

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: P319677

Luminaire Tested: **GLEON-SA3B-740-U-SL3**

Issue Date: 3/3/2020

### Test Information

Test Method: LM-79-08  
Report Number: P319677  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-22)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA3B-740-U-SL3  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(3) 70 CRI, 4000K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III  
SPILL LIGHT ELIMINATOR OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

### Summary

Lumens per Lamp: N/A  
Luminaire Lumens: 17447 lumens  
Efficiency: N/A  
Efficacy: 140.7 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B2 - U0 - G3

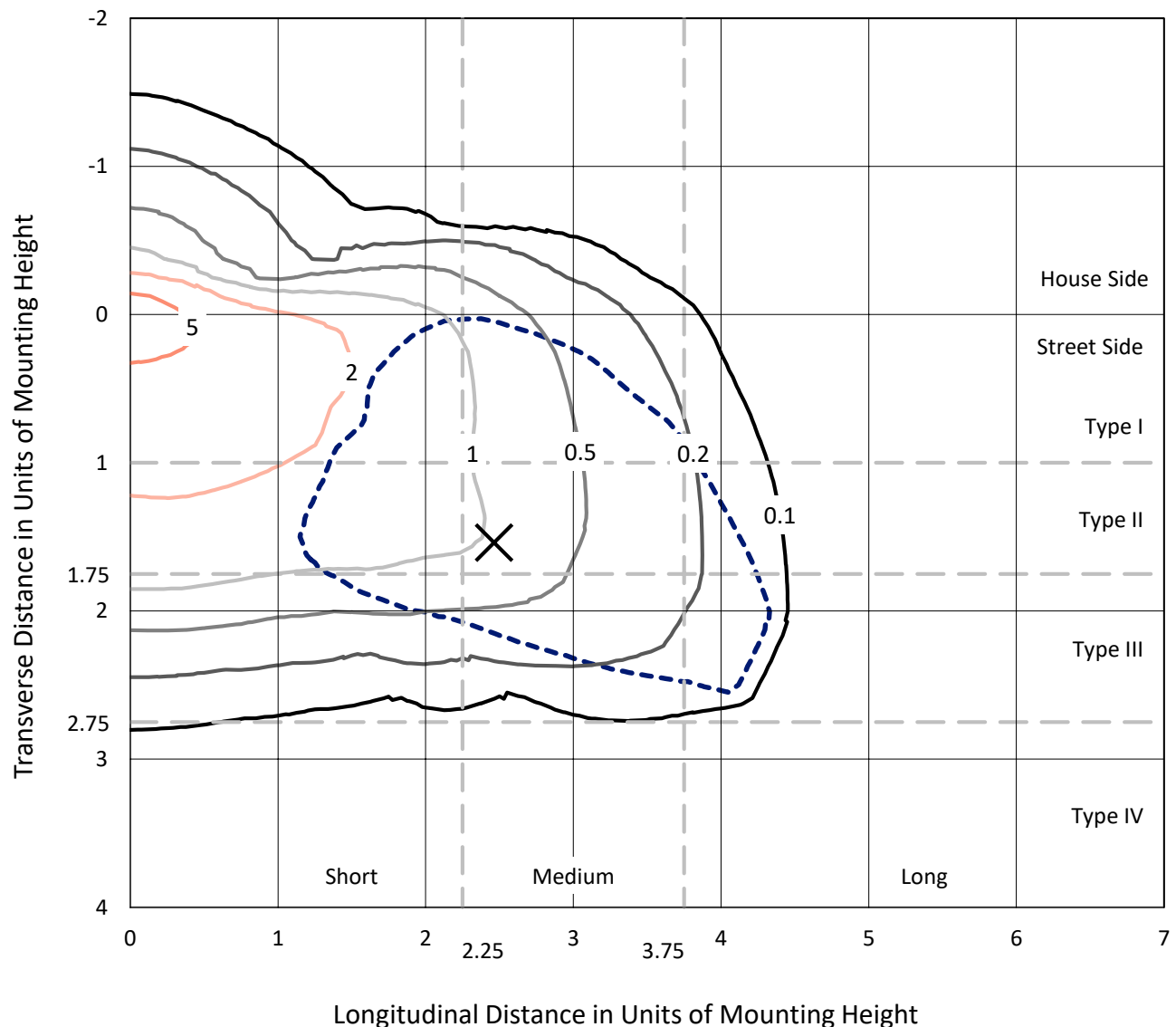
Input Watts (W): 124  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



REPORT NUMBER: P319677  
 CATALOG NUMBER: GLEON-SA3B-740-U-SL3

## Iso-Footcandle Lines of Horizontal Illumination

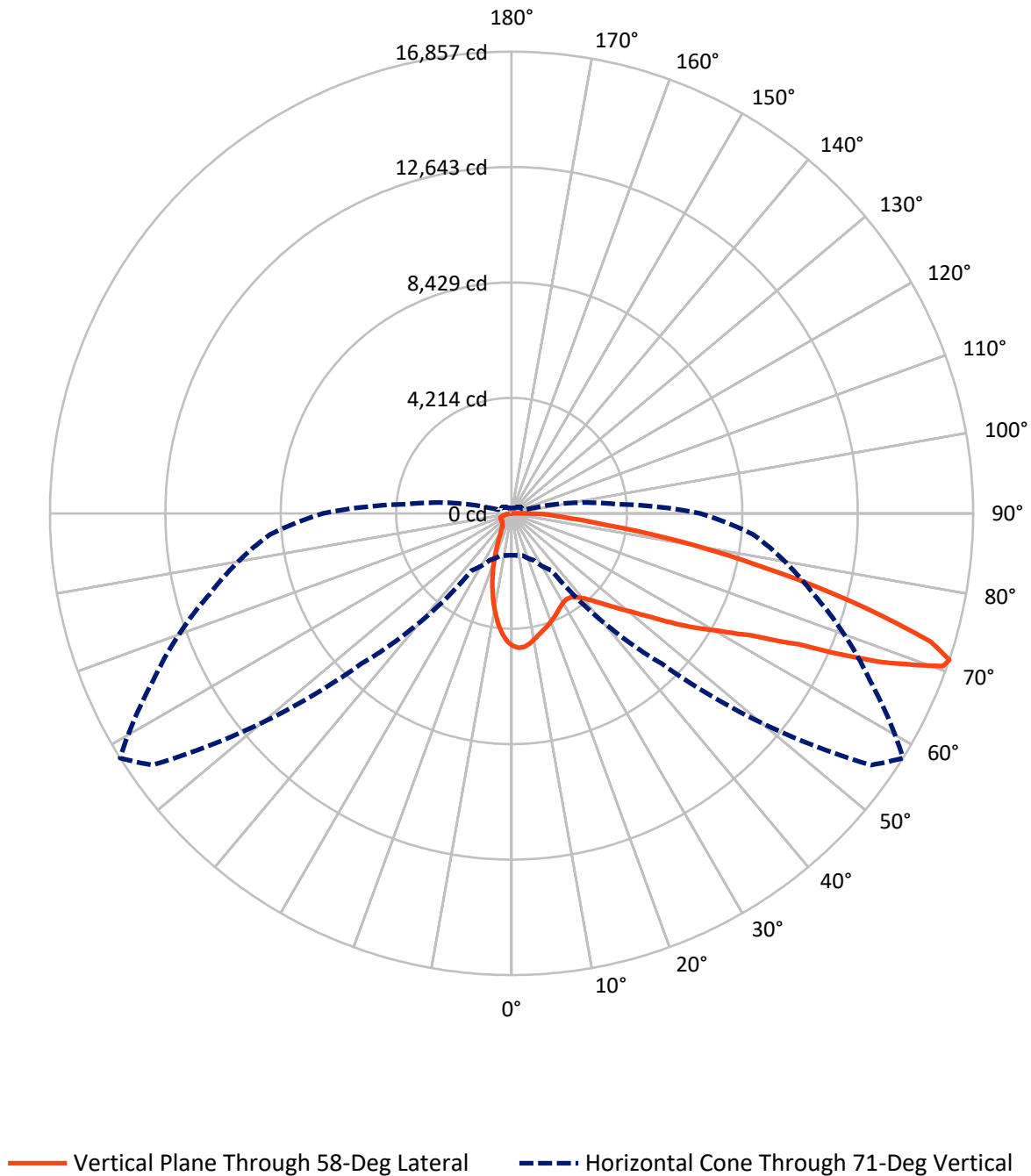
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 7.7 fc  
 Type III - Medium - N/A

REPORT NUMBER: P319677  
CATALOG NUMBER: GLEON-SA3B-740-U-SL3

## Luminous Intensity Polar Plot



REPORT NUMBER: P319677

CATALOG NUMBER: GLEON-SA3B-740-U-SL3

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 2608.4   | 0.0    | 2608.4  |
|                    | % Fixture | 15.0     | 0.0    | 15.0    |
| <b>Street Side</b> | Lumens    | 14838.5  | 0.0    | 14838.5 |
|                    | % Fixture | 85.0     | 0.0    | 85.0    |
| <b>Total</b>       | Lumens    | 17447.0  | 0.0    | 17447.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 417.0   | 2.4       |
| 10°-20°   | 927.3   | 5.3       |
| 20°-30°   | 1178.5  | 6.8       |
| 30°-40°   | 1501.2  | 8.6       |
| 40°-50°   | 2128.8  | 12.2      |
| 50°-60°   | 3294.4  | 18.9      |
| 60°-70°   | 4484.8  | 25.7      |
| 70°-80°   | 2991.9  | 17.1      |
| 80°-90°   | 523.1   | 3.0       |
| 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°    | 17447.0 | 100.0     |
| 0°-180°   | 17447.0 | 100.0     |

**Coefficient of Utilization**



REPORT NUMBER: P319677

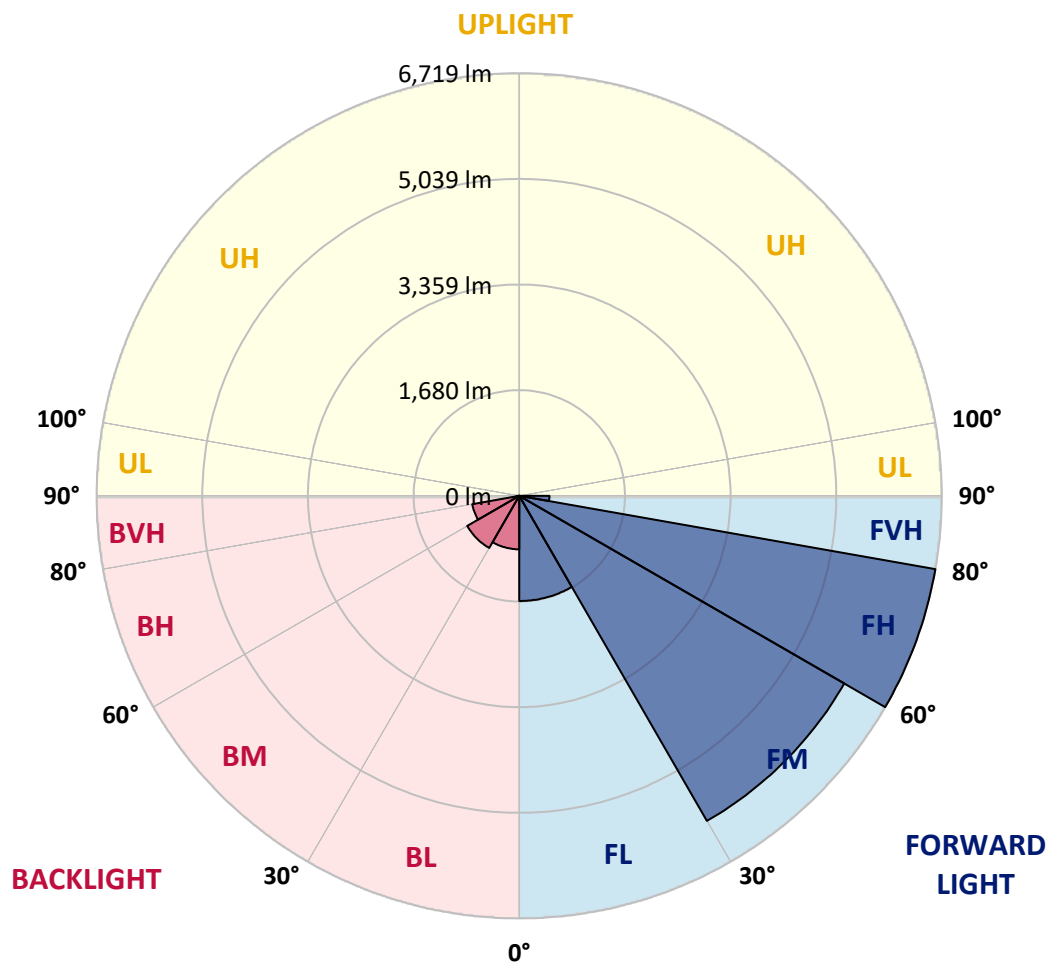
CATALOG NUMBER: GLEON-SA3B-740-U-SL3

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 1672.6 | 9.6       |                         |      |         |
| FM   | (30°-60°)   | 5967.7 | 34.2      |                         |      |         |
| FH   | (60°-80°)   | 6718.6 | 38.5      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 479.6  | 2.7       |                         |      | G3/500  |
| BL   | (0°-30°)    | 850.3  | 4.9       | B2/1000                 |      |         |
| BM   | (30°-60°)   | 956.6  | 5.5       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 758.1  | 4.3       | B2/1000                 |      | G2/1000 |
| BVH  | (80°-90°)   | 43.5   | 0.2       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B2-U0-G3**

Type III Medium





REPORT NUMBER: P319677

CATALOG NUMBER: GLEON-SA3B-740-U-SL3

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°     | 55°     | 58°     | 65°     | 75°     | 85°    |
|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|--------|
| 0°    | 4834.0 | 4834.0 | 4834.0 | 4834.0 | 4834.0 | 4834.0  | 4834.0  | 4834.0  | 4834.0  | 4834.0  | 4834.0 |
| 2.5°  | 4962.2 | 4955.5 | 4958.0 | 4953.1 | 4941.6 | 4930.0  | 4913.0  | 4916.0  | 4892.3  | 4857.1  | 4813.3 |
| 5°    | 4868.6 | 4866.2 | 4884.4 | 4894.8 | 4903.3 | 4896.6  | 4891.7  | 4897.8  | 4863.2  | 4814.5  | 4738.6 |
| 7.5°  | 4672.3 | 4645.6 | 4668.7 | 4703.3 | 4736.1 | 4761.1  | 4793.9  | 4798.1  | 4776.2  | 4725.2  | 4625.5 |
| 10°   | 4393.4 | 4367.8 | 4401.9 | 4456.0 | 4521.6 | 4581.2  | 4647.4  | 4659.6  | 4663.8  | 4617.6  | 4496.7 |
| 12.5° | 4104.1 | 4084.6 | 4118.7 | 4194.6 | 4303.4 | 4395.2  | 4500.9  | 4519.2  | 4556.9  | 4525.9  | 4377.6 |
| 15°   | 3845.2 | 3837.9 | 3879.2 | 3954.0 | 4079.2 | 4219.6  | 4372.1  | 4405.5  | 4469.3  | 4459.0  | 4284.6 |
| 17.5° | 3621.5 | 3619.7 | 3651.3 | 3729.7 | 3868.3 | 4045.7  | 4243.9  | 4300.4  | 4395.2  | 4407.3  | 4208.0 |
| 20°   | 3455.0 | 3451.4 | 3473.2 | 3531.0 | 3673.8 | 3875.0  | 4105.3  | 4183.1  | 4319.8  | 4362.4  | 4129.0 |
| 22.5° | 3365.7 | 3365.1 | 3365.7 | 3393.0 | 3509.7 | 3696.9  | 3970.4  | 4065.2  | 4246.3  | 4326.5  | 4041.5 |
| 25°   | 3350.5 | 3348.7 | 3335.3 | 3332.3 | 3398.5 | 3548.0  | 3836.7  | 3941.2  | 4176.4  | 4301.6  | 3958.2 |
| 27.5° | 3390.0 | 3392.4 | 3374.8 | 3346.2 | 3359.6 | 3450.2  | 3720.6  | 3832.4  | 4120.5  | 4296.7  | 3900.5 |
| 30°   | 3472.0 | 3470.8 | 3455.6 | 3425.8 | 3399.7 | 3413.7  | 3637.9  | 3749.8  | 4082.8  | 4318.0  | 3861.0 |
| 32.5° | 3562.6 | 3569.3 | 3566.2 | 3549.8 | 3510.9 | 3455.0  | 3613.0  | 3722.4  | 4071.9  | 4369.1  | 3844.0 |
| 35°   | 3671.4 | 3678.7 | 3700.5 | 3713.3 | 3667.7 | 3577.8  | 3666.5  | 3761.3  | 4103.5  | 4465.1  | 3871.3 |
| 37.5° | 3774.7 | 3793.5 | 3854.9 | 3909.0 | 3870.1 | 3769.8  | 3808.7  | 3876.2  | 4201.3  | 4616.4  | 3944.9 |
| 40°   | 3893.8 | 3910.2 | 4010.5 | 4125.4 | 4119.3 | 4015.4  | 4037.8  | 4082.8  | 4373.9  | 4833.4  | 4078.0 |
| 42.5° | 4011.1 | 4043.9 | 4189.2 | 4352.0 | 4398.8 | 4307.1  | 4342.9  | 4366.6  | 4617.0  | 5120.8  | 4310.1 |
| 45°   | 4167.3 | 4202.5 | 4404.3 | 4600.6 | 4710.0 | 4658.3  | 4715.5  | 4724.6  | 4922.7  | 5512.2  | 4647.4 |
| 47.5° | 4403.7 | 4443.8 | 4679.0 | 4885.0 | 5052.2 | 5057.6  | 5151.8  | 5148.2  | 5304.4  | 5960.1  | 5072.2 |
| 50°   | 4772.0 | 4829.7 | 5022.4 | 5215.0 | 5418.0 | 5531.1  | 5656.9  | 5639.2  | 5762.0  | 6437.2  | 5561.5 |
| 52.5° | 5254.5 | 5281.3 | 5424.1 | 5566.3 | 5818.5 | 6072.0  | 6252.5  | 6236.7  | 6281.0  | 6927.7  | 6116.9 |
| 55°   | 5754.7 | 5774.8 | 5833.7 | 5911.5 | 6250.6 | 6663.9  | 7045.6  | 7020.6  | 6908.2  | 7436.9  | 6665.7 |
| 57.5° | 6204.4 | 6245.2 | 6285.9 | 6318.1 | 6685.8 | 7282.6  | 7856.9  | 7858.7  | 7588.9  | 7986.3  | 7232.7 |
| 60°   | 6274.3 | 6310.2 | 6579.4 | 6833.5 | 7430.3 | 8107.9  | 8725.4  | 8707.1  | 8293.3  | 8582.5  | 7864.8 |
| 62.5° | 5546.3 | 5627.1 | 6076.8 | 6752.6 | 8147.4 | 9617.5  | 9833.3  | 9810.8  | 9135.6  | 9317.3  | 8600.8 |
| 65°   | 3974.6 | 4066.4 | 4609.1 | 5624.7 | 7799.8 | 11280.9 | 11832.8 | 11530.1 | 10284.2 | 10221.0 | 9462.6 |
| 67.5° | 2293.0 | 2314.9 | 2550.1 | 3365.7 | 5938.9 | 11367.8 | 14883.0 | 14459.4 | 12067.9 | 11246.3 | 9884.3 |
| 70°   | 1695.6 | 1695.0 | 1750.9 | 2071.2 | 3213.7 | 9277.8  | 16333.7 | 16713.5 | 13945.9 | 11583.6 | 9288.1 |
| 71°   | 1533.3 | 1535.2 | 1597.8 | 1885.2 | 2545.2 | 7765.7  | 16025.6 | 16857.0 | 14440.6 | 11417.1 | 8856.6 |
| 72.5° | 1311.5 | 1317.6 | 1404.5 | 1690.7 | 2141.1 | 5355.4  | 14698.3 | 15996.4 | 14675.2 | 11006.2 | 8181.4 |
| 75°   | 994.9  | 1008.9 | 1129.2 | 1425.2 | 1956.9 | 2716.0  | 10787.4 | 12773.5 | 13036.7 | 9711.7  | 6079.3 |
| 77.5° | 709.8  | 725.6  | 861.8  | 1198.5 | 1860.3 | 2046.9  | 7224.2  | 9317.3  | 9593.8  | 6223.9  | 2742.1 |
| 80°   | 448.5  | 467.4  | 570.1  | 953.5  | 1747.9 | 1943.6  | 4539.8  | 6262.8  | 5231.4  | 1991.6  | 697.7  |
| 82.5° | 263.2  | 277.7  | 353.7  | 622.9  | 1427.6 | 1871.8  | 2671.0  | 3471.4  | 2035.9  | 601.7   | 317.2  |
| 85°   | 152.5  | 159.2  | 220.6  | 396.9  | 1036.8 | 1766.7  | 1962.4  | 1940.5  | 883.7   | 294.1   | 150.1  |
| 87.5° | 71.1   | 79.0   | 130.7  | 207.2  | 575.5  | 1280.5  | 1551.0  | 1340.1  | 549.4   | 138.0   | 70.5   |
| 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: P319677

CATALOG NUMBER: GLEON-SA3B-740-U-SL3

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4834.0 | 4834.0 | 4834.0 | 4834.0 | 4834.0 | 4834.0 | 4834.0 | 4834.0 | 4834.0 | 4834.0 | 4834.0 |
| 2.5°  | 4792.1 | 4781.7 | 4738.6 | 4700.3 | 4660.2 | 4607.9 | 4550.2 | 4542.9 | 4507.6 | 4514.3 | 4502.2 |
| 5°    | 4697.2 | 4671.1 | 4567.2 | 4473.0 | 4361.8 | 4262.1 | 4153.9 | 4104.1 | 4032.4 | 4027.5 | 4009.3 |
| 7.5°  | 4561.7 | 4513.1 | 4352.0 | 4173.4 | 3994.7 | 3824.5 | 3656.2 | 3545.6 | 3432.5 | 3384.5 | 3380.3 |
| 10°   | 4409.2 | 4326.5 | 4089.5 | 3825.1 | 3567.4 | 3318.9 | 3078.2 | 2900.1 | 2739.7 | 2663.7 | 2660.7 |
| 12.5° | 4264.5 | 4142.4 | 3817.2 | 3457.4 | 3105.0 | 2782.9 | 2452.8 | 2218.9 | 2017.7 | 1950.2 | 1921.7 |
| 15°   | 4141.8 | 3969.8 | 3552.3 | 3092.2 | 2664.3 | 2217.0 | 1841.5 | 1595.3 | 1409.4 | 1344.9 | 1332.8 |
| 17.5° | 4022.6 | 3801.4 | 3280.6 | 2723.3 | 2206.1 | 1714.4 | 1338.2 | 1155.3 | 1056.3 | 1030.1 | 1029.5 |
| 20°   | 3904.1 | 3628.2 | 2996.8 | 2345.9 | 1763.1 | 1282.3 | 1028.9 | 946.9  | 913.4  | 910.4  | 905.5  |
| 22.5° | 3769.8 | 3444.7 | 2698.4 | 1967.3 | 1375.9 | 1008.2 | 874.5  | 841.7  | 837.5  | 848.4  | 848.4  |
| 25°   | 3644.0 | 3262.4 | 2395.7 | 1596.5 | 1070.2 | 841.1  | 780.9  | 774.3  | 785.8  | 805.3  | 807.1  |
| 27.5° | 3526.7 | 3086.7 | 2100.4 | 1267.1 | 857.5  | 740.8  | 715.9  | 723.8  | 744.5  | 767.0  | 767.6  |
| 30°   | 3430.1 | 2920.8 | 1813.5 | 998.5  | 724.4  | 666.1  | 661.8  | 677.6  | 700.1  | 717.7  | 722.0  |
| 32.5° | 3355.3 | 2779.2 | 1536.4 | 802.8  | 637.5  | 610.2  | 613.8  | 627.2  | 641.2  | 650.9  | 657.6  |
| 35°   | 3320.7 | 2657.7 | 1280.5 | 677.0  | 582.2  | 567.0  | 571.9  | 579.2  | 585.3  | 592.5  | 598.0  |
| 37.5° | 3326.8 | 2563.5 | 1052.0 | 598.6  | 545.1  | 537.2  | 537.2  | 537.2  | 537.2  | 540.9  | 541.5  |
| 40°   | 3383.3 | 2509.4 | 866.0  | 548.8  | 520.2  | 511.7  | 505.0  | 499.0  | 494.1  | 496.5  | 495.3  |
| 42.5° | 3527.9 | 2504.5 | 729.9  | 517.2  | 500.2  | 486.2  | 472.8  | 464.3  | 458.2  | 460.7  | 461.9  |
| 45°   | 3773.5 | 2565.3 | 638.1  | 494.7  | 481.3  | 460.1  | 443.0  | 433.9  | 429.7  | 437.6  | 438.8  |
| 47.5° | 4091.3 | 2697.8 | 582.2  | 478.3  | 463.7  | 435.8  | 417.5  | 409.0  | 410.2  | 421.8  | 424.8  |
| 50°   | 4500.9 | 2912.9 | 555.5  | 468.0  | 451.6  | 415.1  | 396.2  | 389.0  | 392.6  | 409.0  | 412.7  |
| 52.5° | 4950.7 | 3222.9 | 558.5  | 464.9  | 443.7  | 399.9  | 379.8  | 371.3  | 377.4  | 392.6  | 395.6  |
| 55°   | 5469.7 | 3595.4 | 609.0  | 469.2  | 432.1  | 390.2  | 366.5  | 351.9  | 356.7  | 370.7  | 373.2  |
| 57.5° | 6046.4 | 4022.0 | 710.5  | 468.0  | 417.5  | 381.1  | 352.5  | 330.6  | 334.3  | 342.8  | 345.2  |
| 60°   | 6646.9 | 4537.4 | 867.9  | 471.6  | 410.8  | 370.1  | 333.7  | 306.3  | 305.1  | 312.4  | 313.6  |
| 62.5° | 7367.7 | 5133.6 | 1047.7 | 474.0  | 415.1  | 356.1  | 308.7  | 282.0  | 278.3  | 280.2  | 281.4  |
| 65°   | 8110.3 | 5565.1 | 980.3  | 464.3  | 428.5  | 344.6  | 286.9  | 258.3  | 251.6  | 250.4  | 251.0  |
| 67.5° | 8133.4 | 5102.6 | 687.4  | 444.9  | 433.9  | 338.5  | 270.4  | 238.2  | 227.3  | 223.0  | 222.4  |
| 70°   | 7294.1 | 4145.4 | 535.4  | 424.2  | 412.0  | 328.8  | 255.3  | 221.8  | 205.4  | 198.7  | 198.1  |
| 71°   | 6884.5 | 3816.0 | 507.5  | 413.9  | 395.6  | 319.1  | 248.6  | 214.5  | 197.5  | 190.2  | 189.0  |
| 72.5° | 6242.1 | 3421.0 | 473.4  | 397.5  | 364.0  | 294.1  | 235.8  | 204.2  | 186.6  | 178.1  | 176.2  |
| 75°   | 4479.7 | 2237.1 | 406.6  | 354.3  | 301.4  | 234.6  | 206.6  | 183.5  | 168.3  | 158.0  | 156.8  |
| 77.5° | 1726.0 | 890.3  | 307.5  | 294.8  | 230.9  | 183.5  | 170.2  | 158.6  | 147.7  | 137.3  | 136.7  |
| 80°   | 533.6  | 398.1  | 224.3  | 221.8  | 167.1  | 136.7  | 132.5  | 129.4  | 125.2  | 114.3  | 111.8  |
| 82.5° | 285.0  | 228.5  | 154.4  | 143.4  | 109.4  | 91.2   | 96.0   | 97.2   | 97.8   | 86.3   | 85.1   |
| 85°   | 136.1  | 120.9  | 86.9   | 81.4   | 63.8   | 51.1   | 59.0   | 63.8   | 64.4   | 52.9   | 49.2   |
| 87.5° | 65.0   | 63.2   | 40.7   | 31.0   | 23.7   | 17.0   | 20.7   | 25.5   | 28.0   | 20.1   | 17.6   |
| 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

REPORT NUMBER: SP1-2101-121-2

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

REPORT NUMBER: SP1-2101-121-2

**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

REPORT NUMBER: SP1-2101-121-2

### 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**

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

REPORT NUMBER: SP1-2101-121-2

TM-30-18

### 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



REPORT NUMBER: SP1-2101-121-2

**TM-30-18**

**Measure Comparisons**



(END OF REPORT)