

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: P641300

Luminaire Tested: GWS-SA5F-750-U-T2R-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P641300
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-11)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5F-750-U-T2R-W
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS
Light Source: (80) 5000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 43535 lumens
Efficiency: N/A
Efficacy: 140.3 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G4

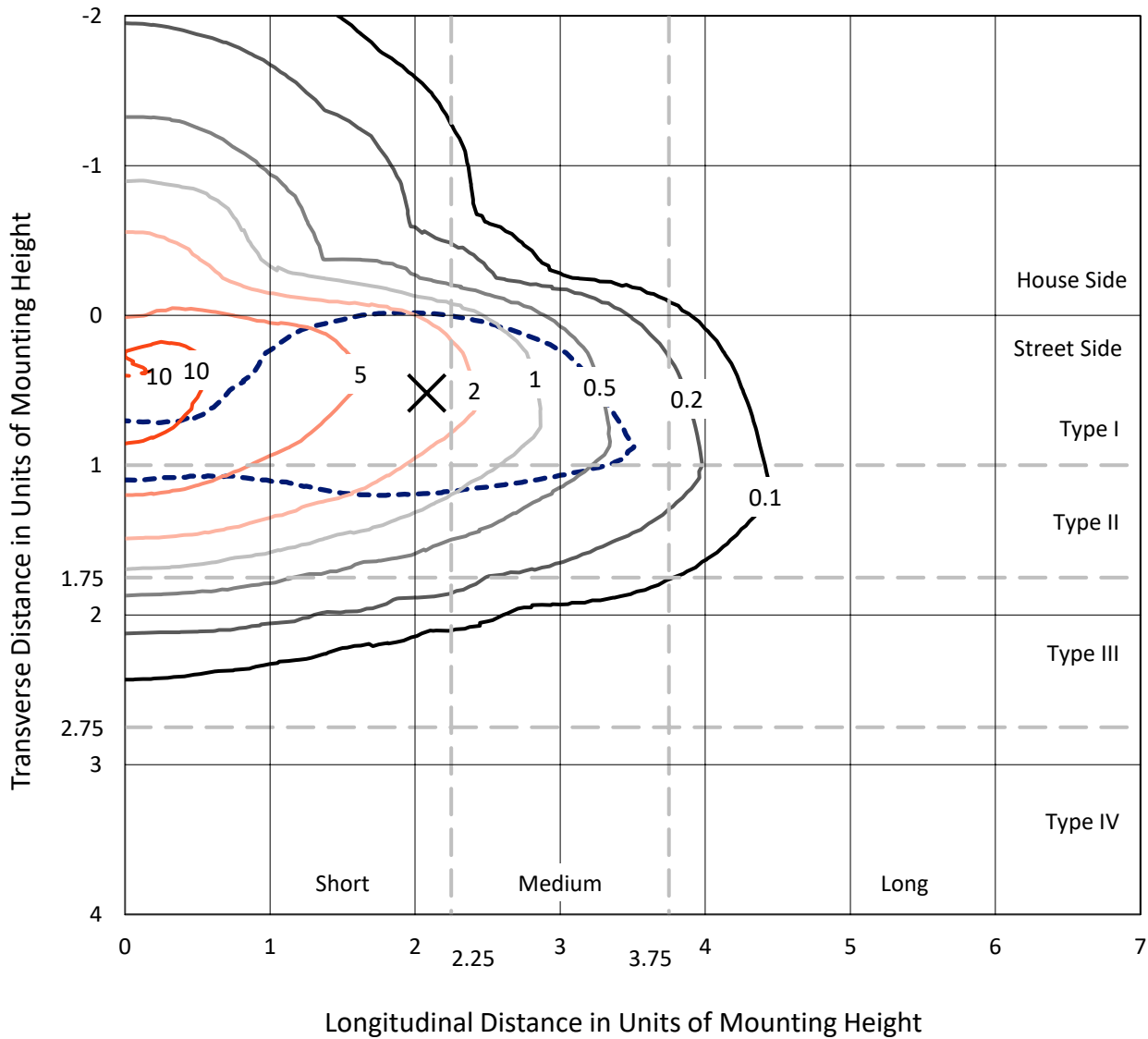
Input Watts (W): 310.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P641300
 CATALOG NUMBER: GWS-SA5F-750-U-T2R-W

Iso-Footcandle Lines of Horizontal Illumination

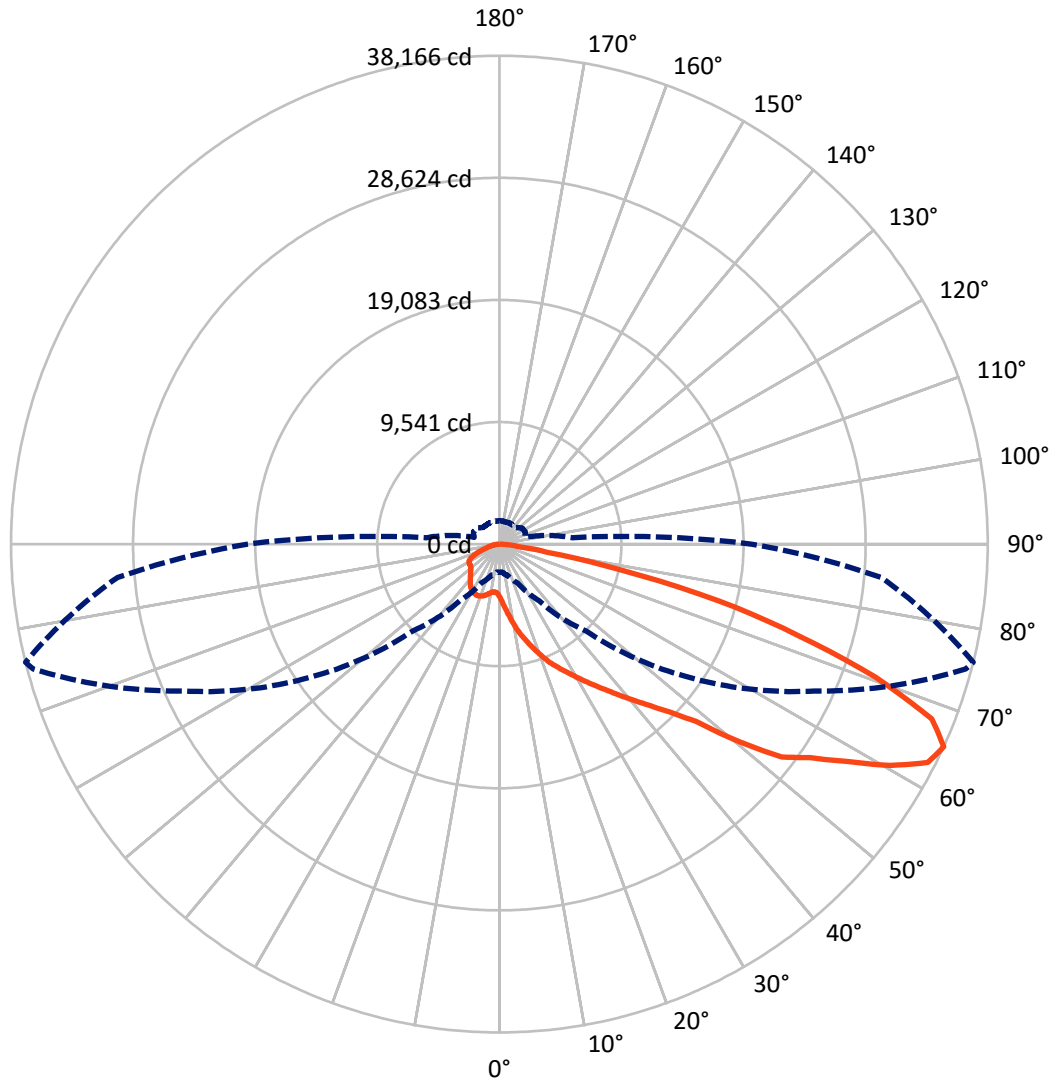
✕ Max cd
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 11.9 fc
 Type II - Short - N/A

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CATALOG NUMBER: GWS-SA5F-750-U-T2R-W

Luminous Intensity Polar Plot



— Vertical Plane Through 76-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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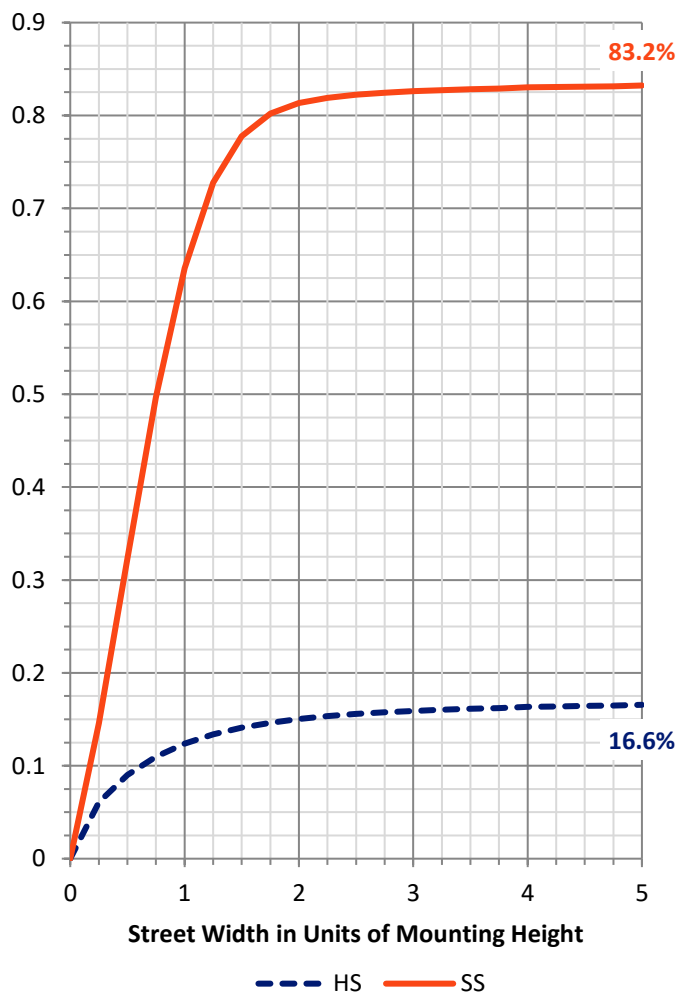
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 7276.9 | 0.0 | 7276.9 |
| | % Fixture | 16.7 | 0.0 | 16.7 |
| Street Side | Lumens | 36258.1 | 0.0 | 36258.1 |
| | % Fixture | 83.3 | 0.0 | 83.3 |
| Total | Lumens | 43535.0 | 0.0 | 43535.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 489.8 | 1.1 |
| 10°-20° | 1865.5 | 4.3 |
| 20°-30° | 3635.7 | 8.4 |
| 30°-40° | 6080.5 | 14.0 |
| 40°-50° | 8706.1 | 20.0 |
| 50°-60° | 10306.8 | 23.7 |
| 60°-70° | 8570.1 | 19.7 |
| 70°-80° | 3507.1 | 8.1 |
| 80°-90° | 373.4 | 0.9 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 43535.0 | 100.0 |
| 0°-180° | 43535.0 | 100.0 |

Coefficient of Utilization



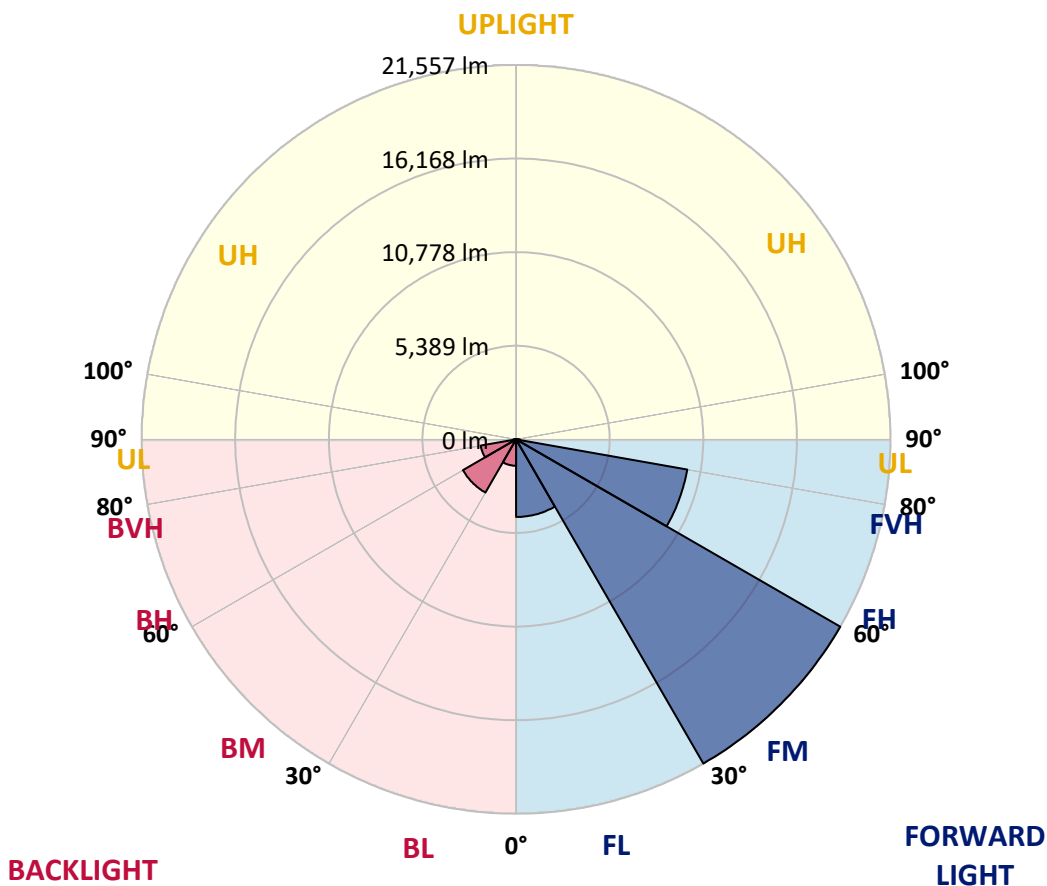
REPORT NUMBER: P641300

CATALOG NUMBER: GWS-SA5F-750-U-T2R-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 4468.7 | 10.3 | | | |
| FM (30°-60°) | 21556.9 | 49.5 | | | |
| FH (60°-80°) | 10009.8 | 23.0 | | | G4/12000 |
| FVH (80°-90°) | 222.7 | 0.5 | | | G2/225 |
| BL (0°-30°) | 1522.3 | 3.5 | B3/2500 | | |
| BM (30°-60°) | 3536.4 | 8.1 | B3/5000 | | |
| BH (60°-80°) | 2067.5 | 4.7 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 150.7 | 0.3 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 |
| 2.5° | 5778.4 | 5799.8 | 5729.4 | 5704.9 | 5539.7 | 5316.2 | 5129.5 | 4848.0 | 4587.8 | 4548.0 | 4315.4 |
| 5° | 7339.3 | 7247.5 | 7167.9 | 7115.9 | 6886.3 | 6632.3 | 6237.5 | 5708.0 | 5154.0 | 5086.7 | 4584.8 |
| 7.5° | 8266.6 | 8251.3 | 8153.4 | 8122.8 | 7945.3 | 7691.2 | 7284.2 | 6626.2 | 5821.2 | 5711.0 | 4949.0 |
| 10° | 9010.4 | 9001.2 | 8952.2 | 8979.7 | 8817.5 | 8569.6 | 8174.8 | 7495.4 | 6552.7 | 6442.5 | 5356.0 |
| 12.5° | 9659.2 | 9674.5 | 9665.3 | 9766.3 | 9683.7 | 9490.9 | 9080.7 | 8334.0 | 7284.2 | 7164.8 | 5851.8 |
| 15° | 10133.6 | 10145.8 | 10191.7 | 10412.1 | 10458.0 | 10418.2 | 10002.0 | 9157.3 | 8006.5 | 7835.1 | 6362.9 |
| 17.5° | 10268.3 | 10292.7 | 10402.9 | 10757.9 | 11005.9 | 11171.1 | 10862.0 | 9995.9 | 8716.5 | 8529.8 | 6883.2 |
| 20° | 10448.8 | 10476.4 | 10586.6 | 10956.9 | 11321.1 | 11697.5 | 11642.5 | 10846.7 | 9432.7 | 9279.7 | 7409.7 |
| 22.5° | 11284.4 | 11262.9 | 11214.0 | 11391.5 | 11651.6 | 12119.9 | 12257.6 | 11663.9 | 10173.4 | 10026.5 | 7991.2 |
| 25° | 12894.2 | 12854.4 | 12542.3 | 12380.1 | 12294.4 | 12579.0 | 12823.8 | 12407.6 | 10895.7 | 10675.3 | 8532.9 |
| 27.5° | 14669.4 | 14647.9 | 14250.1 | 13864.4 | 13338.0 | 13215.6 | 13359.4 | 13056.4 | 11596.5 | 11373.1 | 9004.2 |
| 30° | 16349.6 | 16285.4 | 15869.1 | 15385.5 | 14681.6 | 14155.2 | 13944.0 | 13693.0 | 12364.8 | 12132.1 | 9555.1 |
| 32.5° | 17852.4 | 17769.7 | 17280.0 | 16744.4 | 16006.8 | 15385.5 | 14755.1 | 14369.4 | 13234.0 | 12964.6 | 10118.3 |
| 35° | 19085.8 | 19003.2 | 18501.2 | 17931.9 | 17120.9 | 16661.8 | 15798.7 | 15104.0 | 14118.5 | 13846.1 | 10782.4 |
| 37.5° | 20040.7 | 19964.2 | 19440.8 | 18880.7 | 18173.7 | 17809.5 | 17059.7 | 15930.3 | 15137.6 | 14853.0 | 11486.4 |
| 40° | 20576.3 | 20521.2 | 20101.9 | 19658.1 | 19064.4 | 18749.1 | 18412.5 | 16974.0 | 16279.2 | 15994.6 | 12315.8 |
| 42.5° | 20738.5 | 20701.8 | 20408.0 | 20178.4 | 19777.5 | 19538.8 | 19731.6 | 18201.3 | 17497.3 | 17249.4 | 13249.3 |
| 45° | 20331.4 | 20331.4 | 20245.7 | 20362.1 | 20380.4 | 20377.4 | 21053.7 | 19587.7 | 18994.0 | 18721.6 | 14565.3 |
| 47.5° | 19290.8 | 19358.2 | 19483.7 | 20056.0 | 20658.9 | 21163.9 | 22599.3 | 21436.3 | 20919.1 | 20695.7 | 16429.2 |
| 50° | 17387.2 | 17570.8 | 17999.3 | 19116.4 | 20398.8 | 21684.2 | 24062.3 | 24169.4 | 24662.2 | 24267.4 | 19171.5 |
| 52.5° | 14599.0 | 14571.4 | 15664.1 | 17255.6 | 19211.3 | 21705.6 | 24867.2 | 26581.2 | 27906.4 | 27634.0 | 21209.8 |
| 55° | 11602.7 | 11556.8 | 12575.9 | 14770.4 | 17390.2 | 20885.4 | 25350.8 | 27686.0 | 29706.0 | 29461.2 | 23043.1 |
| 57.5° | 8884.9 | 8826.7 | 9732.6 | 11712.8 | 14819.3 | 19143.9 | 25259.0 | 29002.1 | 32182.0 | 32056.5 | 25534.4 |
| 60° | 6115.0 | 6044.6 | 6892.4 | 8624.7 | 11777.1 | 16481.2 | 24242.9 | 29678.5 | 35080.4 | 35123.2 | 28200.2 |
| 62.5° | 3672.7 | 3632.9 | 4248.1 | 5591.7 | 8471.7 | 13181.9 | 21864.8 | 29268.3 | 37388.1 | 37580.9 | 29914.1 |
| 65° | 2215.9 | 2188.3 | 2549.5 | 3336.0 | 5374.4 | 9619.4 | 18198.2 | 27171.8 | 37721.7 | 38165.5 | 29953.9 |
| 67.5° | 1612.9 | 1616.0 | 1720.0 | 2032.2 | 3134.0 | 6213.0 | 13656.3 | 23413.5 | 35983.3 | 36442.3 | 28065.5 |
| 70° | 1401.7 | 1407.9 | 1463.0 | 1533.4 | 1894.5 | 3556.4 | 8878.7 | 18482.9 | 30844.5 | 31199.6 | 23538.9 |
| 72.5° | 1245.7 | 1245.7 | 1282.4 | 1319.1 | 1481.3 | 2166.9 | 4756.1 | 12918.7 | 24343.9 | 24438.7 | 17965.6 |
| 75° | 1095.7 | 1086.5 | 1104.9 | 1123.2 | 1285.4 | 1515.0 | 2313.8 | 9001.2 | 17980.9 | 17760.6 | 11611.8 |
| 77.5° | 872.3 | 863.1 | 866.1 | 884.5 | 1031.4 | 1083.4 | 1172.2 | 5622.3 | 10133.6 | 9564.3 | 5129.5 |
| 80° | 621.3 | 615.2 | 648.8 | 694.8 | 762.1 | 664.1 | 734.5 | 2720.9 | 4018.5 | 3740.0 | 1989.4 |
| 82.5° | 370.3 | 382.6 | 434.6 | 471.3 | 526.4 | 416.2 | 474.4 | 909.0 | 1423.2 | 1386.4 | 808.0 |
| 85° | 52.0 | 55.1 | 156.1 | 180.6 | 226.5 | 162.2 | 251.0 | 410.1 | 569.3 | 609.1 | 284.6 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.4 | 73.5 | 162.2 | 165.3 | 70.4 |
| 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: P641300
 CATALOG NUMBER: GWS-SA5F-750-U-T2R-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 | 4122.6 |
| 2.5° | 4196.1 | 4052.2 | 3847.2 | 3675.8 | 3531.9 | 3415.6 | 3317.7 | 3244.2 | 3222.8 | 3192.2 | 3192.2 |
| 5° | 4349.1 | 4088.9 | 3721.7 | 3461.5 | 3311.5 | 3222.8 | 3161.6 | 3131.0 | 3115.7 | 3097.3 | 3088.1 |
| 7.5° | 4560.3 | 4196.1 | 3700.2 | 3437.0 | 3320.7 | 3265.6 | 3225.9 | 3207.5 | 3195.2 | 3176.9 | 3176.9 |
| 10° | 4851.0 | 4355.2 | 3767.6 | 3522.7 | 3430.9 | 3375.8 | 3329.9 | 3299.3 | 3271.8 | 3244.2 | 3238.1 |
| 12.5° | 5166.3 | 4563.3 | 3890.0 | 3639.0 | 3541.1 | 3473.8 | 3409.5 | 3363.6 | 3329.9 | 3296.2 | 3287.1 |
| 15° | 5515.2 | 4777.6 | 4021.6 | 3752.3 | 3629.8 | 3538.0 | 3461.5 | 3391.1 | 3345.2 | 3296.2 | 3290.1 |
| 17.5° | 5858.0 | 4994.9 | 4131.8 | 3828.8 | 3672.7 | 3559.5 | 3449.3 | 3357.5 | 3299.3 | 3244.2 | 3228.9 |
| 20° | 6268.1 | 5212.2 | 4208.3 | 3850.2 | 3663.5 | 3513.5 | 3381.9 | 3265.6 | 3201.4 | 3137.1 | 3127.9 |
| 22.5° | 6644.5 | 5414.2 | 4245.0 | 3819.6 | 3593.1 | 3415.6 | 3262.6 | 3137.1 | 3066.7 | 3002.4 | 2990.2 |
| 25° | 7008.7 | 5591.7 | 4229.7 | 3746.2 | 3486.0 | 3280.9 | 3121.8 | 2996.3 | 2929.0 | 2861.6 | 2843.3 |
| 27.5° | 7360.7 | 5711.0 | 4168.5 | 3632.9 | 3351.3 | 3131.0 | 2977.9 | 2864.7 | 2806.6 | 2748.4 | 2723.9 |
| 30° | 7706.5 | 5821.2 | 4073.6 | 3486.0 | 3179.9 | 2974.9 | 2849.4 | 2769.8 | 2711.7 | 2650.5 | 2632.1 |
| 32.5° | 8055.5 | 5900.8 | 3929.8 | 3314.6 | 3005.5 | 2837.2 | 2760.6 | 2702.5 | 2641.3 | 2580.1 | 2561.7 |
| 35° | 8407.4 | 5934.5 | 3755.3 | 3118.7 | 2858.6 | 2748.4 | 2720.9 | 2653.5 | 2570.9 | 2497.4 | 2473.0 |
| 37.5° | 8826.7 | 5965.1 | 3538.0 | 2925.9 | 2730.0 | 2705.6 | 2699.4 | 2598.4 | 2500.5 | 2399.5 | 2372.0 |
| 40° | 9331.7 | 6004.9 | 3314.6 | 2751.5 | 2626.0 | 2690.3 | 2665.8 | 2528.0 | 2332.2 | 2234.2 | 2203.6 |
| 42.5° | 9950.0 | 6078.3 | 3082.0 | 2592.3 | 2549.5 | 2632.1 | 2604.6 | 2356.6 | 2225.0 | 2170.0 | 2154.6 |
| 45° | 10858.9 | 6347.6 | 2849.4 | 2466.8 | 2491.3 | 2549.5 | 2506.6 | 2255.6 | 2203.6 | 2166.9 | 2148.5 |
| 47.5° | 12478.0 | 6760.8 | 2647.4 | 2372.0 | 2445.4 | 2476.0 | 2310.7 | 2228.1 | 2188.3 | 2139.3 | 2117.9 |
| 50° | 14161.3 | 6941.4 | 2485.2 | 2313.8 | 2393.4 | 2408.7 | 2203.6 | 2191.4 | 2163.8 | 2111.8 | 2090.4 |
| 52.5° | 15299.8 | 6916.9 | 2387.3 | 2292.4 | 2350.5 | 2292.4 | 2154.6 | 2151.6 | 2133.2 | 2072.0 | 2047.5 |
| 55° | 16585.3 | 6959.8 | 2344.4 | 2298.5 | 2332.2 | 2096.5 | 2093.4 | 2102.6 | 2093.4 | 2026.1 | 2013.9 |
| 57.5° | 18320.6 | 7091.4 | 2323.0 | 2319.9 | 2319.9 | 2001.6 | 2035.3 | 2047.5 | 2029.2 | 1998.6 | 1989.4 |
| 60° | 19988.7 | 7100.5 | 2283.2 | 2344.4 | 2310.7 | 1943.5 | 1968.0 | 1980.2 | 1958.8 | 1952.7 | 1949.6 |
| 62.5° | 20616.1 | 6659.8 | 2194.4 | 2326.0 | 2274.0 | 1879.2 | 1897.6 | 1903.7 | 1882.3 | 1897.6 | 1894.5 |
| 65° | 19682.6 | 5723.3 | 2047.5 | 2237.3 | 2160.8 | 1821.0 | 1808.8 | 1824.1 | 1787.4 | 1827.2 | 1830.2 |
| 67.5° | 17475.9 | 4548.0 | 1824.1 | 2069.0 | 2001.6 | 1756.8 | 1732.3 | 1732.3 | 1671.1 | 1732.3 | 1729.2 |
| 70° | 14090.9 | 3213.6 | 1496.6 | 1799.6 | 1827.2 | 1680.3 | 1668.0 | 1597.6 | 1499.7 | 1591.5 | 1582.3 |
| 72.5° | 10681.4 | 2307.7 | 1178.3 | 1423.2 | 1573.1 | 1573.1 | 1576.2 | 1456.8 | 1343.6 | 1386.4 | 1349.7 |
| 75° | 6766.9 | 1625.2 | 942.7 | 1089.6 | 1233.4 | 1380.3 | 1450.7 | 1230.4 | 1129.4 | 1111.0 | 1092.6 |
| 77.5° | 3048.3 | 1068.1 | 734.5 | 835.5 | 875.3 | 1089.6 | 1325.2 | 1059.0 | 921.2 | 881.4 | 869.2 |
| 80° | 1276.3 | 664.1 | 523.4 | 590.7 | 538.7 | 915.1 | 1169.1 | 823.3 | 676.4 | 621.3 | 581.5 |
| 82.5° | 560.1 | 394.8 | 333.6 | 318.3 | 336.7 | 679.4 | 872.3 | 547.8 | 422.4 | 572.3 | 578.4 |
| 85° | 235.7 | 208.1 | 171.4 | 156.1 | 137.7 | 260.1 | 410.1 | 214.2 | 263.2 | 150.0 | 122.4 |
| 87.5° | 55.1 | 61.2 | 45.9 | 30.6 | 18.4 | 3.1 | 0.0 | 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 .

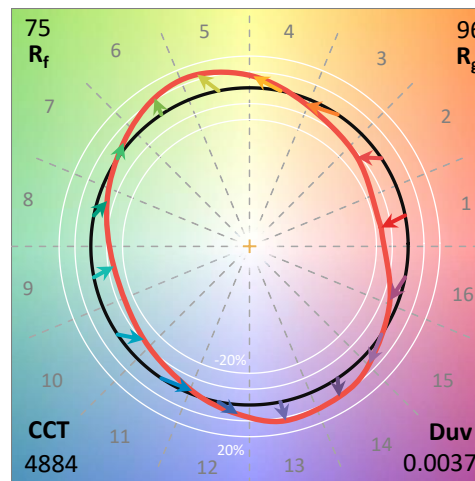
Test Information

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 |

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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 ($\mu\text{W}/\text{nm}$) | 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 | 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



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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 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)