

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P319025

Luminaire Tested: **GLEON-SA1A-740-U-T4W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P319025  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-18)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA1A-740-U-T4W  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(1) 70 CRI, 4000K, 615mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV WIDE OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4845 lumens  
Efficiency: N/A  
Efficacy: 142.5 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U0 - G2

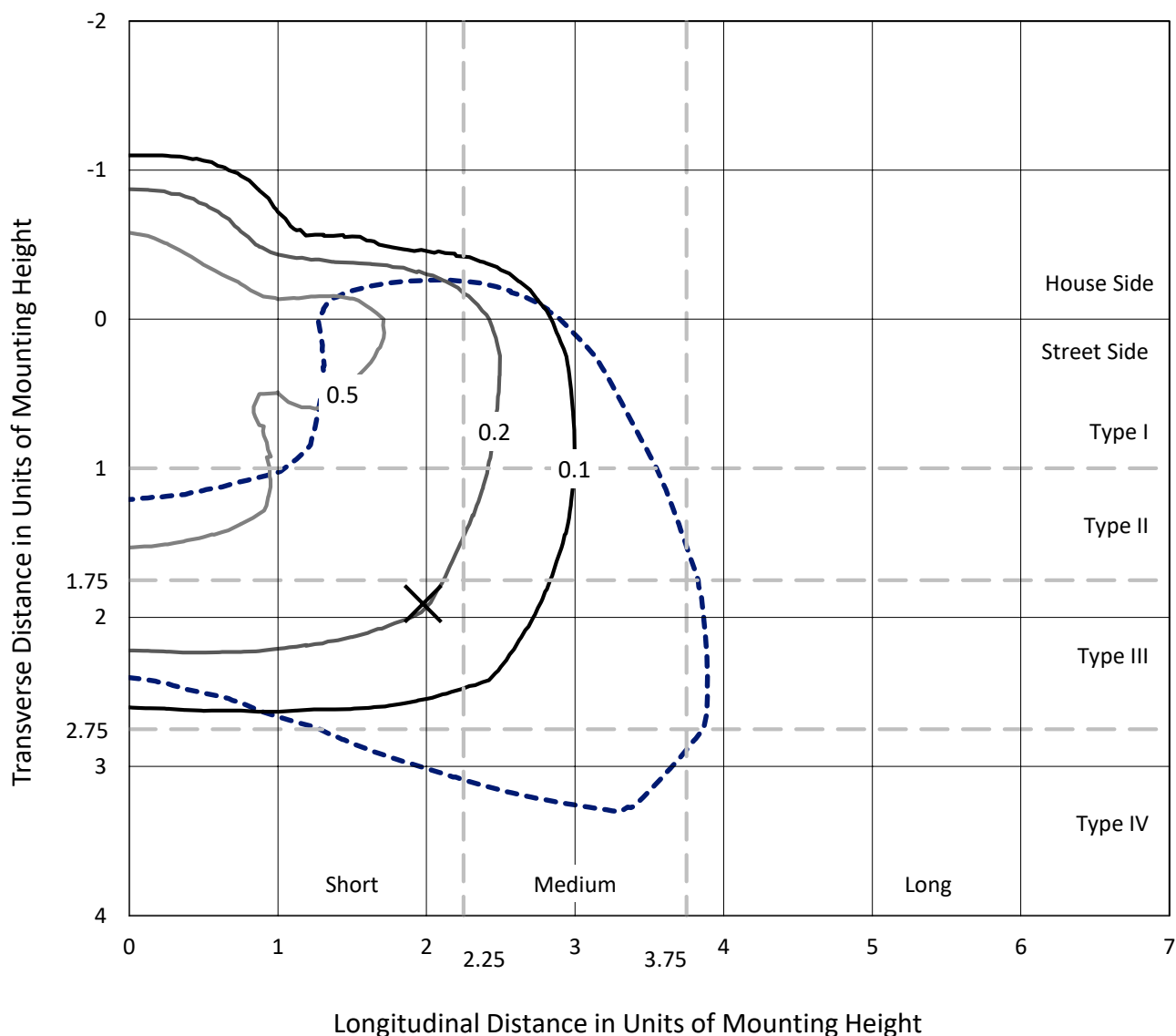
Input Watts (W): 34  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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 CATALOG NUMBER: GLEON-SA1A-740-U-T4W

## Iso-Footcandle Lines of Horizontal Illumination

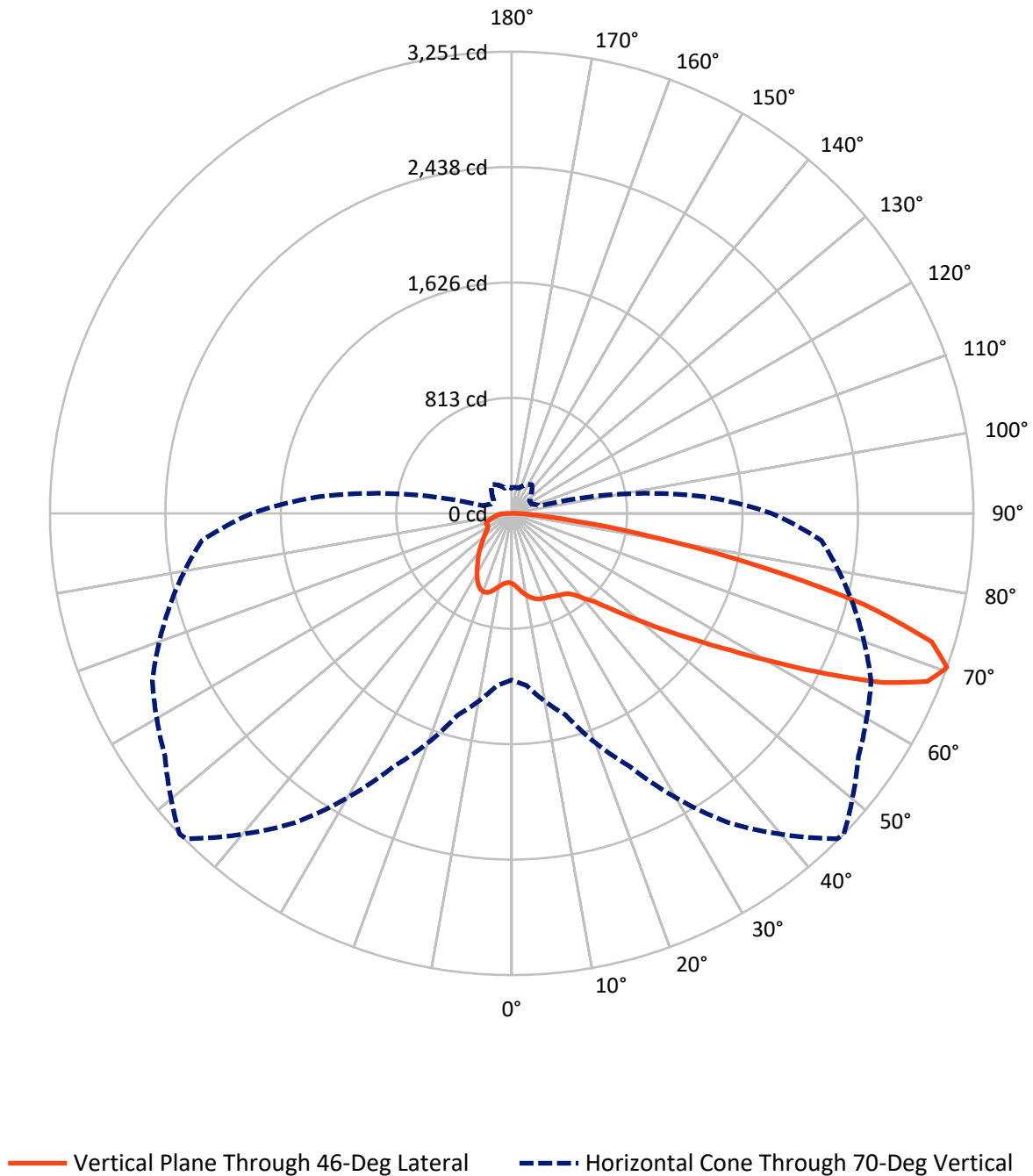
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1 fc  
 Type IV - Short - N/A

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CATALOG NUMBER: GLEON-SA1A-740-U-T4W

## Luminous Intensity Polar Plot



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CATALOG NUMBER: GLEON-SA1A-740-U-T4W

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1110.5   | 0.0    | 1110.5 |
|                    | % Fixture | 22.9     | 0.0    | 22.9   |
| <b>Street Side</b> | Lumens    | 3734.5   | 0.0    | 3734.5 |
|                    | % Fixture | 77.1     | 0.0    | 77.1   |
| <b>Total</b>       | Lumens    | 4845.0   | 0.0    | 4845.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 50.3   | 1.0       |
| 10°-20°   | 167.7  | 3.5       |
| 20°-30°   | 279.5  | 5.8       |
| 30°-40°   | 396.7  | 8.2       |
| 40°-50°   | 583.5  | 12.0      |
| 50°-60°   | 988.2  | 20.4      |
| 60°-70°   | 1402.7 | 29.0      |
| 70°-80°   | 852.1  | 17.6      |
| 80°-90°   | 124.4  | 2.6       |
| 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°    | 4845.0 | 100.0     |
| 0°-180°   | 4845.0 | 100.0     |

**Coefficient of Utilization**



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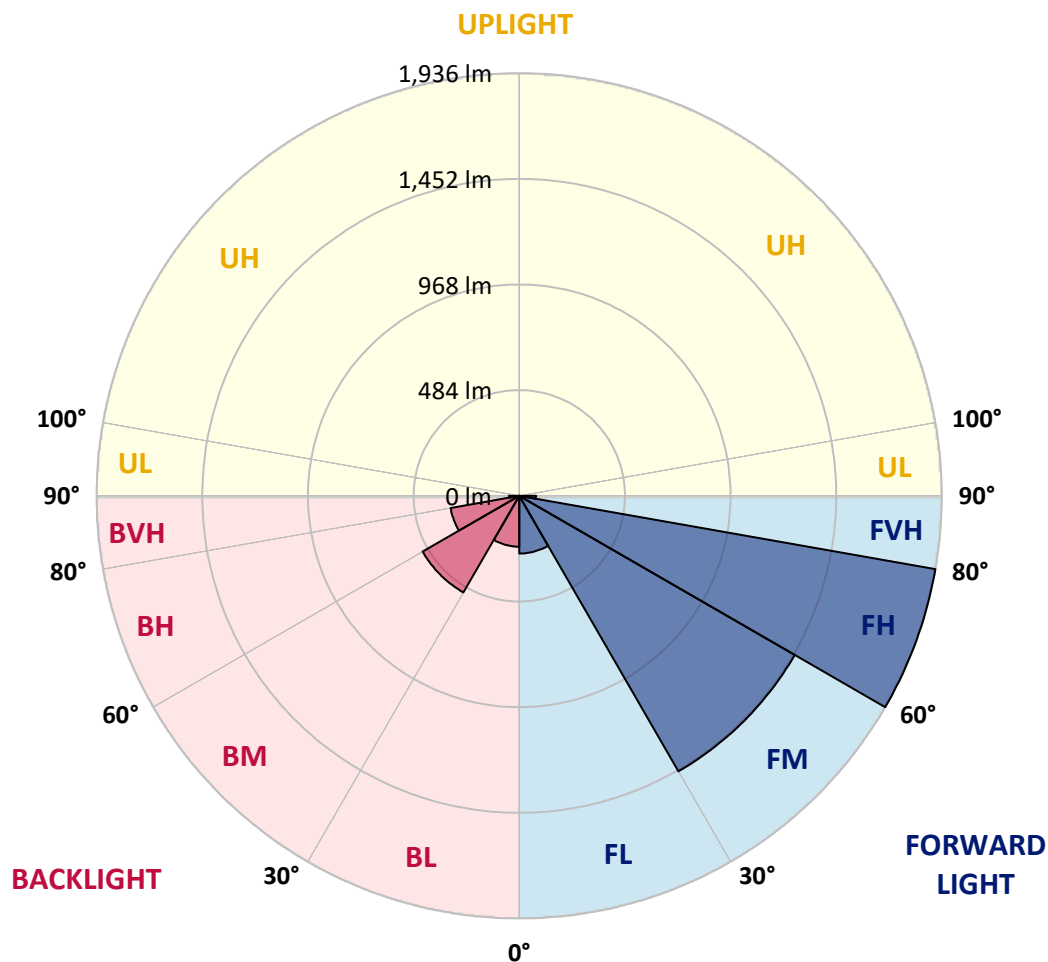
CATALOG NUMBER: GLEON-SA1A-740-U-T4W

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 264.4  | 5.5       |                         |      |         |
| FM   | (30°-60°)   | 1457.2 | 30.1      |                         |      |         |
| FH   | (60°-80°)   | 1935.6 | 39.9      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 77.5   | 1.6       |                         |      | G1/100  |
| BL   | (0°-30°)    | 233.1  | 4.8       | B1/500                  |      |         |
| BM   | (30°-60°)   | 511.2  | 10.6      | B1/1000                 |      |         |
| BH   | (60°-80°)   | 319.2  | 6.6       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 46.9   | 1.0       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G2**

Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 46°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 493.6  | 493.6  | 493.6  | 493.6  | 493.6  | 493.6  | 493.6  | 493.6  | 493.6  | 493.6  | 493.6  |
| 2.5°  | 518.3  | 518.6  | 519.3  | 517.7  | 513.0  | 511.7  | 511.2  | 506.4  | 503.2  | 498.6  | 494.6  |
| 5°    | 559.8  | 560.1  | 559.1  | 554.5  | 544.2  | 536.6  | 535.9  | 524.9  | 515.0  | 504.4  | 496.4  |
| 7.5°  | 603.0  | 603.5  | 600.4  | 591.6  | 577.2  | 563.9  | 563.1  | 548.2  | 533.1  | 517.0  | 505.1  |
| 10°   | 641.3  | 639.4  | 634.2  | 621.9  | 604.9  | 588.6  | 588.0  | 572.4  | 555.0  | 535.6  | 519.6  |
| 12.5° | 666.9  | 665.2  | 658.6  | 643.7  | 624.9  | 610.0  | 608.7  | 594.3  | 577.3  | 556.1  | 537.1  |
| 15°   | 681.0  | 682.1  | 673.2  | 656.3  | 638.0  | 625.4  | 624.3  | 614.0  | 598.9  | 577.5  | 555.6  |
| 17.5° | 682.8  | 683.8  | 675.2  | 658.4  | 643.5  | 634.9  | 634.4  | 627.6  | 616.6  | 596.1  | 573.2  |
| 20°   | 672.2  | 672.8  | 665.7  | 652.0  | 642.2  | 639.5  | 639.4  | 636.4  | 628.2  | 610.0  | 587.8  |
| 22.5° | 656.8  | 657.3  | 652.1  | 642.2  | 638.9  | 643.0  | 644.2  | 643.0  | 637.2  | 620.1  | 599.2  |
| 25°   | 653.0  | 652.6  | 647.3  | 637.2  | 640.0  | 648.8  | 650.3  | 650.8  | 646.8  | 631.9  | 613.8  |
| 27.5° | 671.4  | 670.2  | 660.1  | 643.8  | 645.7  | 656.3  | 658.3  | 663.1  | 660.6  | 647.5  | 630.4  |
| 30°   | 724.6  | 722.6  | 701.9  | 669.0  | 660.1  | 665.6  | 668.0  | 675.7  | 676.2  | 665.2  | 652.5  |
| 32.5° | 814.4  | 812.0  | 774.8  | 716.1  | 684.5  | 675.0  | 677.3  | 688.8  | 694.9  | 686.4  | 672.7  |
| 35°   | 928.0  | 925.2  | 876.5  | 796.2  | 725.2  | 693.1  | 694.7  | 703.9  | 716.1  | 704.2  | 685.9  |
| 37.5° | 1046.4 | 1039.6 | 992.7  | 890.4  | 790.1  | 731.7  | 731.7  | 732.9  | 738.7  | 713.8  | 701.5  |
| 40°   | 1164.1 | 1157.3 | 1114.9 | 1001.1 | 874.0  | 792.6  | 788.7  | 763.0  | 758.4  | 737.0  | 732.9  |
| 42.5° | 1273.6 | 1271.6 | 1246.5 | 1126.3 | 972.5  | 852.4  | 847.1  | 803.5  | 804.5  | 791.2  | 791.4  |
| 45°   | 1390.0 | 1390.0 | 1369.6 | 1252.7 | 1087.2 | 948.6  | 943.3  | 879.1  | 889.1  | 882.9  | 897.7  |
| 47.5° | 1485.0 | 1488.0 | 1485.1 | 1384.3 | 1220.7 | 1070.8 | 1061.2 | 983.9  | 1011.8 | 1032.8 | 1075.8 |
| 50°   | 1582.0 | 1586.6 | 1587.1 | 1528.8 | 1382.0 | 1216.0 | 1205.1 | 1123.0 | 1185.2 | 1245.6 | 1329.9 |
| 52.5° | 1722.7 | 1733.2 | 1691.6 | 1672.8 | 1579.7 | 1388.5 | 1377.7 | 1301.9 | 1405.7 | 1490.4 | 1635.9 |
| 55°   | 1853.2 | 1844.1 | 1814.4 | 1826.0 | 1791.2 | 1584.8 | 1576.7 | 1510.2 | 1651.4 | 1761.5 | 1950.4 |
| 57.5° | 1923.9 | 1923.2 | 1953.1 | 2002.8 | 2019.4 | 1826.9 | 1820.1 | 1755.4 | 1928.5 | 2011.3 | 2245.7 |
| 60°   | 2006.8 | 2007.9 | 2081.9 | 2194.8 | 2263.1 | 2128.3 | 2125.3 | 2076.2 | 2197.6 | 2244.4 | 2477.3 |
| 62.5° | 2018.4 | 2039.3 | 2166.6 | 2360.9 | 2491.3 | 2480.5 | 2487.1 | 2365.3 | 2438.4 | 2430.4 | 2650.3 |
| 65°   | 1884.9 | 1912.4 | 2142.9 | 2411.2 | 2718.1 | 2865.7 | 2871.8 | 2655.9 | 2628.2 | 2589.4 | 2712.1 |
| 67.5° | 1611.3 | 1652.1 | 1902.5 | 2301.9 | 2792.9 | 3150.4 | 3159.0 | 2881.2 | 2785.7 | 2643.3 | 2563.2 |
| 70°   | 1172.6 | 1217.9 | 1469.9 | 1966.0 | 2659.6 | 3241.4 | 3251.2 | 2980.9 | 2791.7 | 2489.9 | 2188.2 |
| 72.5° | 708.3  | 743.8  | 951.6  | 1447.3 | 2244.7 | 3075.6 | 3093.0 | 2854.6 | 2548.8 | 2109.1 | 1615.8 |
| 75°   | 311.1  | 334.3  | 460.1  | 834.0  | 1607.0 | 2544.7 | 2566.4 | 2443.3 | 2070.9 | 1532.7 | 955.1  |
| 77.5° | 132.5  | 139.1  | 188.7  | 362.3  | 908.5  | 1738.8 | 1768.7 | 1785.3 | 1405.1 | 834.0  | 403.6  |
| 80°   | 82.6   | 85.2   | 106.8  | 164.0  | 425.1  | 976.6  | 1008.8 | 1050.4 | 697.7  | 306.6  | 140.9  |
| 82.5° | 50.2   | 53.2   | 71.0   | 99.2   | 221.4  | 442.7  | 458.1  | 487.5  | 270.8  | 132.5  | 73.0   |
| 85°   | 30.2   | 32.3   | 43.4   | 62.7   | 126.0  | 174.1  | 173.9  | 192.3  | 127.5  | 85.2   | 38.5   |
| 87.5° | 14.4   | 16.1   | 23.2   | 32.5   | 63.5   | 65.3   | 61.2   | 69.3   | 77.4   | 55.9   | 19.4   |
| 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: GLEON-SA1A-740-U-T4W

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 493.6  | 493.6  | 493.6 | 493.6 | 493.6 | 493.6 | 493.6 | 493.6 | 493.6 | 493.6 | 493.6 |
| 2.5°  | 493.3  | 492.6  | 490.5 | 488.8 | 488.5 | 487.5 | 486.6 | 487.1 | 487.8 | 488.0 | 488.0 |
| 5°    | 493.1  | 491.3  | 488.5 | 487.3 | 488.8 | 490.8 | 493.3 | 496.6 | 498.6 | 500.1 | 501.1 |
| 7.5°  | 501.1  | 497.6  | 494.4 | 493.8 | 496.8 | 502.1 | 507.7 | 514.7 | 519.5 | 522.8 | 523.5 |
| 10°   | 514.3  | 510.0  | 506.9 | 507.5 | 512.8 | 520.5 | 528.4 | 537.4 | 544.7 | 549.2 | 549.5 |
| 12.5° | 529.6  | 525.4  | 522.5 | 525.3 | 534.1 | 543.4 | 551.6 | 559.4 | 566.1 | 570.5 | 570.5 |
| 15°   | 547.2  | 544.2  | 540.7 | 547.2 | 559.1 | 567.4 | 570.9 | 574.7 | 578.3 | 581.7 | 581.0 |
| 17.5° | 564.1  | 561.3  | 559.4 | 567.1 | 579.5 | 583.3 | 581.0 | 578.2 | 578.2 | 580.0 | 580.3 |
| 20°   | 578.7  | 576.2  | 577.3 | 584.8 | 591.3 | 587.3 | 578.7 | 569.7 | 566.1 | 567.1 | 568.1 |
| 22.5° | 591.4  | 590.3  | 593.8 | 597.2 | 592.6 | 578.7 | 562.8 | 550.6 | 546.2 | 545.8 | 546.2 |
| 25°   | 606.4  | 606.2  | 610.5 | 604.2 | 583.6 | 557.9 | 536.6 | 524.8 | 522.3 | 524.3 | 527.6 |
| 27.5° | 624.9  | 626.8  | 628.9 | 605.9 | 565.4 | 526.6 | 504.9 | 496.8 | 499.2 | 504.1 | 507.2 |
| 30°   | 648.6  | 653.6  | 649.0 | 601.7 | 539.2 | 490.8 | 470.1 | 467.7 | 474.5 | 481.3 | 484.7 |
| 32.5° | 671.7  | 679.5  | 668.2 | 590.9 | 505.4 | 452.8 | 436.7 | 436.1 | 444.4 | 451.0 | 455.6 |
| 35°   | 690.3  | 705.7  | 682.6 | 569.6 | 466.3 | 417.8 | 406.1 | 401.6 | 404.6 | 412.4 | 417.7 |
| 37.5° | 714.5  | 740.2  | 692.6 | 536.9 | 423.8 | 389.0 | 375.2 | 364.9 | 362.3 | 365.4 | 368.1 |
| 40°   | 758.7  | 792.7  | 697.2 | 491.3 | 382.4 | 360.1 | 346.2 | 331.1 | 320.7 | 313.0 | 313.2 |
| 42.5° | 831.0  | 861.2  | 694.2 | 435.9 | 344.1 | 331.9 | 316.2 | 298.8 | 281.9 | 264.6 | 263.3 |
| 45°   | 948.4  | 963.0  | 685.3 | 377.2 | 310.4 | 302.4 | 287.7 | 270.3 | 247.7 | 228.2 | 226.3 |
| 47.5° | 1136.3 | 1104.0 | 671.4 | 326.0 | 280.7 | 277.4 | 263.8 | 243.7 | 219.9 | 204.1 | 202.8 |
| 50°   | 1392.5 | 1307.4 | 664.6 | 285.2 | 254.5 | 255.5 | 244.4 | 223.2 | 200.6 | 189.0 | 187.7 |
| 52.5° | 1698.9 | 1544.3 | 677.7 | 253.7 | 233.5 | 236.9 | 228.6 | 208.8 | 189.9 | 180.7 | 179.4 |
| 55°   | 2016.7 | 1789.7 | 691.8 | 230.8 | 213.6 | 220.4 | 217.5 | 201.1 | 184.0 | 175.6 | 174.4 |
| 57.5° | 2288.8 | 1973.0 | 663.6 | 212.2 | 195.8 | 206.4 | 208.9 | 196.3 | 181.1 | 173.4 | 172.1 |
| 60°   | 2460.1 | 2046.7 | 589.6 | 194.8 | 181.7 | 195.3 | 203.9 | 195.0 | 182.2 | 181.6 | 180.6 |
| 62.5° | 2541.3 | 2040.3 | 478.7 | 181.1 | 172.9 | 190.5 | 207.6 | 202.5 | 195.5 | 201.5 | 202.0 |
| 65°   | 2504.9 | 1942.8 | 356.5 | 171.9 | 166.6 | 192.3 | 218.5 | 216.5 | 199.3 | 205.3 | 206.1 |
| 67.5° | 2264.8 | 1710.1 | 264.0 | 164.0 | 159.7 | 197.5 | 238.4 | 221.2 | 191.8 | 196.2 | 193.5 |
| 70°   | 1830.5 | 1355.8 | 203.6 | 155.0 | 152.5 | 196.8 | 247.4 | 218.4 | 183.7 | 184.7 | 177.6 |
| 72.5° | 1262.3 | 924.5  | 165.6 | 146.7 | 142.3 | 179.4 | 241.1 | 211.4 | 176.9 | 169.3 | 159.8 |
| 75°   | 686.4  | 496.3  | 140.8 | 138.1 | 124.2 | 157.5 | 229.5 | 206.4 | 170.8 | 160.7 | 155.4 |
| 77.5° | 270.1  | 205.9  | 122.2 | 126.3 | 108.6 | 139.1 | 216.5 | 197.0 | 162.3 | 149.1 | 146.4 |
| 80°   | 110.3  | 105.1  | 101.3 | 109.3 | 93.3  | 121.7 | 201.0 | 185.9 | 152.2 | 138.3 | 133.0 |
| 82.5° | 62.5   | 65.3   | 78.8  | 86.2  | 75.8  | 112.1 | 193.5 | 176.9 | 140.1 | 123.9 | 117.6 |
| 85°   | 32.0   | 38.3   | 54.9  | 61.8  | 55.7  | 95.3  | 178.2 | 154.9 | 112.4 | 94.8  | 95.3  |
| 87.5° | 15.4   | 21.4   | 34.7  | 38.8  | 36.1  | 69.0  | 133.1 | 112.3 | 87.5  | 69.3  | 67.2  |
| 90°   | 0.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

MCGRAW, INVUE, LUMARK AND STREETWORKS

DATA VALID FOR LUMINAIRES UTILIZING SA LIGHT ENGINES

Report Number: SP1-2101-121-2

Luminaire Tested: IFLD-S-SA2A-740-U-T3R-HSS

Test Date: 03/05/2021

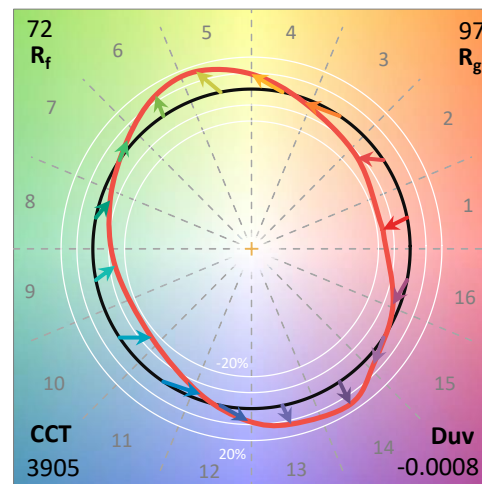
### Test Information

Test Method: LM-79-08  
 Report Number: SP1-2101-121-2  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry:  $4\pi$   
 Issue Date: 03/05/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2A-740-U-T3R-HSS**  
 Description: STREETWORKS INF FLOOD

SHIELD, DRIVER PROGRAMMED @ 615mA.

### Spectral Parameters

|                           |         |           |      |      |       |
|---------------------------|---------|-----------|------|------|-------|
| CCT (K):                  | 3905    | CRI (Ra): | 71.2 |      |       |
| CIE u':                   | 0.2273  | R1:       | 68.9 | R9:  | -29.7 |
| CIE v':                   | 0.5024  | R2:       | 77.0 | R10: | 46.2  |
| Duv:                      | -0.0008 | R3:       | 84.0 | R11: | 68.8  |
| CIE x:                    | 0.3841  | R4:       | 71.6 | R12: | 45.6  |
| CIE y:                    | 0.3774  | R5:       | 68.9 | R13: | 69.5  |
| CIE z:                    | 0.2385  | R6:       | 68.3 | R14: | 90.7  |
| Peak Wavelength (nm):     | 443     | R7:       | 78.7 |      |       |
| Dominant Wavelength (nm): | 579     | R8:       | 52.2 |      |       |
| Purity:                   | 28.7    |           |      |      |       |
| Rf:                       | 71.7    |           |      |      |       |
| Rg:                       | 96.9    |           |      |      |       |



### Test Conditions

Stabilization Time: 211M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.8/312%  
 Sphere Temperature (°C): 24.1

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

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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 4000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

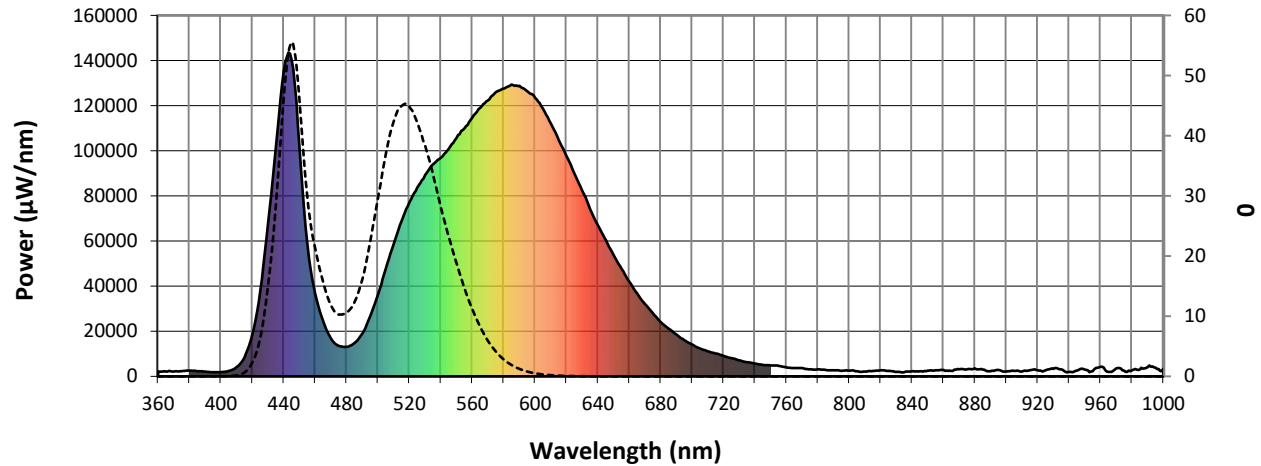


#####

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2304             | 0.0              | 490       | 19043            | 2.7              | 620       | 97577            | 25.4             | 750       | 4830             | 0.0              | 880       | 3505             | 0.0              |
| 365       | 2150             | 0.0              | 495       | 26606            | 4.8              | 625       | 90158            | 19.9             | 755       | 4664             | 0.0              | 885       | 2991             | 0.0              |
| 370       | 2146             | 0.0              | 500       | 36376            | 8.0              | 630       | 82240            | 14.9             | 760       | 4006             | 0.0              | 890       | 2327             | 0.0              |
| 375       | 2332             | 0.0              | 505       | 47714            | 13.3             | 635       | 74361            | 11.2             | 765       | 3715             | 0.0              | 895       | 2775             | 0.0              |
| 380       | 2527             | 0.0              | 510       | 58741            | 20.2             | 640       | 66994            | 8.0              | 770       | 3696             | 0.0              | 900       | 2141             | 0.0              |
| 385       | 2304             | 0.0              | 515       | 68716            | 28.5             | 645       | 60405            | 5.8              | 775       | 3117             | 0.0              | 905       | 2421             | 0.0              |
| 390       | 2064             | 0.0              | 520       | 77136            | 37.4             | 650       | 53806            | 3.9              | 780       | 3062             | 0.0              | 910       | 2200             | 0.0              |
| 395       | 1856             | 0.0              | 525       | 83567            | 44.9             | 655       | 47610            | 2.7              | 785       | 2907             | 0.0              | 915       | 2716             | 0.0              |
| 400       | 1856             | 0.0              | 530       | 89283            | 52.6             | 660       | 42018            | 1.8              | 790       | 2655             | 0.0              | 920       | 2656             | 0.0              |
| 405       | 2374             | 0.0              | 535       | 94097            | 58.4             | 665       | 36742            | 1.2              | 795       | 2467             | 0.0              | 925       | 2671             | 0.0              |
| 410       | 4084             | 0.0              | 540       | 96845            | 63.1             | 670       | 32105            | 0.7              | 800       | 2609             | 0.0              | 930       | 3292             | 0.0              |
| 415       | 8543             | 0.0              | 545       | 100829           | 67.1             | 675       | 27946            | 0.5              | 805       | 2293             | 0.0              | 935       | 3188             | 0.0              |
| 420       | 18394            | 0.1              | 550       | 105648           | 71.8             | 680       | 24146            | 0.3              | 810       | 2188             | 0.0              | 940       | 1997             | 0.0              |
| 425       | 37987            | 0.2              | 555       | 110017           | 75.1             | 685       | 21191            | 0.2              | 815       | 2386             | 0.0              | 945       | 2623             | 0.0              |
| 430       | 67605            | 0.5              | 560       | 114586           | 77.9             | 690       | 18544            | 0.1              | 820       | 2712             | 0.0              | 950       | 2969             | 0.0              |
| 435       | 102160           | 1.2              | 565       | 118987           | 79.1             | 695       | 16058            | 0.1              | 825       | 2473             | 0.0              | 955       | 2277             | 0.0              |
| 440       | 135103           | 2.1              | 570       | 122326           | 79.5             | 700       | 14133            | 0.0              | 830       | 1969             | 0.0              | 960       | 4267             | 0.0              |
| 445       | 140126           | 2.9              | 575       | 125968           | 78.4             | 705       | 12309            | 0.0              | 835       | 1917             | 0.0              | 965       | 2034             | 0.0              |
| 450       | 102339           | 2.7              | 580       | 127613           | 75.8             | 710       | 11142            | 0.0              | 840       | 2248             | 0.0              | 970       | 3586             | 0.0              |
| 455       | 58751            | 2.0              | 585       | 129466           | 71.9             | 715       | 10143            | 0.0              | 845       | 2266             | 0.0              | 975       | 2505             | 0.0              |
| 460       | 36892            | 1.5              | 590       | 128813           | 66.6             | 720       | 9072             | 0.0              | 850       | 2558             | 0.0              | 980       | 2666             | 0.0              |
| 465       | 24637            | 1.3              | 595       | 126387           | 59.9             | 725       | 8130             | 0.0              | 855       | 2767             | 0.0              | 985       | 2934             | 0.0              |
| 470       | 16738            | 1.0              | 600       | 123477           | 53.2             | 730       | 7149             | 0.0              | 860       | 2826             | 0.0              | 990       | 4120             | 0.0              |
| 475       | 13456            | 1.1              | 605       | 118718           | 46.0             | 735       | 6311             | 0.0              | 865       | 2385             | 0.0              | 995       | 3858             | 0.0              |
| 480       | 13081            | 1.2              | 610       | 112091           | 38.5             | 740       | 5711             | 0.0              | 870       | 3194             | 0.0              | 1000      | 3405             | 0.0              |
| 485       | 14734            | 1.7              | 615       | 105039           | 31.7             | 745       | 5111             | 0.0              | 875       | 3189             | 0.0              |           |                  |                  |

REPORT NUMBER: SP1-2101-121-2

### Scotopic Flux vs. Wavelength



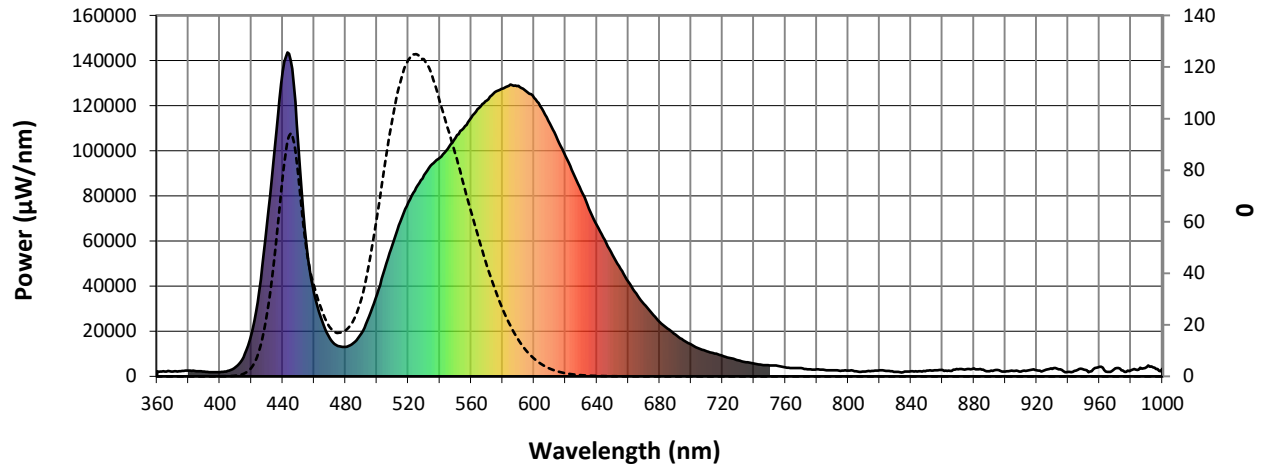
Scotopic Lumens: 10425.8

S/P: 1.47

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2304             | 0.0              | 490       | 19043            | 29.3             | 620       | 97577            | 1.2              | 750       | 4830             | 0.0              | 880       | 3505             | 0.0              |
| 365       | 2150             | 0.0              | 495       | 26606            | 43.0             | 625       | 90158            | 0.8              | 755       | 4664             | 0.0              | 885       | 2991             | 0.0              |
| 370       | 2146             | 0.0              | 500       | 36376            | 60.8             | 630       | 82240            | 0.5              | 760       | 4006             | 0.0              | 890       | 2327             | 0.0              |
| 375       | 2332             | 0.0              | 505       | 47714            | 81.1             | 635       | 74361            | 0.3              | 765       | 3715             | 0.0              | 895       | 2775             | 0.0              |
| 380       | 2527             | 0.0              | 510       | 58741            | 99.6             | 640       | 66994            | 0.2              | 770       | 3696             | 0.0              | 900       | 2141             | 0.0              |
| 385       | 2304             | 0.0              | 515       | 68716            | 113.9            | 645       | 60405            | 0.1              | 775       | 3117             | 0.0              | 905       | 2421             | 0.0              |
| 390       | 2064             | 0.0              | 520       | 77136            | 122.6            | 650       | 53806            | 0.1              | 780       | 3062             | 0.0              | 910       | 2200             | 0.0              |
| 395       | 1856             | 0.0              | 525       | 83567            | 125.0            | 655       | 47610            | 0.0              | 785       | 2907             | 0.0              | 915       | 2716             | 0.0              |
| 400       | 1856             | 0.0              | 530       | 89283            | 123.1            | 660       | 42018            | 0.0              | 790       | 2655             | 0.0              | 920       | 2656             | 0.0              |
| 405       | 2374             | 0.1              | 535       | 94097            | 117.3            | 665       | 36742            | 0.0              | 795       | 2467             | 0.0              | 925       | 2671             | 0.0              |
| 410       | 4084             | 0.2              | 540       | 96845            | 107.0            | 670       | 32105            | 0.0              | 800       | 2609             | 0.0              | 930       | 3292             | 0.0              |
| 415       | 8543             | 0.9              | 545       | 100829           | 96.7             | 675       | 27946            | 0.0              | 805       | 2293             | 0.0              | 935       | 3188             | 0.0              |
| 420       | 18394            | 3.0              | 550       | 105648           | 86.4             | 680       | 24146            | 0.0              | 810       | 2188             | 0.0              | 940       | 1997             | 0.0              |
| 425       | 37987            | 9.3              | 555       | 110017           | 75.2             | 685       | 21191            | 0.0              | 815       | 2386             | 0.0              | 945       | 2623             | 0.0              |
| 430       | 67605            | 23.0             | 560       | 114586           | 64.0             | 690       | 18544            | 0.0              | 820       | 2712             | 0.0              | 950       | 2969             | 0.0              |
| 435       | 102160           | 45.7             | 565       | 118987           | 53.4             | 695       | 16058            | 0.0              | 825       | 2473             | 0.0              | 955       | 2277             | 0.0              |
| 440       | 135103           | 75.5             | 570       | 122326           | 43.2             | 700       | 14133            | 0.0              | 830       | 1969             | 0.0              | 960       | 4267             | 0.0              |
| 445       | 140126           | 93.8             | 575       | 125968           | 34.3             | 705       | 12309            | 0.0              | 835       | 1917             | 0.0              | 965       | 2034             | 0.0              |
| 450       | 102339           | 79.3             | 580       | 127613           | 26.3             | 710       | 11142            | 0.0              | 840       | 2248             | 0.0              | 970       | 3586             | 0.0              |
| 455       | 58751            | 51.3             | 585       | 129466           | 19.8             | 715       | 10143            | 0.0              | 845       | 2266             | 0.0              | 975       | 2505             | 0.0              |
| 460       | 36892            | 35.6             | 590       | 128813           | 14.3             | 720       | 9072             | 0.0              | 850       | 2558             | 0.0              | 980       | 2666             | 0.0              |
| 465       | 24637            | 26.0             | 595       | 126387           | 10.1             | 725       | 8130             | 0.0              | 855       | 2767             | 0.0              | 985       | 2934             | 0.0              |
| 470       | 16738            | 19.3             | 600       | 123477           | 7.0              | 730       | 7149             | 0.0              | 860       | 2826             | 0.0              | 990       | 4120             | 0.0              |
| 475       | 13456            | 16.8             | 605       | 118718           | 4.7              | 735       | 6311             | 0.0              | 865       | 2385             | 0.0              | 995       | 3858             | 0.0              |
| 480       | 13081            | 17.7             | 610       | 112091           | 3.0              | 740       | 5711             | 0.0              | 870       | 3194             | 0.0              | 1000      | 3405             | 0.0              |
| 485       | 14734            | 21.4             | 615       | 105039           | 1.9              | 745       | 5111             | 0.0              | 875       | 3189             | 0.0              |           |                  |                  |

REPORT NUMBER: SP1-2101-121-2

### Melanopic Flux vs. Wavelength


**Melanopic Lumens: 3927.2**
**M/P: 0.55**

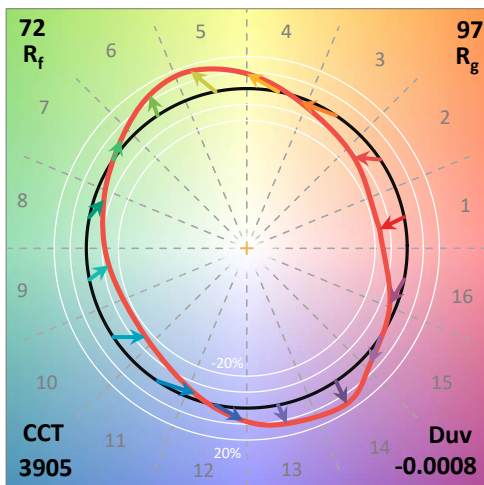
| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2304             | 0.0              | 490       | 19043            | 15.8             | 620       | 97577            | 0.1              | 750       | 4830             | 0.0              | 880       | 3505             | 0.0              |
| 365       | 2150             | 0.0              | 495       | 26606            | 22.0             | 625       | 90158            | 0.0              | 755       | 4664             | 0.0              | 885       | 2991             | 0.0              |
| 370       | 2146             | 0.0              | 500       | 36376            | 29.2             | 630       | 82240            | 0.0              | 760       | 4006             | 0.0              | 890       | 2327             | 0.0              |
| 375       | 2332             | 0.0              | 505       | 47714            | 36.6             | 635       | 74361            | 0.0              | 765       | 3715             | 0.0              | 895       | 2775             | 0.0              |
| 380       | 2527             | 0.0              | 510       | 58741            | 42.2             | 640       | 66994            | 0.0              | 770       | 3696             | 0.0              | 900       | 2141             | 0.0              |
| 385       | 2304             | 0.0              | 515       | 68716            | 44.9             | 645       | 60405            | 0.0              | 775       | 3117             | 0.0              | 905       | 2421             | 0.0              |
| 390       | 2064             | 0.0              | 520       | 77136            | 44.9             | 650       | 53806            | 0.0              | 780       | 3062             | 0.0              | 910       | 2200             | 0.0              |
| 395       | 1856             | 0.0              | 525       | 83567            | 42.4             | 655       | 47610            | 0.0              | 785       | 2907             | 0.0              | 915       | 2716             | 0.0              |
| 400       | 1856             | 0.0              | 530       | 89283            | 38.6             | 660       | 42018            | 0.0              | 790       | 2655             | 0.0              | 920       | 2656             | 0.0              |
| 405       | 2374             | 0.0              | 535       | 94097            | 33.9             | 665       | 36742            | 0.0              | 795       | 2467             | 0.0              | 925       | 2671             | 0.0              |
| 410       | 4084             | 0.2              | 540       | 96845            | 28.3             | 670       | 32105            | 0.0              | 800       | 2609             | 0.0              | 930       | 3292             | 0.0              |
| 415       | 8543             | 0.6              | 545       | 100829           | 23.4             | 675       | 27946            | 0.0              | 805       | 2293             | 0.0              | 935       | 3188             | 0.0              |
| 420       | 18394            | 2.1              | 550       | 105648           | 19.0             | 680       | 24146            | 0.0              | 810       | 2188             | 0.0              | 940       | 1997             | 0.0              |
| 425       | 37987            | 5.9              | 555       | 110017           | 14.8             | 685       | 21191            | 0.0              | 815       | 2386             | 0.0              | 945       | 2623             | 0.0              |
| 430       | 67605            | 14.3             | 560       | 114586           | 11.3             | 690       | 18544            | 0.0              | 820       | 2712             | 0.0              | 950       | 2969             | 0.0              |
| 435       | 102160           | 27.3             | 565       | 118987           | 8.4              | 695       | 16058            | 0.0              | 825       | 2473             | 0.0              | 955       | 2277             | 0.0              |
| 440       | 135103           | 45.1             | 570       | 122326           | 6.0              | 700       | 14133            | 0.0              | 830       | 1969             | 0.0              | 960       | 4267             | 0.0              |
| 445       | 140126           | 55.3             | 575       | 125968           | 4.2              | 705       | 12309            | 0.0              | 835       | 1917             | 0.0              | 965       | 2034             | 0.0              |
| 450       | 102339           | 47.2             | 580       | 127613           | 2.9              | 710       | 11142            | 0.0              | 840       | 2248             | 0.0              | 970       | 3586             | 0.0              |
| 455       | 58751            | 30.8             | 585       | 129466           | 1.9              | 715       | 10143            | 0.0              | 845       | 2266             | 0.0              | 975       | 2505             | 0.0              |
| 460       | 36892            | 21.7             | 590       | 128813           | 1.3              | 720       | 9072             | 0.0              | 850       | 2558             | 0.0              | 980       | 2666             | 0.0              |
| 465       | 24637            | 16.1             | 595       | 126387           | 0.8              | 725       | 8130             | 0.0              | 855       | 2767             | 0.0              | 985       | 2934             | 0.0              |
| 470       | 16738            | 12.0             | 600       | 123477           | 0.5              | 730       | 7149             | 0.0              | 860       | 2826             | 0.0              | 990       | 4120             | 0.0              |
| 475       | 13456            | 10.3             | 605       | 118718           | 0.3              | 735       | 6311             | 0.0              | 865       | 2385             | 0.0              | 995       | 3858             | 0.0              |
| 480       | 13081            | 10.5             | 610       | 112091           | 0.2              | 740       | 5711             | 0.0              | 870       | 3194             | 0.0              | 1000      | 3405             | 0.0              |
| 485       | 14734            | 12.1             | 615       | 105039           | 0.1              | 745       | 5111             | 0.0              | 875       | 3189             | 0.0              |           |                  |                  |

### Summary

$R_f = 71.7$   
 $R_g = 96.9$   
 CIE  $R_a = 71.2$   
 $R_g = -29.7$



### Color Vector Graphics



**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 55 | CES51 = 86 | CES76 = 45 |
| CES02 = 61 | CES27 = 80 | CES52 = 87 | CES77 = 68 |
| CES03 = 30 | CES28 = 79 | CES53 = 74 | CES78 = 49 |
| CES04 = 70 | CES29 = 51 | CES54 = 81 | CES79 = 77 |
| CES05 = 47 | CES30 = 60 | CES55 = 80 | CES80 = 75 |
| CES06 = 50 | CES31 = 56 | CES56 = 69 | CES81 = 75 |
| CES07 = 40 | CES32 = 52 | CES57 = 67 | CES82 = 90 |
| CES08 = 39 | CES33 = 62 | CES58 = 69 | CES83 = 85 |
| CES09 = 29 | CES34 = 65 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 81 | CES60 = 91 | CES85 = 83 |
| CES11 = 57 | CES36 = 92 | CES61 = 85 | CES86 = 72 |
| CES12 = 63 | CES37 = 74 | CES62 = 81 | CES87 = 77 |
| CES13 = 42 | CES38 = 69 | CES63 = 72 | CES88 = 77 |
| CES14 = 74 | CES39 = 92 | CES64 = 69 | CES89 = 72 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 75 |
| CES16 = 46 | CES41 = 84 | CES66 = 63 | CES91 = 91 |
| CES17 = 49 | CES42 = 75 | CES67 = 60 | CES92 = 66 |
| CES18 = 56 | CES43 = 70 | CES68 = 67 | CES93 = 80 |
| CES19 = 72 | CES44 = 98 | CES69 = 77 | CES94 = 56 |
| CES20 = 65 | CES45 = 80 | CES70 = 57 | CES95 = 72 |
| CES21 = 86 | CES46 = 77 | CES71 = 53 | CES96 = 78 |
| CES22 = 78 | CES47 = 74 | CES72 = 84 | CES97 = 83 |
| CES23 = 92 | CES48 = 66 | CES73 = 47 | CES98 = 73 |
| CES24 = 91 | CES49 = 76 | CES74 = 96 | CES99 = 63 |
| CES25 = 72 | CES50 = 85 | CES75 = 52 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)