

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: P642781

Luminaire Tested: GWS-SA6D-750-U-T2-W

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P642781  
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-750-U-T2-W  
Description: GALLEON WALL SLIM LUMINAIRE. (6) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS  
Light Source: (96) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 36354.9 lumens  
Efficiency: N/A  
Efficacy: 148.0 lumens/watt  
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')  
IES Classification: Type II - Medium  
BUG Rating: B3 - U0 - G5  
  
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

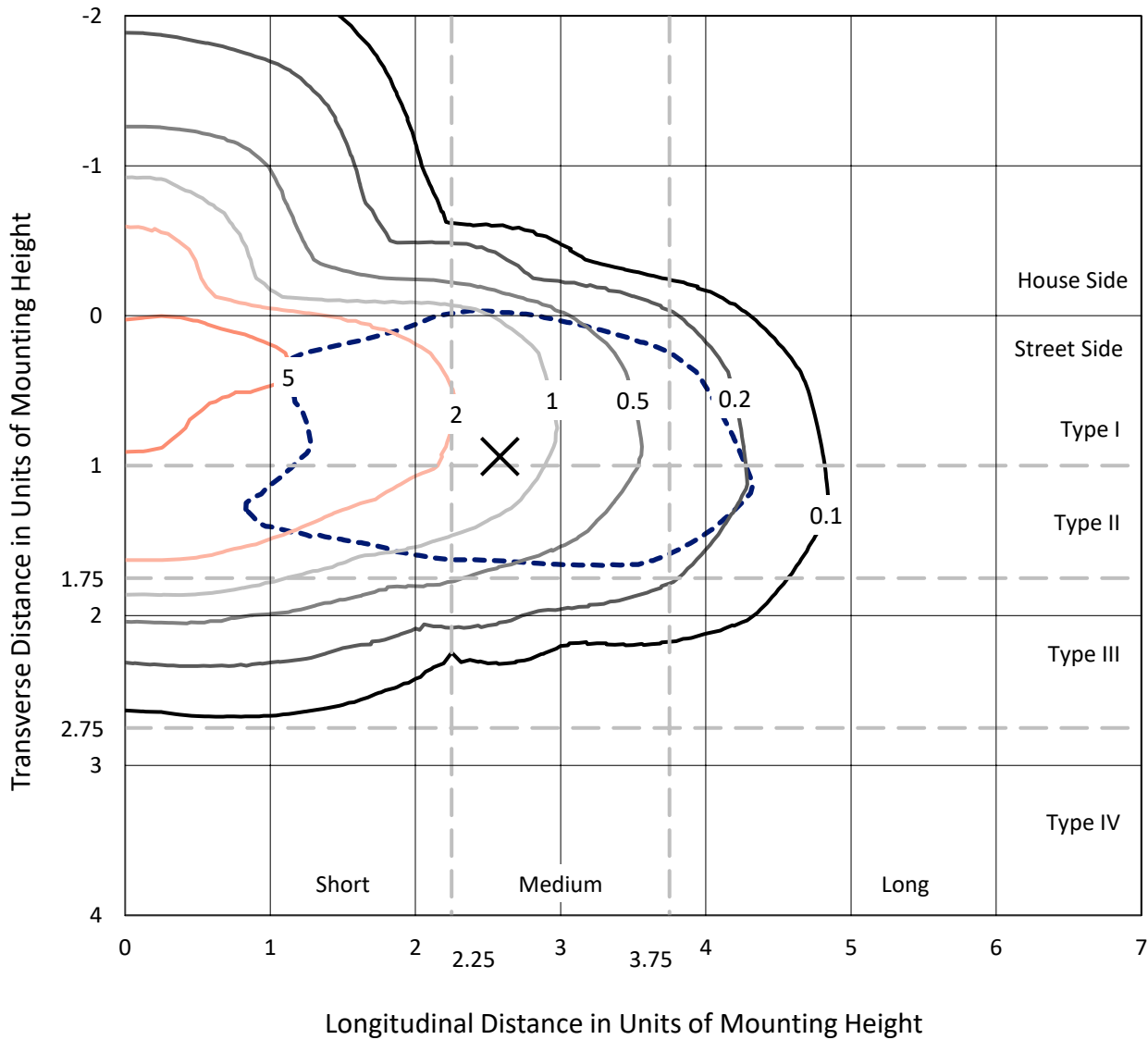


REPORT NUMBER: P642781

CATALOG NUMBER: GWS-SA6D-750-U-T2-W

### Iso-Footcandle Lines of Horizontal Illumination

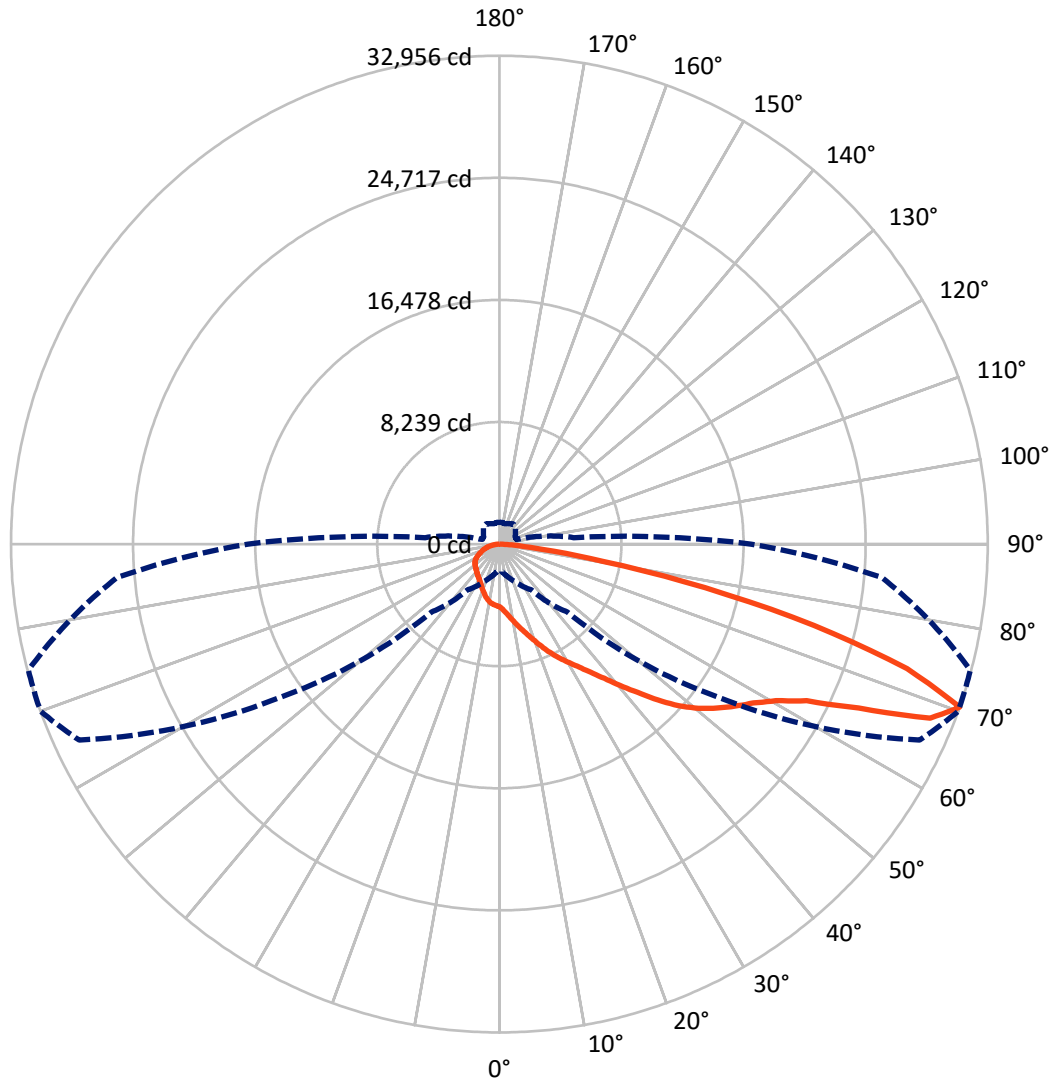
× Max cd  
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 6.8 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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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 6514.9   | 0.0    | 6514.9  |
|                    | % Fixture | 17.9     | 0.0    | 17.9    |
| <b>Street Side</b> | Lumens    | 29840.0  | 0.0    | 29840.0 |
|                    | % Fixture | 82.1     | 0.0    | 82.1    |
| <b>Total</b>       | Lumens    | 36354.9  | 0.0    | 36354.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 430.9   | 1.2       |
| 10°-20°   | 1401.8  | 3.9       |
| 20°-30°   | 2483.3  | 6.8       |
| 30°-40°   | 3737.4  | 10.3      |
| 40°-50°   | 5654.3  | 15.6      |
| 50°-60°   | 8100.1  | 22.3      |
| 60°-70°   | 8953.8  | 24.6      |
| 70°-80°   | 5052.8  | 13.9      |
| 80°-90°   | 540.5   | 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°    | 36354.9 | 100.0     |
| 0°-180°   | 36354.9 | 100.0     |

**Coefficient of Utilization**



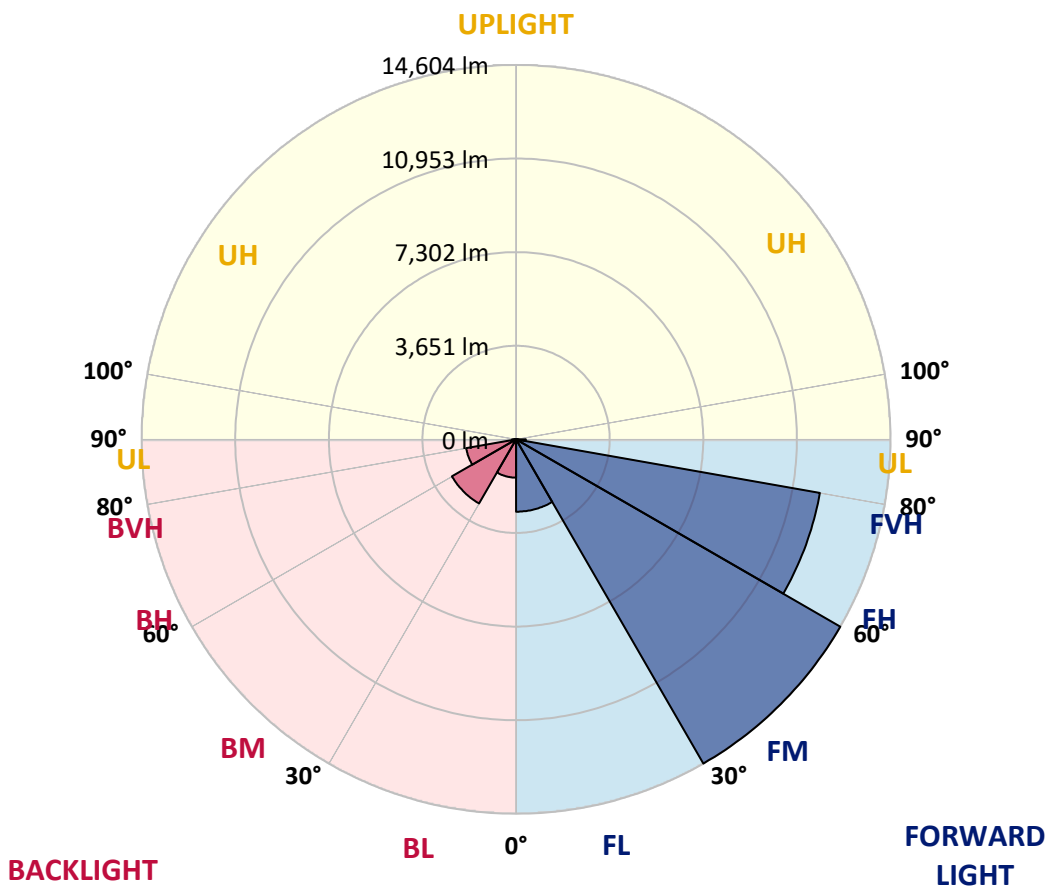
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|---------|-----------|-------------------------|------|---------|
|                |         |           | B                       | U    | G       |
| FL (0°-30°)    | 2822.3  | 7.8       |                         |      |         |
| FM (30°-60°)   | 14603.7 | 40.2      |                         |      |         |
| FH (60°-80°)   | 12032.0 | 33.1      |                         |      | G5      |
| FVH (80°-90°)  | 382.1   | 1.1       |                         |      | G3/500  |
| BL (0°-30°)    | 1493.8  | 4.1       | B3/2500                 |      |         |
| BM (30°-60°)   | 2888.1  | 7.9       | B3/5000                 |      |         |
| BH (60°-80°)   | 1974.6  | 5.4       | B3/2500                 |      | G3/2500 |
| BVH (80°-90°)  | 158.4   | 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-G5**  
 Type II Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 70°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 4239.7  | 4239.7  | 4239.7  | 4239.7  | 4239.7  | 4239.7  | 4239.7  | 4239.7  | 4239.7  | 4239.7  | 4239.7  |
| 2.5°  | 4696.8  | 4688.9  | 4694.2  | 4688.9  | 4660.0  | 4589.1  | 4531.3  | 4457.8  | 4407.9  | 4379.0  | 4310.7  |
| 5°    | 5248.4  | 5240.6  | 5222.2  | 5195.9  | 5143.4  | 5046.2  | 4901.7  | 4741.5  | 4644.3  | 4570.7  | 4426.2  |
| 7.5°  | 5645.1  | 5645.1  | 5642.5  | 5610.9  | 5574.2  | 5471.7  | 5301.0  | 5090.8  | 4949.0  | 4822.9  | 4586.5  |
| 10°   | 5847.4  | 5860.5  | 5878.9  | 5923.5  | 5915.7  | 5860.5  | 5700.3  | 5474.4  | 5295.7  | 5148.6  | 4796.6  |
| 12.5° | 5957.7  | 5965.6  | 5997.1  | 6089.0  | 6183.6  | 6196.7  | 6102.2  | 5865.8  | 5671.4  | 5474.4  | 5030.4  |
| 15°   | 6099.5  | 6102.2  | 6144.2  | 6254.5  | 6393.8  | 6533.0  | 6509.3  | 6272.9  | 6073.3  | 5855.2  | 5290.5  |
| 17.5° | 6209.9  | 6228.3  | 6304.4  | 6433.2  | 6606.5  | 6798.3  | 6913.9  | 6766.8  | 6519.8  | 6270.3  | 5574.2  |
| 20°   | 6249.3  | 6262.4  | 6362.2  | 6559.2  | 6795.7  | 7066.2  | 7323.7  | 7284.3  | 7034.7  | 6740.5  | 5894.6  |
| 22.5° | 6391.1  | 6391.1  | 6464.7  | 6630.2  | 6908.6  | 7302.6  | 7720.3  | 7822.8  | 7602.1  | 7258.0  | 6238.8  |
| 25°   | 6703.7  | 6693.2  | 6727.4  | 6795.7  | 7005.8  | 7491.8  | 8111.7  | 8419.1  | 8172.1  | 7786.0  | 6582.9  |
| 27.5° | 7131.9  | 7126.6  | 7124.0  | 7134.5  | 7205.4  | 7657.3  | 8442.7  | 8975.9  | 8729.0  | 8293.0  | 6890.2  |
| 30°   | 7596.8  | 7581.1  | 7615.2  | 7583.7  | 7568.0  | 7854.3  | 8723.8  | 9475.0  | 9283.3  | 8794.7  | 7145.0  |
| 32.5° | 8229.9  | 8201.0  | 8193.1  | 8090.7  | 8027.7  | 8161.6  | 8949.7  | 10042.4 | 9890.1  | 9335.8  | 7431.4  |
| 35°   | 9065.3  | 9039.0  | 8905.0  | 8742.2  | 8555.6  | 8618.7  | 9230.7  | 10596.7 | 10607.2 | 10013.5 | 7807.0  |
| 37.5° | 9908.5  | 9913.7  | 9808.7  | 9425.1  | 9233.4  | 9196.6  | 9658.9  | 11271.8 | 11497.7 | 10822.6 | 8293.0  |
| 40°   | 10609.8 | 10641.4 | 10641.4 | 10236.8 | 9950.5  | 9916.4  | 10260.5 | 12073.0 | 12522.2 | 11815.6 | 8907.6  |
| 42.5° | 11143.1 | 11172.0 | 11263.9 | 10972.3 | 10670.3 | 10788.5 | 10990.7 | 12876.8 | 13683.3 | 13042.3 | 9685.2  |
| 45°   | 11728.9 | 11752.5 | 11802.4 | 11634.3 | 11458.3 | 11773.5 | 11818.2 | 13838.2 | 15012.4 | 14418.8 | 10588.8 |
| 47.5° | 12506.4 | 12485.4 | 12490.7 | 12367.2 | 12230.6 | 12740.2 | 12729.7 | 14647.3 | 16297.0 | 15926.6 | 11568.6 |
| 50°   | 13473.1 | 13512.5 | 13475.7 | 13231.4 | 13071.2 | 13536.2 | 13596.6 | 15543.1 | 17426.5 | 17418.6 | 12556.3 |
| 52.5° | 14403.0 | 14418.8 | 14613.2 | 14623.7 | 14295.3 | 14198.1 | 14355.7 | 16446.7 | 18380.1 | 18784.6 | 13504.6 |
| 55°   | 14450.3 | 14510.7 | 15093.9 | 15514.2 | 16044.8 | 15264.6 | 15122.8 | 17308.3 | 19302.1 | 20121.7 | 14489.7 |
| 57.5° | 13444.2 | 13541.4 | 14531.7 | 15438.0 | 16914.3 | 17095.5 | 16436.2 | 18422.1 | 20224.1 | 21437.7 | 15629.8 |
| 60°   | 11295.5 | 11497.7 | 12842.7 | 14229.6 | 16522.9 | 18411.6 | 19123.5 | 19935.2 | 21435.1 | 22782.7 | 17014.1 |
| 62.5° | 7213.3  | 7292.1  | 9178.2  | 11500.3 | 14760.3 | 18282.9 | 22049.8 | 22601.4 | 23279.1 | 24534.8 | 19147.1 |
| 65°   | 3611.9  | 3864.1  | 4970.0  | 6864.0  | 10644.0 | 16110.5 | 23528.7 | 27484.7 | 26654.6 | 27534.6 | 22604.0 |
| 67.5° | 2450.9  | 2532.3  | 3091.8  | 4124.2  | 6241.4  | 11413.7 | 22611.9 | 31598.4 | 31354.1 | 31498.5 | 26289.5 |
| 70°   | 1807.3  | 1859.8  | 2301.1  | 2921.1  | 3774.8  | 6480.4  | 18001.8 | 31288.4 | 32956.4 | 32903.9 | 25903.4 |
| 72.5° | 1318.7  | 1344.9  | 1678.6  | 2230.2  | 2797.6  | 3351.9  | 10993.4 | 25275.5 | 28769.2 | 30284.9 | 22653.9 |
| 75°   | 958.8   | 990.3   | 1166.3  | 1668.0  | 2175.0  | 2091.0  | 5427.1  | 18256.6 | 21939.4 | 24855.2 | 18456.2 |
| 77.5° | 714.5   | 753.9   | 835.3   | 1045.5  | 1523.6  | 1497.3  | 2345.8  | 11855.0 | 14190.2 | 16233.9 | 11211.4 |
| 80°   | 514.9   | 522.7   | 570.0   | 669.8   | 966.7   | 877.4   | 1116.4  | 6181.0  | 7087.2  | 7765.0  | 4394.7  |
| 82.5° | 312.6   | 320.5   | 380.9   | 412.4   | 598.9   | 551.6   | 580.5   | 2001.7  | 2868.5  | 3044.5  | 1641.8  |
| 85°   | 91.9    | 97.2    | 173.4   | 189.1   | 249.6   | 236.4   | 233.8   | 814.3   | 971.9   | 1242.5  | 646.2   |
| 87.5° | 0.0     | 0.0     | 0.0     | 0.0     | 2.6     | 15.8    | 28.9    | 144.5   | 218.0   | 302.1   | 157.6   |
| 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: P642781  
 CATALOG NUMBER: GWS-SA6D-750-U-T2-W

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4239.7  | 4239.7 | 4239.7 | 4239.7 | 4239.7 | 4239.7 | 4239.7 | 4239.7 | 4239.7 | 4239.7 | 4239.7 |
| 2.5°  | 4284.4  | 4224.0 | 4192.5 | 4137.3 | 4097.9 | 4058.5 | 4019.1 | 3982.3 | 3966.5 | 3942.9 | 3948.2 |
| 5°    | 4360.6  | 4266.0 | 4171.4 | 4063.7 | 3971.8 | 3895.6 | 3827.3 | 3766.9 | 3740.6 | 3717.0 | 3727.5 |
| 7.5°  | 4476.2  | 4334.3 | 4153.0 | 3956.0 | 3811.6 | 3706.5 | 3635.6 | 3593.5 | 3580.4 | 3562.0 | 3562.0 |
| 10°   | 4623.3  | 4410.5 | 4092.6 | 3811.6 | 3638.2 | 3554.1 | 3522.6 | 3520.0 | 3533.1 | 3535.7 | 3530.5 |
| 12.5° | 4786.1  | 4484.0 | 4003.3 | 3640.8 | 3493.7 | 3467.4 | 3491.1 | 3535.7 | 3580.4 | 3604.0 | 3598.8 |
| 15°   | 4954.2  | 4531.3 | 3851.0 | 3477.9 | 3388.6 | 3422.8 | 3499.0 | 3588.3 | 3675.0 | 3719.6 | 3717.0 |
| 17.5° | 5111.8  | 4541.8 | 3653.9 | 3320.3 | 3296.7 | 3383.4 | 3514.7 | 3653.9 | 3772.2 | 3835.2 | 3837.8 |
| 20°   | 5287.8  | 4523.4 | 3451.7 | 3178.5 | 3204.8 | 3346.6 | 3520.0 | 3688.1 | 3827.3 | 3890.4 | 3906.1 |
| 22.5° | 5448.1  | 4460.4 | 3254.7 | 3044.5 | 3126.0 | 3301.9 | 3477.9 | 3635.6 | 3759.0 | 3819.4 | 3840.5 |
| 25°   | 5592.6  | 4339.6 | 3039.3 | 2931.6 | 3065.5 | 3238.9 | 3372.9 | 3483.2 | 3569.9 | 3606.7 | 3635.6 |
| 27.5° | 5671.4  | 4158.3 | 2876.4 | 2842.3 | 3007.7 | 3149.6 | 3223.1 | 3257.3 | 3286.2 | 3275.7 | 3296.7 |
| 30°   | 5687.1  | 3932.4 | 2734.5 | 2771.3 | 2921.1 | 3026.1 | 3041.9 | 3007.7 | 2957.8 | 2876.4 | 2894.8 |
| 32.5° | 5671.4  | 3672.3 | 2616.3 | 2695.1 | 2823.9 | 2886.9 | 2865.9 | 2776.6 | 2655.7 | 2529.7 | 2537.5 |
| 35°   | 5676.6  | 3409.6 | 2519.1 | 2611.1 | 2710.9 | 2745.1 | 2692.5 | 2569.1 | 2440.3 | 2324.8 | 2319.5 |
| 37.5° | 5734.4  | 3189.0 | 2437.7 | 2529.7 | 2600.6 | 2605.8 | 2548.0 | 2419.3 | 2353.7 | 2267.0 | 2256.5 |
| 40°   | 5894.6  | 3026.1 | 2364.2 | 2448.2 | 2492.9 | 2490.3 | 2424.6 | 2332.6 | 2377.3 | 2348.4 | 2340.5 |
| 42.5° | 6157.3  | 2926.3 | 2303.7 | 2361.5 | 2393.1 | 2398.3 | 2345.8 | 2288.0 | 2385.2 | 2348.4 | 2335.3 |
| 45°   | 6580.3  | 2921.1 | 2261.7 | 2274.9 | 2324.8 | 2361.5 | 2324.8 | 2259.1 | 2295.9 | 2117.2 | 2083.1 |
| 47.5° | 7082.0  | 3010.4 | 2230.2 | 2198.7 | 2285.4 | 2351.0 | 2293.2 | 2188.2 | 2112.0 | 1949.1 | 1925.5 |
| 50°   | 7686.2  | 3191.6 | 2201.3 | 2117.2 | 2227.6 | 2311.6 | 2253.8 | 2109.4 | 1993.8 | 1907.1 | 1894.0 |
| 52.5° | 8403.3  | 3430.7 | 2164.5 | 2025.3 | 2140.9 | 2290.6 | 2253.8 | 2101.5 | 1949.1 | 1870.3 | 1857.2 |
| 55°   | 9154.6  | 3706.5 | 2122.5 | 1915.0 | 2043.7 | 2295.9 | 2272.2 | 2046.3 | 1915.0 | 1872.9 | 1862.4 |
| 57.5° | 10087.1 | 4037.5 | 2046.3 | 1786.3 | 1957.0 | 2248.6 | 2198.7 | 2014.8 | 1891.3 | 1857.2 | 1846.7 |
| 60°   | 11298.1 | 4528.7 | 1901.8 | 1654.9 | 1857.2 | 2164.5 | 2133.0 | 1962.3 | 1828.3 | 1799.4 | 1791.5 |
| 62.5° | 13215.7 | 5361.4 | 1725.8 | 1528.8 | 1739.0 | 1988.5 | 2035.8 | 1862.4 | 1749.5 | 1746.9 | 1744.2 |
| 65°   | 16341.6 | 6362.2 | 1518.3 | 1415.9 | 1615.5 | 1844.0 | 1907.1 | 1760.0 | 1668.0 | 1696.9 | 1694.3 |
| 67.5° | 18532.4 | 6448.9 | 1347.6 | 1297.7 | 1471.0 | 1686.4 | 1778.4 | 1654.9 | 1555.1 | 1610.3 | 1607.6 |
| 70°   | 16974.7 | 5030.4 | 1200.5 | 1174.2 | 1316.1 | 1515.7 | 1639.2 | 1523.6 | 1423.8 | 1476.3 | 1465.8 |
| 72.5° | 14316.3 | 3856.2 | 1061.2 | 1045.5 | 1158.4 | 1337.1 | 1460.5 | 1392.2 | 1287.2 | 1287.2 | 1263.5 |
| 75°   | 11505.6 | 3181.1 | 914.1  | 906.3  | 982.4  | 1155.8 | 1295.0 | 1179.5 | 1082.3 | 1077.0 | 1061.2 |
| 77.5° | 6598.6  | 2085.7 | 767.0  | 761.8  | 785.4  | 966.7  | 1006.1 | 982.4  | 908.9  | 874.7  | 864.2  |
| 80°   | 2629.5  | 1084.9 | 604.2  | 570.0  | 593.7  | 709.2  | 793.3  | 753.9  | 690.9  | 648.8  | 625.2  |
| 82.5° | 1019.2  | 543.8  | 425.5  | 373.0  | 407.2  | 512.2  | 575.3  | 562.1  | 520.1  | 425.5  | 399.3  |
| 85°   | 415.0   | 265.3  | 254.8  | 215.4  | 236.4  | 275.8  | 331.0  | 286.3  | 236.4  | 168.1  | 160.2  |
| 87.5° | 110.3   | 97.2   | 94.6   | 57.8   | 44.7   | 13.1   | 2.6    | 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  
 CIE u': 0.2101  
 CIE v': 0.4904  
 Duv: 0.0037  
 CIE x: 0.3493  
 CIE y: 0.3624  
 CIE z: 0.2884  
 Peak Wavelength (nm): 444  
 Dominant Wavelength (nm): 571  
 Purity: 13.7  
 Rf: 74.9  
 Rg: 96.3

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 73.5 |      |       |
| R1:       | 70.5 | R9:  | -28.4 |
| R2:       | 77.7 | R10: | 48.6  |
| R3:       | 84.6 | R11: | 73.2  |
| R4:       | 74.7 | R12: | 50.7  |
| R5:       | 71.9 | R13: | 71.2  |
| R6:       | 70.7 | R14: | 91.4  |
| R7:       | 81.2 |      |       |
| R8:       | 56.9 |      |       |



**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)