

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: P632881

Luminaire Tested: GWS-SA2D-750-U-T2-W

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P632881  
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-SA2D-750-U-T2-W  
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS  
Light Source: (32) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

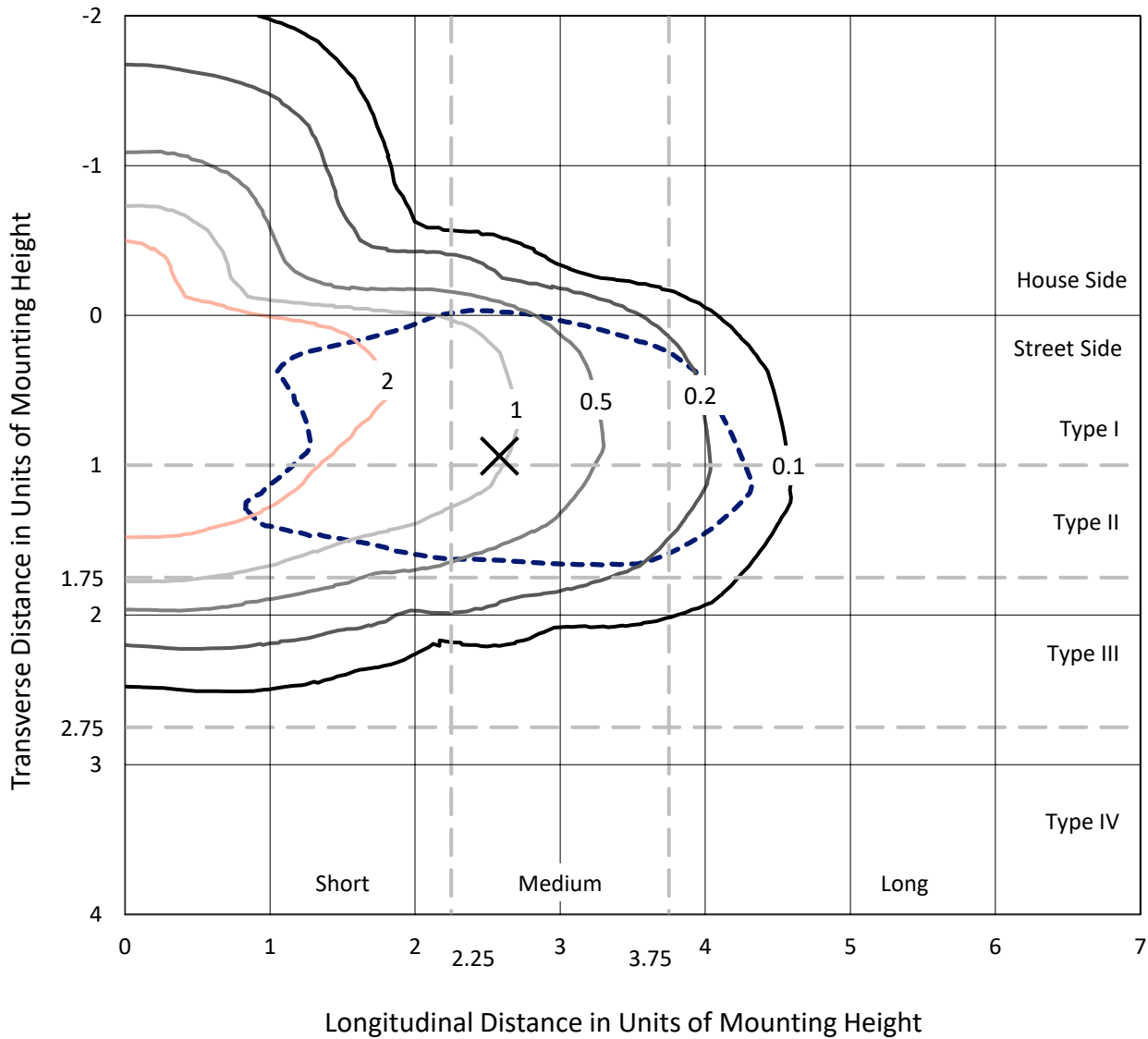
Lumens per Lamp: N/A  
Luminaire Lumens: 11849.9 lumens  
Efficiency: N/A  
Efficacy: 144.3 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')  
IES Classification: Type II - Medium  
BUG Rating: B2 - U0 - G2  
  
Input Watts (W): 82.1  
Input Voltage (V): 120  
Input Current (Ain): 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: P632881  
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### Iso-Footcandle Lines of Horizontal Illumination

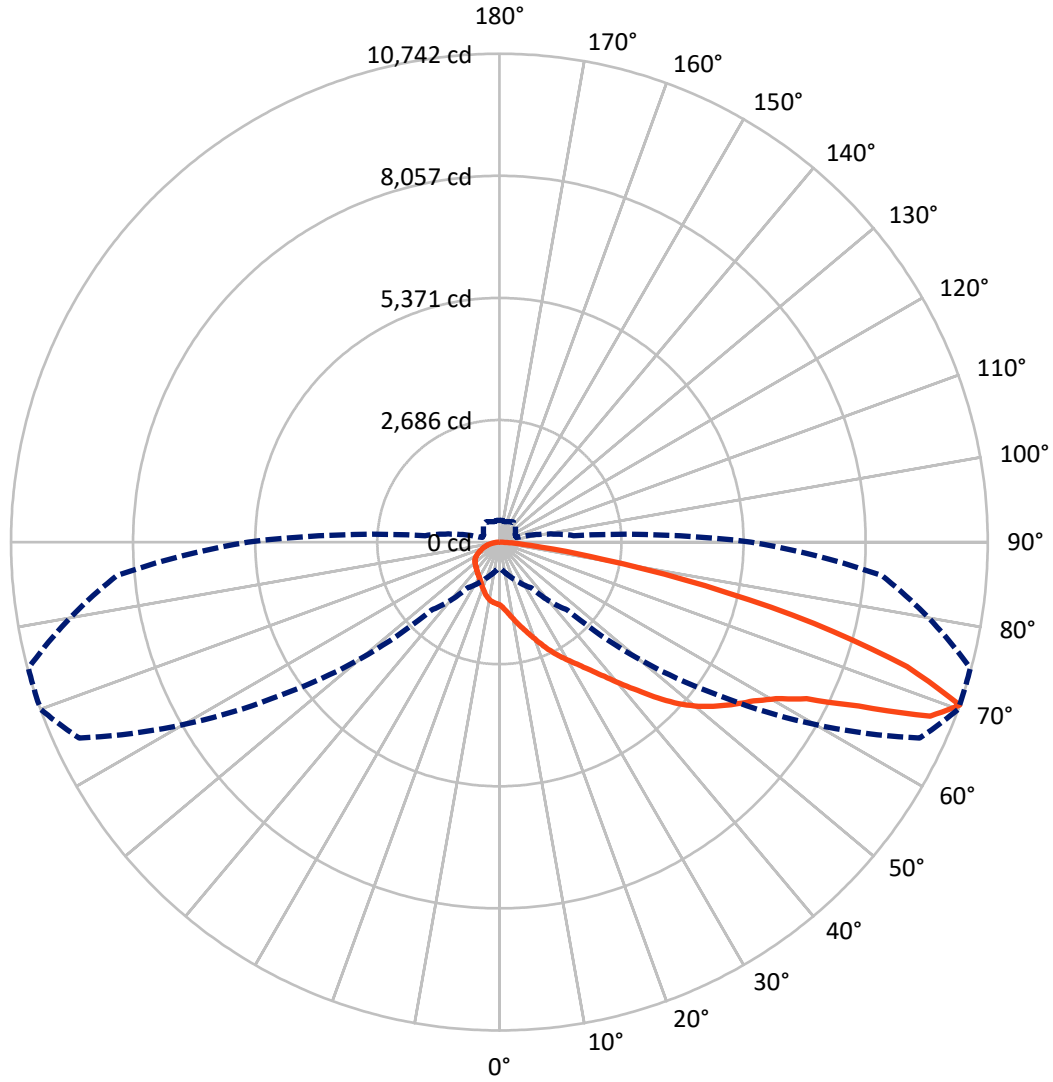
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 5 fc  
 Type II - Medium - N/A

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### Luminous Intensity Polar Plot



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

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CATALOG NUMBER: GWS-SA2D-750-U-T2-W

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 2123.5   | 0.0    | 2123.5  |
|                    | % Fixture | 17.9     | 0.0    | 17.9    |
| <b>Street Side</b> | Lumens    | 9726.4   | 0.0    | 9726.4  |
|                    | % Fixture | 82.1     | 0.0    | 82.1    |
| <b>Total</b>       | Lumens    | 11849.9  | 0.0    | 11849.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 140.5   | 1.2       |
| 10°-20°   | 456.9   | 3.9       |
| 20°-30°   | 809.4   | 6.8       |
| 30°-40°   | 1218.2  | 10.3      |
| 40°-50°   | 1843.0  | 15.6      |
| 50°-60°   | 2640.2  | 22.3      |
| 60°-70°   | 2918.5  | 24.6      |
| 70°-80°   | 1647.0  | 13.9      |
| 80°-90°   | 176.2   | 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°    | 11849.9 | 100.0     |
| 0°-180°   | 11849.9 | 100.0     |

**Coefficient of Utilization**



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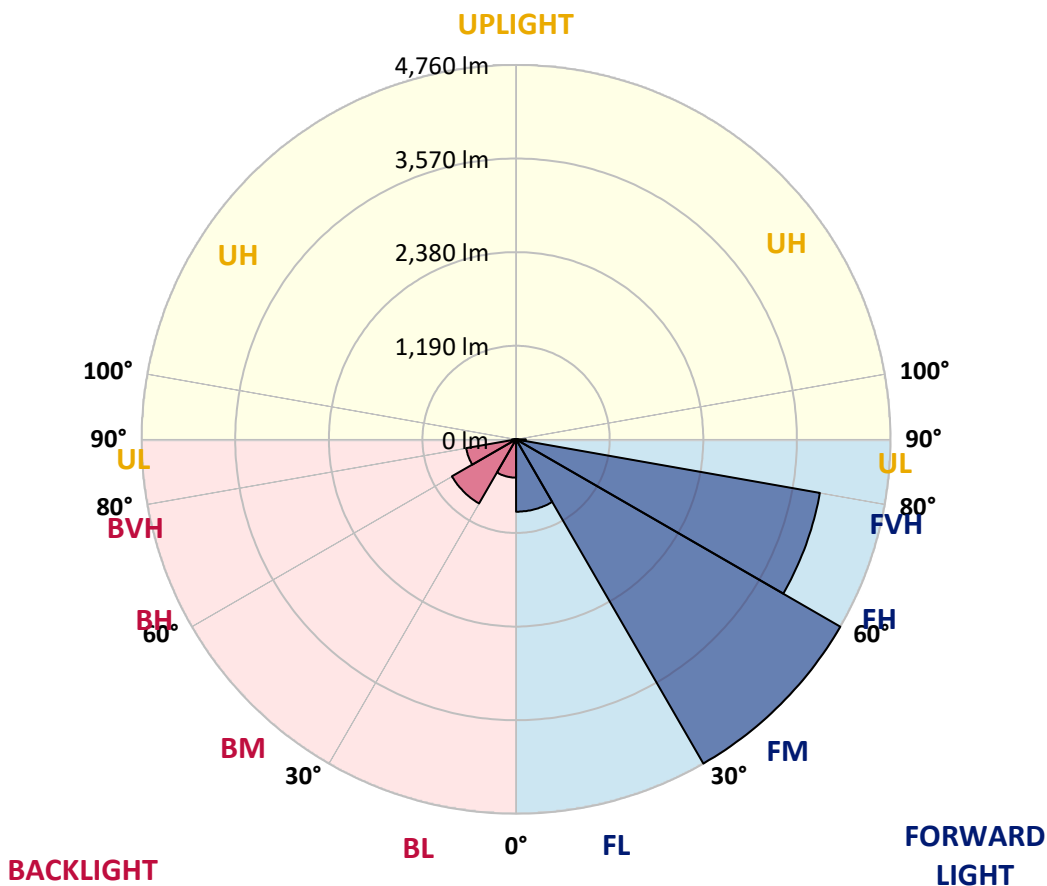
CATALOG NUMBER: GWS-SA2D-750-U-T2-W

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 919.9  | 7.8       |                         |      |         |
| FM (30°-60°)   | 4760.1 | 40.2      |                         |      |         |
| FH (60°-80°)   | 3921.8 | 33.1      |                         |      | G2/5000 |
| FVH (80°-90°)  | 124.5  | 1.1       |                         |      | G2/225  |
| BL (0°-30°)    | 486.9  | 4.1       | B1/500                  |      |         |
| BM (30°-60°)   | 941.4  | 7.9       | B1/1000                 |      |         |
| BH (60°-80°)   | 643.6  | 5.4       | B2/1000                 |      | G2/1000 |
| BVH (80°-90°)  | 51.6   | 0.4       |                         |      | G1/100  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B2-U0-G2**

Type II Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°     | 70°     | 75°     | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|--------|
| 0°    | 1381.9 | 1381.9 | 1381.9 | 1381.9 | 1381.9 | 1381.9 | 1381.9 | 1381.9  | 1381.9  | 1381.9  | 1381.9 |
| 2.5°  | 1530.9 | 1528.4 | 1530.1 | 1528.4 | 1518.9 | 1495.8 | 1477.0 | 1453.0  | 1436.7  | 1427.3  | 1405.1 |
| 5°    | 1710.7 | 1708.2 | 1702.2 | 1693.6 | 1676.5 | 1644.8 | 1597.7 | 1545.5  | 1513.8  | 1489.8  | 1442.7 |
| 7.5°  | 1840.0 | 1840.0 | 1839.2 | 1828.9 | 1816.9 | 1783.5 | 1727.9 | 1659.4  | 1613.1  | 1572.0  | 1495.0 |
| 10°   | 1906.0 | 1910.2 | 1916.2 | 1930.8 | 1928.2 | 1910.2 | 1858.0 | 1784.4  | 1726.1  | 1678.2  | 1563.5 |
| 12.5° | 1941.9 | 1944.5 | 1954.8 | 1984.7 | 2015.5 | 2019.8 | 1989.0 | 1911.9  | 1848.6  | 1784.4  | 1639.7 |
| 15°   | 1988.1 | 1989.0 | 2002.7 | 2038.7 | 2084.0 | 2129.4 | 2121.7 | 2044.7  | 1979.6  | 1908.5  | 1724.4 |
| 17.5° | 2024.1 | 2030.1 | 2054.9 | 2096.9 | 2153.4 | 2215.9 | 2253.6 | 2205.6  | 2125.1  | 2043.8  | 1816.9 |
| 20°   | 2037.0 | 2041.2 | 2073.8 | 2138.0 | 2215.0 | 2303.2 | 2387.1 | 2374.3  | 2293.0  | 2197.1  | 1921.4 |
| 22.5° | 2083.2 | 2083.2 | 2107.2 | 2161.1 | 2251.9 | 2380.3 | 2516.4 | 2549.8  | 2477.9  | 2365.7  | 2033.5 |
| 25°   | 2185.1 | 2181.7 | 2192.8 | 2215.0 | 2283.5 | 2441.9 | 2644.0 | 2744.2  | 2663.7  | 2537.8  | 2145.7 |
| 27.5° | 2324.6 | 2322.9 | 2322.1 | 2325.5 | 2348.6 | 2495.9 | 2751.9 | 2925.7  | 2845.2  | 2703.1  | 2245.9 |
| 30°   | 2476.2 | 2471.1 | 2482.2 | 2471.9 | 2466.8 | 2560.1 | 2843.5 | 3088.4  | 3025.9  | 2866.6  | 2328.9 |
| 32.5° | 2682.5 | 2673.1 | 2670.6 | 2637.2 | 2616.6 | 2660.3 | 2917.2 | 3273.3  | 3223.7  | 3043.0  | 2422.3 |
| 35°   | 2954.8 | 2946.3 | 2902.6 | 2849.5 | 2788.7 | 2809.3 | 3008.8 | 3454.0  | 3457.4  | 3263.9  | 2544.7 |
| 37.5° | 3229.7 | 3231.4 | 3197.1 | 3072.1 | 3009.6 | 2997.6 | 3148.3 | 3674.1  | 3747.7  | 3527.6  | 2703.1 |
| 40°   | 3458.3 | 3468.6 | 3468.6 | 3336.7 | 3243.4 | 3232.2 | 3344.4 | 3935.2  | 4081.6  | 3851.3  | 2903.5 |
| 42.5° | 3632.1 | 3641.5 | 3671.5 | 3576.4 | 3478.0 | 3516.5 | 3582.4 | 4197.2  | 4460.1  | 4251.1  | 3156.9 |
| 45°   | 3823.0 | 3830.7 | 3847.0 | 3792.2 | 3734.8 | 3837.6 | 3852.1 | 4510.6  | 4893.3  | 4699.8  | 3451.4 |
| 47.5° | 4076.5 | 4069.6 | 4071.3 | 4031.1 | 3986.6 | 4152.7 | 4149.3 | 4774.3  | 5312.0  | 5191.3  | 3770.8 |
| 50°   | 4391.6 | 4404.4 | 4392.4 | 4312.8 | 4260.6 | 4412.1 | 4431.8 | 5066.3  | 5680.2  | 5677.6  | 4092.7 |
| 52.5° | 4694.7 | 4699.8 | 4763.2 | 4766.6 | 4659.6 | 4627.9 | 4679.3 | 5360.8  | 5991.0  | 6122.8  | 4401.8 |
| 55°   | 4710.1 | 4729.8 | 4919.9 | 5056.9 | 5229.8 | 4975.5 | 4929.3 | 5641.7  | 6291.5  | 6558.7  | 4722.9 |
| 57.5° | 4382.1 | 4413.8 | 4736.6 | 5032.0 | 5513.2 | 5572.3 | 5357.4 | 6004.7  | 6592.1  | 6987.6  | 5094.5 |
| 60°   | 3681.8 | 3747.7 | 4186.1 | 4638.2 | 5385.6 | 6001.3 | 6233.3 | 6497.9  | 6986.8  | 7426.0  | 5545.8 |
| 62.5° | 2351.2 | 2376.9 | 2991.6 | 3748.5 | 4811.1 | 5959.3 | 7187.1 | 7366.9  | 7587.8  | 7997.1  | 6241.0 |
| 65°   | 1177.3 | 1259.5 | 1620.0 | 2237.3 | 3469.4 | 5251.2 | 7669.2 | 8958.7  | 8688.1  | 8974.9  | 7367.8 |
| 67.5° | 798.9  | 825.4  | 1007.8 | 1344.3 | 2034.4 | 3720.3 | 7370.4 | 10299.5 | 10219.9 | 10267.0 | 8569.1 |
| 70°   | 589.1  | 606.2  | 750.1  | 952.1  | 1230.4 | 2112.3 | 5867.7 | 10198.5 | 10742.2 | 10725.0 | 8443.2 |
| 72.5° | 429.8  | 438.4  | 547.1  | 726.9  | 911.9  | 1092.5 | 3583.3 | 8238.6  | 9377.4  | 9871.4  | 7384.1 |
| 75°   | 312.5  | 322.8  | 380.2  | 543.7  | 709.0  | 681.6  | 1769.0 | 5950.7  | 7151.2  | 8101.6  | 6015.8 |
| 77.5° | 232.9  | 245.7  | 272.3  | 340.8  | 496.6  | 488.0  | 764.6  | 3864.1  | 4625.3  | 5291.5  | 3654.4 |
| 80°   | 167.8  | 170.4  | 185.8  | 218.3  | 315.1  | 286.0  | 363.9  | 2014.7  | 2310.1  | 2531.0  | 1432.5 |
| 82.5° | 101.9  | 104.5  | 124.2  | 134.4  | 195.2  | 179.8  | 189.2  | 652.4   | 935.0   | 992.4   | 535.1  |
| 85°   | 30.0   | 31.7   | 56.5   | 61.6   | 81.3   | 77.1   | 76.2   | 265.4   | 316.8   | 405.0   | 210.6  |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.9    | 5.1    | 9.4    | 47.1    | 71.1    | 98.5    | 51.4   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0     | 0.0     | 0.0     | 0.0    |



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 CATALOG NUMBER: GWS-SA2D-750-U-T2-W

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1381.9 | 1381.9 | 1381.9 | 1381.9 | 1381.9 | 1381.9 | 1381.9 | 1381.9 | 1381.9 | 1381.9 | 1381.9 |
| 2.5°  | 1396.5 | 1376.8 | 1366.5 | 1348.6 | 1335.7 | 1322.9 | 1310.0 | 1298.0 | 1292.9 | 1285.2 | 1286.9 |
| 5°    | 1421.3 | 1390.5 | 1359.7 | 1324.6 | 1294.6 | 1269.8 | 1247.5 | 1227.8 | 1219.3 | 1211.6 | 1215.0 |
| 7.5°  | 1459.0 | 1412.8 | 1353.7 | 1289.5 | 1242.4 | 1208.1 | 1185.0 | 1171.3 | 1167.0 | 1161.0 | 1161.0 |
| 10°   | 1507.0 | 1437.6 | 1334.0 | 1242.4 | 1185.9 | 1158.5 | 1148.2 | 1147.3 | 1151.6 | 1152.5 | 1150.8 |
| 12.5° | 1560.0 | 1461.6 | 1304.9 | 1186.7 | 1138.8 | 1130.2 | 1137.9 | 1152.5 | 1167.0 | 1174.7 | 1173.0 |
| 15°   | 1614.8 | 1477.0 | 1255.2 | 1133.6 | 1104.5 | 1115.7 | 1140.5 | 1169.6 | 1197.9 | 1212.4 | 1211.6 |
| 17.5° | 1666.2 | 1480.4 | 1191.0 | 1082.3 | 1074.6 | 1102.8 | 1145.6 | 1191.0 | 1229.5 | 1250.1 | 1250.9 |
| 20°   | 1723.6 | 1474.4 | 1125.1 | 1036.0 | 1044.6 | 1090.8 | 1147.3 | 1202.1 | 1247.5 | 1268.1 | 1273.2 |
| 22.5° | 1775.8 | 1453.9 | 1060.9 | 992.4  | 1018.9 | 1076.3 | 1133.6 | 1185.0 | 1225.3 | 1244.9 | 1251.8 |
| 25°   | 1822.9 | 1414.5 | 990.6  | 955.5  | 999.2  | 1055.7 | 1099.4 | 1135.4 | 1163.6 | 1175.6 | 1185.0 |
| 27.5° | 1848.6 | 1355.4 | 937.6  | 926.4  | 980.4  | 1026.6 | 1050.6 | 1061.7 | 1071.1 | 1067.7 | 1074.6 |
| 30°   | 1853.7 | 1281.8 | 891.3  | 903.3  | 952.1  | 986.4  | 991.5  | 980.4  | 964.1  | 937.6  | 943.6  |
| 32.5° | 1848.6 | 1197.0 | 852.8  | 878.5  | 920.4  | 941.0  | 934.1  | 905.0  | 865.6  | 824.5  | 827.1  |
| 35°   | 1850.3 | 1111.4 | 821.1  | 851.1  | 883.6  | 894.8  | 877.6  | 837.4  | 795.4  | 757.8  | 756.0  |
| 37.5° | 1869.1 | 1039.5 | 794.6  | 824.5  | 847.7  | 849.4  | 830.5  | 788.6  | 767.2  | 738.9  | 735.5  |
| 40°   | 1921.4 | 986.4  | 770.6  | 798.0  | 812.6  | 811.7  | 790.3  | 760.3  | 774.9  | 765.5  | 762.9  |
| 42.5° | 2007.0 | 953.8  | 750.9  | 769.7  | 780.0  | 781.7  | 764.6  | 745.8  | 777.5  | 765.5  | 761.2  |
| 45°   | 2144.8 | 952.1  | 737.2  | 741.5  | 757.8  | 769.7  | 757.8  | 736.4  | 748.3  | 690.1  | 679.0  |
| 47.5° | 2308.4 | 981.2  | 726.9  | 716.7  | 744.9  | 766.3  | 747.5  | 713.2  | 688.4  | 635.3  | 627.6  |
| 50°   | 2505.3 | 1040.3 | 717.5  | 690.1  | 726.1  | 753.5  | 734.6  | 687.5  | 649.9  | 621.6  | 617.3  |
| 52.5° | 2739.1 | 1118.2 | 705.5  | 660.1  | 697.8  | 746.6  | 734.6  | 685.0  | 635.3  | 609.6  | 605.3  |
| 55°   | 2983.9 | 1208.1 | 691.8  | 624.2  | 666.1  | 748.3  | 740.6  | 667.0  | 624.2  | 610.5  | 607.1  |
| 57.5° | 3287.9 | 1316.0 | 667.0  | 582.2  | 637.9  | 732.9  | 716.7  | 656.7  | 616.5  | 605.3  | 601.9  |
| 60°   | 3682.6 | 1476.1 | 619.9  | 539.4  | 605.3  | 705.5  | 695.3  | 639.6  | 595.9  | 586.5  | 583.9  |
| 62.5° | 4307.7 | 1747.6 | 562.5  | 498.3  | 566.8  | 648.2  | 663.6  | 607.1  | 570.2  | 569.4  | 568.5  |
| 65°   | 5326.6 | 2073.8 | 494.9  | 461.5  | 526.6  | 601.1  | 621.6  | 573.7  | 543.7  | 553.1  | 552.3  |
| 67.5° | 6040.7 | 2102.0 | 439.2  | 423.0  | 479.5  | 549.7  | 579.7  | 539.4  | 506.9  | 524.9  | 524.0  |
| 70°   | 5532.9 | 1639.7 | 391.3  | 382.7  | 429.0  | 494.0  | 534.3  | 496.6  | 464.1  | 481.2  | 477.8  |
| 72.5° | 4666.4 | 1256.9 | 345.9  | 340.8  | 377.6  | 435.8  | 476.1  | 453.8  | 419.5  | 419.5  | 411.8  |
| 75°   | 3750.3 | 1036.9 | 298.0  | 295.4  | 320.2  | 376.7  | 422.1  | 384.4  | 352.8  | 351.1  | 345.9  |
| 77.5° | 2150.8 | 679.8  | 250.0  | 248.3  | 256.0  | 315.1  | 327.9  | 320.2  | 296.3  | 285.1  | 281.7  |
| 80°   | 857.1  | 353.6  | 196.9  | 185.8  | 193.5  | 231.2  | 258.6  | 245.7  | 225.2  | 211.5  | 203.8  |
| 82.5° | 332.2  | 177.2  | 138.7  | 121.6  | 132.7  | 167.0  | 187.5  | 183.2  | 169.5  | 138.7  | 130.1  |
| 85°   | 135.3  | 86.5   | 83.1   | 70.2   | 77.1   | 89.9   | 107.9  | 93.3   | 77.1   | 54.8   | 52.2   |
| 87.5° | 36.0   | 31.7   | 30.8   | 18.8   | 14.6   | 4.3    | 0.9    | 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: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

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

**Test Information**

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-4-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-750-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):                  | 4884   | CRI (Ra): | 73.5 | R9:  | -28.4 |
| CIE u':                   | 0.2101 | R1:       | 70.5 | R10: | 48.6  |
| CIE v':                   | 0.4904 | R2:       | 77.7 | R11: | 73.2  |
| Duv:                      | 0.0037 | R3:       | 84.6 | R12: | 50.7  |
| CIE x:                    | 0.3493 | R4:       | 74.7 | R13: | 71.2  |
| CIE y:                    | 0.3624 | R5:       | 71.9 | R14: | 91.4  |
| CIE z:                    | 0.2884 | R6:       | 70.7 |      |       |
| Peak Wavelength (nm):     | 444    | R7:       | 81.2 |      |       |
| Dominant Wavelength (nm): | 571    | R8:       | 56.9 |      |       |
| Purity:                   | 13.7   |           |      |      |       |
| Rf:                       | 74.9   |           |      |      |       |
| Rg:                       | 96.3   |           |      |      |       |



**Test Conditions**

Stabilization Time: 240M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0./44%  
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-4-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: SP1-1908-441-4-R4

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-4-R4

**Photopic Flux vs. Wavelength**



#####

| 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    | 2945          | NR            | 490    | 37941         | NR            | 620    | 88803         | NR            | 750    | 3908          | NR            | 880    | 2997          | NR            |
| 365    | 2596          | NR            | 495    | 48525         | NR            | 625    | 80578         | NR            | 755    | 3988          | NR            | 885    | 2927          | NR            |
| 370    | 2732          | NR            | 500    | 60609         | NR            | 630    | 73127         | NR            | 760    | 3335          | NR            | 890    | 2649          | NR            |
| 375    | 2894          | NR            | 505    | 72036         | NR            | 635    | 66244         | NR            | 765    | 3438          | NR            | 895    | 2828          | NR            |
| 380    | 2822          | NR            | 510    | 82168         | NR            | 640    | 59440         | NR            | 770    | 3427          | NR            | 900    | 1407          | NR            |
| 385    | 2394          | NR            | 515    | 90898         | NR            | 645    | 52864         | NR            | 775    | 2759          | NR            | 905    | 2224          | NR            |
| 390    | 2370          | NR            | 520    | 97142         | NR            | 650    | 47085         | NR            | 780    | 2340          | NR            | 910    | 2905          | NR            |
| 395    | 2267          | NR            | 525    | 103255        | NR            | 655    | 41789         | NR            | 785    | 2412          | NR            | 915    | 3350          | NR            |
| 400    | 2262          | NR            | 530    | 106697        | NR            | 660    | 37064         | NR            | 790    | 1999          | NR            | 920    | 3114          | NR            |
| 405    | 3000          | NR            | 535    | 110081        | NR            | 665    | 32299         | NR            | 795    | 2054          | NR            | 925    | 2834          | NR            |
| 410    | 5324          | NR            | 540    | 112494        | NR            | 670    | 28142         | NR            | 800    | 2331          | NR            | 930    | 2271          | NR            |
| 415    | 10725         | NR            | 545    | 115513        | NR            | 675    | 24505         | NR            | 805    | 2648          | NR            | 935    | 2228          | NR            |
| 420    | 22128         | NR            | 550    | 117203        | NR            | 680    | 21162         | NR            | 810    | 2485          | NR            | 940    | 2833          | NR            |
| 425    | 44095         | NR            | 555    | 119753        | NR            | 685    | 18400         | NR            | 815    | 2409          | NR            | 945    | 2941          | NR            |
| 430    | 77002         | NR            | 560    | 122602        | NR            | 690    | 16065         | NR            | 820    | 2221          | NR            | 950    | 2323          | NR            |
| 435    | 119881        | NR            | 565    | 124314        | NR            | 695    | 13860         | NR            | 825    | 1562          | NR            | 955    | 1667          | NR            |
| 440    | 164454        | NR            | 570    | 126775        | NR            | 700    | 12177         | NR            | 830    | 2249          | NR            | 960    | 749           | NR            |
| 445    | 179997        | NR            | 575    | 127511        | NR            | 705    | 10757         | NR            | 835    | 2573          | NR            | 965    | 2669          | NR            |
| 450    | 142822        | NR            | 580    | 127577        | NR            | 710    | 9601          | NR            | 840    | 2764          | NR            | 970    | 3968          | NR            |
| 455    | 90008         | NR            | 585    | 126153        | NR            | 715    | 8944          | NR            | 845    | 3109          | NR            | 975    | 3886          | NR            |
| 460    | 60557         | NR            | 590    | 123678        | NR            | 720    | 7947          | NR            | 850    | 2963          | NR            | 980    | 2788          | NR            |
| 465    | 43305         | NR            | 595    | 119774        | NR            | 725    | 7062          | NR            | 855    | 2336          | NR            | 985    | 3496          | NR            |
| 470    | 31089         | NR            | 600    | 115733        | NR            | 730    | 6004          | NR            | 860    | 2118          | NR            | 990    | 2913          | NR            |
| 475    | 26278         | NR            | 605    | 109231        | NR            | 735    | 5594          | NR            | 865    | 3144          | NR            | 995    | 4659          | NR            |
| 480    | 27060         | NR            | 610    | 102408        | NR            | 740    | 5165          | NR            | 870    | 3069          | NR            | 1000   | 1308          | NR            |
| 485    | 30698         | NR            | 615    | 96015         | NR            | 745    | 4687          | NR            | 875    | 3311          | NR            |        |               |               |

REPORT NUMBER: SP1-1908-441-4-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

| 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    | 2945          | NR            | 490    | 37941         | NR            | 620    | 88803         | NR            | 750    | 3908          | NR            | 880    | 2997          | NR            |
| 365    | 2596          | NR            | 495    | 48525         | NR            | 625    | 80578         | NR            | 755    | 3988          | NR            | 885    | 2927          | NR            |
| 370    | 2732          | NR            | 500    | 60609         | NR            | 630    | 73127         | NR            | 760    | 3335          | NR            | 890    | 2649          | NR            |
| 375    | 2894          | NR            | 505    | 72036         | NR            | 635    | 66244         | NR            | 765    | 3438          | NR            | 895    | 2828          | NR            |
| 380    | 2822          | NR            | 510    | 82168         | NR            | 640    | 59440         | NR            | 770    | 3427          | NR            | 900    | 1407          | NR            |
| 385    | 2394          | NR            | 515    | 90898         | NR            | 645    | 52864         | NR            | 775    | 2759          | NR            | 905    | 2224          | NR            |
| 390    | 2370          | NR            | 520    | 97142         | NR            | 650    | 47085         | NR            | 780    | 2340          | NR            | 910    | 2905          | NR            |
| 395    | 2267          | NR            | 525    | 103255        | NR            | 655    | 41789         | NR            | 785    | 2412          | NR            | 915    | 3350          | NR            |
| 400    | 2262          | NR            | 530    | 106697        | NR            | 660    | 37064         | NR            | 790    | 1999          | NR            | 920    | 3114          | NR            |
| 405    | 3000          | NR            | 535    | 110081        | NR            | 665    | 32299         | NR            | 795    | 2054          | NR            | 925    | 2834          | NR            |
| 410    | 5324          | NR            | 540    | 112494        | NR            | 670    | 28142         | NR            | 800    | 2331          | NR            | 930    | 2271          | NR            |
| 415    | 10725         | NR            | 545    | 115513        | NR            | 675    | 24505         | NR            | 805    | 2648          | NR            | 935    | 2228          | NR            |
| 420    | 22128         | NR            | 550    | 117203        | NR            | 680    | 21162         | NR            | 810    | 2485          | NR            | 940    | 2833          | NR            |
| 425    | 44095         | NR            | 555    | 119753        | NR            | 685    | 18400         | NR            | 815    | 2409          | NR            | 945    | 2941          | NR            |
| 430    | 77002         | NR            | 560    | 122602        | NR            | 690    | 16065         | NR            | 820    | 2221          | NR            | 950    | 2323          | NR            |
| 435    | 119881        | NR            | 565    | 124314        | NR            | 695    | 13860         | NR            | 825    | 1562          | NR            | 955    | 1667          | NR            |
| 440    | 164454        | NR            | 570    | 126775        | NR            | 700    | 12177         | NR            | 830    | 2249          | NR            | 960    | 749           | NR            |
| 445    | 179997        | NR            | 575    | 127511        | NR            | 705    | 10757         | NR            | 835    | 2573          | NR            | 965    | 2669          | NR            |
| 450    | 142822        | NR            | 580    | 127577        | NR            | 710    | 9601          | NR            | 840    | 2764          | NR            | 970    | 3968          | NR            |
| 455    | 90008         | NR            | 585    | 126153        | NR            | 715    | 8944          | NR            | 845    | 3109          | NR            | 975    | 3886          | NR            |
| 460    | 60557         | NR            | 590    | 123678        | NR            | 720    | 7947          | NR            | 850    | 2963          | NR            | 980    | 2788          | NR            |
| 465    | 43305         | NR            | 595    | 119774        | NR            | 725    | 7062          | NR            | 855    | 2336          | NR            | 985    | 3496          | NR            |
| 470    | 31089         | NR            | 600    | 115733        | NR            | 730    | 6004          | NR            | 860    | 2118          | NR            | 990    | 2913          | NR            |
| 475    | 26278         | NR            | 605    | 109231        | NR            | 735    | 5594          | NR            | 865    | 3144          | NR            | 995    | 4659          | NR            |
| 480    | 27060         | NR            | 610    | 102408        | NR            | 740    | 5165          | NR            | 870    | 3069          | NR            | 1000   | 1308          | NR            |
| 485    | 30698         | NR            | 615    | 96015         | NR            | 745    | 4687          | NR            | 875    | 3311          | NR            |        |               |               |

REPORT NUMBER: SP1-1908-441-4-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9 M/P: 0.71

| 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    | 2945          | NR            | 490    | 37941         | NR            | 620    | 88803         | NR            | 750    | 3908          | NR            | 880    | 2997          | NR            |
| 365    | 2596          | NR            | 495    | 48525         | NR            | 625    | 80578         | NR            | 755    | 3988          | NR            | 885    | 2927          | NR            |
| 370    | 2732          | NR            | 500    | 60609         | NR            | 630    | 73127         | NR            | 760    | 3335          | NR            | 890    | 2649          | NR            |
| 375    | 2894          | NR            | 505    | 72036         | NR            | 635    | 66244         | NR            | 765    | 3438          | NR            | 895    | 2828          | NR            |
| 380    | 2822          | NR            | 510    | 82168         | NR            | 640    | 59440         | NR            | 770    | 3427          | NR            | 900    | 1407          | NR            |
| 385    | 2394          | NR            | 515    | 90898         | NR            | 645    | 52864         | NR            | 775    | 2759          | NR            | 905    | 2224          | NR            |
| 390    | 2370          | NR            | 520    | 97142         | NR            | 650    | 47085         | NR            | 780    | 2340          | NR            | 910    | 2905          | NR            |
| 395    | 2267          | NR            | 525    | 103255        | NR            | 655    | 41789         | NR            | 785    | 2412          | NR            | 915    | 3350          | NR            |
| 400    | 2262          | NR            | 530    | 106697        | NR            | 660    | 37064         | NR            | 790    | 1999          | NR            | 920    | 3114          | NR            |
| 405    | 3000          | NR            | 535    | 110081        | NR            | 665    | 32299         | NR            | 795    | 2054          | NR            | 925    | 2834          | NR            |
| 410    | 5324          | NR            | 540    | 112494        | NR            | 670    | 28142         | NR            | 800    | 2331          | NR            | 930    | 2271          | NR            |
| 415    | 10725         | NR            | 545    | 115513        | NR            | 675    | 24505         | NR            | 805    | 2648          | NR            | 935    | 2228          | NR            |
| 420    | 22128         | NR            | 550    | 117203        | NR            | 680    | 21162         | NR            | 810    | 2485          | NR            | 940    | 2833          | NR            |
| 425    | 44095         | NR            | 555    | 119753        | NR            | 685    | 18400         | NR            | 815    | 2409          | NR            | 945    | 2941          | NR            |
| 430    | 77002         | NR            | 560    | 122602        | NR            | 690    | 16065         | NR            | 820    | 2221          | NR            | 950    | 2323          | NR            |
| 435    | 119881        | NR            | 565    | 124314        | NR            | 695    | 13860         | NR            | 825    | 1562          | NR            | 955    | 1667          | NR            |
| 440    | 164454        | NR            | 570    | 126775        | NR            | 700    | 12177         | NR            | 830    | 2249          | NR            | 960    | 749           | NR            |
| 445    | 179997        | NR            | 575    | 127511        | NR            | 705    | 10757         | NR            | 835    | 2573          | NR            | 965    | 2669          | NR            |
| 450    | 142822        | NR            | 580    | 127577        | NR            | 710    | 9601          | NR            | 840    | 2764          | NR            | 970    | 3968          | NR            |
| 455    | 90008         | NR            | 585    | 126153        | NR            | 715    | 8944          | NR            | 845    | 3109          | NR            | 975    | 3886          | NR            |
| 460    | 60557         | NR            | 590    | 123678        | NR            | 720    | 7947          | NR            | 850    | 2963          | NR            | 980    | 2788          | NR            |
| 465    | 43305         | NR            | 595    | 119774        | NR            | 725    | 7062          | NR            | 855    | 2336          | NR            | 985    | 3496          | NR            |
| 470    | 31089         | NR            | 600    | 115733        | NR            | 730    | 6004          | NR            | 860    | 2118          | NR            | 990    | 2913          | NR            |
| 475    | 26278         | NR            | 605    | 109231        | NR            | 735    | 5594          | NR            | 865    | 3144          | NR            | 995    | 4659          | NR            |
| 480    | 27060         | NR            | 610    | 102408        | NR            | 740    | 5165          | NR            | 870    | 3069          | NR            | 1000   | 1308          | NR            |
| 485    | 30698         | NR            | 615    | 96015         | NR            | 745    | 4687          | NR            | 875    | 3311          | NR            |        |               |               |

REPORT NUMBER: SP1-1908-441-4-R4

TM-30-18

**Summary**

$R_f = 74.9$   
 $R_g = 96.3$   
 CIE  $R_a = 73.5$   
 $R_g = -28.4$



**Color Vector Graphics**





REPORT NUMBER: SP1-1908-441-4-R4

TM-30-18

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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 |            |



REPORT NUMBER: SP1-1908-441-4-R4

TM-30-18

Color Rendition by Hue-Angle Bin



REPORT NUMBER: SP1-1908-441-4-R4

TM-30-18

Measure Comparisons



(END OF REPORT)