

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: P321830

Luminaire Tested: **GLEON-SA6A-727-U-T2-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P321830
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-13)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA6A-727-U-T2-HSS
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(6) 70 CRI, 2700K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16583 lumens
Efficiency: N/A
Efficacy: 85.9 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type II - Medium
BUG Rating: B1 - U0 - G3

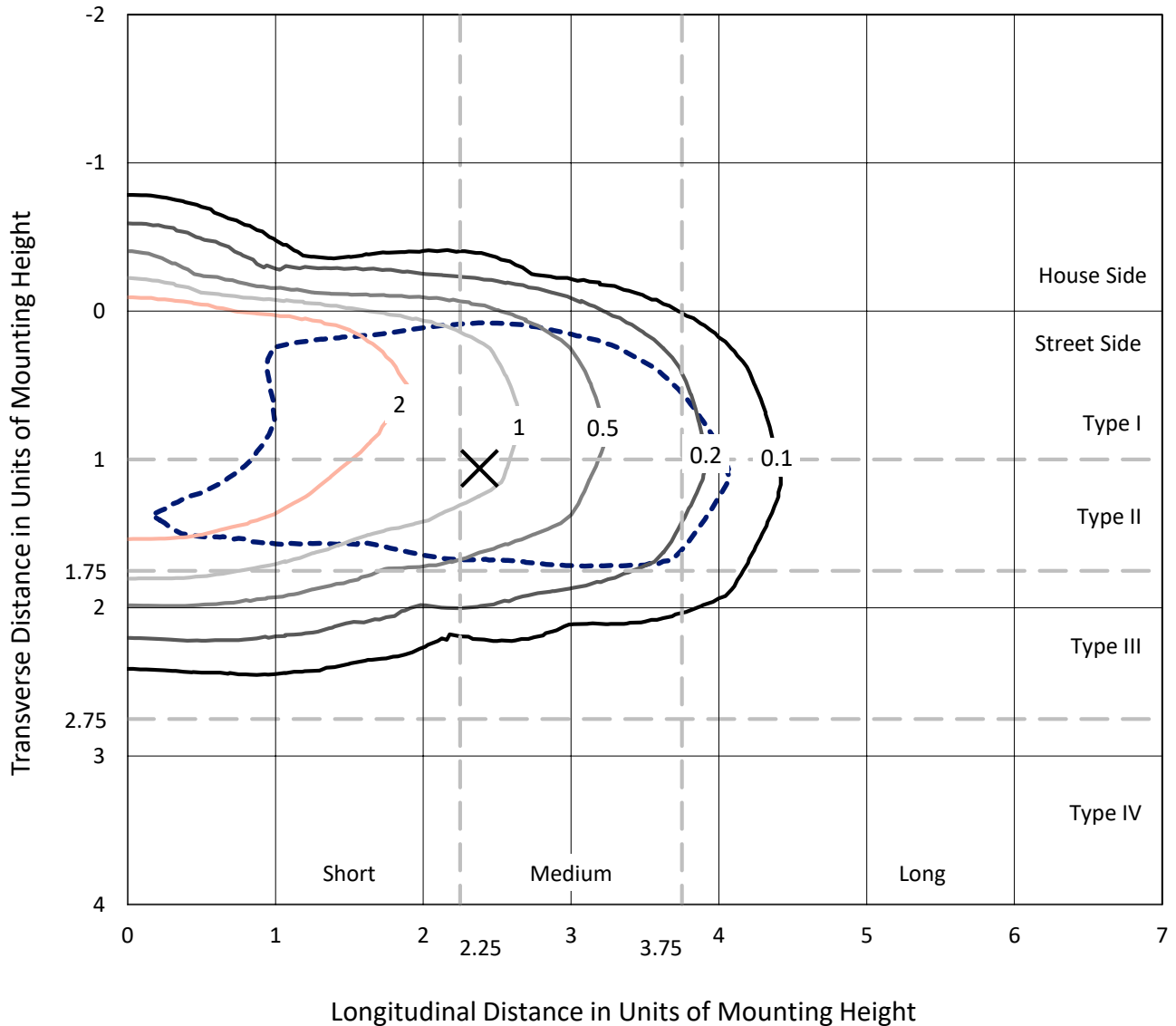
Input Watts (W): 193
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P321830
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Iso-Footcandle Lines of Horizontal Illumination

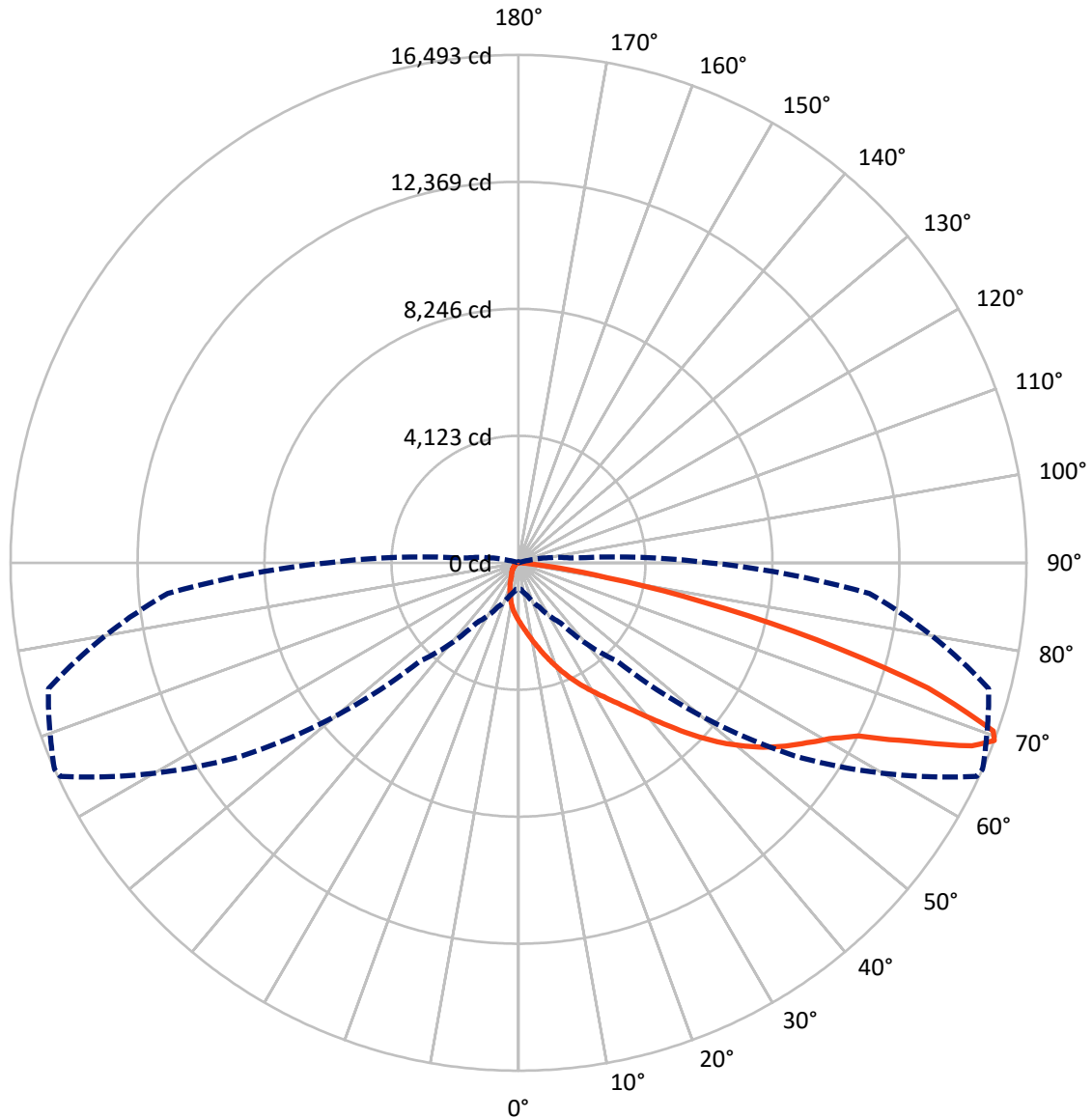
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5 fc
 Type II - Medium - N/A

REPORT NUMBER: P321830
CATALOG NUMBER: GLEON-SA6A-727-U-T2-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 66-Deg Lateral - - - Horizontal Cone Through 69-Deg Vertical

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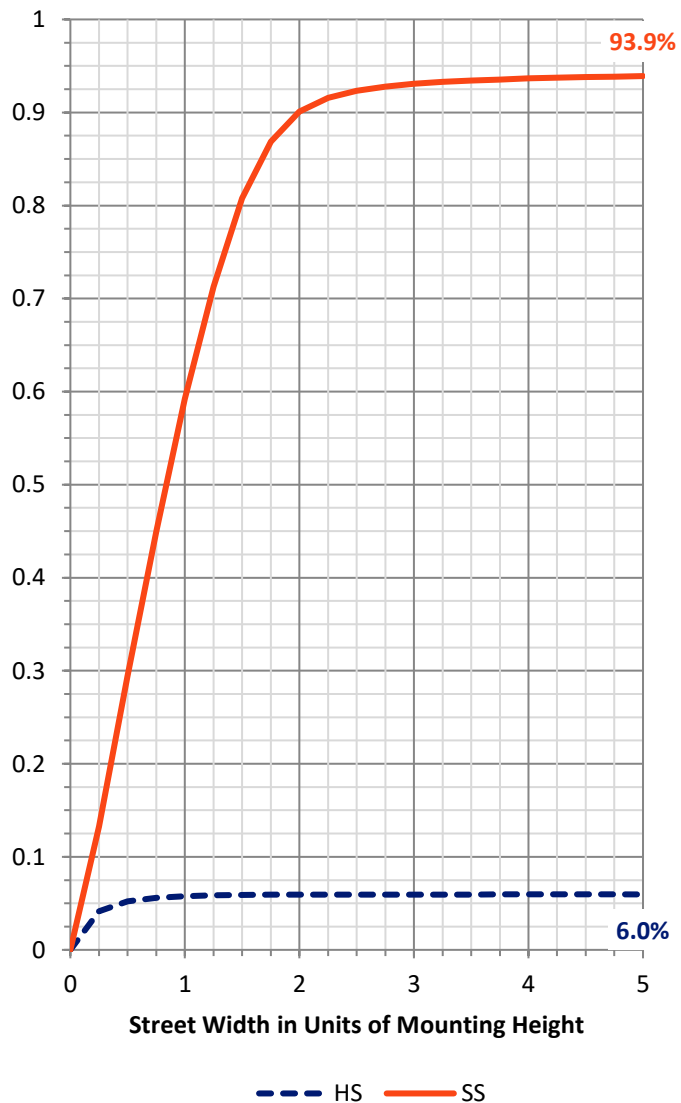
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 994.7 | 0.0 | 994.7 |
| | % Fixture | 6.0 | 0.0 | 6.0 |
| Street Side | Lumens | 15588.2 | 0.0 | 15588.2 |
| | % Fixture | 94.0 | 0.0 | 94.0 |
| Total | Lumens | 16583.0 | 0.0 | 16583.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 182.4 | 1.1 |
| 10°-20° | 542.9 | 3.3 |
| 20°-30° | 945.4 | 5.7 |
| 30°-40° | 1658.8 | 10.0 |
| 40°-50° | 2776.5 | 16.7 |
| 50°-60° | 4081.2 | 24.6 |
| 60°-70° | 4190.3 | 25.3 |
| 70°-80° | 2068.7 | 12.5 |
| 80°-90° | 136.8 | 0.8 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 16583.0 | 100.0 |
| 0°-180° | 16583.0 | 100.0 |

Coefficient of Utilization

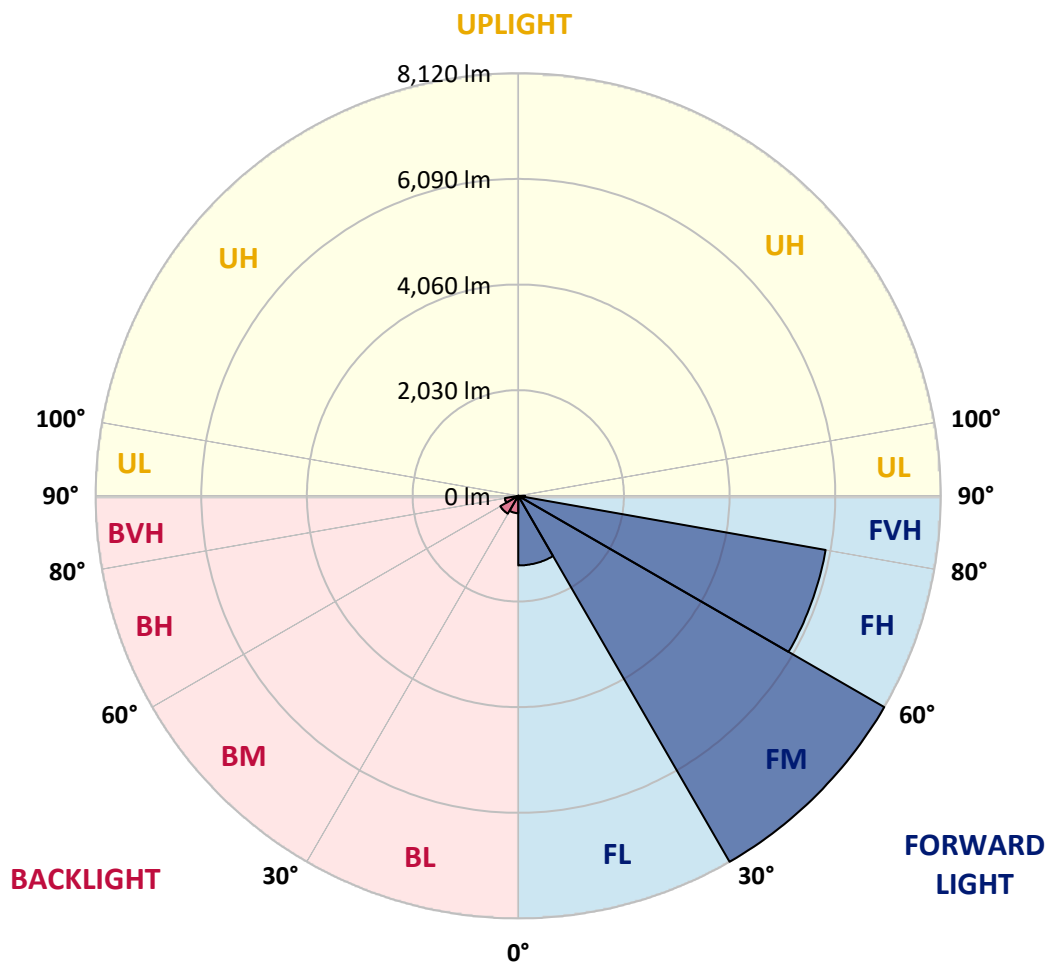


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1338.1 | 8.1 | | | |
| FM (30°-60°) | 8119.8 | 49.0 | | | |
| FH (60°-80°) | 5996.9 | 36.2 | | | G3/7500 |
| FVH (80°-90°) | 133.5 | 0.8 | | | G2/225 |
| BL (0°-30°) | 332.7 | 2.0 | B1/500 | | |
| BM (30°-60°) | 396.6 | 2.4 | B1/1000 | | |
| BH (60°-80°) | 262.1 | 1.6 | B1/500 | | G1/500 |
| BVH (80°-90°) | 3.3 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G3
 Type II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 66° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|
| 0° | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 |
| 2.5° | 2221.2 | 2211.7 | 2207.8 | 2190.4 | 2160.5 | 2137.7 | 2093.6 | 2042.4 | 2032.9 | 1983.3 | 1922.6 |
| 5° | 2509.4 | 2501.6 | 2496.0 | 2471.6 | 2440.9 | 2383.4 | 2303.1 | 2207.8 | 2189.7 | 2095.1 | 1973.8 |
| 7.5° | 2710.3 | 2724.5 | 2724.5 | 2708.7 | 2670.1 | 2626.8 | 2528.3 | 2398.4 | 2375.5 | 2230.6 | 2042.4 |
| 10° | 2827.6 | 2845.0 | 2858.4 | 2871.8 | 2866.2 | 2848.9 | 2756.0 | 2609.5 | 2581.9 | 2389.7 | 2121.9 |
| 12.5° | 2838.7 | 2856.0 | 2893.8 | 2949.7 | 3004.1 | 3043.5 | 2985.2 | 2843.4 | 2811.9 | 2574.0 | 2216.4 |
| 15° | 2777.2 | 2795.4 | 2853.6 | 2962.3 | 3093.9 | 3208.9 | 3227.8 | 3102.5 | 3070.2 | 2793.8 | 2334.6 |
| 17.5° | 2670.1 | 2681.9 | 2765.4 | 2915.9 | 3122.2 | 3333.3 | 3447.5 | 3380.6 | 3350.6 | 3045.0 | 2466.1 |
| 20° | 2590.6 | 2599.2 | 2672.5 | 2833.9 | 3104.9 | 3411.3 | 3655.5 | 3675.9 | 3644.4 | 3314.4 | 2608.7 |
| 22.5° | 2726.8 | 2742.6 | 2744.9 | 2821.3 | 3057.6 | 3449.9 | 3838.2 | 3966.6 | 3943.0 | 3600.3 | 2748.9 |
| 25° | 3099.4 | 3117.5 | 3057.6 | 3010.4 | 3097.8 | 3467.2 | 3994.9 | 4264.3 | 4245.4 | 3908.3 | 2889.9 |
| 27.5° | 3591.7 | 3610.6 | 3533.4 | 3392.4 | 3308.1 | 3532.6 | 4134.4 | 4566.8 | 4566.0 | 4234.4 | 3041.9 |
| 30° | 4075.3 | 4094.2 | 4015.4 | 3874.4 | 3680.7 | 3717.7 | 4254.9 | 4883.4 | 4888.1 | 4570.7 | 3203.4 |
| 32.5° | 4582.5 | 4606.2 | 4525.0 | 4343.9 | 4141.4 | 4037.5 | 4424.2 | 5201.6 | 5228.4 | 4960.6 | 3385.3 |
| 35° | 5159.1 | 5162.2 | 5048.0 | 4858.2 | 4625.1 | 4465.2 | 4695.9 | 5558.4 | 5622.2 | 5443.4 | 3616.1 |
| 37.5° | 5724.6 | 5747.4 | 5653.7 | 5354.4 | 5140.2 | 4959.0 | 5100.0 | 6004.2 | 6094.8 | 6033.4 | 3917.7 |
| 40° | 6143.6 | 6191.7 | 6178.3 | 5855.4 | 5652.1 | 5523.0 | 5601.7 | 6534.3 | 6649.3 | 6720.2 | 4298.2 |
| 42.5° | 6406.7 | 6442.9 | 6504.4 | 6309.8 | 6125.5 | 6146.8 | 6194.0 | 7151.8 | 7293.6 | 7503.1 | 4735.3 |
| 45° | 6708.4 | 6725.7 | 6776.9 | 6691.0 | 6566.6 | 6780.8 | 6822.6 | 7847.3 | 7996.2 | 8345.1 | 5220.5 |
| 47.5° | 7077.0 | 7118.0 | 7132.1 | 7053.4 | 6996.7 | 7341.6 | 7428.3 | 8479.8 | 8688.5 | 9247.0 | 5734.1 |
| 50° | 7546.4 | 7557.5 | 7581.9 | 7530.7 | 7474.0 | 7823.7 | 7971.8 | 9143.8 | 9333.6 | 10152.0 | 6240.5 |
| 52.5° | 8005.6 | 8045.0 | 8130.1 | 8097.8 | 8074.9 | 8234.0 | 8456.2 | 9742.4 | 9954.3 | 10906.5 | 6746.2 |
| 55° | 8138.0 | 8171.8 | 8465.6 | 8666.5 | 8852.3 | 8739.7 | 8919.3 | 10278.8 | 10508.0 | 11580.8 | 7232.9 |
| 57.5° | 7609.4 | 7678.0 | 8186.8 | 8709.8 | 9480.9 | 9525.8 | 9555.7 | 10829.3 | 11034.9 | 12097.4 | 7739.4 |
| 60° | 6273.6 | 6287.0 | 7121.9 | 8019.0 | 9376.9 | 10211.8 | 10485.1 | 11420.9 | 11593.4 | 12578.7 | 8345.9 |
| 62.5° | 3990.2 | 4126.5 | 5042.5 | 6309.0 | 8277.4 | 10112.6 | 11609.1 | 12315.6 | 12378.6 | 13156.0 | 9215.5 |
| 65° | 1900.6 | 1988.8 | 2648.9 | 3898.1 | 5995.6 | 8842.1 | 12384.9 | 13934.2 | 13962.6 | 14300.5 | 10377.2 |
| 67.5° | 1052.3 | 1094.8 | 1409.1 | 2098.3 | 3505.0 | 6253.1 | 12071.5 | 15851.4 | 15878.1 | 15469.4 | 11396.4 |
| 69° | 823.1 | 859.3 | 1106.6 | 1581.6 | 2376.3 | 4494.3 | 10923.9 | 16413.0 | 16492.5 | 15804.1 | 11432.7 |
| 70° | 698.6 | 734.1 | 953.1 | 1335.8 | 1910.8 | 3472.7 | 9723.5 | 16273.5 | 16357.8 | 15772.6 | 11162.5 |
| 72.5° | 427.7 | 448.2 | 634.8 | 940.4 | 1280.7 | 1747.0 | 5996.3 | 13762.5 | 13905.1 | 14468.3 | 9593.5 |
| 75° | 288.3 | 299.3 | 397.0 | 649.0 | 916.0 | 899.5 | 3115.1 | 9700.6 | 10009.4 | 11254.7 | 7085.7 |
| 77.5° | 206.4 | 216.6 | 266.2 | 419.8 | 641.9 | 593.9 | 1410.7 | 6028.6 | 6094.8 | 6750.1 | 3864.2 |
| 80° | 117.4 | 126.8 | 188.2 | 249.7 | 435.6 | 396.2 | 560.8 | 2879.6 | 2912.7 | 2894.6 | 1290.2 |
| 82.5° | 61.4 | 69.3 | 103.2 | 164.6 | 279.6 | 259.1 | 233.1 | 964.1 | 968.8 | 805.8 | 282.8 |
| 85° | 11.8 | 14.2 | 51.2 | 112.6 | 144.1 | 112.6 | 95.3 | 226.1 | 230.8 | 204.0 | 70.1 |
| 87.5° | 0.0 | 0.8 | 20.5 | 25.2 | 28.4 | 29.1 | 30.7 | 44.1 | 47.3 | 63.8 | 18.9 |
| 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: P321830

CATALOG NUMBER: GLEON-SA6A-727-U-T2-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 | 1887.2 |
| 2.5° | 1895.9 | 1867.5 | 1813.2 | 1750.1 | 1701.3 | 1653.3 | 1615.5 | 1576.1 | 1561.9 | 1554.8 | 1554.0 |
| 5° | 1914.8 | 1854.9 | 1739.9 | 1621.8 | 1524.9 | 1433.5 | 1368.1 | 1305.9 | 1276.8 | 1263.4 | 1257.9 |
| 7.5° | 1946.3 | 1850.2 | 1665.1 | 1484.7 | 1345.3 | 1231.1 | 1140.5 | 1072.8 | 1038.9 | 1024.7 | 1019.2 |
| 10° | 1983.3 | 1843.9 | 1577.7 | 1339.8 | 1161.8 | 1043.6 | 953.8 | 886.9 | 849.9 | 834.1 | 826.2 |
| 12.5° | 2026.6 | 1832.9 | 1476.8 | 1193.3 | 1005.0 | 886.9 | 778.2 | 695.5 | 653.0 | 634.8 | 626.2 |
| 15° | 2080.2 | 1821.8 | 1371.3 | 1055.4 | 867.2 | 723.1 | 604.1 | 548.2 | 539.5 | 536.4 | 537.2 |
| 17.5° | 2132.9 | 1804.5 | 1256.3 | 919.2 | 722.3 | 564.7 | 504.1 | 500.9 | 502.5 | 502.5 | 502.5 |
| 20° | 2180.2 | 1765.1 | 1131.1 | 802.6 | 584.4 | 476.5 | 463.9 | 458.4 | 454.5 | 451.3 | 447.4 |
| 22.5° | 2217.2 | 1712.3 | 1010.5 | 686.8 | 477.3 | 436.4 | 416.7 | 399.3 | 385.2 | 375.7 | 371.0 |
| 25° | 2242.4 | 1642.2 | 900.3 | 575.8 | 429.3 | 397.0 | 361.5 | 332.4 | 310.3 | 296.9 | 291.4 |
| 27.5° | 2261.3 | 1566.6 | 801.8 | 482.0 | 396.2 | 351.3 | 304.8 | 270.2 | 247.3 | 235.5 | 230.8 |
| 30° | 2274.7 | 1480.8 | 715.2 | 423.8 | 359.2 | 303.2 | 253.6 | 219.8 | 203.2 | 196.9 | 193.8 |
| 32.5° | 2287.3 | 1385.5 | 633.3 | 396.2 | 324.5 | 259.1 | 212.7 | 186.7 | 176.4 | 168.6 | 166.2 |
| 35° | 2318.8 | 1297.3 | 555.3 | 367.0 | 289.1 | 221.3 | 182.7 | 163.8 | 153.6 | 148.9 | 147.3 |
| 37.5° | 2393.7 | 1231.9 | 480.5 | 337.1 | 253.6 | 191.4 | 159.9 | 146.5 | 137.1 | 132.3 | 130.7 |
| 40° | 2514.2 | 1198.8 | 417.5 | 304.8 | 219.0 | 168.6 | 144.9 | 132.3 | 122.1 | 115.0 | 113.4 |
| 42.5° | 2691.4 | 1203.5 | 373.3 | 272.5 | 191.4 | 150.4 | 130.7 | 115.8 | 104.8 | 98.5 | 96.9 |
| 45° | 2906.4 | 1238.2 | 342.6 | 241.0 | 168.6 | 136.3 | 115.0 | 99.2 | 89.0 | 83.5 | 81.9 |
| 47.5° | 3139.6 | 1294.1 | 317.4 | 212.7 | 150.4 | 122.9 | 99.2 | 82.7 | 74.0 | 69.3 | 68.5 |
| 50° | 3385.3 | 1348.4 | 291.4 | 185.1 | 134.7 | 109.5 | 83.5 | 68.5 | 61.4 | 57.5 | 55.9 |
| 52.5° | 3634.2 | 1411.5 | 267.8 | 159.9 | 121.3 | 93.7 | 69.3 | 55.9 | 50.4 | 47.3 | 45.7 |
| 55° | 3902.0 | 1458.7 | 245.0 | 140.2 | 107.9 | 79.6 | 57.5 | 46.5 | 41.7 | 37.8 | 37.0 |
| 57.5° | 4217.1 | 1532.0 | 221.3 | 121.3 | 92.2 | 66.2 | 47.3 | 37.0 | 33.1 | 29.1 | 28.4 |
| 60° | 4642.4 | 1617.8 | 196.1 | 107.1 | 75.6 | 54.3 | 38.6 | 29.9 | 25.2 | 22.1 | 21.3 |
| 62.5° | 5203.2 | 1713.1 | 164.6 | 93.7 | 61.4 | 44.1 | 30.7 | 23.6 | 18.1 | 14.2 | 14.2 |
| 65° | 5914.4 | 1868.3 | 134.7 | 78.8 | 50.4 | 36.2 | 23.6 | 17.3 | 10.2 | 6.3 | 6.3 |
| 67.5° | 6329.5 | 1895.1 | 108.7 | 64.6 | 41.0 | 30.7 | 19.7 | 11.8 | 3.2 | 0.8 | 0.0 |
| 69° | 6196.4 | 1739.9 | 92.2 | 55.1 | 35.4 | 29.1 | 18.1 | 8.7 | 1.6 | 0.0 | 0.0 |
| 70° | 5945.9 | 1591.0 | 81.1 | 48.8 | 32.3 | 27.6 | 17.3 | 6.3 | 1.6 | 0.0 | 0.0 |
| 72.5° | 4913.3 | 1132.6 | 61.4 | 36.2 | 23.6 | 24.4 | 15.8 | 3.9 | 1.6 | 0.0 | 0.0 |
| 75° | 3579.1 | 688.4 | 44.1 | 25.2 | 15.0 | 18.1 | 11.0 | 1.6 | 0.8 | 0.0 | 0.0 |
| 77.5° | 1991.2 | 324.5 | 27.6 | 14.2 | 9.5 | 11.0 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 646.7 | 88.2 | 12.6 | 7.9 | 5.5 | 6.3 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 119.7 | 25.2 | 7.1 | 3.9 | 1.6 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 26.0 | 10.2 | 3.9 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 8.7 | 3.2 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

| | | | |
|-----------|------|------|-------|
| 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 | | |

Rf: 69.9
 Rg: 98.3



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 (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 | 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 ($R_{f,i}$)

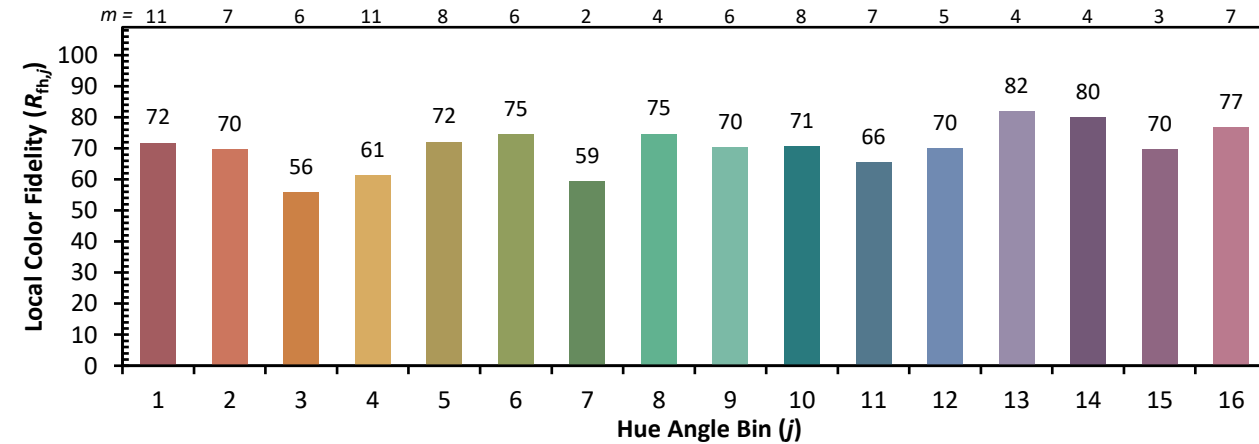
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 54 | CES51 = 77 | CES76 = 48 |
| CES02 = 63 | CES27 = 74 | CES52 = 80 | CES77 = 75 |
| CES03 = 31 | CES28 = 80 | CES53 = 66 | CES78 = 56 |
| CES04 = 71 | CES29 = 44 | CES54 = 77 | CES79 = 81 |
| CES05 = 50 | CES30 = 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 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)