

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 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: P317691

Luminaire Tested: **GLEON-SA7C-727-U-T3R**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P317691
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-10)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA7C-727-U-T3R
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(7) 70 CRI, 2700K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III
ROADWAY OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 42778 lumens
Efficiency: N/A
Efficacy: 109.4 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type IV - Medium
BUG Rating: B3 - U0 - G5

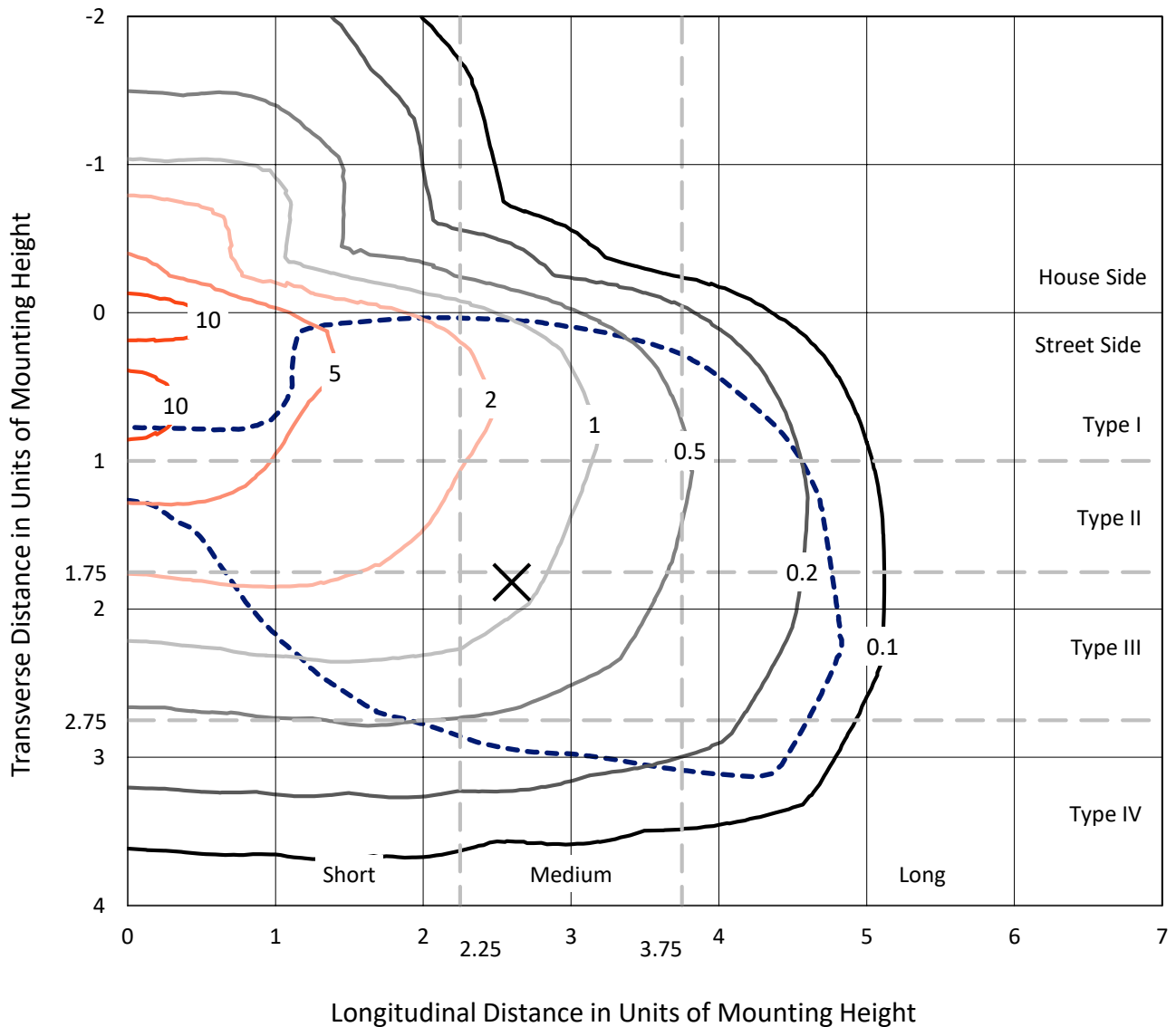
Input Watts (W): 391
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P317691
 CATALOG NUMBER: GLEON-SA7C-727-U-T3R

Iso-Footcandle Lines of Horizontal Illumination

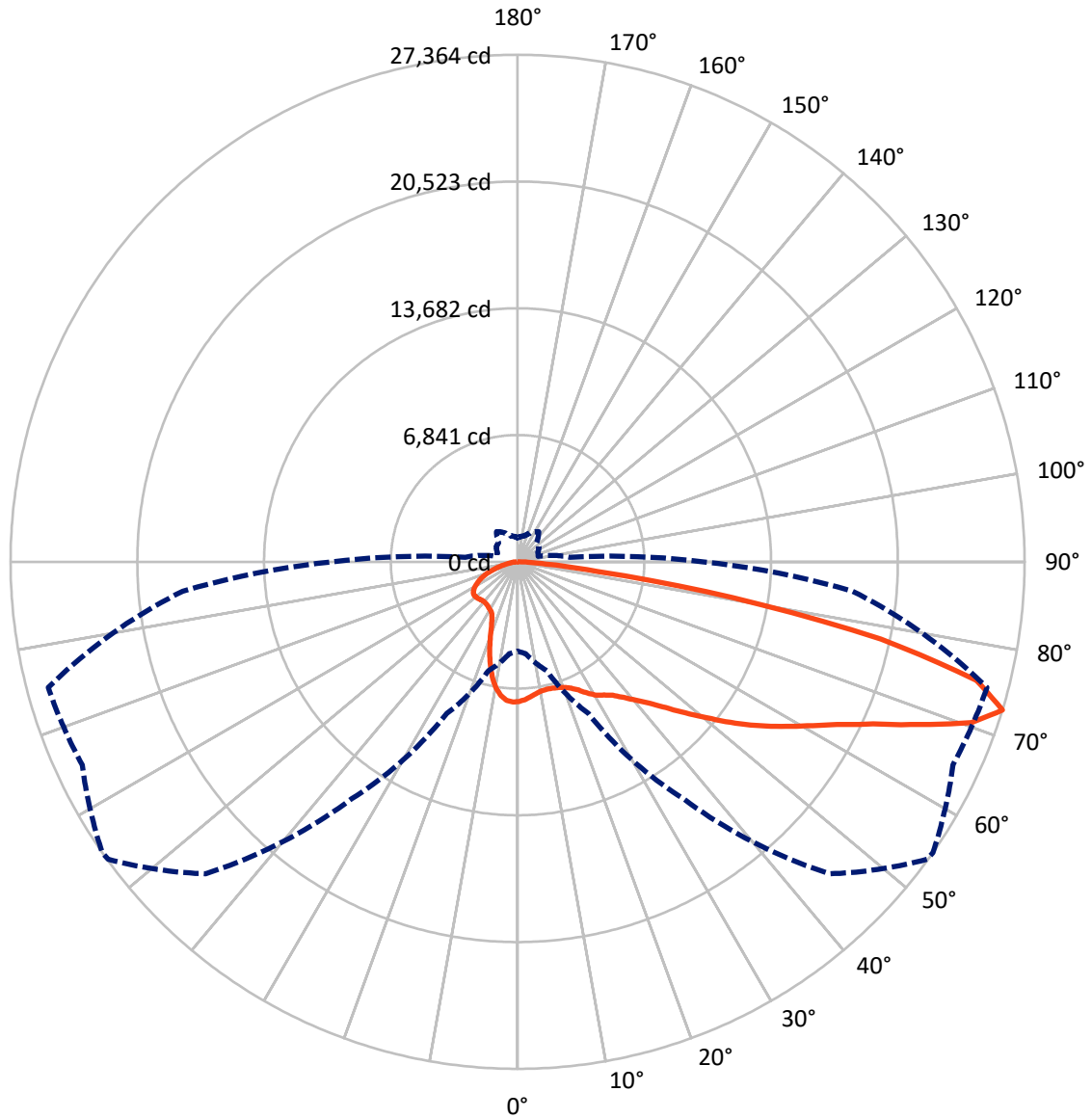
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 12.2 fc
 Type IV - Medium - N/A

REPORT NUMBER: P317691
CATALOG NUMBER: GLEON-SA7C-727-U-T3R

Luminous Intensity Polar Plot



— Vertical Plane Through 55-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

REPORT NUMBER: P317691
 CATALOG NUMBER: GLEON-SA7C-727-U-T3R

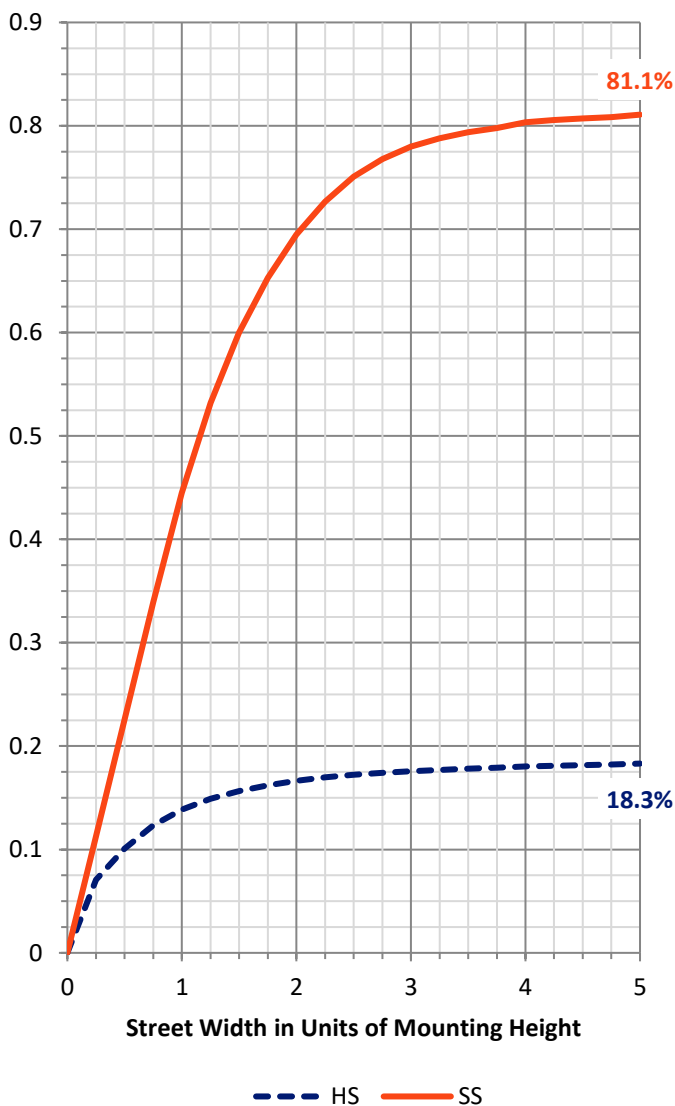
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 7951.0 | 0.0 | 7951.0 |
| | % Fixture | 18.6 | 0.0 | 18.6 |
| Street Side | Lumens | 34827.0 | 0.0 | 34827.0 |
| | % Fixture | 81.4 | 0.0 | 81.4 |
| Total | Lumens | 42778.0 | 0.0 | 42778.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 682.7 | 1.6 |
| 10°-20° | 1817.7 | 4.2 |
| 20°-30° | 2997.0 | 7.0 |
| 30°-40° | 4433.3 | 10.4 |
| 40°-50° | 6187.9 | 14.5 |
| 50°-60° | 8056.8 | 18.8 |
| 60°-70° | 9901.6 | 23.1 |
| 70°-80° | 7761.7 | 18.1 |
| 80°-90° | 939.3 | 2.2 |
| 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° | 42778.0 | 100.0 |
| 0°-180° | 42778.0 | 100.0 |

Coefficient of Utilization

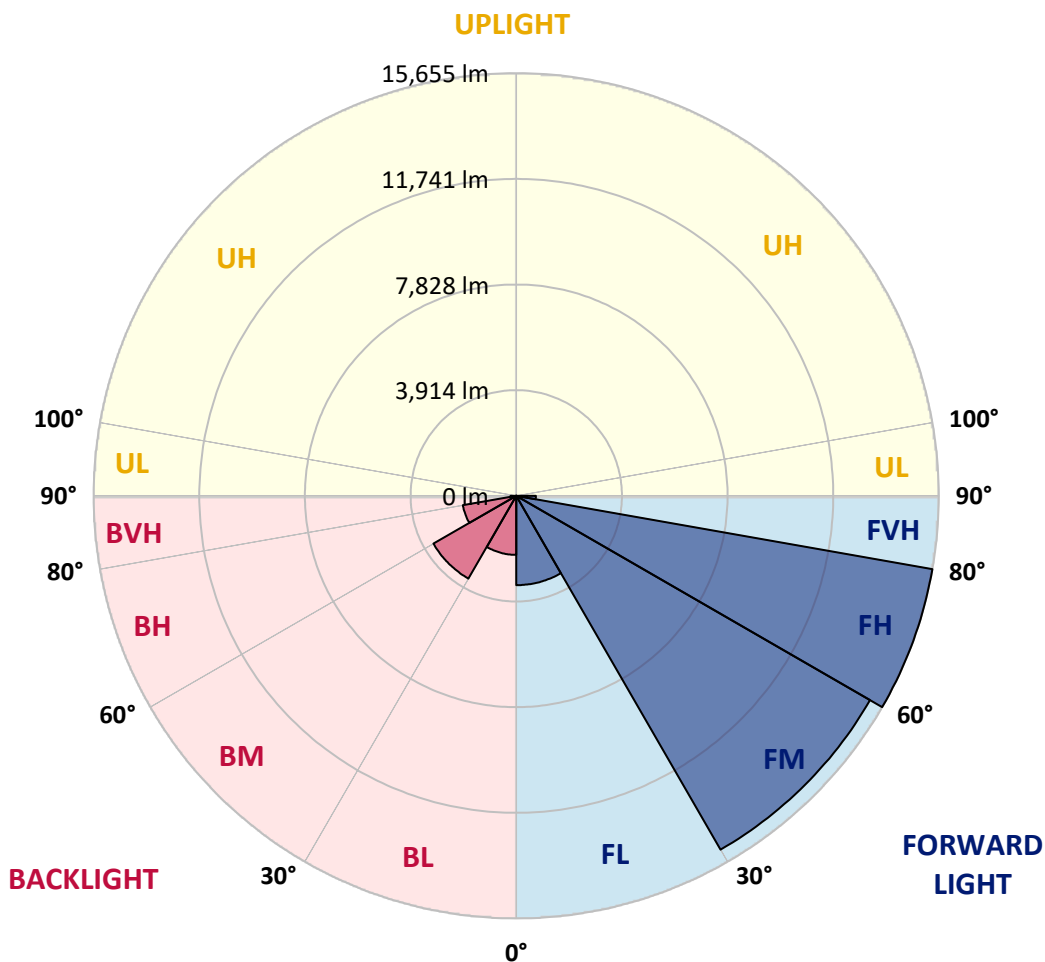


REPORT NUMBER: P317691
 CATALOG NUMBER: GLEON-SA7C-727-U-T3R

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 3309.8 | 7.7 | | | |
| FM (30°-60°) | 15135.7 | 35.4 | | | |
| FH (60°-80°) | 15655.3 | 36.6 | | | G5 |
| FVH (80°-90°) | 726.2 | 1.7 | | | G4/750 |
| BL (0°-30°) | 2187.7 | 5.1 | B3/2500 | | |
| BM (30°-60°) | 3542.3 | 8.3 | B3/5000 | | |
| BH (60°-80°) | 2008.0 | 4.7 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 213.1 | 0.5 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G5
 Type IV Medium





REPORT NUMBER: P317691
 CATALOG NUMBER: GLEON-SA7C-727-U-T3R

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 54° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 |
| 2.5° | 7299.5 | 7282.2 | 7303.8 | 7334.2 | 7367.4 | 7412.2 | 7438.2 | 7449.8 | 7494.5 | 7511.9 | 7549.5 |
| 5° | 6961.4 | 6952.7 | 6988.8 | 7040.9 | 7114.5 | 7218.6 | 7302.4 | 7318.3 | 7436.8 | 7520.6 | 7597.1 |
| 7.5° | 6715.8 | 6715.8 | 6757.7 | 6819.8 | 6902.2 | 7042.3 | 7160.8 | 7182.5 | 7383.3 | 7563.9 | 7705.5 |
| 10° | 6520.7 | 6527.9 | 6577.1 | 6650.7 | 6747.5 | 6896.4 | 7053.9 | 7078.4 | 7368.8 | 7665.0 | 7890.4 |
| 12.5° | 6390.7 | 6408.0 | 6452.8 | 6519.3 | 6639.2 | 6819.8 | 7019.2 | 7052.4 | 7399.2 | 7809.5 | 8113.0 |
| 15° | 6473.0 | 6501.9 | 6506.3 | 6533.7 | 6600.2 | 6796.7 | 7039.4 | 7074.1 | 7464.2 | 7956.9 | 8365.8 |
| 17.5° | 6834.2 | 6844.4 | 6799.6 | 6741.8 | 6710.0 | 6835.7 | 7100.1 | 7136.2 | 7542.2 | 8102.8 | 8608.5 |
| 20° | 7383.3 | 7377.5 | 7280.7 | 7124.7 | 6962.8 | 6983.1 | 7199.8 | 7237.4 | 7647.7 | 8231.4 | 8851.3 |
| 22.5° | 8076.8 | 8056.6 | 7907.8 | 7620.3 | 7344.3 | 7228.7 | 7374.6 | 7406.4 | 7806.6 | 8414.9 | 9111.4 |
| 25° | 8917.7 | 8873.0 | 8676.5 | 8290.7 | 7884.7 | 7587.0 | 7637.6 | 7667.9 | 8037.8 | 8620.1 | 9349.8 |
| 27.5° | 9804.9 | 9760.1 | 9510.1 | 9043.5 | 8503.1 | 8039.3 | 8000.3 | 8026.3 | 8300.8 | 8771.8 | 9526.0 |
| 30° | 10732.5 | 10684.8 | 10456.5 | 9933.5 | 9159.0 | 8507.4 | 8338.4 | 8348.5 | 8485.7 | 8854.2 | 9670.5 |
| 32.5° | 11664.4 | 11619.7 | 11363.9 | 10757.1 | 9871.4 | 9010.2 | 8582.5 | 8569.5 | 8597.0 | 8939.4 | 9833.8 |
| 35° | 12609.4 | 12626.7 | 12327.6 | 11655.8 | 10660.3 | 9569.4 | 8871.5 | 8844.1 | 8783.4 | 9114.2 | 10065.0 |
| 37.5° | 13620.8 | 13609.2 | 13222.0 | 12519.8 | 11485.3 | 10176.2 | 9286.2 | 9281.9 | 9072.3 | 9445.1 | 10427.6 |
| 40° | 14297.0 | 14304.2 | 14068.7 | 13404.1 | 12319.0 | 10848.1 | 9817.9 | 9807.8 | 9533.3 | 9940.7 | 10903.0 |
| 42.5° | 14561.4 | 14609.1 | 14669.8 | 14247.9 | 13191.7 | 11626.9 | 10452.2 | 10437.8 | 10176.2 | 10651.6 | 11462.2 |
| 45° | 14580.2 | 14675.6 | 15051.2 | 14997.8 | 14075.9 | 12518.4 | 11262.8 | 11222.3 | 11034.5 | 11596.5 | 12129.7 |
| 47.5° | 14418.4 | 14516.6 | 15140.8 | 15444.2 | 14866.3 | 13459.0 | 12210.6 | 12178.8 | 12017.0 | 12778.4 | 12852.1 |
| 50° | 14064.4 | 14158.3 | 14955.9 | 15662.4 | 15516.5 | 14363.5 | 13302.9 | 13219.1 | 13132.4 | 14143.8 | 13678.6 |
| 52.5° | 13401.2 | 13581.8 | 14708.8 | 15714.4 | 15905.1 | 15166.8 | 14451.6 | 14396.7 | 14444.4 | 15584.4 | 14506.5 |
| 55° | 11830.6 | 12032.9 | 14071.6 | 15671.1 | 16192.7 | 15841.6 | 15600.3 | 15597.4 | 15844.5 | 17095.7 | 15395.1 |
| 57.5° | 10950.7 | 11093.7 | 12774.1 | 15597.4 | 16533.7 | 16512.0 | 16737.4 | 16764.8 | 17246.0 | 18741.4 | 16325.6 |
| 60° | 10453.6 | 10603.9 | 12116.7 | 15324.3 | 17062.5 | 17378.9 | 17897.6 | 17952.5 | 18670.6 | 20563.4 | 17445.4 |
| 62.5° | 10001.4 | 10166.1 | 11709.2 | 14768.0 | 17685.2 | 18618.6 | 19287.6 | 19336.7 | 20179.1 | 22436.0 | 18527.6 |
| 65° | 9228.4 | 9414.8 | 11112.5 | 14402.5 | 18251.6 | 20235.4 | 21054.7 | 21087.9 | 21911.5 | 24398.1 | 19355.5 |
| 67.5° | 8136.1 | 8306.6 | 9987.0 | 13594.8 | 18670.6 | 22199.0 | 23404.0 | 23422.8 | 23629.4 | 25783.7 | 19778.8 |
| 70° | 6860.2 | 6925.3 | 8383.1 | 11927.4 | 18175.0 | 24035.4 | 25978.8 | 25983.1 | 25195.7 | 26670.9 | 19709.5 |
| 72.5° | 4820.1 | 4973.2 | 6085.8 | 9029.0 | 15619.1 | 23811.5 | 27315.3 | 27364.4 | 25923.9 | 26223.0 | 18134.6 |
| 75° | 2956.2 | 3118.0 | 3817.4 | 5471.7 | 9908.9 | 18727.0 | 25237.6 | 25578.6 | 24558.5 | 23380.9 | 14814.3 |
| 77.5° | 1976.6 | 2037.3 | 2491.0 | 3190.3 | 4489.2 | 10774.4 | 19403.2 | 20044.7 | 20401.6 | 17050.9 | 9474.0 |
| 80° | 1102.4 | 1218.0 | 1651.5 | 1982.4 | 1996.8 | 4281.2 | 11634.1 | 11784.4 | 11350.9 | 6789.5 | 2923.0 |
| 82.5° | 583.7 | 647.3 | 1102.4 | 1164.6 | 1089.4 | 1433.3 | 4336.1 | 4340.4 | 3626.6 | 1820.5 | 868.4 |
| 85° | 452.2 | 505.7 | 755.7 | 710.9 | 556.3 | 635.7 | 1430.4 | 1508.4 | 1233.9 | 745.6 | 283.2 |
| 87.5° | 225.4 | 280.3 | 512.9 | 450.8 | 218.2 | 182.1 | 511.5 | 546.2 | 486.9 | 291.9 | 102.6 |
| 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: P317691
 CATALOG NUMBER: GLEON-SA7C-727-U-T3R

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 | 7545.1 |
| 2.5° | 7563.9 | 7576.9 | 7592.8 | 7575.5 | 7569.7 | 7546.6 | 7507.6 | 7498.9 | 7478.7 | 7480.1 | 7491.7 |
| 5° | 7630.4 | 7652.0 | 7643.4 | 7576.9 | 7497.4 | 7386.2 | 7270.6 | 7172.3 | 7107.3 | 7103.0 | 7098.7 |
| 7.5° | 7757.5 | 7772.0 | 7704.1 | 7514.8 | 7292.3 | 7035.1 | 6792.3 | 6579.9 | 6451.4 | 6419.6 | 6412.3 |
| 10° | 7956.9 | 7954.0 | 7767.6 | 7386.2 | 6942.6 | 6483.1 | 6093.0 | 5798.3 | 5626.3 | 5575.8 | 5562.8 |
| 12.5° | 8179.4 | 8146.2 | 7789.3 | 7152.1 | 6448.5 | 5811.3 | 5317.1 | 4989.1 | 4810.0 | 4752.2 | 4737.7 |
| 15° | 8409.2 | 8326.8 | 7735.8 | 6802.5 | 5841.6 | 5087.4 | 4568.7 | 4265.3 | 4168.5 | 4136.7 | 4130.9 |
| 17.5° | 8623.0 | 8464.1 | 7582.7 | 6328.5 | 5149.5 | 4366.4 | 3961.8 | 3840.5 | 3863.6 | 3905.5 | 3906.9 |
| 20° | 8832.5 | 8556.5 | 7337.1 | 5730.4 | 4419.9 | 3772.6 | 3635.3 | 3724.9 | 3834.7 | 3919.9 | 3931.5 |
| 22.5° | 9039.1 | 8621.5 | 7020.6 | 5039.7 | 3766.8 | 3438.8 | 3535.6 | 3698.9 | 3824.6 | 3917.0 | 3932.9 |
| 25° | 9212.5 | 8637.4 | 6584.3 | 4302.8 | 3313.1 | 3313.1 | 3487.9 | 3642.5 | 3766.8 | 3857.8 | 3873.7 |
| 27.5° | 9276.1 | 8530.5 | 5968.8 | 3620.8 | 3084.8 | 3255.3 | 3421.5 | 3550.0 | 3655.5 | 3752.3 | 3769.7 |
| 30° | 9300.6 | 8332.6 | 5257.9 | 3073.2 | 2990.9 | 3193.2 | 3331.9 | 3441.7 | 3541.4 | 3632.4 | 3648.3 |
| 32.5° | 9305.0 | 8094.2 | 4503.7 | 2762.6 | 2925.9 | 3128.1 | 3220.6 | 3317.4 | 3424.3 | 3460.5 | 3466.2 |
| 35° | 9332.4 | 7812.4 | 3709.0 | 2603.7 | 2865.2 | 3067.5 | 3141.2 | 3210.5 | 3037.1 | 3050.1 | 3061.7 |
| 37.5° | 9411.9 | 7533.6 | 3044.3 | 2514.1 | 2826.2 | 3035.7 | 3123.8 | 2872.4 | 2736.6 | 2704.8 | 2700.5 |
| 40° | 9560.7 | 7235.9 | 2551.6 | 2441.8 | 2811.7 | 3051.6 | 3012.6 | 2681.7 | 2447.6 | 2272.8 | 2246.8 |
| 42.5° | 9767.3 | 6915.2 | 2236.7 | 2394.2 | 2821.8 | 3128.1 | 2858.0 | 2498.2 | 2109.5 | 1996.8 | 1982.4 |
| 45° | 10000.0 | 6578.5 | 2066.2 | 2360.9 | 2856.5 | 3187.4 | 2826.2 | 2254.0 | 1952.0 | 1866.8 | 1859.5 |
| 47.5° | 10225.4 | 6166.7 | 1978.0 | 2346.5 | 2904.2 | 3139.7 | 2691.8 | 2178.9 | 1876.9 | 1832.1 | 1836.4 |
| 50° | 10484.0 | 5795.4 | 1924.6 | 2330.6 | 2946.1 | 3109.4 | 2540.1 | 2139.9 | 1848.0 | 1902.9 | 1960.7 |
| 52.5° | 10702.2 | 5411.0 | 1876.9 | 2298.8 | 2962.0 | 3055.9 | 2501.1 | 2147.1 | 1848.0 | 1953.5 | 2008.4 |
| 55° | 10960.8 | 5120.6 | 1822.0 | 2232.3 | 2931.6 | 2904.2 | 2473.6 | 2190.4 | 1869.7 | 1803.2 | 1809.0 |
| 57.5° | 11294.6 | 5025.3 | 1761.3 | 2128.3 | 2830.5 | 2683.1 | 2460.6 | 2232.3 | 1856.7 | 1814.8 | 1829.2 |
| 60° | 11756.9 | 5126.4 | 1736.7 | 1992.5 | 2673.0 | 2509.7 | 2462.1 | 2210.7 | 1765.6 | 1693.4 | 1694.8 |
| 62.5° | 12197.6 | 5239.1 | 1735.3 | 1907.2 | 2479.4 | 2355.1 | 2428.8 | 2139.9 | 1719.4 | 1677.5 | 1693.4 |
| 65° | 12342.1 | 5125.0 | 1665.9 | 1811.9 | 2261.2 | 2170.2 | 2368.1 | 2064.7 | 1684.7 | 1621.1 | 1618.3 |
| 67.5° | 12148.5 | 4771.0 | 1525.8 | 1657.3 | 2011.3 | 1954.9 | 2288.7 | 1975.1 | 1629.8 | 1577.8 | 1569.1 |
| 70° | 11573.4 | 3980.6 | 1352.4 | 1453.5 | 1726.6 | 1712.2 | 2163.0 | 1871.1 | 1556.1 | 1511.3 | 1473.8 |
| 72.5° | 10026.0 | 2836.3 | 1140.0 | 1209.4 | 1405.9 | 1452.1 | 1989.6 | 1735.3 | 1452.1 | 1355.3 | 1297.5 |
| 75° | 8234.3 | 2099.4 | 936.3 | 950.7 | 1067.8 | 1193.5 | 1751.2 | 1576.4 | 1329.3 | 1164.6 | 1119.8 |
| 77.5° | 5042.6 | 1284.5 | 745.6 | 751.3 | 765.8 | 952.2 | 1442.0 | 1398.6 | 1173.2 | 971.0 | 939.2 |
| 80° | 1632.7 | 700.8 | 538.9 | 566.4 | 523.0 | 697.9 | 1115.4 | 1190.6 | 1007.1 | 812.0 | 777.3 |
| 82.5° | 621.3 | 408.9 | 364.1 | 382.9 | 362.7 | 468.1 | 813.5 | 953.6 | 825.0 | 667.5 | 543.3 |
| 85° | 300.5 | 231.2 | 215.3 | 241.3 | 224.0 | 239.8 | 520.2 | 702.2 | 625.6 | 434.9 | 404.6 |
| 87.5° | 106.9 | 102.6 | 82.4 | 111.3 | 95.4 | 85.2 | 158.9 | 354.0 | 413.2 | 299.1 | 267.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-1-R4

Test Date: 08/20/2019

Luminaire Tested: SA1C-727-U-5WQ

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-1-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: McGRAW-EDISON
 Catalog Number: **SA1C-727-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-1-R3. TO UPDATE THE CATALOG NUMBER.TESTED IN SITU. (1) 70 CRI, 2700K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2741
 CIE u': 0.2605
 CIE v': 0.5272
 Duv: 0.0005
 CIE x: 0.4573
 CIE y: 0.4113
 CIE z: 0.1313
 Peak Wavelength (nm): 602
 Dominant Wavelength (nm): 583
 Purity: 61.2
 Rf: 69.9
 Rg: 98.3

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.5 | | |
| R1: | 69.2 | R9: | -16.1 |
| R2: | 79.4 | R10: | 51.4 |
| R3: | 87.8 | R11: | 63.1 |
| R4: | 69.4 | R12: | 42.0 |
| R5: | 66.4 | R13: | 70.2 |
| R6: | 69.8 | R14: | 92.4 |
| R7: | 79.8 | | |
| R8: | 50.1 | | |



Test Conditions

Stabilization Time: 56M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.3./42%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-1-R4

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

REPORT NUMBER: SP1-1908-441-1-R4

CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-1-R4

Photopic Flux vs. Wavelength



Photopic Lumens: 6211.7

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|
| 360 | 2044 | 0.0 | 490 | 7179 | 1.0 | 620 | 118034 | 30.7 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 1.9 | 625 | 111884 | 24.7 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 3.4 | 630 | 106119 | 19.2 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 6.3 | 635 | 99706 | 15.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 10.4 | 640 | 92142 | 11.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 16.3 | 645 | 84987 | 8.2 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 22.9 | 650 | 78016 | 5.7 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 29.7 | 655 | 71541 | 4.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 36.7 | 660 | 64863 | 2.7 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 42.5 | 665 | 58485 | 1.9 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.0 | 540 | 73435 | 47.8 | 670 | 51641 | 1.1 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.0 | 545 | 78677 | 52.4 | 675 | 46030 | 0.8 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 0.0 | 550 | 83331 | 56.6 | 680 | 40590 | 0.5 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 0.1 | 555 | 89120 | 60.9 | 685 | 35691 | 0.3 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 0.3 | 560 | 94613 | 64.3 | 690 | 31631 | 0.2 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 0.6 | 565 | 99818 | 66.4 | 695 | 27437 | 0.1 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 0.9 | 570 | 106526 | 69.3 | 700 | 24589 | 0.1 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 1.1 | 575 | 111610 | 69.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 1.0 | 580 | 117163 | 69.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 0.8 | 585 | 122201 | 67.9 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 0.6 | 590 | 125662 | 65.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 0.5 | 595 | 127415 | 60.4 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 0.4 | 600 | 129155 | 55.7 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 0.4 | 605 | 128057 | 49.6 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 0.5 | 610 | 126031 | 43.3 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 0.7 | 615 | 123059 | 37.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 6474.3

S/P: 1.04

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2044 | 0.0 | 490 | 7179 | 6.0 | 620 | 118034 | 0.1 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 8.6 | 625 | 111884 | 0.1 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 12.5 | 630 | 106119 | 0.0 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 17.3 | 635 | 99706 | 0.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 21.8 | 640 | 92142 | 0.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 25.7 | 645 | 84987 | 0.0 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 27.5 | 650 | 78016 | 0.0 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 28.1 | 655 | 71541 | 0.0 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 27.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 24.7 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.1 | 540 | 73435 | 21.5 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.5 | 545 | 78677 | 18.3 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 1.6 | 550 | 83331 | 15.0 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 3.9 | 555 | 89120 | 12.0 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 8.1 | 560 | 94613 | 9.3 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 13.3 | 565 | 99818 | 7.0 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 19.1 | 570 | 106526 | 5.2 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 21.6 | 575 | 111610 | 3.7 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 18.1 | 580 | 117163 | 2.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 11.8 | 585 | 122201 | 1.8 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 8.1 | 590 | 125662 | 1.2 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 6.2 | 595 | 127415 | 0.8 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 4.8 | 600 | 129155 | 0.5 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 4.1 | 605 | 128057 | 0.4 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 4.1 | 610 | 126031 | 0.2 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 4.6 | 615 | 123059 | 0.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 2145.7 M/P: 0.35

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|
| 360 | 2044 | 0.0 | 490 | 7179 | 11.1 | 620 | 118034 | 1.5 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 16.9 | 625 | 111884 | 0.9 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 26.0 | 630 | 106119 | 0.6 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 38.2 | 635 | 99706 | 0.4 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 51.6 | 640 | 92142 | 0.2 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 65.1 | 645 | 84987 | 0.1 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 75.2 | 650 | 78016 | 0.1 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 82.9 | 655 | 71541 | 0.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 86.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.1 | 535 | 68520 | 85.4 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.2 | 540 | 73435 | 81.1 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.7 | 545 | 78677 | 75.4 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 2.3 | 550 | 83331 | 68.1 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 6.2 | 555 | 89120 | 60.9 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 13.0 | 560 | 94613 | 52.9 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 22.2 | 565 | 99818 | 44.8 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 32.0 | 570 | 106526 | 37.6 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 36.7 | 575 | 111610 | 30.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 30.4 | 580 | 117163 | 24.1 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 19.7 | 585 | 122201 | 18.7 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 13.2 | 590 | 125662 | 14.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 10.0 | 595 | 127415 | 10.2 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 7.7 | 600 | 129155 | 7.3 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 6.7 | 605 | 128057 | 5.0 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 6.9 | 610 | 126031 | 3.4 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 8.1 | 615 | 123059 | 2.3 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

TM-30-18

Summary

$R_f = 69.9$
 $R_g = 98.3$
 $CIE R_a = 71.5$
 $R_9 = -16.1$



Color Vector Graphics



REPORT NUMBER: SP1-1908-441-1-R4

TM-30-18

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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 54 | CES51 = 77 | CES76 = 48 |
| CES02 = 63 | CES27 = 74 | CES52 = 80 | CES77 = 75 |
| CES03 = 31 | CES28 = 80 | CES53 = 66 | CES78 = 56 |
| CES04 = 71 | CES29 = 44 | CES54 = 77 | CES79 = 81 |
| CES05 = 50 | CES30 = 46 | CES55 = 74 | CES80 = 80 |
| CES06 = 52 | CES31 = 50 | CES56 = 63 | CES81 = 73 |
| CES07 = 42 | CES32 = 49 | CES57 = 60 | CES82 = 91 |
| CES08 = 41 | CES33 = 53 | CES58 = 63 | CES83 = 84 |
| CES09 = 29 | CES34 = 66 | CES59 = 85 | CES84 = 90 |
| CES10 = 77 | CES35 = 82 | CES60 = 89 | CES85 = 87 |
| CES11 = 60 | CES36 = 78 | CES61 = 85 | CES86 = 65 |
| CES12 = 66 | CES37 = 75 | CES62 = 69 | CES87 = 78 |
| CES13 = 43 | CES38 = 53 | CES63 = 68 | CES88 = 73 |
| CES14 = 74 | CES39 = 91 | CES64 = 68 | CES89 = 68 |
| CES15 = 71 | CES40 = 85 | CES65 = 65 | CES90 = 68 |
| CES16 = 48 | CES41 = 76 | CES66 = 62 | CES91 = 91 |
| CES17 = 50 | CES42 = 76 | CES67 = 60 | CES92 = 71 |
| CES18 = 57 | CES43 = 65 | CES68 = 68 | CES93 = 82 |
| CES19 = 73 | CES44 = 98 | CES69 = 77 | CES94 = 57 |
| CES20 = 67 | CES45 = 75 | CES70 = 60 | CES95 = 78 |
| CES21 = 88 | CES46 = 70 | CES71 = 57 | CES96 = 80 |
| CES22 = 80 | CES47 = 63 | CES72 = 86 | CES97 = 79 |
| CES23 = 92 | CES48 = 51 | CES73 = 52 | CES98 = 71 |
| CES24 = 91 | CES49 = 68 | CES74 = 90 | CES99 = 64 |
| CES25 = 73 | CES50 = 77 | CES75 = 58 | |



REPORT NUMBER: SP1-1908-441-1-R4

TM-30-18

Color Rendition by Hue-Angle Bin



REPORT NUMBER: SP1-1908-441-1-R4

TM-30-18

Measure Comparisons



(END OF REPORT)