

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



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P642561

Luminaire Tested: GWS-SA6D-727-U-T2-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P642561
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-19)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA6D-727-U-T2-W
Description: GALLEON WALL SLIM LUMINAIRE. (6) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS
Light Source: (96) 2700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 29722.4 lumens
Efficiency: N/A
Efficacy: 121.0 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type II - Medium
BUG Rating: B3 - U0 - G4

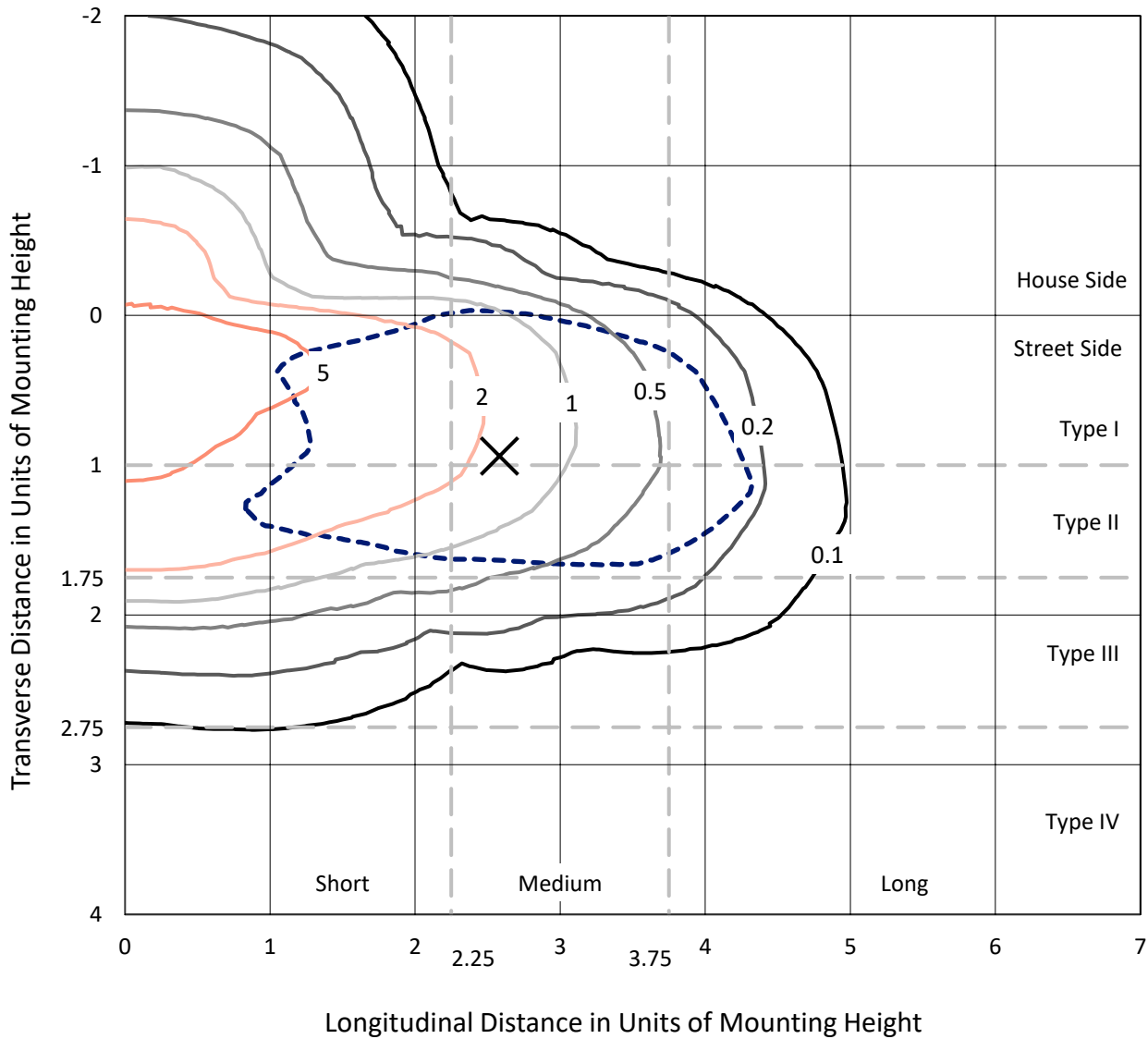
Input Watts (W): 245.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P642561
 CATALOG NUMBER: GWS-SA6D-727-U-T2-W

Iso-Footcandle Lines of Horizontal Illumination

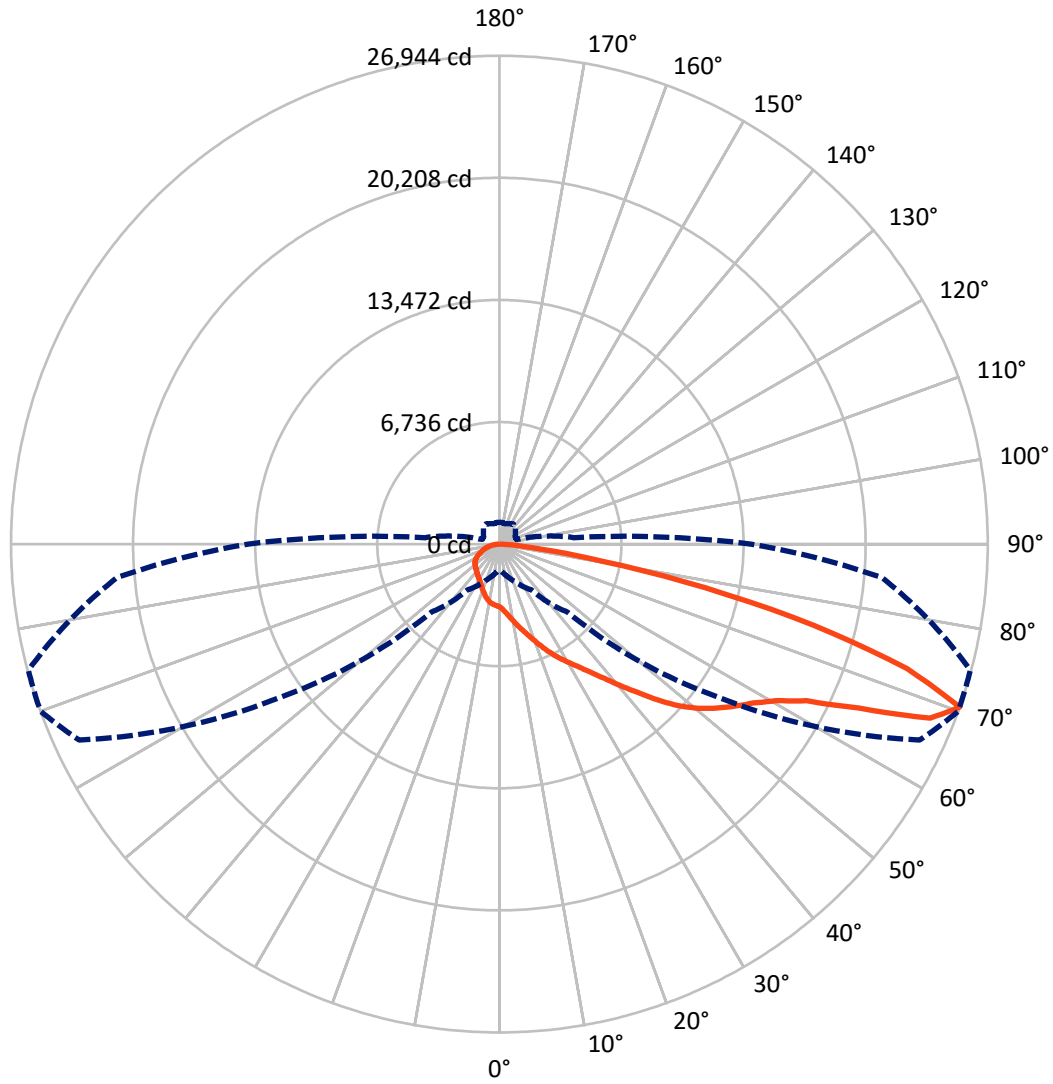
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8 fc
 Type II - Medium - N/A

REPORT NUMBER: P642561
CATALOG NUMBER: GWS-SA6D-727-U-T2-W

Luminous Intensity Polar Plot



— Vertical Plane Through 70-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

REPORT NUMBER: P642561

CATALOG NUMBER: GWS-SA6D-727-U-T2-W

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 5326.3 | 0.0 | 5326.3 |
| | % Fixture | 17.9 | 0.0 | 17.9 |
| Street Side | Lumens | 24396.1 | 0.0 | 24396.1 |
| | % Fixture | 82.1 | 0.0 | 82.1 |
| Total | Lumens | 29722.4 | 0.0 | 29722.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 352.3 | 1.2 |
| 10°-20° | 1146.1 | 3.9 |
| 20°-30° | 2030.3 | 6.8 |
| 30°-40° | 3055.6 | 10.3 |
| 40°-50° | 4622.7 | 15.6 |
| 50°-60° | 6622.3 | 22.3 |
| 60°-70° | 7320.3 | 24.6 |
| 70°-80° | 4131.0 | 13.9 |
| 80°-90° | 441.9 | 1.5 |
| 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° | 29722.4 | 100.0 |
| 0°-180° | 29722.4 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P642561

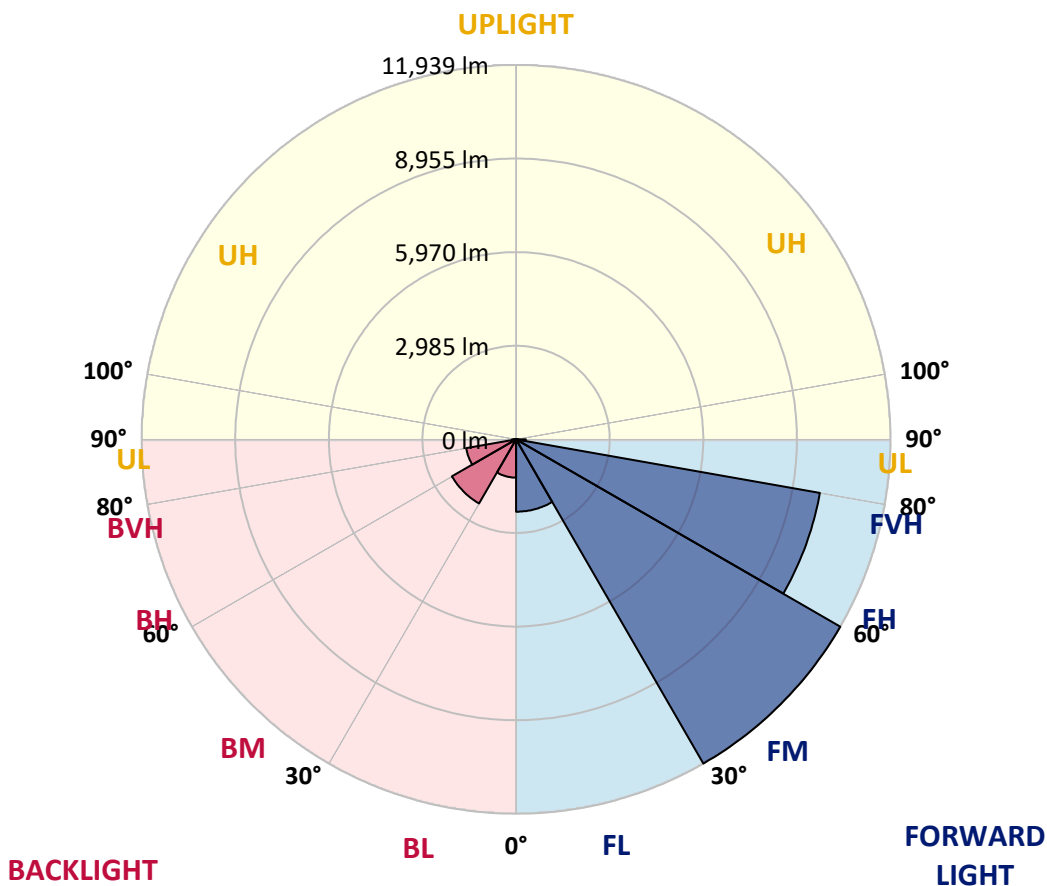
CATALOG NUMBER: GWS-SA6D-727-U-T2-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 2307.4 | 7.8 | | | |
| FM (30°-60°) | 11939.5 | 40.2 | | | |
| FH (60°-80°) | 9836.9 | 33.1 | | | G4/12000 |
| FVH (80°-90°) | 312.4 | 1.1 | | | G3/500 |
| BL (0°-30°) | 1221.3 | 4.1 | B3/2500 | | |
| BM (30°-60°) | 2361.2 | 7.9 | B2/2500 | | |
| BH (60°-80°) | 1614.4 | 5.4 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 129.5 | 0.4 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4

Type II Medium





REPORT NUMBER: P642561
 CATALOG NUMBER: GWS-SA6D-727-U-T2-W

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 70° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 |
| 2.5° | 3839.9 | 3833.5 | 3837.8 | 3833.5 | 3809.9 | 3751.9 | 3704.6 | 3644.5 | 3603.7 | 3580.1 | 3524.2 |
| 5° | 4290.9 | 4284.5 | 4269.5 | 4248.0 | 4205.0 | 4125.6 | 4007.4 | 3876.4 | 3797.0 | 3736.8 | 3618.7 |
| 7.5° | 4615.2 | 4615.2 | 4613.1 | 4587.3 | 4557.2 | 4473.5 | 4333.9 | 4162.1 | 4046.1 | 3943.0 | 3749.7 |
| 10° | 4780.6 | 4791.3 | 4806.4 | 4842.9 | 4836.4 | 4791.3 | 4660.3 | 4475.6 | 4329.6 | 4209.3 | 3921.5 |
| 12.5° | 4870.8 | 4877.2 | 4903.0 | 4978.2 | 5055.5 | 5066.2 | 4988.9 | 4795.6 | 4636.7 | 4475.6 | 4112.7 |
| 15° | 4986.8 | 4988.9 | 5023.3 | 5113.5 | 5227.3 | 5341.1 | 5321.8 | 5128.5 | 4965.3 | 4787.0 | 4325.3 |
| 17.5° | 5077.0 | 5092.0 | 5154.3 | 5259.5 | 5401.2 | 5558.0 | 5652.5 | 5532.3 | 5330.4 | 5126.4 | 4557.2 |
| 20° | 5109.2 | 5119.9 | 5201.5 | 5362.6 | 5555.9 | 5777.1 | 5987.5 | 5955.3 | 5751.3 | 5510.8 | 4819.2 |
| 22.5° | 5225.1 | 5225.1 | 5285.3 | 5420.6 | 5648.2 | 5970.4 | 6311.8 | 6395.6 | 6215.2 | 5933.9 | 5100.6 |
| 25° | 5480.7 | 5472.1 | 5500.0 | 5555.9 | 5727.7 | 6125.0 | 6631.8 | 6883.1 | 6681.2 | 6365.5 | 5381.9 |
| 27.5° | 5830.8 | 5826.5 | 5824.3 | 5832.9 | 5890.9 | 6260.3 | 6902.4 | 7338.4 | 7136.5 | 6780.0 | 5633.2 |
| 30° | 6210.9 | 6198.0 | 6225.9 | 6200.2 | 6187.3 | 6421.4 | 7132.2 | 7746.4 | 7589.7 | 7190.2 | 5841.5 |
| 32.5° | 6728.5 | 6704.8 | 6698.4 | 6614.6 | 6563.1 | 6672.6 | 7316.9 | 8210.3 | 8085.8 | 7632.6 | 6075.6 |
| 35° | 7411.4 | 7389.9 | 7280.4 | 7147.3 | 6994.8 | 7046.3 | 7546.7 | 8663.5 | 8672.1 | 8186.7 | 6382.7 |
| 37.5° | 8100.8 | 8105.1 | 8019.2 | 7705.6 | 7548.9 | 7518.8 | 7896.8 | 9215.4 | 9400.1 | 8848.2 | 6780.0 |
| 40° | 8674.2 | 8700.0 | 8700.0 | 8369.2 | 8135.2 | 8107.2 | 8388.6 | 9870.4 | 10237.7 | 9660.0 | 7282.6 |
| 42.5° | 9110.2 | 9133.8 | 9209.0 | 8970.6 | 8723.6 | 8820.2 | 8985.6 | 10527.6 | 11186.9 | 10662.9 | 7918.2 |
| 45° | 9589.1 | 9608.4 | 9649.2 | 9511.8 | 9367.9 | 9625.6 | 9662.1 | 11313.6 | 12273.6 | 11788.2 | 8657.0 |
| 47.5° | 10224.8 | 10207.6 | 10211.9 | 10111.0 | 9999.3 | 10415.9 | 10407.3 | 11975.1 | 13323.8 | 13021.0 | 9458.1 |
| 50° | 11015.1 | 11047.3 | 11017.3 | 10817.5 | 10686.5 | 11066.6 | 11116.0 | 12707.4 | 14247.3 | 14240.8 | 10265.6 |
| 52.5° | 11775.4 | 11788.2 | 11947.2 | 11955.8 | 11687.3 | 11607.8 | 11736.7 | 13446.2 | 15026.8 | 15357.6 | 11040.9 |
| 55° | 11814.0 | 11863.4 | 12340.2 | 12683.8 | 13117.6 | 12479.8 | 12363.8 | 14150.6 | 15780.7 | 16450.7 | 11846.2 |
| 57.5° | 10991.5 | 11070.9 | 11880.6 | 12621.5 | 13828.5 | 13976.7 | 13437.6 | 15061.2 | 16534.5 | 17526.7 | 12778.3 |
| 60° | 9234.7 | 9400.1 | 10499.7 | 11633.6 | 13508.5 | 15052.6 | 15634.6 | 16298.2 | 17524.5 | 18626.2 | 13910.1 |
| 62.5° | 5897.3 | 5961.8 | 7503.8 | 9402.2 | 12067.4 | 14947.4 | 18027.1 | 18478.1 | 19032.1 | 20058.7 | 15654.0 |
| 65° | 2953.0 | 3159.1 | 4063.3 | 5611.7 | 8702.1 | 13171.3 | 19236.2 | 22470.5 | 21791.8 | 22511.3 | 18480.2 |
| 67.5° | 2003.7 | 2070.3 | 2527.7 | 3371.8 | 5102.7 | 9331.4 | 18486.7 | 25833.6 | 25633.9 | 25752.0 | 21493.3 |
| 70° | 1477.6 | 1520.5 | 1881.3 | 2388.1 | 3086.1 | 5298.2 | 14717.6 | 25580.2 | 26944.0 | 26901.0 | 21177.6 |
| 72.5° | 1078.1 | 1099.6 | 1372.3 | 1823.3 | 2287.2 | 2740.4 | 8987.8 | 20664.3 | 23520.7 | 24759.8 | 18521.0 |
| 75° | 783.9 | 809.7 | 953.5 | 1363.7 | 1778.2 | 1709.5 | 4437.0 | 14925.9 | 17936.9 | 20320.7 | 15089.1 |
| 77.5° | 584.2 | 616.4 | 682.9 | 854.7 | 1245.6 | 1224.1 | 1917.8 | 9692.2 | 11601.4 | 13272.2 | 9166.0 |
| 80° | 420.9 | 427.4 | 466.0 | 547.6 | 790.3 | 717.3 | 912.7 | 5053.3 | 5794.3 | 6348.3 | 3593.0 |
| 82.5° | 255.6 | 262.0 | 311.4 | 337.2 | 489.7 | 451.0 | 474.6 | 1636.5 | 2345.2 | 2489.1 | 1342.3 |
| 85° | 75.2 | 79.5 | 141.7 | 154.6 | 204.0 | 193.3 | 191.1 | 665.8 | 794.6 | 1015.8 | 528.3 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 12.9 | 23.6 | 118.1 | 178.3 | 247.0 | 128.9 |
| 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: P642561
 CATALOG NUMBER: GWS-SA6D-727-U-T2-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 | 3466.2 |
| 2.5° | 3502.8 | 3453.4 | 3427.6 | 3382.5 | 3350.3 | 3318.1 | 3285.8 | 3255.8 | 3242.9 | 3223.6 | 3227.9 |
| 5° | 3565.0 | 3487.7 | 3410.4 | 3322.4 | 3247.2 | 3184.9 | 3129.1 | 3079.7 | 3058.2 | 3038.9 | 3047.5 |
| 7.5° | 3659.5 | 3543.6 | 3395.4 | 3234.3 | 3116.2 | 3030.3 | 2972.3 | 2937.9 | 2927.2 | 2912.2 | 2912.2 |
| 10° | 3779.8 | 3605.8 | 3346.0 | 3116.2 | 2974.4 | 2905.7 | 2879.9 | 2877.8 | 2888.5 | 2890.7 | 2886.4 |
| 12.5° | 3913.0 | 3666.0 | 3273.0 | 2976.6 | 2856.3 | 2834.8 | 2854.2 | 2890.7 | 2927.2 | 2946.5 | 2942.2 |
| 15° | 4050.4 | 3704.6 | 3148.4 | 2843.4 | 2770.4 | 2798.3 | 2860.6 | 2933.6 | 3004.5 | 3041.0 | 3038.9 |
| 17.5° | 4179.3 | 3713.2 | 2987.3 | 2714.6 | 2695.3 | 2766.1 | 2873.5 | 2987.3 | 3084.0 | 3135.5 | 3137.7 |
| 20° | 4323.1 | 3698.2 | 2822.0 | 2598.6 | 2620.1 | 2736.1 | 2877.8 | 3015.2 | 3129.1 | 3180.6 | 3193.5 |
| 22.5° | 4454.1 | 3646.6 | 2660.9 | 2489.1 | 2555.7 | 2699.5 | 2843.4 | 2972.3 | 3073.2 | 3122.6 | 3139.8 |
| 25° | 4572.3 | 3547.9 | 2484.8 | 2396.7 | 2506.3 | 2648.0 | 2757.5 | 2847.7 | 2918.6 | 2948.7 | 2972.3 |
| 27.5° | 4636.7 | 3399.7 | 2351.6 | 2323.7 | 2459.0 | 2575.0 | 2635.1 | 2663.0 | 2686.7 | 2678.1 | 2695.3 |
| 30° | 4649.6 | 3215.0 | 2235.7 | 2265.7 | 2388.1 | 2474.1 | 2486.9 | 2459.0 | 2418.2 | 2351.6 | 2366.7 |
| 32.5° | 4636.7 | 3002.4 | 2139.0 | 2203.5 | 2308.7 | 2360.2 | 2343.0 | 2270.0 | 2171.2 | 2068.2 | 2074.6 |
| 35° | 4641.0 | 2787.6 | 2059.6 | 2134.7 | 2216.3 | 2244.3 | 2201.3 | 2100.4 | 1995.1 | 1900.6 | 1896.3 |
| 37.5° | 4688.2 | 2607.2 | 1993.0 | 2068.2 | 2126.1 | 2130.4 | 2083.2 | 1978.0 | 1924.3 | 1853.4 | 1844.8 |
| 40° | 4819.2 | 2474.1 | 1932.9 | 2001.6 | 2038.1 | 2035.9 | 1982.2 | 1907.1 | 1943.6 | 1920.0 | 1913.5 |
| 42.5° | 5034.0 | 2392.4 | 1883.5 | 1930.7 | 1956.5 | 1960.8 | 1917.8 | 1870.6 | 1950.0 | 1920.0 | 1909.2 |
| 45° | 5379.8 | 2388.1 | 1849.1 | 1859.8 | 1900.6 | 1930.7 | 1900.6 | 1846.9 | 1877.0 | 1731.0 | 1703.1 |
| 47.5° | 5790.0 | 2461.2 | 1823.3 | 1797.6 | 1868.4 | 1922.1 | 1874.9 | 1789.0 | 1726.7 | 1593.5 | 1574.2 |
| 50° | 6283.9 | 2609.3 | 1799.7 | 1731.0 | 1821.2 | 1889.9 | 1842.7 | 1724.5 | 1630.0 | 1559.2 | 1548.4 |
| 52.5° | 6870.2 | 2804.8 | 1769.6 | 1655.8 | 1750.3 | 1872.7 | 1842.7 | 1718.1 | 1593.5 | 1529.1 | 1518.4 |
| 55° | 7484.4 | 3030.3 | 1735.3 | 1565.6 | 1670.8 | 1877.0 | 1857.7 | 1673.0 | 1565.6 | 1531.2 | 1522.7 |
| 57.5° | 8246.8 | 3300.9 | 1673.0 | 1460.4 | 1600.0 | 1838.4 | 1797.6 | 1647.2 | 1546.3 | 1518.4 | 1509.8 |
| 60° | 9236.9 | 3702.5 | 1554.9 | 1353.0 | 1518.4 | 1769.6 | 1743.9 | 1604.3 | 1494.7 | 1471.1 | 1464.7 |
| 62.5° | 10804.6 | 4383.3 | 1411.0 | 1249.9 | 1421.7 | 1625.7 | 1664.4 | 1522.7 | 1430.3 | 1428.2 | 1426.0 |
| 65° | 13360.3 | 5201.5 | 1241.3 | 1157.6 | 1320.8 | 1507.6 | 1559.2 | 1438.9 | 1363.7 | 1387.4 | 1385.2 |
| 67.5° | 15151.4 | 5272.4 | 1101.7 | 1060.9 | 1202.7 | 1378.8 | 1453.9 | 1353.0 | 1271.4 | 1316.5 | 1314.3 |
| 70° | 13877.9 | 4112.7 | 981.5 | 960.0 | 1076.0 | 1239.2 | 1340.1 | 1245.6 | 1164.0 | 1207.0 | 1198.4 |
| 72.5° | 11704.5 | 3152.7 | 867.6 | 854.7 | 947.1 | 1093.1 | 1194.1 | 1138.2 | 1052.3 | 1052.3 | 1033.0 |
| 75° | 9406.5 | 2600.8 | 747.4 | 740.9 | 803.2 | 944.9 | 1058.8 | 964.3 | 884.8 | 880.5 | 867.6 |
| 77.5° | 5394.8 | 1705.2 | 627.1 | 622.8 | 642.1 | 790.3 | 822.5 | 803.2 | 743.1 | 715.2 | 706.6 |
| 80° | 2149.8 | 887.0 | 494.0 | 466.0 | 485.4 | 579.9 | 648.6 | 616.4 | 564.8 | 530.5 | 511.1 |
| 82.5° | 833.3 | 444.6 | 347.9 | 305.0 | 332.9 | 418.8 | 470.3 | 459.6 | 425.2 | 347.9 | 326.4 |
| 85° | 339.3 | 216.9 | 208.3 | 176.1 | 193.3 | 225.5 | 270.6 | 234.1 | 193.3 | 137.4 | 131.0 |
| 87.5° | 90.2 | 79.5 | 77.3 | 47.2 | 36.5 | 10.7 | 2.1 | 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 ($\mu\text{W}/\text{nm}$) | 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)