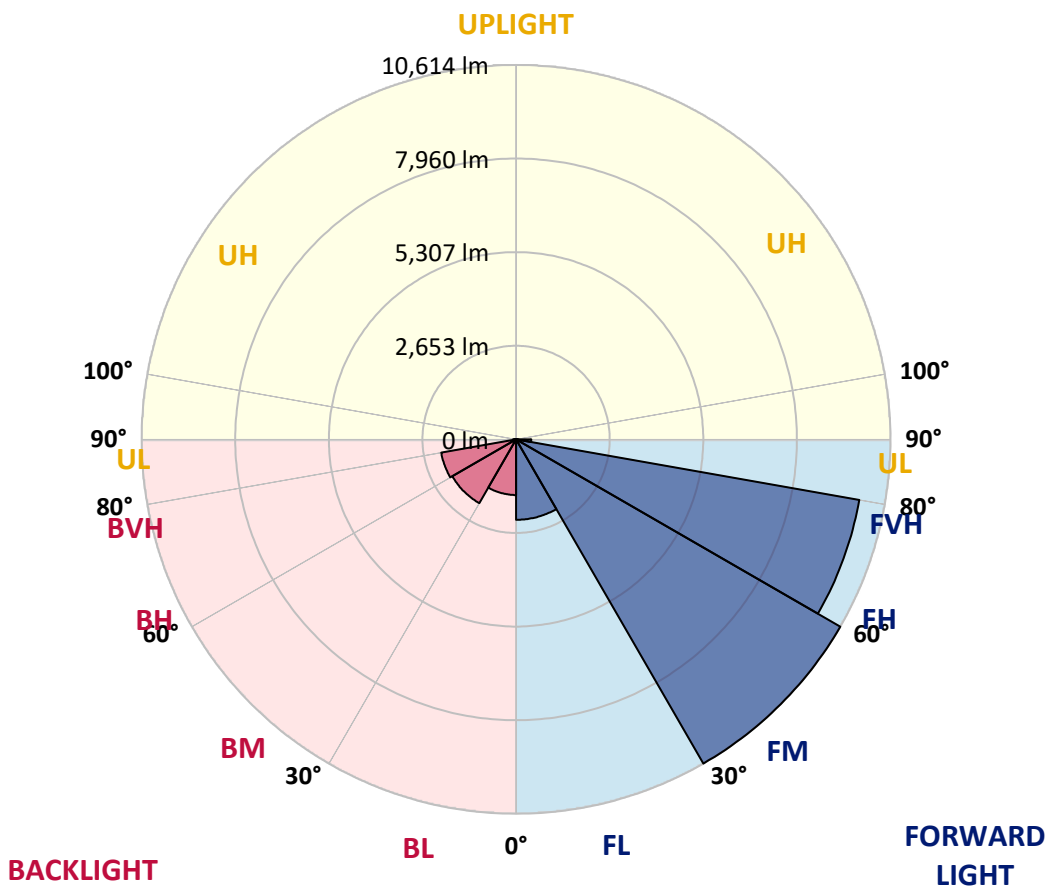
REPORT NUMBER: P640177

CATALOG NUMBER: GWS-SA5D-735-U-SL2-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 2281.4 | 7.8 | | | |
| FM (30°-60°) | 10614.0 | 36.5 | | | |
| FH (60°-80°) | 9879.9 | 33.9 | | | G4/12000 |
| FVH (80°-90°) | 432.6 | 1.5 | | | G3/500 |
| BL (0°-30°) | 1578.4 | 5.4 | B3/2500 | | |
| BM (30°-60°) | 2087.9 | 7.2 | B2/2500 | | |
| BH (60°-80°) | 2154.3 | 7.4 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 87.7 | 0.3 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4
 Type II Short





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CATALOG NUMBER: GWS-SA5D-735-U-SL2-W

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 66° | 75° | 85° |
|-------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 |
| 2.5° | 6026.0 | 6047.3 | 6034.5 | 6115.2 | 6119.5 | 6221.4 | 6278.8 | 6327.6 | 6331.9 | 6395.6 | 6438.1 |
| 5° | 5614.0 | 5626.7 | 5626.7 | 5703.2 | 5754.1 | 5890.1 | 6021.8 | 6162.0 | 6172.6 | 6325.5 | 6442.3 |
| 7.5° | 5280.5 | 5293.2 | 5284.7 | 5386.7 | 5452.5 | 5603.3 | 5771.1 | 5985.7 | 6006.9 | 6253.3 | 6457.2 |
| 10° | 5019.2 | 5015.0 | 5036.2 | 5129.7 | 5214.6 | 5395.2 | 5582.1 | 5826.4 | 5858.2 | 6170.5 | 6474.2 |
| 12.5° | 4840.8 | 4845.0 | 4857.8 | 4955.5 | 5046.8 | 5225.2 | 5418.5 | 5684.1 | 5718.0 | 6074.9 | 6465.7 |
| 15° | 4755.8 | 4747.3 | 4758.0 | 4847.2 | 4934.2 | 5091.4 | 5291.1 | 5565.1 | 5599.1 | 5989.9 | 6467.8 |
| 17.5° | 4736.7 | 4730.3 | 4728.2 | 4791.9 | 4857.8 | 5004.3 | 5195.5 | 5473.8 | 5509.9 | 5934.7 | 6480.6 |
| 20° | 4796.2 | 4787.7 | 4764.3 | 4791.9 | 4819.5 | 4942.7 | 5127.5 | 5407.9 | 5448.3 | 5898.6 | 6506.1 |
| 22.5° | 4959.7 | 4944.9 | 4908.8 | 4874.8 | 4838.7 | 4913.0 | 5085.1 | 5359.1 | 5399.4 | 5875.2 | 6531.6 |
| 25° | 5208.3 | 5195.5 | 5157.3 | 5080.8 | 4949.1 | 4936.4 | 5076.6 | 5337.8 | 5378.2 | 5858.2 | 6542.2 |
| 27.5° | 5550.2 | 5531.1 | 5492.9 | 5382.4 | 5167.9 | 5023.5 | 5108.4 | 5335.7 | 5373.9 | 5839.1 | 6531.6 |
| 30° | 5955.9 | 5943.2 | 5921.9 | 5788.1 | 5501.4 | 5208.3 | 5180.6 | 5352.7 | 5382.4 | 5828.5 | 6510.3 |
| 32.5° | 6368.0 | 6355.3 | 6372.3 | 6308.5 | 5955.9 | 5514.1 | 5337.8 | 5399.4 | 5420.7 | 5826.4 | 6491.2 |
| 35° | 6731.2 | 6746.1 | 6869.3 | 6879.9 | 6533.7 | 5928.3 | 5586.3 | 5507.8 | 5512.0 | 5868.8 | 6499.7 |
| 37.5° | 7111.4 | 7168.8 | 7330.2 | 7468.3 | 7179.4 | 6476.3 | 5955.9 | 5711.7 | 5707.4 | 5977.2 | 6552.8 |
| 40° | 7614.8 | 7640.3 | 7846.4 | 8105.5 | 7925.0 | 7228.3 | 6480.6 | 6045.1 | 6015.4 | 6198.1 | 6695.1 |
| 42.5° | 8105.5 | 8167.1 | 8496.3 | 8793.7 | 8734.2 | 8075.8 | 7141.2 | 6544.3 | 6491.2 | 6588.9 | 6988.2 |
| 45° | 8730.0 | 8789.5 | 9159.1 | 9541.4 | 9649.7 | 9033.7 | 7986.6 | 7253.8 | 7200.6 | 7177.3 | 7525.6 |
| 47.5° | 9354.5 | 9416.1 | 9747.4 | 10299.7 | 10679.9 | 10231.7 | 9086.8 | 8190.5 | 8103.4 | 8012.0 | 8337.0 |
| 50° | 9775.0 | 9847.3 | 10163.7 | 10826.5 | 11718.6 | 11727.1 | 10391.0 | 9418.2 | 9307.7 | 9163.3 | 9479.8 |
| 52.5° | 9760.2 | 9806.9 | 10108.5 | 10873.2 | 12466.3 | 13445.5 | 12137.0 | 10981.5 | 10892.3 | 10577.9 | 10854.1 |
| 55° | 8993.4 | 9063.5 | 9367.2 | 10323.1 | 12547.0 | 15074.6 | 14702.9 | 12825.2 | 12665.9 | 12103.0 | 12406.8 |
| 57.5° | 7453.4 | 7512.9 | 7818.8 | 8997.6 | 11831.2 | 15909.4 | 17961.3 | 15174.5 | 14955.7 | 13764.1 | 14114.5 |
| 60° | 5626.7 | 5554.5 | 5698.9 | 6731.2 | 10119.1 | 15930.6 | 20837.3 | 18360.6 | 17995.2 | 15539.8 | 15832.9 |
| 62.5° | 4222.7 | 4150.5 | 4182.3 | 4473.3 | 6860.8 | 14643.4 | 22477.1 | 22719.2 | 22116.0 | 17544.9 | 17487.6 |
| 65° | 3336.9 | 3296.6 | 3387.9 | 3587.6 | 3999.7 | 11151.4 | 22489.8 | 27432.6 | 27052.3 | 19868.7 | 19184.7 |
| 67.5° | 2718.8 | 2693.3 | 2786.8 | 3156.4 | 3243.5 | 5992.0 | 20166.1 | 29633.1 | 29781.8 | 22413.3 | 20758.7 |
| 70° | 2189.9 | 2151.7 | 2298.3 | 2784.7 | 3016.2 | 3625.8 | 14445.9 | 28511.6 | 28751.6 | 23929.9 | 20314.7 |
| 72.5° | 1512.3 | 1514.5 | 1588.8 | 2255.8 | 2912.1 | 3130.9 | 8171.4 | 23740.9 | 24261.3 | 22555.7 | 17859.3 |
| 75° | 1019.6 | 1028.1 | 1049.3 | 1489.0 | 2682.7 | 3037.4 | 4354.4 | 17974.0 | 18341.5 | 18643.1 | 14762.4 |
| 77.5° | 616.0 | 620.2 | 669.1 | 900.6 | 1850.1 | 2835.7 | 2950.4 | 13029.1 | 13318.0 | 12290.0 | 9150.6 |
| 80° | 356.8 | 371.7 | 416.3 | 603.2 | 1249.0 | 2130.5 | 2283.4 | 7988.7 | 8315.8 | 5463.1 | 2907.9 |
| 82.5° | 157.2 | 167.8 | 227.3 | 350.5 | 728.6 | 1811.8 | 1782.1 | 3156.4 | 3109.7 | 1523.0 | 1008.9 |
| 85° | 27.6 | 34.0 | 48.9 | 110.5 | 267.6 | 955.8 | 1382.8 | 1393.4 | 1310.6 | 577.8 | 418.4 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 208.2 | 373.8 | 371.7 | 163.6 | 144.4 |
| 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: P640177
 CATALOG NUMBER: GWS-SA5D-735-U-SL2-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 | 6433.9 |
| 2.5° | 6465.7 | 6408.4 | 6459.3 | 6465.7 | 6455.1 | 6446.6 | 6382.9 | 6327.6 | 6321.3 | 6261.8 | 6261.8 |
| 5° | 6489.1 | 6436.0 | 6461.5 | 6412.6 | 6336.1 | 6257.6 | 6121.6 | 6028.2 | 5985.7 | 5909.2 | 5909.2 |
| 7.5° | 6520.9 | 6465.7 | 6436.0 | 6314.9 | 6136.5 | 5964.4 | 5745.7 | 5563.0 | 5488.6 | 5380.3 | 5376.1 |
| 10° | 6550.7 | 6480.6 | 6378.6 | 6142.9 | 5858.2 | 5584.2 | 5265.6 | 5006.5 | 4830.2 | 4700.6 | 4700.6 |
| 12.5° | 6548.6 | 6457.2 | 6255.4 | 5907.1 | 5514.1 | 5116.9 | 4692.1 | 4301.3 | 4067.6 | 3865.8 | 3853.1 |
| 15° | 6544.3 | 6419.0 | 6098.2 | 5633.1 | 5112.7 | 4562.5 | 3984.8 | 3475.0 | 3128.8 | 2931.2 | 2914.2 |
| 17.5° | 6540.1 | 6370.1 | 5921.9 | 5320.8 | 4624.1 | 3874.3 | 3111.8 | 2559.5 | 2270.6 | 2149.6 | 2153.8 |
| 20° | 6540.1 | 6314.9 | 5732.9 | 4961.9 | 4061.3 | 3050.2 | 2283.4 | 1881.9 | 1809.7 | 1816.1 | 1822.5 |
| 22.5° | 6520.9 | 6246.9 | 5522.6 | 4571.0 | 3434.6 | 2243.0 | 1684.4 | 1548.5 | 1586.7 | 1646.2 | 1654.7 |
| 25° | 6476.3 | 6134.4 | 5278.4 | 4137.7 | 2689.1 | 1633.4 | 1374.3 | 1348.8 | 1418.9 | 1493.2 | 1514.5 |
| 27.5° | 6406.2 | 6004.8 | 5004.3 | 3630.1 | 1979.6 | 1312.7 | 1208.6 | 1206.5 | 1261.7 | 1316.9 | 1336.0 |
| 30° | 6331.9 | 5860.4 | 4715.5 | 3065.1 | 1433.8 | 1142.8 | 1102.4 | 1102.4 | 1130.0 | 1164.0 | 1159.8 |
| 32.5° | 6244.8 | 5713.8 | 4405.4 | 2476.7 | 1168.2 | 1047.2 | 1034.4 | 1028.1 | 1032.3 | 1045.0 | 1045.0 |
| 35° | 6170.5 | 5584.2 | 4086.7 | 1854.3 | 1047.2 | 994.1 | 981.3 | 966.5 | 960.1 | 951.6 | 955.8 |
| 37.5° | 6142.9 | 5482.3 | 3757.5 | 1397.6 | 987.7 | 955.8 | 934.6 | 913.4 | 898.5 | 894.2 | 892.1 |
| 40° | 6187.5 | 5439.8 | 3428.3 | 1151.3 | 945.2 | 915.5 | 892.1 | 864.5 | 851.8 | 851.8 | 851.8 |
| 42.5° | 6361.6 | 5471.6 | 3092.7 | 1040.8 | 915.5 | 881.5 | 847.5 | 822.0 | 817.8 | 822.0 | 824.1 |
| 45° | 6680.2 | 5594.8 | 2744.3 | 985.6 | 890.0 | 847.5 | 807.2 | 788.0 | 788.0 | 792.3 | 792.3 |
| 47.5° | 7249.5 | 5917.7 | 2400.2 | 951.6 | 864.5 | 819.9 | 777.4 | 758.3 | 756.2 | 760.4 | 760.4 |
| 50° | 8235.1 | 6499.7 | 2090.1 | 928.2 | 845.4 | 798.7 | 756.2 | 730.7 | 724.3 | 722.2 | 722.2 |
| 52.5° | 9477.7 | 7508.6 | 1892.6 | 911.2 | 822.0 | 775.3 | 732.8 | 698.8 | 686.1 | 679.7 | 679.7 |
| 55° | 10979.4 | 8853.2 | 1892.6 | 898.5 | 792.3 | 747.7 | 698.8 | 664.8 | 645.7 | 637.2 | 637.2 |
| 57.5° | 12680.8 | 10418.6 | 2219.7 | 887.9 | 768.9 | 715.8 | 662.7 | 628.7 | 607.5 | 594.7 | 594.7 |
| 60° | 14411.9 | 12073.3 | 3028.9 | 873.0 | 747.7 | 675.5 | 622.4 | 590.5 | 562.9 | 548.0 | 545.9 |
| 62.5° | 16206.8 | 13895.8 | 4095.2 | 881.5 | 732.8 | 637.2 | 579.9 | 543.8 | 520.4 | 505.5 | 503.4 |
| 65° | 17850.8 | 15631.1 | 5027.7 | 947.3 | 734.9 | 603.2 | 531.0 | 499.2 | 480.0 | 460.9 | 458.8 |
| 67.5° | 19246.3 | 16589.1 | 4373.5 | 1081.2 | 779.5 | 562.9 | 482.2 | 450.3 | 433.3 | 420.6 | 418.4 |
| 70° | 18269.3 | 15127.7 | 2480.9 | 1164.0 | 841.1 | 520.4 | 426.9 | 405.7 | 388.7 | 380.2 | 378.1 |
| 72.5° | 15622.6 | 12808.2 | 1658.9 | 1028.1 | 766.8 | 465.2 | 376.0 | 359.0 | 346.2 | 335.6 | 333.5 |
| 75° | 12655.3 | 10157.4 | 1268.1 | 843.3 | 596.9 | 378.1 | 322.9 | 310.1 | 297.4 | 286.8 | 284.6 |
| 77.5° | 7487.4 | 5868.8 | 934.6 | 667.0 | 420.6 | 295.2 | 267.6 | 257.0 | 244.3 | 235.8 | 233.6 |
| 80° | 2389.6 | 2039.1 | 592.6 | 458.8 | 278.3 | 227.3 | 206.0 | 197.5 | 184.8 | 174.2 | 172.1 |
| 82.5° | 911.2 | 788.0 | 314.4 | 233.6 | 184.8 | 155.1 | 138.1 | 129.6 | 121.1 | 110.5 | 108.3 |
| 85° | 403.6 | 378.1 | 174.2 | 125.3 | 99.8 | 76.5 | 68.0 | 63.7 | 53.1 | 44.6 | 42.5 |
| 87.5° | 142.3 | 142.3 | 74.3 | 36.1 | 21.2 | 10.6 | 6.4 | 2.1 | 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

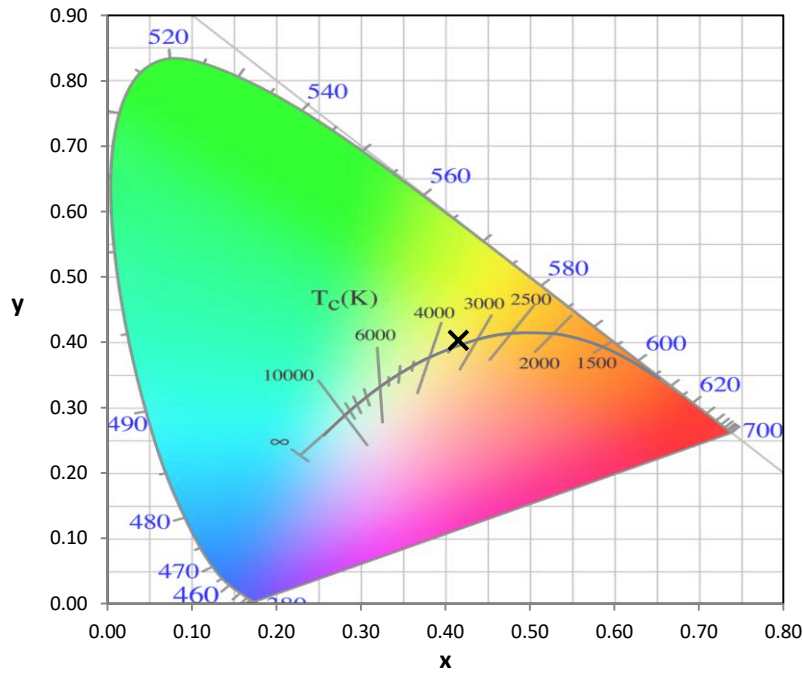


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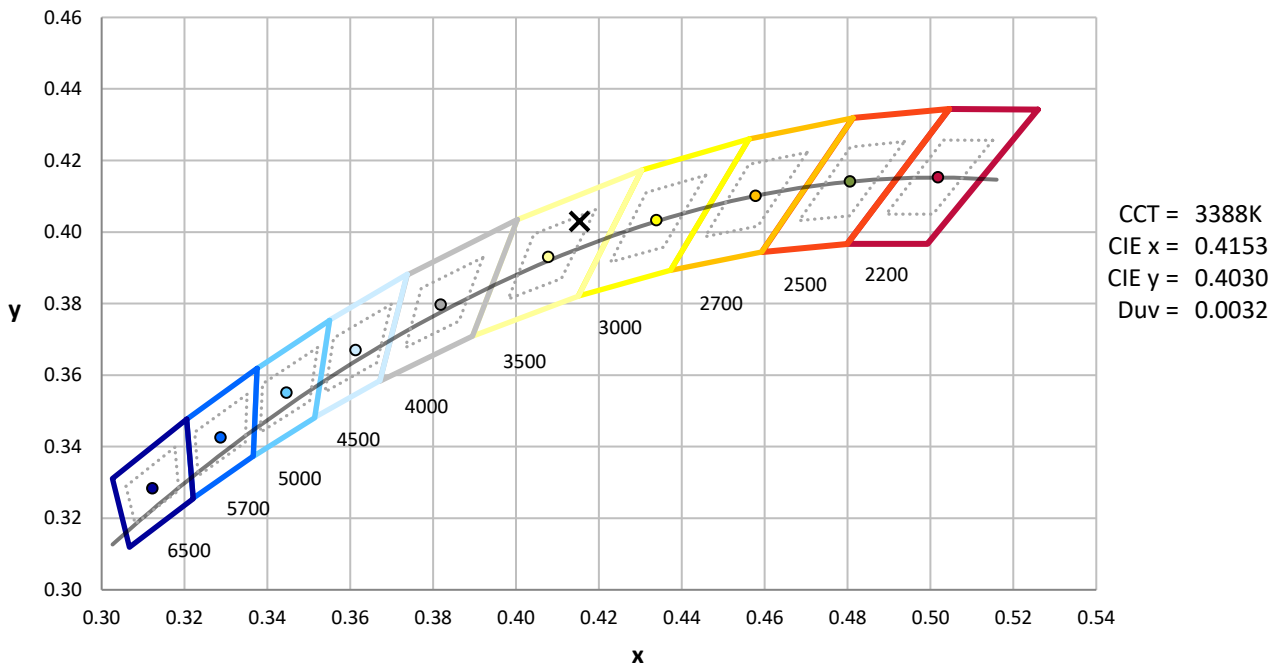
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 1/31/2021 | 7/31/2021 |
| Power Meter | IN0071 | 12/1/2020 | 12/1/2021 |
| AC Power Source | IN0063 | 12/1/2020 | 12/1/2021 |
| DC Power Source | IN0208 | 12/1/2020 | 12/1/2021 |
| Sphere Thermometer | IN0085 | 12/1/2020 | 12/1/2021 |
| Room Thermometer | IN0046 | 12/1/2020 | 12/1/2021 |

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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 | | | |

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)