

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: P634427

Luminaire Tested: GWS-SA3B-760-U-T3-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P634427
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-25)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA3B-760-U-T3-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (48) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8956.7 lumens
Efficiency: N/A
Efficacy: 131.1 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G1

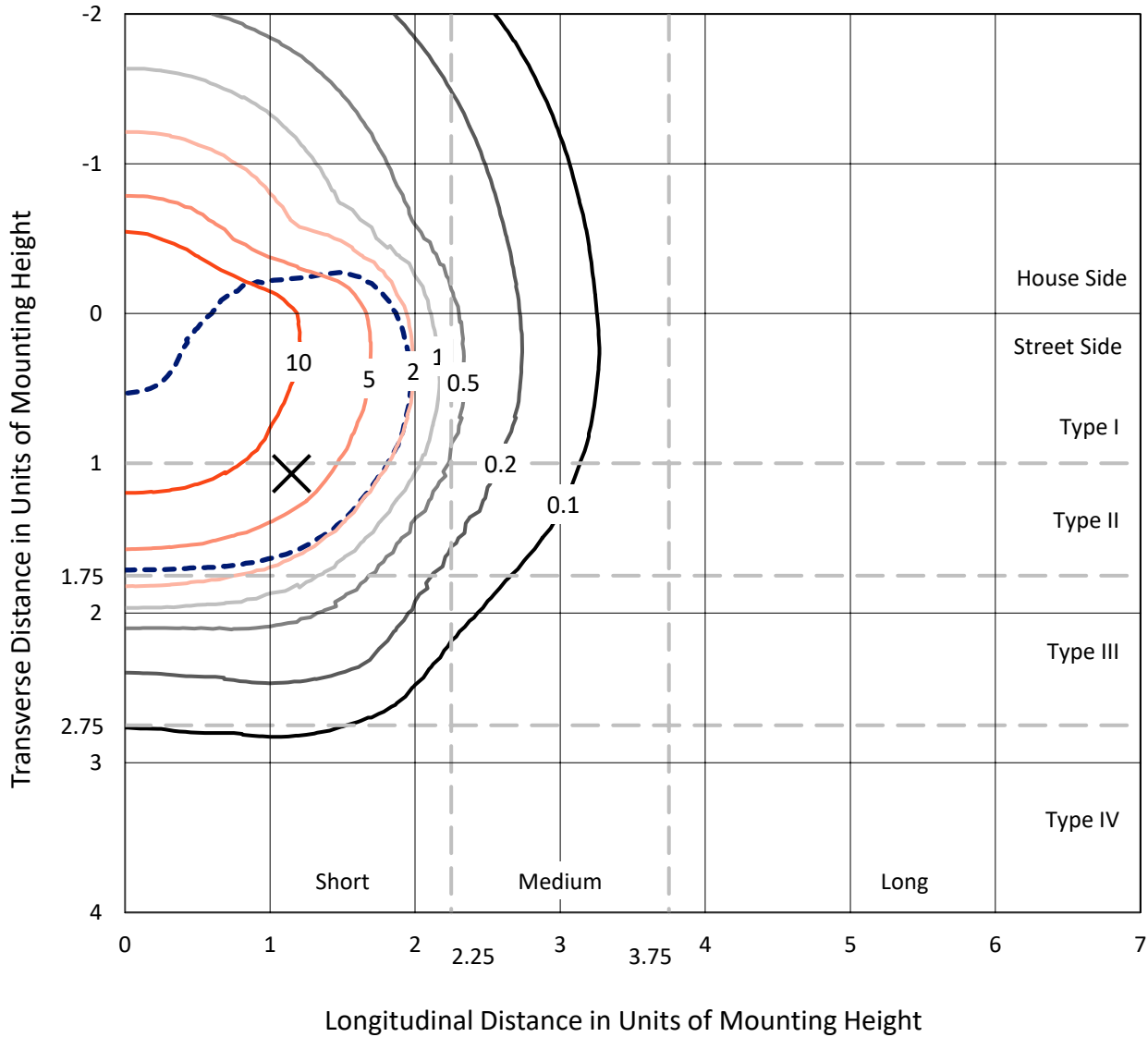
Input Watts (W): 68.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P634427
 CATALOG NUMBER: GWS-SA3B-760-U-T3-W-GRSWH

Iso-Footcandle Lines of Horizontal Illumination

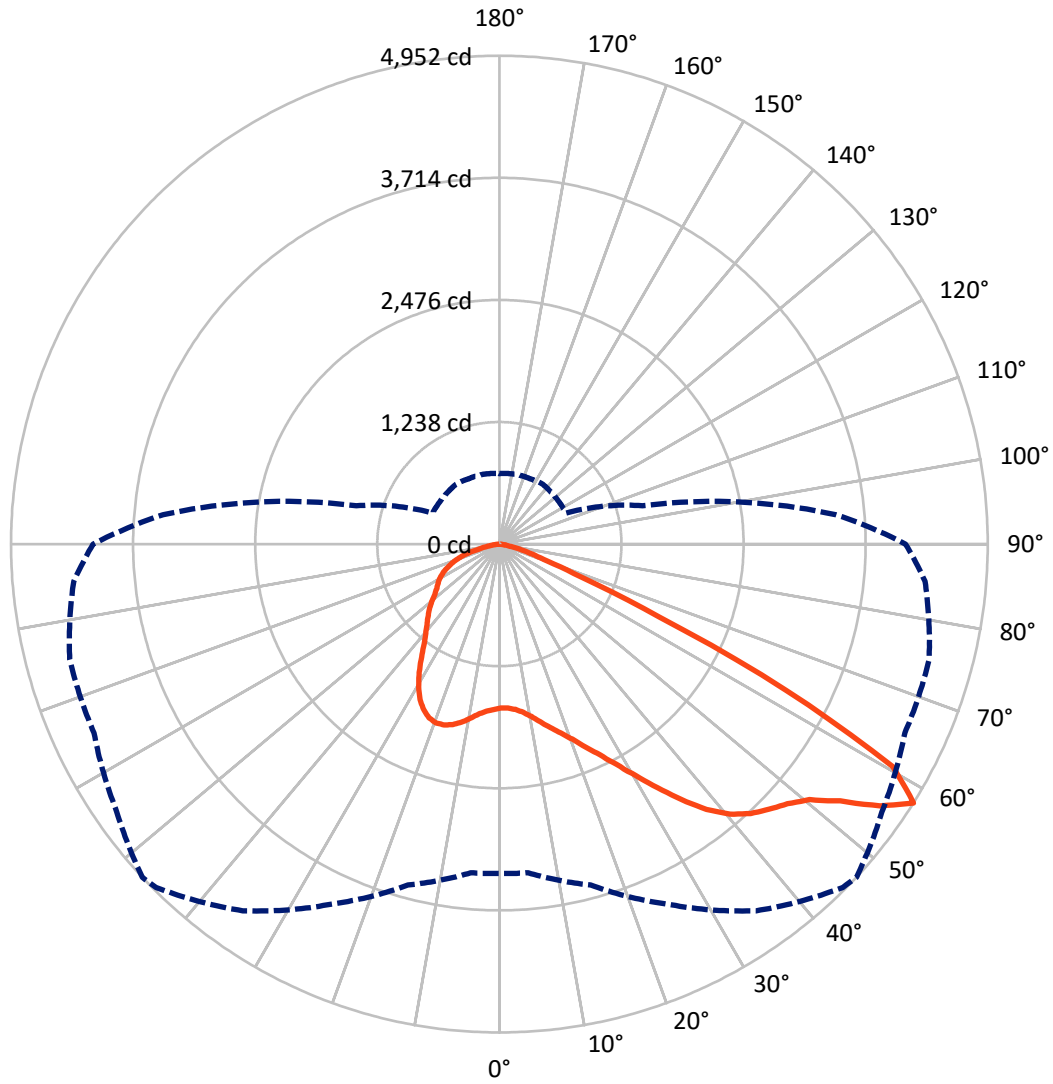
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 18.5 fc
 Type II - Short - N/A

REPORT NUMBER: P634427
CATALOG NUMBER: GWS-SA3B-760-U-T3-W-GRSWH

Luminous Intensity Polar Plot



— Vertical Plane Through 47-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

REPORT NUMBER: P634427

CATALOG NUMBER: GWS-SA3B-760-U-T3-W-GRSWH

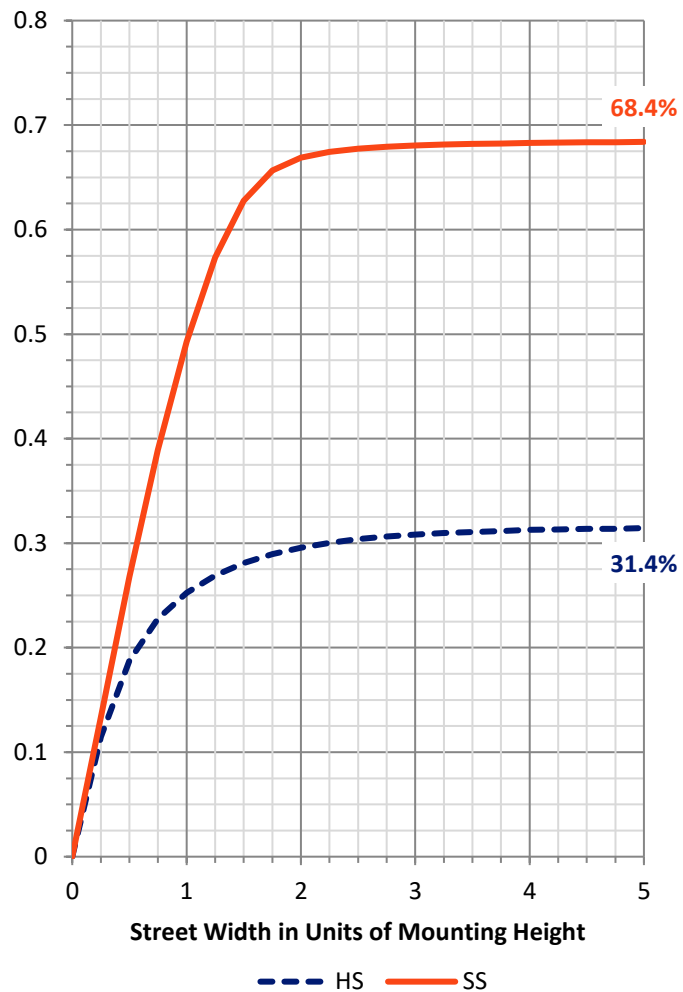
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 2834.8 | 0.0 | 2834.8 |
| | % Fixture | 31.6 | 0.0 | 31.6 |
| Street Side | Lumens | 6121.9 | 0.0 | 6121.9 |
| | % Fixture | 68.4 | 0.0 | 68.4 |
| Total | Lumens | 8956.7 | 0.0 | 8956.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 163.8 | 1.8 |
| 10°-20° | 538.8 | 6.0 |
| 20°-30° | 970.2 | 10.8 |
| 30°-40° | 1465.5 | 16.4 |
| 40°-50° | 1973.4 | 22.0 |
| 50°-60° | 2371.3 | 26.5 |
| 60°-70° | 1154.9 | 12.9 |
| 70°-80° | 284.5 | 3.2 |
| 80°-90° | 34.2 | 0.4 |
| 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° | 8956.7 | 100.0 |
| 0°-180° | 8956.7 | 100.0 |

Coefficient of Utilization



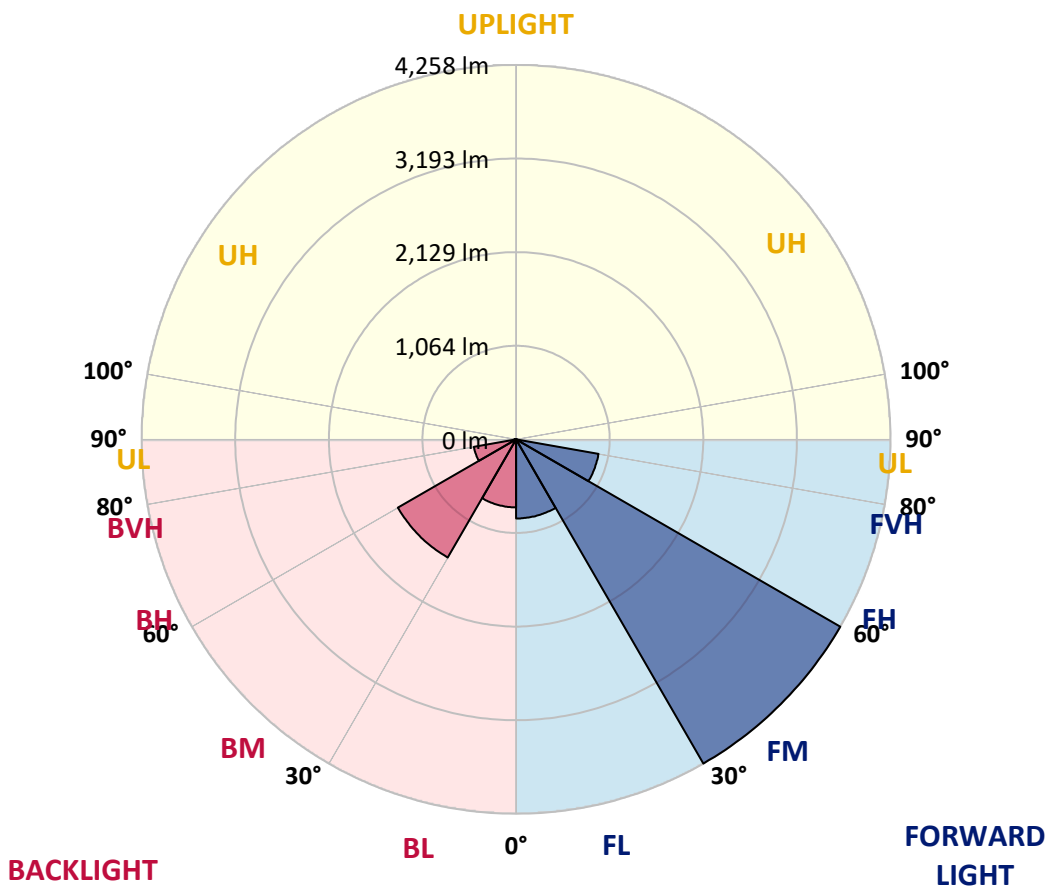
REPORT NUMBER: P634427

CATALOG NUMBER: GWS-SA3B-760-U-T3-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 899.7 | 10.0 | | | |
| FM (30°-60°) | 4257.6 | 47.5 | | | |
| FH (60°-80°) | 951.8 | 10.6 | | | G1/1800 |
| FVH (80°-90°) | 12.9 | 0.1 | | | G1/100 |
| BL (0°-30°) | 773.3 | 8.6 | B2/1000 | | |
| BM (30°-60°) | 1552.6 | 17.3 | B2/2500 | | |
| BH (60°-80°) | 487.6 | 5.4 | B1/500 | | G1/500 |
| BVH (80°-90°) | 21.3 | 0.2 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G1
 Type II Short





REPORT NUMBER: P634427
 CATALOG NUMBER: GWS-SA3B-760-U-T3-W-GRSWH

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 47° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 |
| 2.5° | 1658.0 | 1657.3 | 1657.3 | 1661.8 | 1661.8 | 1663.3 | 1665.5 | 1667.8 | 1668.6 | 1664.8 | 1656.5 |
| 5° | 1676.1 | 1676.1 | 1676.1 | 1679.8 | 1679.8 | 1681.3 | 1684.4 | 1685.1 | 1684.4 | 1678.3 | 1670.1 |
| 7.5° | 1704.7 | 1704.7 | 1705.4 | 1709.9 | 1713.7 | 1715.9 | 1721.2 | 1720.5 | 1718.2 | 1708.4 | 1697.9 |
| 10° | 1751.3 | 1753.6 | 1755.8 | 1761.1 | 1768.6 | 1773.9 | 1777.6 | 1777.6 | 1774.6 | 1759.6 | 1746.0 |
| 12.5° | 1817.5 | 1820.5 | 1822.8 | 1827.3 | 1833.3 | 1842.3 | 1850.6 | 1850.6 | 1846.8 | 1828.0 | 1807.7 |
| 15° | 1895.0 | 1898.0 | 1897.2 | 1898.8 | 1910.0 | 1922.8 | 1929.6 | 1934.1 | 1935.6 | 1909.3 | 1877.7 |
| 17.5° | 1983.8 | 1986.8 | 1983.8 | 1979.2 | 1980.8 | 2001.1 | 2013.1 | 2029.6 | 2039.4 | 2004.1 | 1953.7 |
| 20° | 2064.3 | 2061.2 | 2061.2 | 2064.3 | 2068.8 | 2093.6 | 2111.6 | 2138.7 | 2150.8 | 2107.9 | 2029.6 |
| 22.5° | 2149.3 | 2156.0 | 2153.0 | 2153.0 | 2171.1 | 2212.5 | 2234.3 | 2269.6 | 2282.4 | 2226.7 | 2121.4 |
| 25° | 2259.1 | 2265.1 | 2263.6 | 2265.1 | 2286.2 | 2344.9 | 2366.7 | 2432.1 | 2444.9 | 2365.2 | 2223.0 |
| 27.5° | 2379.5 | 2389.2 | 2393.8 | 2392.2 | 2426.1 | 2502.8 | 2529.9 | 2620.9 | 2644.3 | 2520.1 | 2331.3 |
| 30° | 2535.9 | 2546.5 | 2550.2 | 2548.7 | 2588.6 | 2693.2 | 2724.0 | 2827.8 | 2860.9 | 2703.7 | 2469.0 |
| 32.5° | 2717.2 | 2727.8 | 2739.0 | 2743.6 | 2794.7 | 2901.5 | 2945.9 | 3053.5 | 3100.9 | 2915.8 | 2635.2 |
| 35° | 2897.0 | 2906.1 | 2927.9 | 2963.2 | 3033.2 | 3142.3 | 3181.4 | 3287.5 | 3333.4 | 3136.3 | 2836.1 |
| 37.5° | 3095.6 | 3101.6 | 3120.5 | 3169.4 | 3270.2 | 3374.0 | 3413.1 | 3514.6 | 3519.9 | 3349.1 | 3063.3 |
| 40° | 3313.0 | 3313.0 | 3309.3 | 3357.4 | 3462.7 | 3567.3 | 3601.2 | 3659.8 | 3629.0 | 3513.1 | 3284.5 |
| 42.5° | 3497.3 | 3494.3 | 3497.3 | 3542.5 | 3620.7 | 3705.7 | 3735.1 | 3723.8 | 3684.7 | 3638.8 | 3484.6 |
| 45° | 3663.6 | 3665.9 | 3692.9 | 3727.5 | 3768.2 | 3818.6 | 3835.9 | 3771.9 | 3736.6 | 3739.6 | 3644.8 |
| 47.5° | 3776.4 | 3778.7 | 3841.9 | 3899.8 | 3924.6 | 3940.4 | 3932.9 | 3844.1 | 3826.1 | 3859.9 | 3768.2 |
| 50° | 3791.5 | 3803.5 | 3912.6 | 4031.5 | 4093.2 | 4095.4 | 4074.3 | 3966.0 | 3960.8 | 3999.1 | 3834.4 |
| 52.5° | 3794.5 | 3806.5 | 3942.7 | 4157.1 | 4317.3 | 4351.2 | 4327.1 | 4214.3 | 4159.4 | 4121.0 | 3915.6 |
| 55° | 3783.2 | 3796.8 | 3947.2 | 4241.4 | 4548.3 | 4683.7 | 4685.9 | 4526.5 | 4351.2 | 4325.6 | 4147.3 |
| 57.5° | 3340.1 | 3345.4 | 3578.6 | 4027.0 | 4539.3 | 4922.9 | 4952.3 | 4735.6 | 4535.5 | 4511.4 | 4333.1 |
| 60° | 2326.8 | 2347.9 | 2601.4 | 3193.4 | 3813.3 | 4489.6 | 4584.4 | 4521.2 | 4387.3 | 4212.0 | 3717.8 |
| 62.5° | 1165.3 | 1183.3 | 1437.6 | 1997.3 | 2630.0 | 3164.1 | 3265.6 | 3332.6 | 3364.2 | 3176.1 | 2531.4 |
| 65° | 501.8 | 515.3 | 673.3 | 1043.4 | 1488.8 | 1746.8 | 1782.1 | 1862.6 | 2059.7 | 1837.8 | 1363.9 |
| 67.5° | 335.5 | 344.5 | 425.0 | 636.4 | 877.2 | 893.7 | 888.4 | 905.7 | 948.6 | 783.1 | 616.1 |
| 70° | 257.3 | 264.8 | 319.0 | 466.4 | 630.4 | 539.4 | 510.8 | 463.4 | 503.3 | 513.1 | 499.5 |
| 72.5° | 186.6 | 192.6 | 233.2 | 318.2 | 394.9 | 344.5 | 340.0 | 364.1 | 418.3 | 433.3 | 425.0 |
| 75° | 120.4 | 123.4 | 148.2 | 174.5 | 203.9 | 221.2 | 230.2 | 273.8 | 328.7 | 340.0 | 330.3 |
| 77.5° | 80.5 | 82.8 | 97.0 | 112.1 | 115.9 | 116.6 | 119.6 | 139.2 | 176.8 | 197.8 | 195.6 |
| 80° | 42.1 | 42.1 | 47.4 | 47.4 | 54.2 | 64.7 | 67.7 | 80.5 | 97.8 | 108.3 | 109.1 |
| 82.5° | 16.6 | 17.3 | 20.3 | 22.6 | 27.1 | 33.1 | 35.4 | 42.1 | 51.2 | 58.7 | 65.4 |
| 85° | 6.8 | 7.5 | 8.3 | 9.8 | 12.0 | 15.0 | 15.8 | 18.1 | 24.1 | 30.1 | 33.9 |
| 87.5° | 0.0 | 0.0 | 0.8 | 0.8 | 1.5 | 2.3 | 2.3 | 3.0 | 3.8 | 6.8 | 9.0 |
| 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: P634427

CATALOG NUMBER: GWS-SA3B-760-U-T3-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 | 1661.0 |
| 2.5° | 1666.3 | 1656.5 | 1666.3 | 1669.3 | 1677.6 | 1680.6 | 1675.3 | 1674.6 | 1674.6 | 1667.1 | 1664.8 |
| 5° | 1677.6 | 1668.6 | 1678.3 | 1682.8 | 1694.9 | 1702.4 | 1703.9 | 1709.9 | 1713.7 | 1710.7 | 1709.9 |
| 7.5° | 1705.4 | 1694.1 | 1704.7 | 1711.4 | 1727.2 | 1739.3 | 1744.5 | 1758.1 | 1767.9 | 1766.4 | 1765.6 |
| 10° | 1754.3 | 1739.3 | 1751.3 | 1762.6 | 1779.9 | 1794.2 | 1794.9 | 1802.5 | 1812.2 | 1809.2 | 1807.7 |
| 12.5° | 1810.7 | 1796.4 | 1810.0 | 1821.3 | 1841.6 | 1847.6 | 1837.8 | 1834.8 | 1836.3 | 1832.6 | 1829.5 |
| 15° | 1879.9 | 1859.6 | 1871.7 | 1884.5 | 1895.7 | 1889.0 | 1867.9 | 1859.6 | 1858.9 | 1853.6 | 1850.6 |
| 17.5° | 1949.2 | 1923.6 | 1932.6 | 1939.4 | 1934.1 | 1913.0 | 1886.7 | 1872.4 | 1865.7 | 1855.1 | 1852.1 |
| 20° | 2017.6 | 1985.3 | 1983.8 | 1978.5 | 1954.4 | 1916.1 | 1880.7 | 1852.1 | 1834.8 | 1820.5 | 1815.3 |
| 22.5° | 2095.9 | 2050.7 | 2028.1 | 2004.1 | 1951.4 | 1889.0 | 1835.6 | 1794.9 | 1767.1 | 1749.0 | 1743.0 |
| 25° | 2180.1 | 2116.2 | 2069.5 | 2021.4 | 1921.3 | 1831.0 | 1756.6 | 1700.9 | 1667.8 | 1648.2 | 1641.5 |
| 27.5° | 2263.6 | 2175.6 | 2105.6 | 2023.6 | 1861.1 | 1747.5 | 1647.5 | 1572.3 | 1539.2 | 1523.4 | 1518.1 |
| 30° | 2376.5 | 2254.6 | 2148.5 | 1994.3 | 1782.1 | 1631.7 | 1506.8 | 1430.8 | 1409.0 | 1397.7 | 1393.2 |
| 32.5° | 2506.6 | 2354.6 | 2205.7 | 1932.6 | 1681.3 | 1496.3 | 1364.6 | 1312.0 | 1296.9 | 1275.1 | 1274.4 |
| 35° | 2678.1 | 2497.6 | 2259.8 | 1841.6 | 1554.2 | 1351.1 | 1255.6 | 1217.9 | 1190.9 | 1156.3 | 1153.2 |
| 37.5° | 2878.2 | 2675.9 | 2289.2 | 1725.7 | 1406.0 | 1231.5 | 1174.3 | 1132.2 | 1088.5 | 1042.7 | 1036.6 |
| 40° | 3085.1 | 2884.2 | 2291.4 | 1588.8 | 1260.8 | 1152.5 | 1104.3 | 1049.4 | 995.3 | 944.1 | 937.3 |
| 42.5° | 3302.5 | 3078.3 | 2251.6 | 1430.8 | 1142.0 | 1084.0 | 1035.1 | 965.9 | 905.0 | 870.4 | 866.6 |
| 45° | 3496.6 | 3234.8 | 2161.3 | 1264.6 | 1053.9 | 1026.9 | 964.4 | 889.9 | 857.6 | 832.8 | 827.5 |
| 47.5° | 3649.3 | 3338.6 | 2039.4 | 1115.6 | 982.5 | 968.2 | 886.9 | 848.6 | 823.7 | 801.2 | 795.9 |
| 50° | 3724.5 | 3361.9 | 1880.7 | 994.5 | 916.3 | 899.0 | 843.3 | 814.0 | 797.4 | 779.4 | 774.8 |
| 52.5° | 3817.8 | 3388.3 | 1743.8 | 893.0 | 851.6 | 828.3 | 807.2 | 783.9 | 771.8 | 760.6 | 756.8 |
| 55° | 4032.2 | 3487.6 | 1671.6 | 811.7 | 789.9 | 779.4 | 776.4 | 756.8 | 753.0 | 745.5 | 738.7 |
| 57.5° | 4119.5 | 3423.6 | 1500.8 | 745.5 | 741.0 | 742.5 | 750.0 | 732.0 | 728.2 | 719.2 | 714.7 |
| 60° | 3313.0 | 2587.8 | 1016.3 | 688.3 | 700.4 | 710.2 | 717.7 | 699.6 | 694.4 | 692.8 | 686.8 |
| 62.5° | 2122.9 | 1591.8 | 709.4 | 634.9 | 653.0 | 665.0 | 669.5 | 652.2 | 648.5 | 660.5 | 661.3 |
| 65° | 1105.1 | 867.4 | 575.5 | 577.8 | 592.8 | 610.9 | 619.9 | 613.9 | 612.4 | 625.1 | 625.9 |
| 67.5° | 564.2 | 530.4 | 501.8 | 510.0 | 522.1 | 545.4 | 566.5 | 592.8 | 601.8 | 603.3 | 604.1 |
| 70° | 480.7 | 465.7 | 451.4 | 456.6 | 469.4 | 482.2 | 502.5 | 515.3 | 500.3 | 496.5 | 495.0 |
| 72.5° | 409.2 | 398.0 | 391.2 | 397.2 | 404.0 | 401.7 | 395.7 | 401.7 | 404.0 | 404.7 | 405.5 |
| 75° | 318.2 | 309.9 | 304.7 | 305.4 | 305.4 | 297.2 | 285.9 | 279.1 | 271.6 | 265.6 | 265.6 |
| 77.5° | 194.8 | 196.3 | 201.6 | 200.9 | 200.1 | 197.1 | 185.8 | 179.8 | 161.7 | 156.5 | 156.5 |
| 80° | 111.3 | 113.6 | 118.9 | 120.4 | 120.4 | 116.6 | 105.3 | 98.5 | 90.3 | 86.5 | 85.8 |
| 82.5° | 67.7 | 70.7 | 73.7 | 75.2 | 76.0 | 71.5 | 61.7 | 56.4 | 51.9 | 48.1 | 48.1 |
| 85° | 35.4 | 36.9 | 39.9 | 40.6 | 38.4 | 33.9 | 28.6 | 26.3 | 21.8 | 21.1 | 21.1 |
| 87.5° | 9.8 | 10.5 | 12.0 | 9.8 | 9.0 | 6.8 | 3.8 | 3.0 | 1.5 | 0.8 | 0.8 |
| 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: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-9-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-760-U-5WQ**
 Description: MCGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 5474
 CIE u': 0.2052
 CIE v': 0.4804
 Duv: 0.0025
 CIE x: 0.3330
 CIE y: 0.3466
 CIE z: 0.3204
 Peak Wavelength (nm): 442
 Dominant Wavelength (nm): 554
 Purity: 4.1

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.7 | | |
| R1: | 70.6 | R9: | -27.1 |
| R2: | 74.6 | R10: | 40.8 |
| R3: | 78.3 | R11: | 74.6 |
| R4: | 73.8 | R12: | 50.4 |
| R5: | 72.4 | R13: | 70.0 |
| R6: | 67.5 | R14: | 87.8 |
| R7: | 77.5 | | |
| R8: | 58.9 | | |

Rf: 72.1
 Rg: 97.2



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

REPORT NUMBER: SP1-1908-441-9-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: SP1-1908-441-9-R4

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 5700K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-9-R4

Photopic Flux vs. Wavelength



#####

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5527.6 M/P: 0.74

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Summary

$R_f = 72.1$
 $R_g = 97.2$
 CIE $R_a = 71.7$
 $R_g = -27.1$



Color Vector Graphics

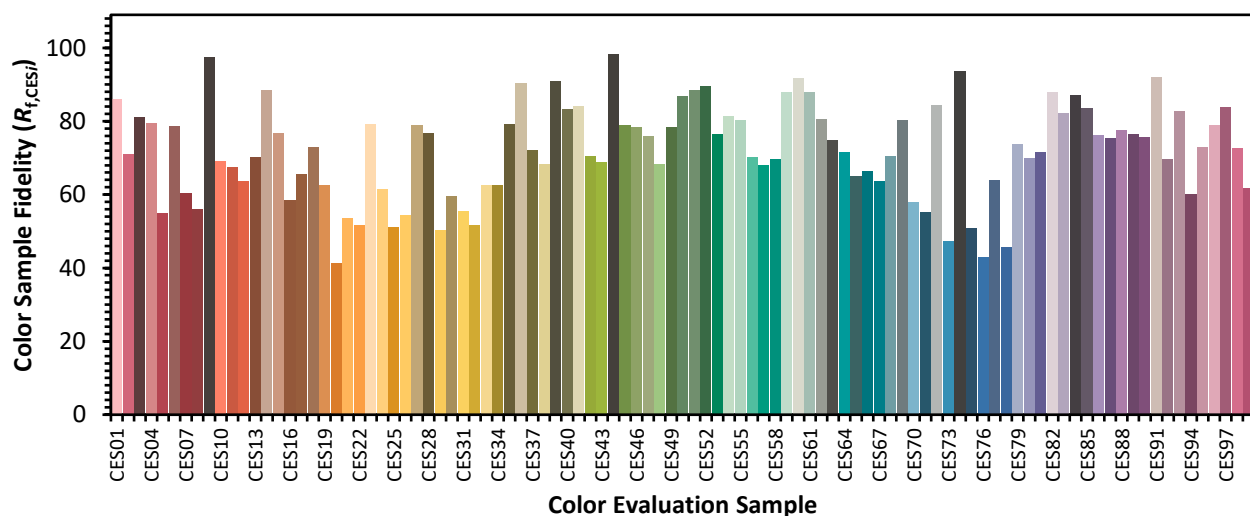


REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 | |



REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Color Rendition by Hue-Angle Bin



REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Measure Comparisons



(END OF REPORT)