

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: P319054

Luminaire Tested: **GLEON-SA0C-740-U-T4W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P319054  
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-SA0C-740-U-T4W  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(10) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV  
WIDE OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 69521 lumens  
Efficiency: N/A  
Efficacy: 124.6 lumens/watt  
Luminous Opening: Rectangular (W 2.5' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B4 - U0 - G5

Input Watts (W): 558  
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

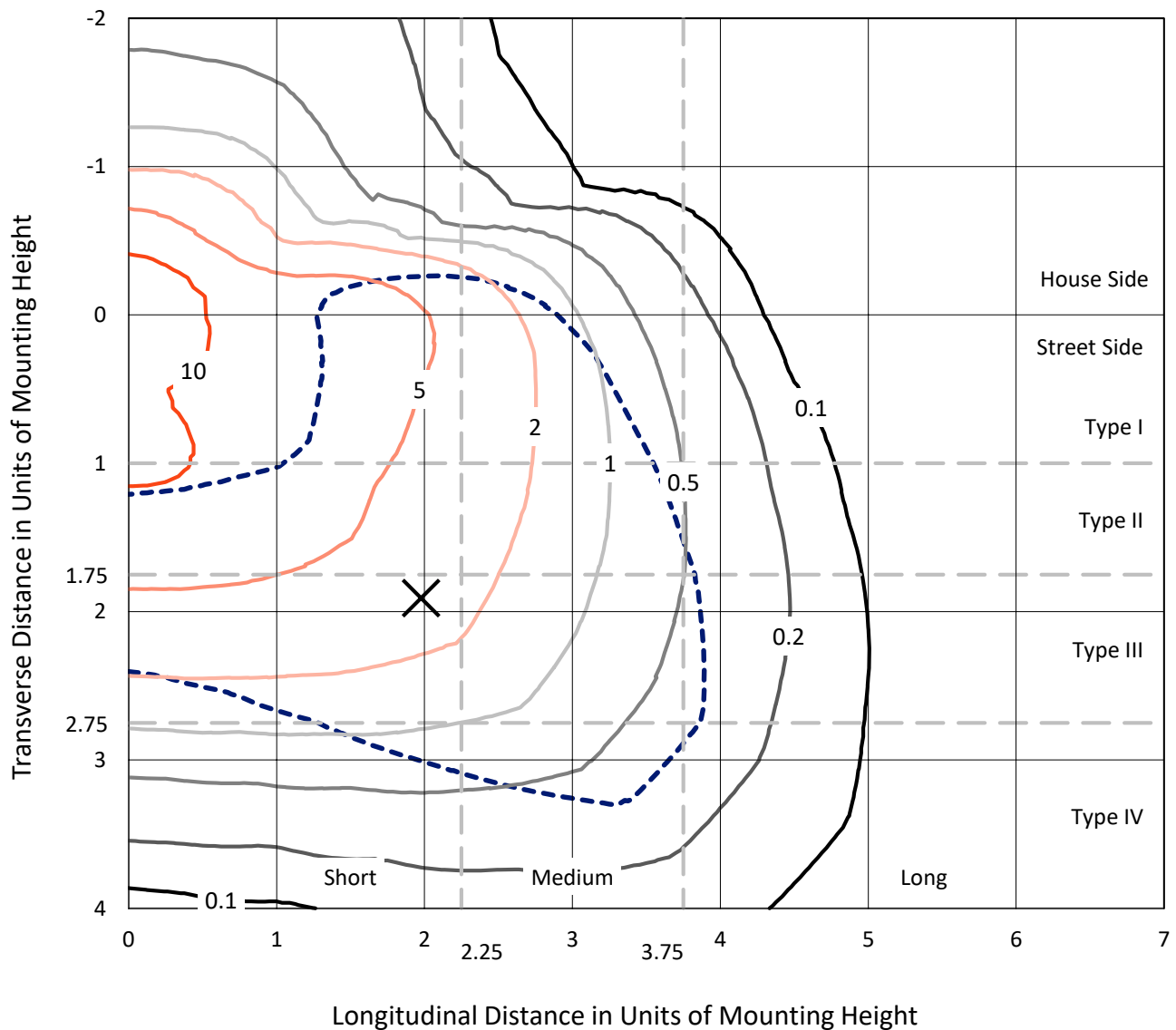


REPORT NUMBER: P319054

CATALOG NUMBER: GLEON-SA0C-740-U-T4W

## Iso-Footcandle Lines of Horizontal Illumination

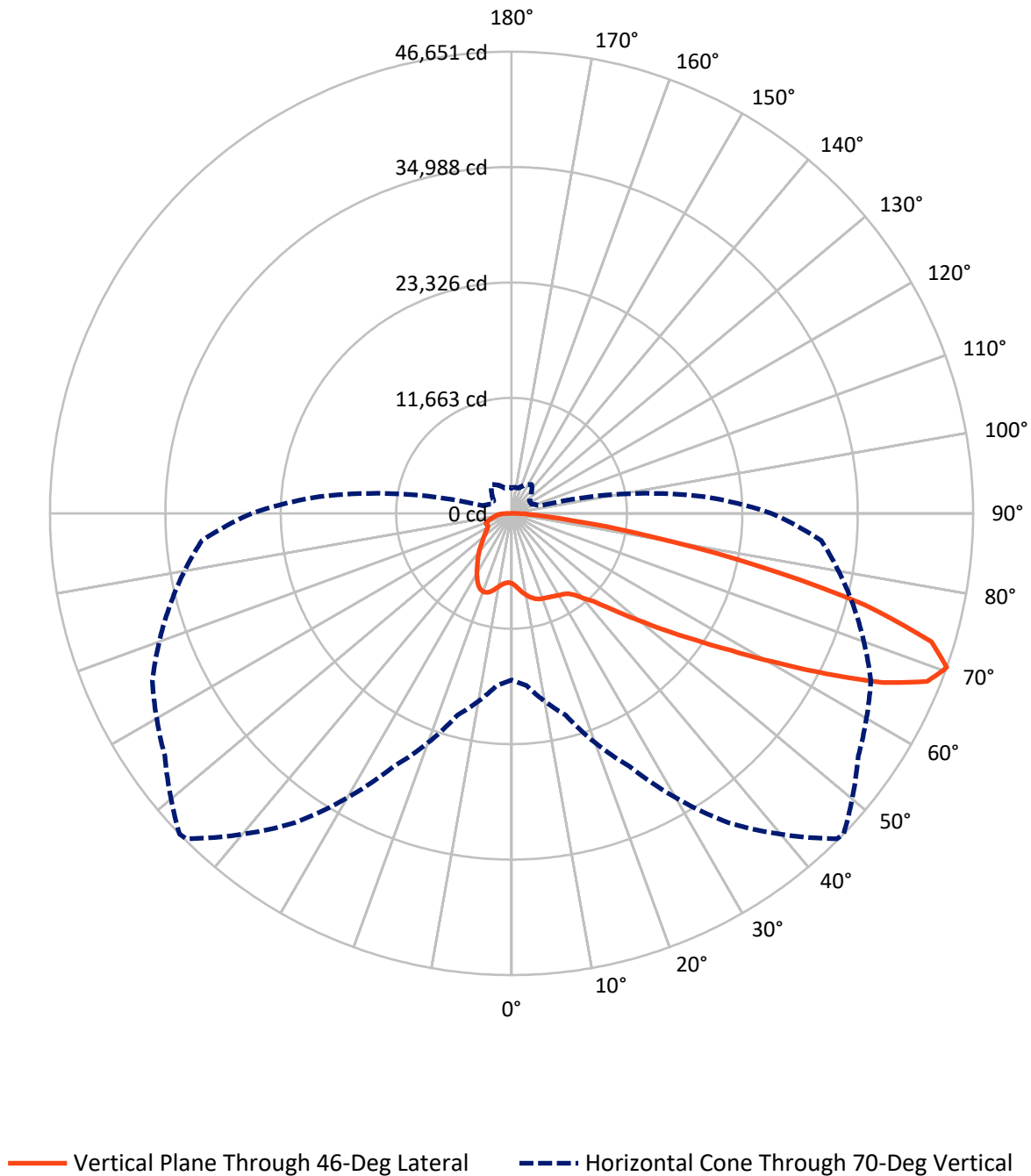
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 14.2 fc  
 Type IV - Short - N/A

REPORT NUMBER: P319054  
CATALOG NUMBER: GLEON-SA0C-740-U-T4W

## Luminous Intensity Polar Plot



REPORT NUMBER: P319054

CATALOG NUMBER: GLEON-SA0C-740-U-T4W

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 15934.0  | 0.0    | 15934.0 |
|                    | % Fixture | 22.9     | 0.0    | 22.9    |
| <b>Street Side</b> | Lumens    | 53587.0  | 0.0    | 53587.0 |
|                    | % Fixture | 77.1     | 0.0    | 77.1    |
| <b>Total</b>       | Lumens    | 69521.0  | 0.0    | 69521.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 722.0   | 1.0       |
| 10°-20°   | 2405.6  | 3.5       |
| 20°-30°   | 4011.1  | 5.8       |
| 30°-40°   | 5692.0  | 8.2       |
| 40°-50°   | 8372.6  | 12.0      |
| 50°-60°   | 14179.0 | 20.4      |
| 60°-70°   | 20126.9 | 29.0      |
| 70°-80°   | 12227.3 | 17.6      |
| 80°-90°   | 1784.4  | 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°    | 69521.0 | 100.0     |
| 0°-180°   | 69521.0 | 100.0     |

**Coefficient of Utilization**



REPORT NUMBER: P319054

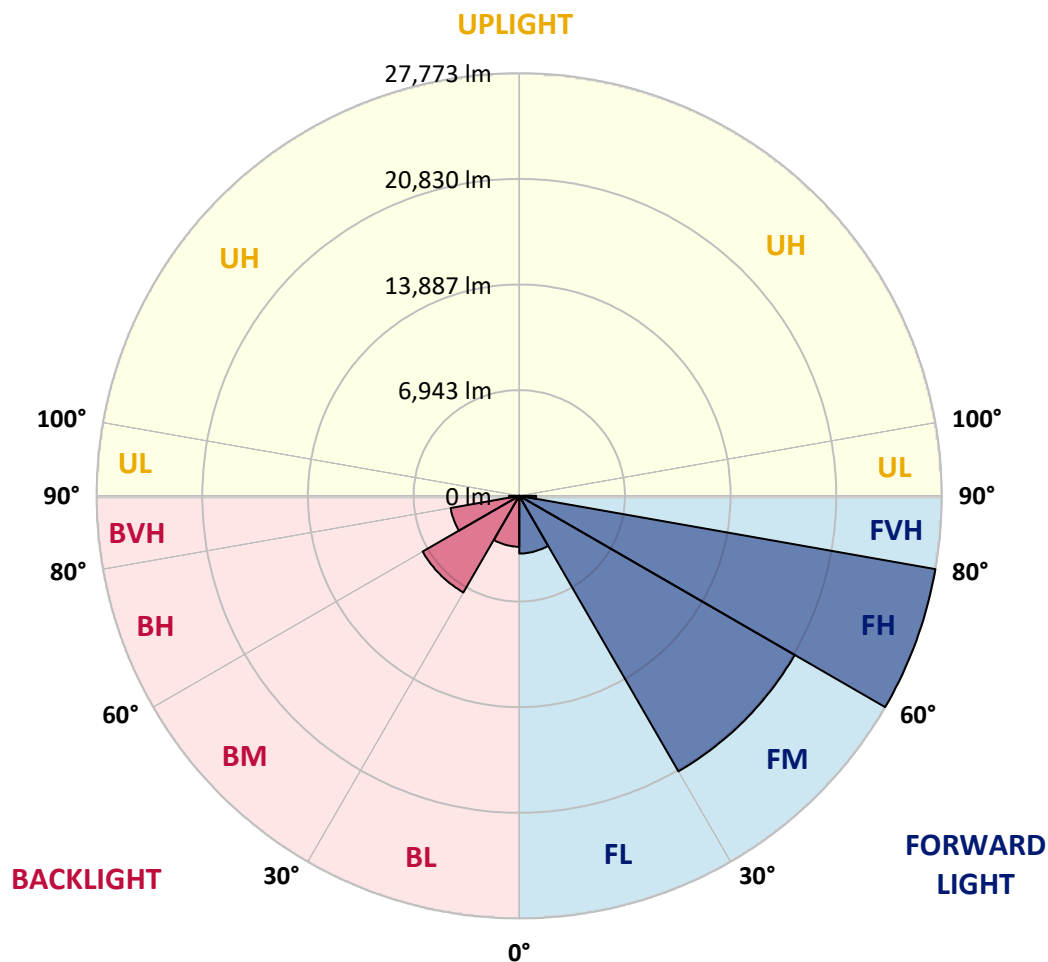
CATALOG NUMBER: GLEON-SA0C-740-U-T4W

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|---------|-----------|-------------------------|------|---------|
|      |             |         |           | B                       | U    | G       |
| FL   | (0°-30°)    | 3793.4  | 5.5       |                         |      |         |
| FM   | (30°-60°)   | 20908.8 | 30.1      |                         |      |         |
| FH   | (60°-80°)   | 27773.3 | 39.9      |                         |      | G5      |
| FVH  | (80°-90°)   | 1111.5  | 1.6       |                         |      | G5      |
| BL   | (0°-30°)    | 3345.4  | 4.8       | B4/5000                 |      |         |
| BM   | (30°-60°)   | 7334.9  | 10.6      | B4/8500                 |      |         |
| BH   | (60°-80°)   | 4580.9  | 6.6       | B4/5000                 |      | G4/5000 |
| BVH  | (80°-90°)   | 672.9   | 1.0       |                         |      | G4/750  |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |         |

**BUG Rating: B4-U0-G5**

Type IV Short





REPORT NUMBER: P319054

CATALOG NUMBER: GLEON-SA0C-740-U-T4W

**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 46°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 7082.8  | 7082.8  | 7082.8  | 7082.8  | 7082.8  | 7082.8  | 7082.8  | 7082.8  | 7082.8  | 7082.8  | 7082.8  |
| 2.5°  | 7437.3  | 7442.1  | 7451.6  | 7427.8  | 7361.2  | 7342.2  | 7335.0  | 7266.0  | 7220.8  | 7154.2  | 7097.1  |
| 5°    | 8032.1  | 8036.9  | 8022.6  | 7956.0  | 7808.5  | 7699.0  | 7689.5  | 7532.5  | 7389.7  | 7237.5  | 7123.3  |
| 7.5°  | 8653.1  | 8660.2  | 8615.0  | 8488.9  | 8281.9  | 8091.6  | 8079.7  | 7865.6  | 7649.1  | 7418.3  | 7247.0  |
| 10°   | 9202.7  | 9174.1  | 9100.4  | 8924.3  | 8679.3  | 8446.1  | 8436.6  | 8212.9  | 7963.1  | 7684.8  | 7456.4  |
| 12.5° | 9569.1  | 9545.3  | 9450.1  | 9236.0  | 8967.1  | 8753.0  | 8734.0  | 8527.0  | 8284.3  | 7979.8  | 7706.2  |
| 15°   | 9771.3  | 9788.0  | 9659.5  | 9416.8  | 9155.1  | 8974.3  | 8957.6  | 8810.1  | 8593.6  | 8286.7  | 7972.6  |
| 17.5° | 9797.5  | 9811.8  | 9688.0  | 9447.7  | 9233.6  | 9109.9  | 9102.8  | 9005.2  | 8848.2  | 8553.2  | 8224.8  |
| 20°   | 9645.2  | 9654.7  | 9552.4  | 9354.9  | 9214.6  | 9176.5  | 9174.1  | 9131.3  | 9014.7  | 8753.0  | 8434.2  |
| 22.5° | 9423.9  | 9431.1  | 9357.3  | 9214.6  | 9167.0  | 9226.5  | 9243.1  | 9226.5  | 9143.2  | 8898.1  | 8598.4  |
| 25°   | 9369.2  | 9364.5  | 9288.3  | 9143.2  | 9183.6  | 9309.7  | 9331.2  | 9338.3  | 9281.2  | 9067.1  | 8807.7  |
| 27.5° | 9633.3  | 9616.7  | 9471.5  | 9238.4  | 9264.5  | 9416.8  | 9445.4  | 9514.4  | 9478.7  | 9290.7  | 9045.7  |
| 30°   | 10397.0 | 10368.5 | 10071.1 | 9600.0  | 9471.5  | 9550.0  | 9585.7  | 9695.2  | 9702.3  | 9545.3  | 9362.1  |
| 32.5° | 11686.5 | 11650.9 | 11117.9 | 10275.7 | 9821.3  | 9685.7  | 9719.0  | 9883.1  | 9971.2  | 9849.8  | 9652.3  |
| 35°   | 13316.3 | 13275.8 | 12576.4 | 11424.8 | 10406.5 | 9945.0  | 9968.8  | 10099.6 | 10275.7 | 10104.4 | 9842.7  |
| 37.5° | 15015.0 | 14917.5 | 14244.2 | 12776.2 | 11336.8 | 10499.3 | 10499.3 | 10516.0 | 10599.3 | 10242.4 | 10066.3 |
| 40°   | 16704.2 | 16606.7 | 15997.6 | 14365.5 | 12540.7 | 11372.5 | 11317.8 | 10949.0 | 10882.4 | 10575.5 | 10516.0 |
| 42.5° | 18274.5 | 18246.0 | 17886.7 | 16161.8 | 13953.9 | 12231.4 | 12155.2 | 11529.5 | 11543.8 | 11353.5 | 11355.8 |
| 45°   | 19944.7 | 19944.7 | 19652.1 | 17974.7 | 15600.3 | 13611.3 | 13535.2 | 12614.4 | 12757.2 | 12669.2 | 12880.9 |
| 47.5° | 21308.0 | 21350.8 | 21310.3 | 19863.8 | 17515.5 | 15364.8 | 15226.8 | 14118.1 | 14517.8 | 14819.9 | 15436.1 |
| 50°   | 22699.8 | 22766.4 | 22773.5 | 21936.1 | 19830.5 | 17448.9 | 17291.9 | 16114.2 | 17006.4 | 17872.4 | 19083.4 |
| 52.5° | 24719.7 | 24869.6 | 24272.4 | 24003.6 | 22666.5 | 19923.3 | 19768.6 | 18681.3 | 20170.7 | 21386.5 | 23473.0 |
| 55°   | 26592.1 | 26461.3 | 26035.4 | 26201.9 | 25702.3 | 22740.2 | 22623.7 | 21669.6 | 23696.7 | 25276.4 | 27986.3 |
| 57.5° | 27605.7 | 27596.1 | 28024.4 | 28738.2 | 28976.1 | 26213.8 | 26116.3 | 25188.4 | 27672.3 | 28859.5 | 32223.7 |
| 60°   | 28795.3 | 28811.9 | 29873.0 | 31493.3 | 32473.5 | 30539.2 | 30496.4 | 29792.1 | 31533.7 | 32204.6 | 35547.4 |
| 62.5° | 28961.8 | 29261.6 | 31088.8 | 33877.2 | 35747.2 | 35592.6 | 35687.8 | 33939.1 | 34988.3 | 34874.1 | 38028.9 |
| 65°   | 27046.6 | 27441.5 | 30748.6 | 34598.1 | 39002.0 | 41119.4 | 41207.5 | 38109.8 | 37712.4 | 37155.7 | 38916.3 |
| 67.5° | 23120.9 | 23706.2 | 27298.8 | 33030.2 | 40075.0 | 45204.5 | 45328.2 | 41343.1 | 39972.7 | 37928.9 | 36779.8 |
| 70°   | 16825.6 | 17475.1 | 21091.5 | 28210.0 | 38162.1 | 46510.7 | 46651.0 | 42773.0 | 40058.3 | 35728.2 | 31398.1 |
| 72.5° | 10163.9 | 10673.0 | 13654.1 | 20767.9 | 32209.4 | 44131.5 | 44381.3 | 40960.0 | 36572.8 | 30263.2 | 23185.1 |
| 75°   | 4463.3  | 4796.4  | 6602.2  | 11967.3 | 23059.0 | 36513.3 | 36825.0 | 35059.6 | 29716.0 | 21993.2 | 13704.1 |
| 77.5° | 1901.0  | 1996.1  | 2707.5  | 5198.5  | 13035.5 | 24950.5 | 25378.7 | 25616.7 | 20161.2 | 11967.3 | 5790.9  |
| 80°   | 1184.8  | 1222.9  | 1532.2  | 2353.0  | 6100.2  | 14013.4 | 14475.0 | 15072.1 | 10011.6 | 4399.1  | 2022.3  |
| 82.5° | 720.9   | 763.7   | 1018.3  | 1422.8  | 3176.2  | 6352.4  | 6573.7  | 6994.8  | 3885.2  | 1901.0  | 1046.8  |
| 85°   | 433.0   | 463.9   | 623.3   | 899.3   | 1808.2  | 2498.1  | 2495.8  | 2759.9  | 1829.6  | 1222.9  | 552.0   |
| 87.5° | 207.0   | 230.8   | 333.1   | 466.3   | 911.2   | 937.4   | 877.9   | 994.5   | 1111.1  | 801.8   | 278.4   |
| 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: P319054

CATALOG NUMBER: GLEON-SA0C-740-U-T4W

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°    | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 7082.8  | 7082.8  | 7082.8  | 7082.8 | 7082.8 | 7082.8 | 7082.8 | 7082.8 | 7082.8 | 7082.8 | 7082.8 |
| 2.5°  | 7078.1  | 7068.6  | 7037.6  | 7013.8 | 7009.1 | 6994.8 | 6982.9 | 6990.0 | 6999.6 | 7001.9 | 7001.9 |
| 5°    | 7075.7  | 7049.5  | 7009.1  | 6992.4 | 7013.8 | 7042.4 | 7078.1 | 7125.7 | 7154.2 | 7175.6 | 7189.9 |
| 7.5°  | 7189.9  | 7139.9  | 7094.7  | 7085.2 | 7128.0 | 7204.2 | 7285.1 | 7385.0 | 7454.0 | 7501.6 | 7511.1 |
| 10°   | 7380.2  | 7318.4  | 7273.2  | 7282.7 | 7358.8 | 7468.3 | 7582.5 | 7710.9 | 7815.6 | 7879.9 | 7884.6 |
| 12.5° | 7599.1  | 7539.6  | 7496.8  | 7537.3 | 7663.3 | 7796.6 | 7915.5 | 8027.4 | 8122.5 | 8186.8 | 8186.8 |
| 15°   | 7851.3  | 7808.5  | 7758.5  | 7851.3 | 8022.6 | 8141.6 | 8191.5 | 8246.2 | 8298.6 | 8346.2 | 8336.7 |
| 17.5° | 8094.0  | 8053.5  | 8027.4  | 8136.8 | 8315.2 | 8370.0 | 8336.7 | 8296.2 | 8296.2 | 8322.4 | 8327.1 |
| 20°   | 8303.4  | 8267.7  | 8284.3  | 8391.4 | 8484.2 | 8427.1 | 8303.4 | 8174.9 | 8122.5 | 8136.8 | 8151.1 |
| 22.5° | 8486.5  | 8469.9  | 8519.9  | 8569.8 | 8503.2 | 8303.4 | 8074.9 | 7901.3 | 7837.0 | 7832.3 | 7837.0 |
| 25°   | 8700.7  | 8698.3  | 8760.2  | 8669.7 | 8374.7 | 8006.0 | 7699.0 | 7530.1 | 7494.4 | 7523.0 | 7570.6 |
| 27.5° | 8967.1  | 8993.3  | 9024.2  | 8693.5 | 8113.0 | 7556.3 | 7244.6 | 7128.0 | 7163.7 | 7232.7 | 7277.9 |
| 30°   | 9307.4  | 9378.7  | 9312.1  | 8634.1 | 7737.1 | 7042.4 | 6745.0 | 6711.7 | 6809.2 | 6906.8 | 6954.4 |
| 32.5° | 9638.1  | 9749.9  | 9588.1  | 8479.4 | 7251.8 | 6497.6 | 6266.8 | 6257.3 | 6376.2 | 6471.4 | 6538.0 |
| 35°   | 9904.5  | 10125.8 | 9795.1  | 8172.5 | 6690.3 | 5995.5 | 5826.6 | 5762.4 | 5805.2 | 5917.0 | 5993.2 |
| 37.5° | 10251.9 | 10620.7 | 9937.8  | 7703.8 | 6081.2 | 5581.6 | 5384.1 | 5236.6 | 5198.5 | 5243.7 | 5281.8 |
| 40°   | 10887.1 | 11374.9 | 10004.5 | 7049.5 | 5486.4 | 5167.6 | 4967.7 | 4751.2 | 4601.3 | 4491.9 | 4494.3 |
| 42.5° | 11924.5 | 12357.5 | 9961.6  | 6254.9 | 4936.8 | 4763.1 | 4537.1 | 4287.3 | 4044.6 | 3797.2 | 3778.1 |
| 45°   | 13608.9 | 13818.3 | 9833.2  | 5412.6 | 4453.8 | 4339.6 | 4127.9 | 3878.1 | 3554.5 | 3273.8 | 3247.6 |
| 47.5° | 16304.5 | 15840.6 | 9633.3  | 4677.5 | 4028.0 | 3980.4 | 3785.3 | 3497.4 | 3154.8 | 2928.8 | 2909.7 |
| 50°   | 19980.4 | 18759.9 | 9535.8  | 4092.2 | 3652.0 | 3666.3 | 3506.9 | 3202.4 | 2878.8 | 2712.3 | 2693.2 |
| 52.5° | 24377.1 | 22159.7 | 9723.7  | 3640.2 | 3349.9 | 3399.9 | 3280.9 | 2995.4 | 2724.2 | 2593.3 | 2574.3 |
| 55°   | 28938.0 | 25680.9 | 9926.0  | 3311.8 | 3064.4 | 3161.9 | 3121.5 | 2885.9 | 2640.9 | 2519.6 | 2502.9 |
| 57.5° | 32842.2 | 28309.9 | 9521.5  | 3045.4 | 2809.8 | 2962.1 | 2997.8 | 2817.0 | 2598.1 | 2488.6 | 2469.6 |
| 60°   | 35299.9 | 29368.6 | 8460.4  | 2795.5 | 2607.6 | 2802.7 | 2926.4 | 2797.9 | 2614.7 | 2605.2 | 2590.9 |
| 62.5° | 36465.7 | 29275.9 | 6868.7  | 2598.1 | 2481.5 | 2733.7 | 2978.7 | 2905.0 | 2805.1 | 2890.7 | 2897.8 |
| 65°   | 35942.3 | 27876.9 | 5115.2  | 2467.2 | 2391.1 | 2759.9 | 3135.8 | 3107.2 | 2859.8 | 2945.4 | 2957.3 |
| 67.5° | 32497.3 | 24538.9 | 3787.7  | 2353.0 | 2291.2 | 2833.6 | 3421.3 | 3173.8 | 2752.7 | 2814.6 | 2776.5 |
| 70°   | 26266.2 | 19454.6 | 2921.6  | 2224.5 | 2188.8 | 2824.1 | 3549.7 | 3133.4 | 2636.1 | 2650.4 | 2548.1 |
| 72.5° | 18112.7 | 13266.3 | 2376.8  | 2105.6 | 2041.3 | 2574.3 | 3459.3 | 3033.5 | 2538.6 | 2429.1 | 2293.5 |
| 75°   | 9849.8  | 7120.9  | 2019.9  | 1981.9 | 1782.0 | 2260.2 | 3292.8 | 2962.1 | 2450.6 | 2305.4 | 2229.3 |
| 77.5° | 3875.7  | 2954.9  | 1753.5  | 1812.9 | 1558.4 | 1996.1 | 3107.2 | 2826.5 | 2329.2 | 2138.9 | 2100.8 |
| 80°   | 1582.2  | 1508.4  | 1453.7  | 1567.9 | 1339.5 | 1746.3 | 2883.6 | 2667.1 | 2184.1 | 1984.2 | 1908.1 |
| 82.5° | 897.0   | 937.4   | 1130.1  | 1237.2 | 1087.3 | 1608.3 | 2776.5 | 2538.6 | 2010.4 | 1777.3 | 1686.8 |
| 85°   | 459.2   | 549.6   | 787.5   | 887.4  | 799.4  | 1368.0 | 2557.6 | 2222.2 | 1613.1 | 1360.9 | 1368.0 |
| 87.5° | 221.3   | 306.9   | 497.2   | 556.7  | 518.7  | 989.7  | 1910.5 | 1610.7 | 1256.2 | 994.5  | 963.6  |
| 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)