

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: P632647

Luminaire Tested: GWS-SA2D-727-U-SL4-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P632647
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-36)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA2D-727-U-SL4-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: (32) 2700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7693.7 lumens
Efficiency: N/A
Efficacy: 93.7 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G2

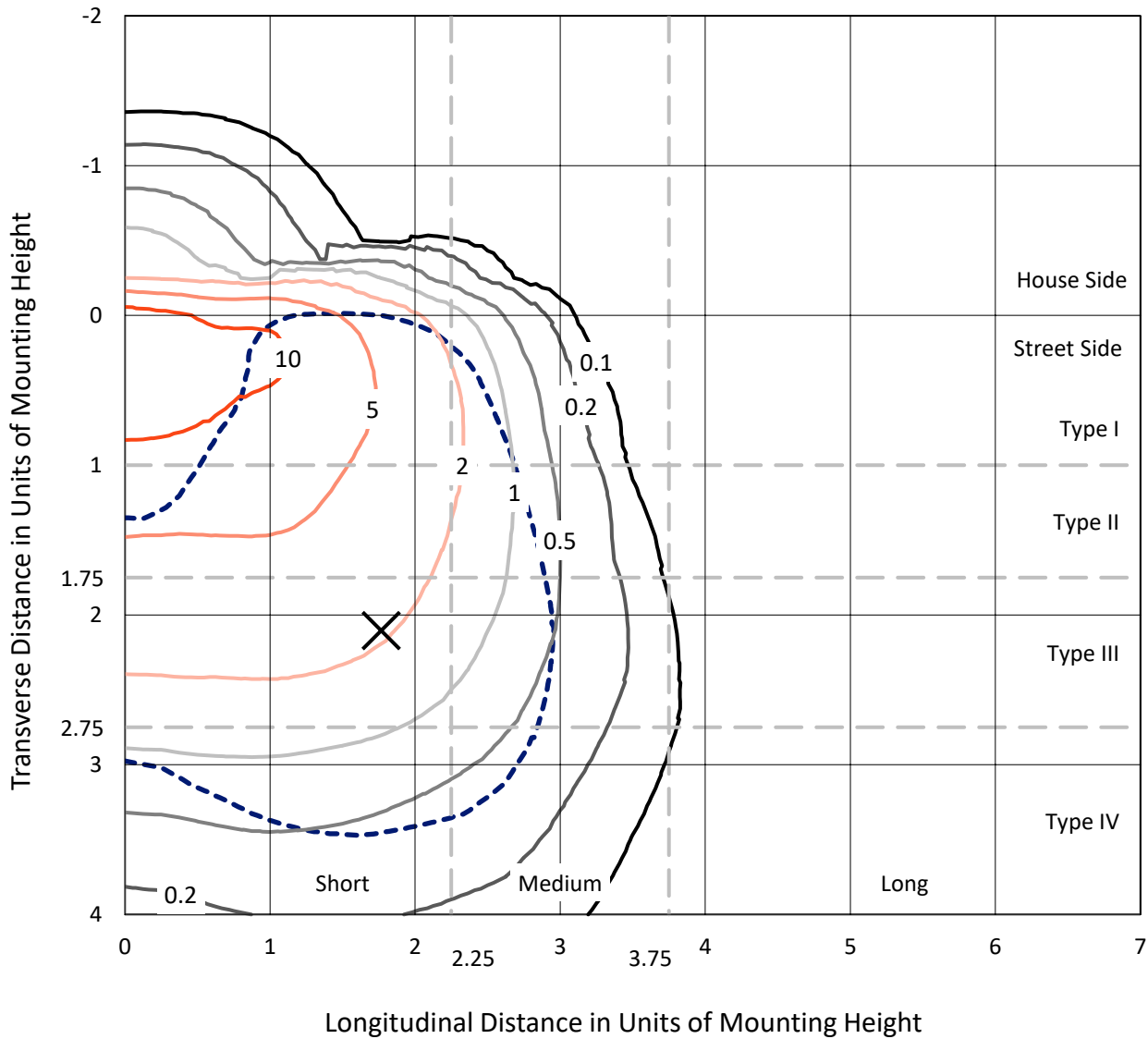
Input Watts (W): 82.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P632647
 CATALOG NUMBER: GWS-SA2D-727-U-SL4-W-HSS

Iso-Footcandle Lines of Horizontal Illumination

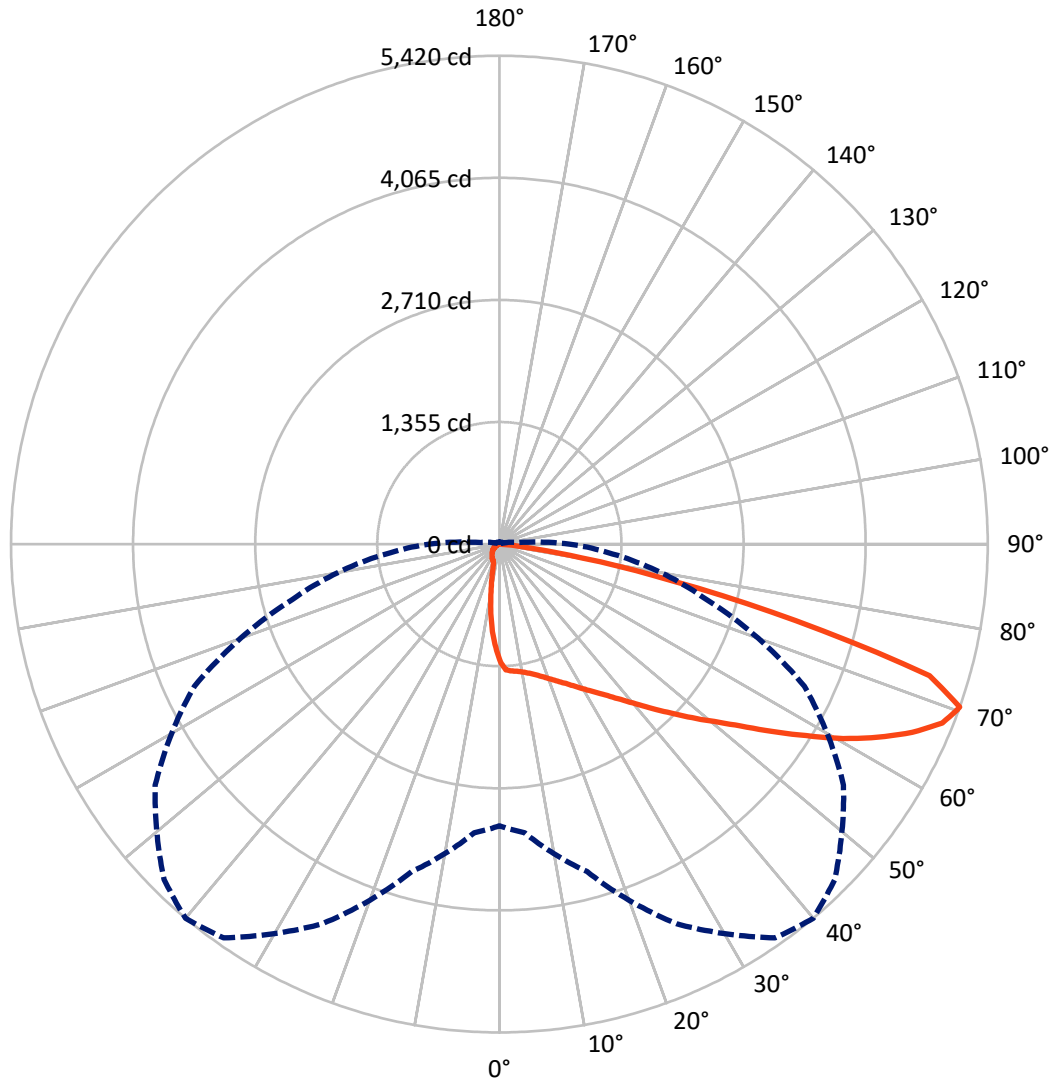
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 14.2 fc
 Type IV - Short - N/A

REPORT NUMBER: P632647
CATALOG NUMBER: GWS-SA2D-727-U-SL4-W-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 40-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

REPORT NUMBER: P632647
 CATALOG NUMBER: GWS-SA2D-727-U-SL4-W-HSS

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 629.1 | 0.0 | 629.1 |
| | % Fixture | 8.2 | 0.0 | 8.2 |
| Street Side | Lumens | 7064.6 | 0.0 | 7064.6 |
| | % Fixture | 91.8 | 0.0 | 91.8 |
| Total | Lumens | 7693.7 | 0.0 | 7693.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 110.3 | 1.4 |
| 10°-20° | 279.8 | 3.6 |
| 20°-30° | 468.4 | 6.1 |
| 30°-40° | 735.6 | 9.6 |
| 40°-50° | 1163.7 | 15.1 |
| 50°-60° | 1697.5 | 22.1 |
| 60°-70° | 2104.2 | 27.4 |
| 70°-80° | 1064.6 | 13.8 |
| 80°-90° | 69.5 | 0.9 |
| 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° | 7693.7 | 100.0 |
| 0°-180° | 7693.7 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P632647

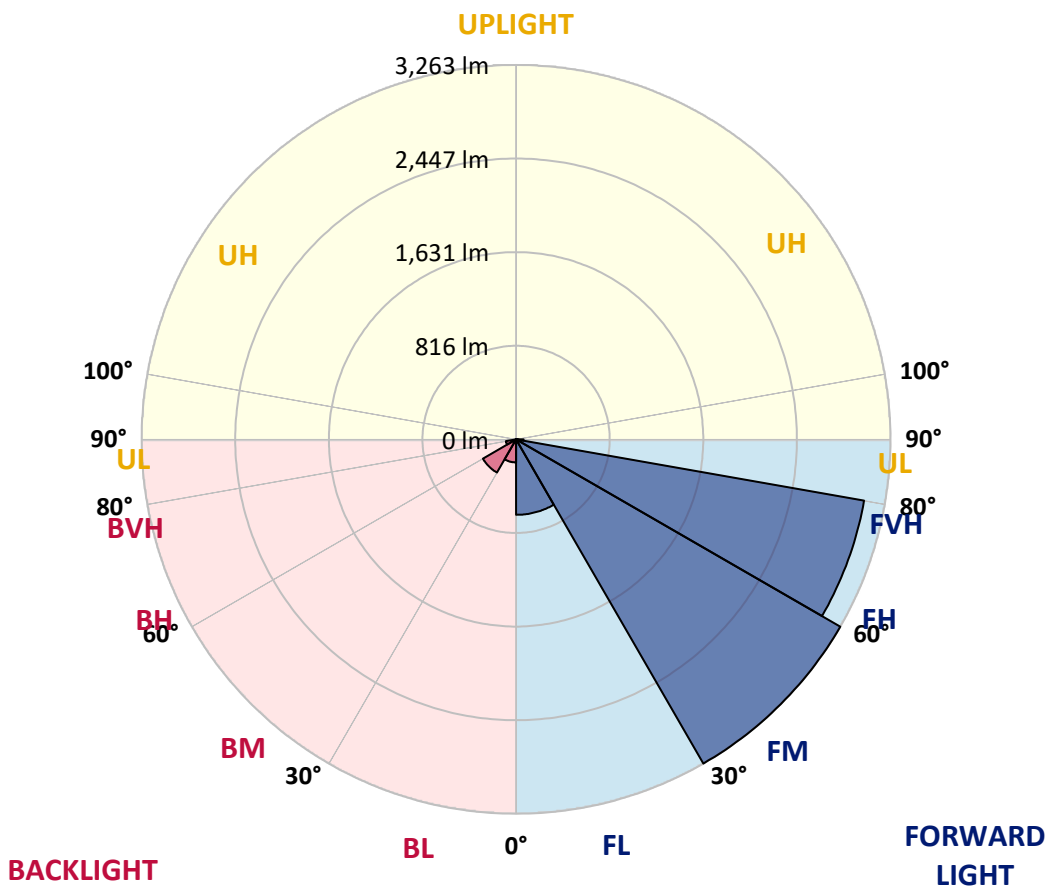
CATALOG NUMBER: GWS-SA2D-727-U-SL4-W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 657.7 | 8.5 | | | |
| FM (30°-60°) | 3262.8 | 42.4 | | | |
| FH (60°-80°) | 3079.2 | 40.0 | | | G2/5000 |
| FVH (80°-90°) | 64.9 | 0.8 | | | G1/100 |
| BL (0°-30°) | 200.9 | 2.6 | B1/500 | | |
| BM (30°-60°) | 333.9 | 4.3 | B1/1000 | | |
| BH (60°-80°) | 89.7 | 1.2 | B0/110 | | G0/110 |
| BVH (80°-90°) | 4.6 | 0.1 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type IV Short





REPORT NUMBER: P632647

CATALOG NUMBER: GWS-SA2D-727-U-SL4-W-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 40° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 |
| 2.5° | 1403.5 | 1408.4 | 1407.7 | 1409.8 | 1404.9 | 1397.2 | 1395.8 | 1385.3 | 1366.4 | 1342.6 | 1316.0 |
| 5° | 1432.2 | 1437.8 | 1433.6 | 1431.5 | 1422.4 | 1414.0 | 1411.9 | 1400.7 | 1379.0 | 1346.8 | 1300.6 |
| 7.5° | 1456.7 | 1458.1 | 1455.3 | 1450.4 | 1437.1 | 1425.9 | 1418.2 | 1402.8 | 1376.9 | 1344.7 | 1291.5 |
| 10° | 1460.9 | 1460.2 | 1461.6 | 1462.3 | 1453.9 | 1444.1 | 1437.8 | 1416.8 | 1383.9 | 1349.6 | 1292.2 |
| 12.5° | 1456.0 | 1456.0 | 1465.1 | 1475.6 | 1475.6 | 1470.7 | 1464.4 | 1445.5 | 1407.0 | 1366.4 | 1306.2 |
| 15° | 1462.3 | 1464.4 | 1481.9 | 1501.5 | 1507.8 | 1502.9 | 1500.1 | 1480.5 | 1440.6 | 1395.8 | 1331.4 |
| 17.5° | 1484.7 | 1486.8 | 1514.8 | 1544.2 | 1551.9 | 1546.3 | 1540.7 | 1521.1 | 1478.4 | 1429.4 | 1360.1 |
| 20° | 1517.6 | 1523.2 | 1558.9 | 1596.7 | 1603.7 | 1596.7 | 1585.5 | 1558.2 | 1515.5 | 1465.8 | 1387.4 |
| 22.5° | 1577.8 | 1581.3 | 1619.8 | 1659.7 | 1663.2 | 1652.0 | 1635.2 | 1597.4 | 1552.6 | 1504.3 | 1418.2 |
| 25° | 1657.6 | 1662.5 | 1701.0 | 1739.5 | 1730.4 | 1713.6 | 1690.5 | 1647.8 | 1596.7 | 1549.8 | 1457.4 |
| 27.5° | 1752.8 | 1758.4 | 1796.2 | 1829.8 | 1806.0 | 1786.4 | 1760.5 | 1707.3 | 1655.5 | 1612.8 | 1507.8 |
| 30° | 1855.7 | 1860.6 | 1894.2 | 1924.3 | 1892.8 | 1869.7 | 1838.9 | 1784.3 | 1731.8 | 1699.6 | 1579.2 |
| 32.5° | 1955.1 | 1954.4 | 1986.6 | 2011.1 | 1978.9 | 1960.7 | 1932.7 | 1877.4 | 1835.4 | 1821.4 | 1685.6 |
| 35° | 2047.5 | 2047.5 | 2074.1 | 2098.6 | 2075.5 | 2065.7 | 2039.8 | 1995.7 | 1971.9 | 1988.7 | 1827.7 |
| 37.5° | 2140.6 | 2135.7 | 2160.9 | 2188.2 | 2186.1 | 2186.8 | 2172.1 | 2151.1 | 2152.5 | 2212.0 | 2023.0 |
| 40° | 2217.6 | 2215.5 | 2244.9 | 2280.7 | 2308.7 | 2331.1 | 2322.0 | 2329.7 | 2373.8 | 2485.1 | 2272.9 |
| 42.5° | 2279.3 | 2284.2 | 2322.0 | 2378.7 | 2449.4 | 2494.9 | 2501.2 | 2532.7 | 2646.1 | 2818.3 | 2555.1 |
| 45° | 2350.0 | 2350.7 | 2403.2 | 2490.0 | 2602.7 | 2674.8 | 2700.0 | 2781.2 | 2942.2 | 3164.1 | 2864.5 |
| 47.5° | 2436.8 | 2428.4 | 2487.2 | 2609.0 | 2772.1 | 2878.5 | 2923.3 | 3024.8 | 3274.0 | 3501.5 | 3116.5 |
| 50° | 2532.7 | 2517.3 | 2583.8 | 2749.7 | 2961.8 | 3094.8 | 3185.8 | 3334.2 | 3603.0 | 3778.7 | 3304.1 |
| 52.5° | 2644.0 | 2629.3 | 2704.9 | 2911.4 | 3189.3 | 3351.0 | 3467.9 | 3617.7 | 3885.1 | 3990.1 | 3416.1 |
| 55° | 2785.4 | 2770.7 | 2850.5 | 3105.3 | 3458.1 | 3668.1 | 3790.6 | 3916.6 | 4147.6 | 4146.2 | 3497.3 |
| 57.5° | 2942.2 | 2921.9 | 3032.5 | 3350.3 | 3793.4 | 4011.8 | 4136.4 | 4198.0 | 4347.1 | 4267.3 | 3551.9 |
| 60° | 3122.1 | 3103.9 | 3257.2 | 3642.2 | 4180.5 | 4382.8 | 4461.2 | 4436.0 | 4510.9 | 4338.7 | 3533.0 |
| 62.5° | 3284.5 | 3276.1 | 3466.5 | 3951.6 | 4549.4 | 4720.2 | 4741.9 | 4632.0 | 4631.3 | 4340.1 | 3405.6 |
| 65° | 3453.2 | 3469.3 | 3752.1 | 4307.9 | 4920.4 | 5035.2 | 4998.1 | 4826.6 | 4679.6 | 4168.6 | 3029.0 |
| 67.5° | 3516.2 | 3563.1 | 3940.4 | 4629.9 | 5213.0 | 5302.6 | 5237.5 | 4923.9 | 4478.7 | 3591.8 | 2306.6 |
| 70° | 3127.0 | 3215.2 | 3762.6 | 4648.1 | 5334.1 | 5419.5 | 5263.4 | 4662.1 | 3733.9 | 2379.4 | 1263.5 |
| 72.5° | 2378.0 | 2480.9 | 3135.4 | 3806.0 | 4797.2 | 4991.8 | 4725.1 | 3798.3 | 2406.7 | 1042.3 | 424.2 |
| 75° | 1330.7 | 1442.0 | 2335.3 | 2865.9 | 3220.8 | 3398.6 | 3300.6 | 2436.8 | 1066.1 | 272.3 | 126.7 |
| 77.5° | 450.1 | 487.2 | 1086.4 | 1773.1 | 2125.9 | 1966.3 | 1664.6 | 1210.3 | 392.0 | 103.6 | 67.2 |
| 80° | 266.7 | 280.7 | 404.6 | 882.7 | 1118.6 | 927.5 | 732.2 | 447.3 | 199.5 | 55.3 | 46.9 |
| 82.5° | 79.8 | 94.5 | 223.3 | 327.6 | 438.2 | 273.0 | 231.0 | 255.5 | 103.6 | 30.1 | 39.2 |
| 85° | 0.0 | 0.0 | 47.6 | 101.5 | 114.8 | 44.8 | 44.8 | 144.9 | 18.9 | 12.6 | 28.7 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 3.5 | 2.1 | 2.8 | 6.3 |
| 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: P632647

CATALOG NUMBER: GWS-SA2D-727-U-SL4-W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 | 1305.5 |
| 2.5° | 1297.1 | 1272.6 | 1243.9 | 1216.6 | 1190.7 | 1157.1 | 1141.0 | 1121.4 | 1104.6 | 1095.5 | 1100.4 |
| 5° | 1271.2 | 1232.7 | 1173.9 | 1114.4 | 1054.2 | 997.5 | 946.4 | 912.1 | 881.3 | 865.2 | 868.7 |
| 7.5° | 1248.8 | 1197.0 | 1105.3 | 1008.0 | 911.4 | 814.1 | 735.0 | 673.4 | 625.8 | 606.2 | 602.7 |
| 10° | 1239.0 | 1173.9 | 1044.4 | 904.4 | 756.0 | 625.1 | 513.1 | 445.2 | 396.9 | 373.1 | 377.3 |
| 12.5° | 1243.9 | 1162.0 | 992.6 | 802.9 | 610.4 | 457.8 | 350.7 | 287.0 | 252.7 | 238.7 | 235.2 |
| 15° | 1257.9 | 1159.2 | 946.4 | 699.3 | 471.1 | 319.9 | 242.2 | 216.3 | 209.3 | 207.9 | 207.9 |
| 17.5° | 1274.0 | 1159.9 | 898.8 | 594.3 | 357.7 | 237.3 | 207.2 | 202.3 | 200.2 | 198.8 | 199.5 |
| 20° | 1290.1 | 1159.9 | 844.2 | 487.9 | 268.8 | 205.1 | 197.4 | 193.9 | 191.8 | 191.1 | 191.1 |
| 22.5° | 1309.7 | 1159.9 | 783.3 | 389.2 | 215.6 | 194.6 | 188.3 | 186.2 | 184.1 | 183.4 | 182.7 |
| 25° | 1333.5 | 1160.6 | 716.1 | 304.5 | 196.0 | 185.5 | 180.6 | 178.5 | 176.4 | 175.0 | 175.0 |
| 27.5° | 1367.8 | 1166.2 | 641.9 | 237.3 | 184.8 | 177.1 | 172.9 | 170.8 | 168.7 | 166.6 | 166.6 |
| 30° | 1417.5 | 1180.2 | 558.6 | 196.0 | 174.3 | 168.0 | 163.8 | 162.4 | 160.3 | 158.2 | 157.5 |
| 32.5° | 1491.7 | 1204.7 | 472.5 | 175.7 | 164.5 | 158.2 | 153.3 | 151.9 | 149.8 | 147.7 | 147.0 |
| 35° | 1595.3 | 1249.5 | 388.5 | 163.1 | 151.9 | 145.6 | 142.8 | 142.1 | 139.3 | 137.2 | 137.2 |
| 37.5° | 1747.2 | 1322.3 | 308.0 | 150.5 | 141.4 | 136.5 | 133.0 | 131.6 | 128.8 | 126.7 | 126.0 |
| 40° | 1932.7 | 1416.8 | 239.4 | 140.7 | 131.6 | 126.7 | 123.2 | 121.1 | 117.6 | 114.8 | 113.4 |
| 42.5° | 2169.3 | 1532.3 | 189.0 | 130.2 | 122.5 | 117.6 | 114.8 | 110.6 | 105.7 | 101.5 | 100.8 |
| 45° | 2415.8 | 1651.3 | 156.1 | 120.4 | 114.1 | 109.9 | 106.4 | 100.8 | 93.8 | 88.9 | 87.5 |
| 47.5° | 2604.8 | 1725.5 | 136.5 | 109.9 | 105.0 | 101.5 | 97.3 | 90.3 | 81.9 | 76.3 | 74.9 |
| 50° | 2739.9 | 1736.7 | 121.8 | 100.1 | 97.3 | 93.8 | 87.5 | 79.1 | 70.0 | 64.4 | 63.0 |
| 52.5° | 2806.4 | 1686.3 | 109.9 | 91.0 | 88.9 | 85.4 | 77.7 | 68.6 | 58.8 | 53.2 | 51.8 |
| 55° | 2836.5 | 1591.1 | 98.7 | 83.3 | 80.5 | 76.3 | 67.9 | 58.1 | 48.3 | 43.4 | 42.0 |
| 57.5° | 2824.6 | 1450.4 | 88.9 | 75.6 | 72.1 | 67.2 | 58.1 | 47.6 | 39.9 | 35.0 | 34.3 |
| 60° | 2736.4 | 1253.0 | 79.1 | 67.9 | 63.7 | 58.1 | 49.0 | 39.2 | 32.2 | 28.7 | 28.0 |
| 62.5° | 2546.0 | 1008.0 | 69.3 | 58.8 | 56.0 | 50.4 | 42.0 | 32.2 | 26.6 | 24.5 | 23.8 |
| 65° | 2156.0 | 712.6 | 59.5 | 49.7 | 48.3 | 42.7 | 35.0 | 26.6 | 23.1 | 21.7 | 21.0 |
| 67.5° | 1549.8 | 433.3 | 50.4 | 42.7 | 41.3 | 36.4 | 29.4 | 23.1 | 21.0 | 20.3 | 20.3 |
| 70° | 779.1 | 205.1 | 39.9 | 35.0 | 35.0 | 30.1 | 25.2 | 21.0 | 20.3 | 19.6 | 19.6 |
| 72.5° | 264.6 | 87.5 | 30.1 | 27.3 | 28.7 | 25.9 | 21.7 | 19.6 | 19.6 | 19.6 | 19.6 |
| 75° | 90.3 | 46.2 | 21.0 | 19.6 | 21.0 | 21.0 | 18.9 | 18.9 | 19.6 | 19.6 | 19.6 |
| 77.5° | 58.8 | 30.8 | 14.7 | 13.3 | 16.1 | 16.1 | 16.1 | 17.5 | 18.9 | 18.9 | 18.9 |
| 80° | 48.3 | 16.8 | 9.8 | 9.1 | 11.9 | 11.9 | 13.3 | 16.1 | 17.5 | 17.5 | 17.5 |
| 82.5° | 41.3 | 10.5 | 5.6 | 6.3 | 8.4 | 9.1 | 11.2 | 13.3 | 15.4 | 16.1 | 16.1 |
| 85° | 28.0 | 5.6 | 4.2 | 4.9 | 5.6 | 7.0 | 9.1 | 11.2 | 12.6 | 14.0 | 14.0 |
| 87.5° | 7.7 | 2.1 | 2.8 | 3.5 | 3.5 | 4.9 | 7.0 | 8.4 | 9.8 | 10.5 | 10.5 |
| 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 | |



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)