

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: P642080

Luminaire Tested: GWS-SA6C-727-U-T4FT-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P642080
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-54)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA6C-727-U-T4FT-W
Description: GALLEON WALL SLIM LUMINAIRE. (6) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV FORWARD THROW OPTICS
Light Source: (96) 2700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 22937 lumens
Efficiency: N/A
Efficacy: 121.2 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B3 - U0 - G4

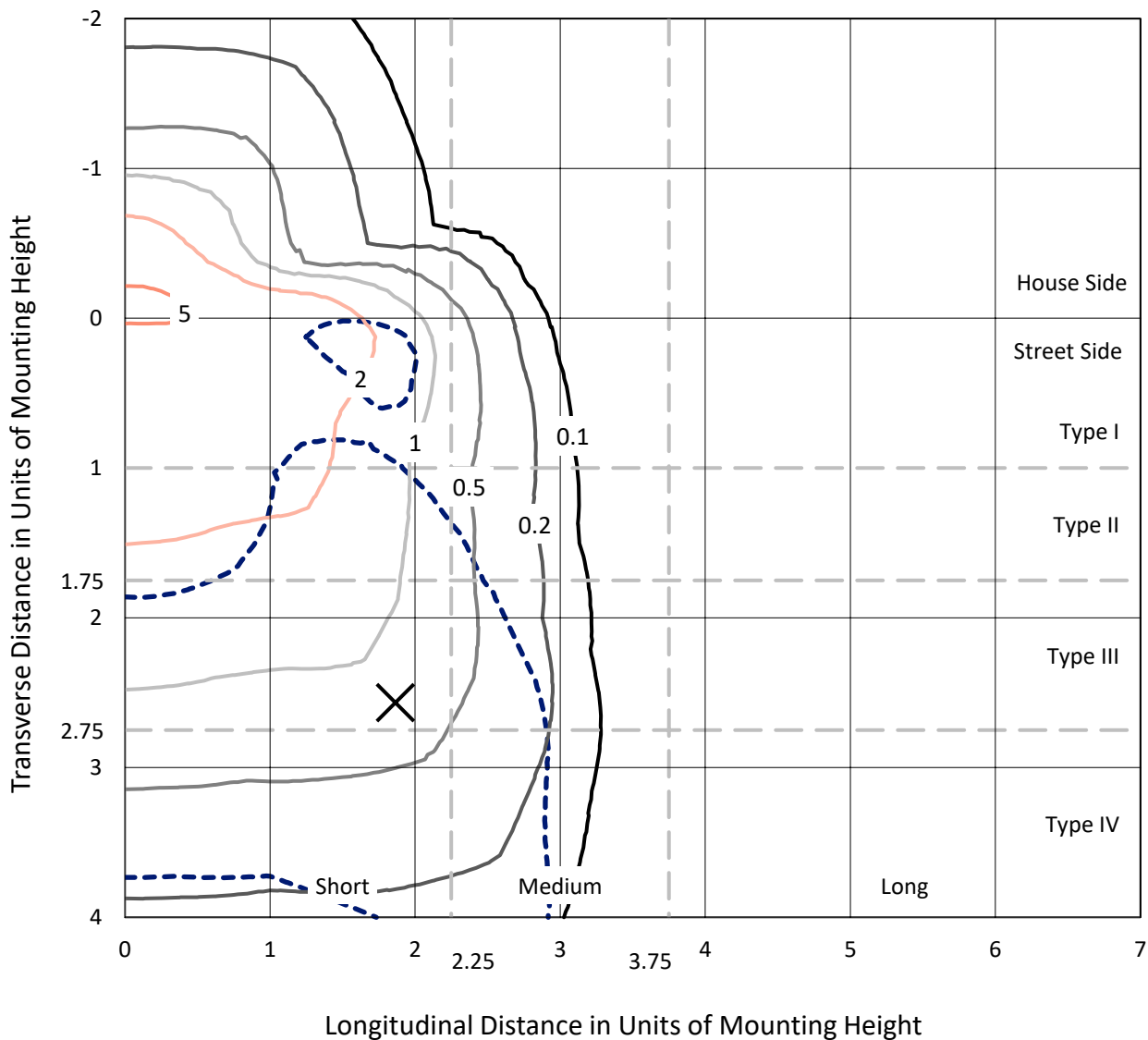
Input Watts (W): 189.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P642080
 CATALOG NUMBER: GWS-SA6C-727-U-T4FT-W

Iso-Footcandle Lines of Horizontal Illumination

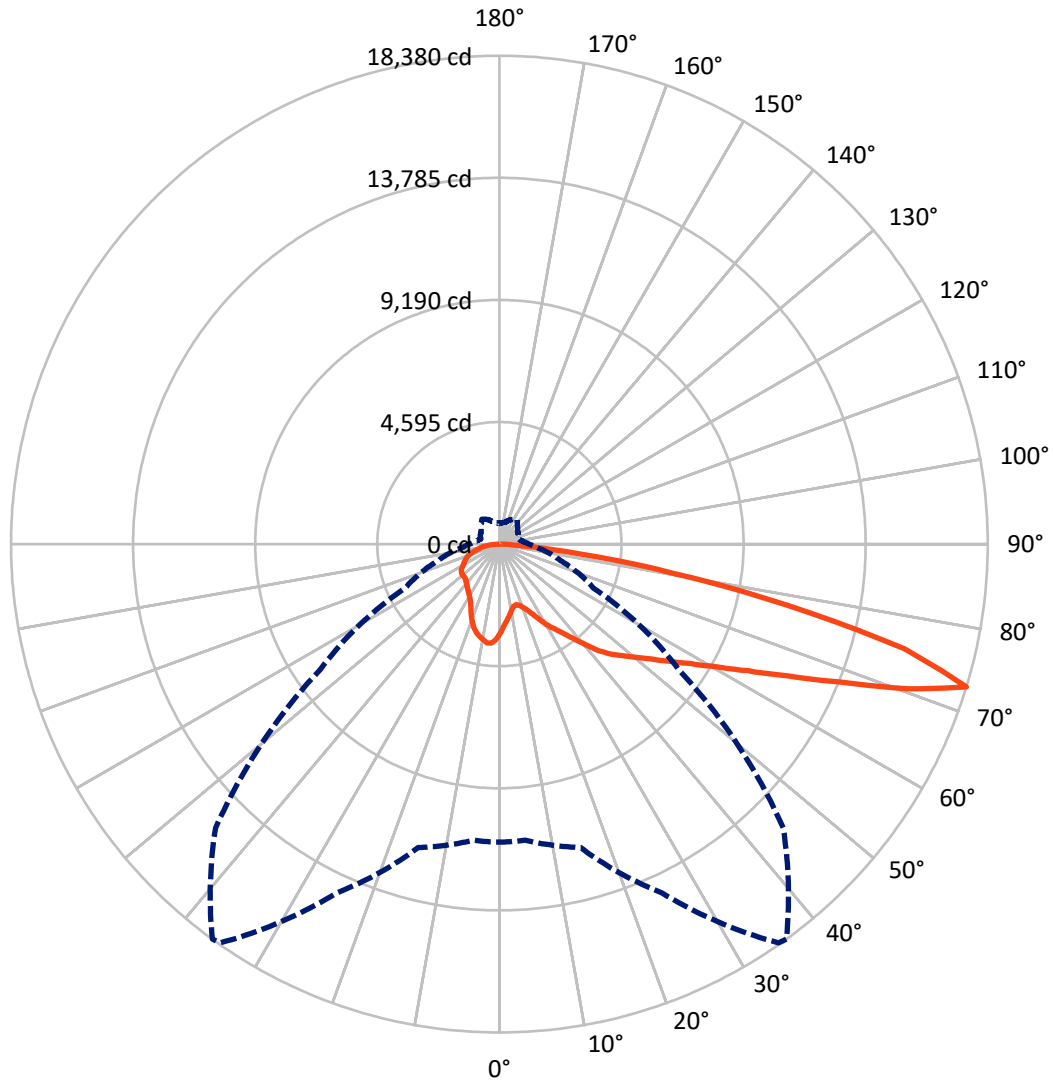
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.7 fc
 Type IV - Short - N/A

REPORT NUMBER: P642080
CATALOG NUMBER: GWS-SA6C-727-U-T4FT-W

Luminous Intensity Polar Plot



— Vertical Plane Through 36-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

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CATALOG NUMBER: GWS-SA6C-727-U-T4FT-W

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 5288.0 | 0.0 | 5288.0 |
| | % Fixture | 23.1 | 0.0 | 23.1 |
| Street Side | Lumens | 17649.0 | 0.0 | 17649.0 |
| | % Fixture | 76.9 | 0.0 | 76.9 |
| Total | Lumens | 22937.0 | 0.0 | 22937.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 313.8 | 1.4 |
| 10°-20° | 885.3 | 3.9 |
| 20°-30° | 1466.2 | 6.4 |
| 30°-40° | 2195.7 | 9.6 |
| 40°-50° | 3203.4 | 14.0 |
| 50°-60° | 4559.4 | 19.9 |
| 60°-70° | 5760.4 | 25.1 |
| 70°-80° | 4104.8 | 17.9 |
| 80°-90° | 448.1 | 2.0 |
| 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° | 22937.0 | 100.0 |
| 0°-180° | 22937.0 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P642080

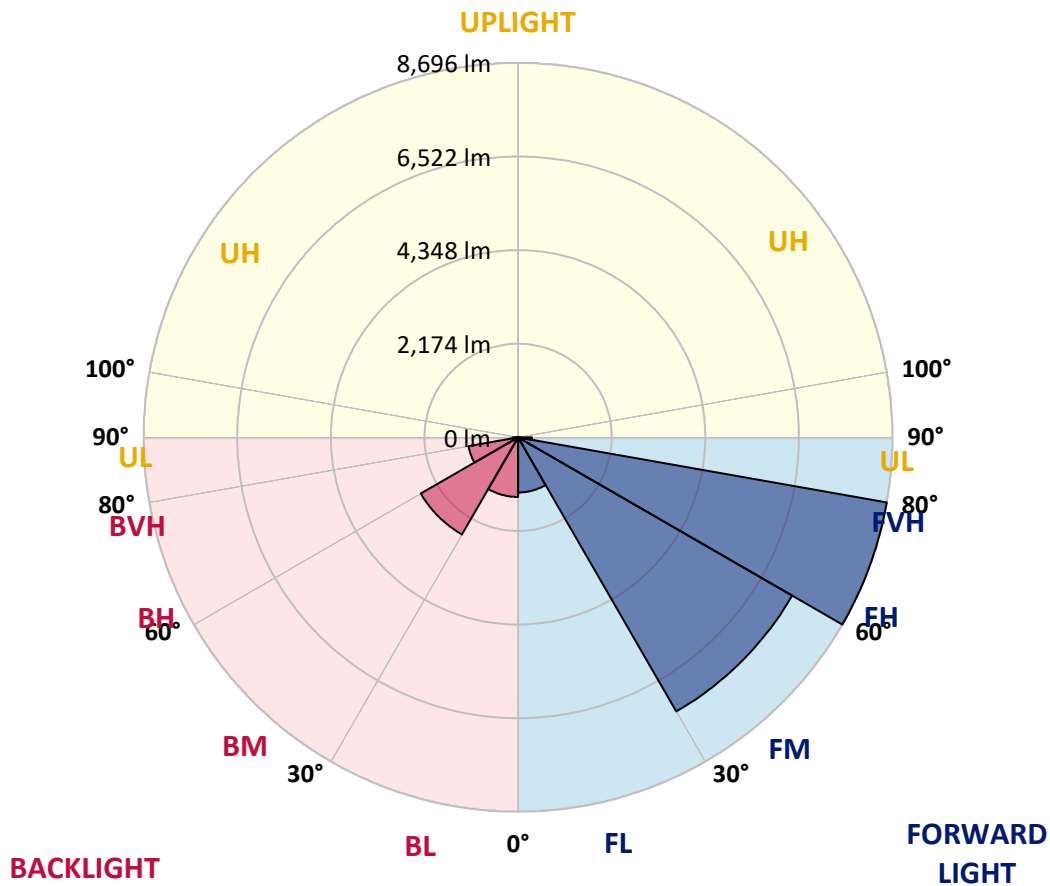
CATALOG NUMBER: GWS-SA6C-727-U-T4FT-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 1280.5 | 5.6 | | | |
| FM (30°-60°) | 7350.7 | 32.0 | | | |
| FH (60°-80°) | 8696.2 | 37.9 | | | G4/12000 |
| FVH (80°-90°) | 321.6 | 1.4 | | | G3/500 |
| BL (0°-30°) | 1384.7 | 6.0 | B3/2500 | | |
| BM (30°-60°) | 2607.7 | 11.4 | B3/5000 | | |
| BH (60°-80°) | 1169.0 | 5.1 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 126.5 | 0.6 | | | 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 IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 36° | 45° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|--------|--------|---------|
| 0° | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 |
| 2.5° | 3062.4 | 3057.3 | 3047.1 | 3077.8 | 3108.4 | 3105.0 | 3147.5 | 3188.4 | 3232.7 | 3278.6 | 3339.9 |
| 5° | 2817.3 | 2813.9 | 2805.4 | 2851.4 | 2897.3 | 2895.6 | 2965.4 | 3031.8 | 3122.0 | 3220.7 | 3343.3 |
| 7.5° | 2572.2 | 2563.7 | 2575.6 | 2633.5 | 2698.1 | 2705.0 | 2800.3 | 2909.2 | 3040.3 | 3188.4 | 3362.0 |
| 10° | 2356.0 | 2354.3 | 2359.4 | 2424.1 | 2521.1 | 2527.9 | 2650.5 | 2802.0 | 2975.6 | 3173.1 | 3404.6 |
| 12.5° | 2299.8 | 2296.4 | 2282.8 | 2315.1 | 2388.3 | 2398.5 | 2533.0 | 2718.6 | 2931.4 | 3181.6 | 3462.5 |
| 15° | 2391.7 | 2383.2 | 2335.6 | 2320.2 | 2356.0 | 2364.5 | 2478.5 | 2669.2 | 2905.8 | 3196.9 | 3535.7 |
| 17.5° | 2550.0 | 2544.9 | 2454.7 | 2391.7 | 2415.6 | 2422.4 | 2507.5 | 2660.7 | 2899.0 | 3227.6 | 3625.9 |
| 20° | 2781.6 | 2759.4 | 2618.1 | 2522.8 | 2522.8 | 2533.0 | 2584.1 | 2698.1 | 2907.5 | 3265.0 | 3728.0 |
| 22.5° | 3088.0 | 3043.7 | 2844.5 | 2715.2 | 2681.1 | 2694.7 | 2716.9 | 2791.8 | 2943.3 | 3328.0 | 3855.7 |
| 25° | 3431.8 | 3391.0 | 3154.4 | 2972.2 | 2924.5 | 2929.7 | 2910.9 | 2924.5 | 3021.6 | 3414.8 | 4014.0 |
| 27.5° | 3797.8 | 3770.6 | 3518.7 | 3287.1 | 3212.2 | 3212.2 | 3145.8 | 3113.5 | 3130.5 | 3513.5 | 4191.1 |
| 30° | 4124.7 | 4087.2 | 3874.4 | 3620.8 | 3522.1 | 3522.1 | 3396.1 | 3326.3 | 3285.4 | 3634.4 | 4427.7 |
| 32.5° | 4296.6 | 4274.5 | 4133.2 | 3939.1 | 3818.3 | 3799.5 | 3690.6 | 3608.9 | 3513.5 | 3813.1 | 4747.7 |
| 35° | 4521.3 | 4516.2 | 4431.1 | 4279.6 | 4126.4 | 4099.1 | 4024.2 | 3959.5 | 3794.4 | 4036.1 | 5173.3 |
| 37.5° | 4803.9 | 4795.4 | 4781.8 | 4691.5 | 4507.7 | 4502.6 | 4436.2 | 4357.9 | 4143.4 | 4357.9 | 5689.1 |
| 40° | 5120.5 | 5105.2 | 5088.2 | 5086.5 | 4975.8 | 4957.1 | 4952.0 | 4863.5 | 4563.9 | 4746.0 | 6227.0 |
| 42.5° | 5556.3 | 5503.5 | 5343.5 | 5415.0 | 5496.7 | 5479.7 | 5544.4 | 5411.6 | 5088.2 | 5207.3 | 6736.0 |
| 45° | 6092.5 | 5963.2 | 5646.5 | 5667.0 | 5872.9 | 5907.0 | 6131.7 | 6099.3 | 5665.2 | 5740.2 | 7272.2 |
| 47.5° | 6414.3 | 6301.9 | 6007.4 | 5990.4 | 6247.4 | 6290.0 | 6778.6 | 6839.8 | 6286.6 | 6381.9 | 7934.4 |
| 50° | 6678.1 | 6599.8 | 6358.1 | 6381.9 | 6654.3 | 6696.8 | 7420.3 | 7551.4 | 6872.2 | 7039.0 | 8703.9 |
| 52.5° | 6996.4 | 6884.1 | 6696.8 | 6809.2 | 7142.8 | 7193.9 | 8133.6 | 8274.9 | 7399.9 | 7760.8 | 9500.5 |
| 55° | 7175.2 | 7129.2 | 7132.6 | 7304.6 | 7723.3 | 7793.1 | 8880.9 | 8857.1 | 7883.3 | 8378.7 | 10099.7 |
| 57.5° | 7587.1 | 7570.1 | 7726.7 | 7791.4 | 8400.8 | 8491.1 | 9628.2 | 9423.9 | 8322.5 | 8857.1 | 10387.4 |
| 60° | 8314.0 | 8271.5 | 8407.7 | 8506.4 | 9238.4 | 9366.0 | 10462.3 | 9978.9 | 8620.4 | 9212.8 | 10290.4 |
| 62.5° | 9335.4 | 9282.6 | 9287.7 | 9444.4 | 10360.2 | 10494.7 | 11390.1 | 10441.9 | 8712.4 | 9267.3 | 9675.9 |
| 65° | 10605.3 | 10528.7 | 10441.9 | 10654.7 | 11849.7 | 11962.1 | 12399.5 | 10779.0 | 8492.8 | 8743.0 | 8392.3 |
| 67.5° | 11945.0 | 11882.0 | 11779.9 | 12225.9 | 13778.4 | 13846.5 | 13531.6 | 10750.0 | 7796.5 | 7340.3 | 5886.5 |
| 70° | 12023.3 | 12038.7 | 12522.1 | 14135.9 | 16296.1 | 16313.1 | 14602.3 | 10167.8 | 6313.8 | 4757.9 | 2933.1 |
| 72.5° | 11216.4 | 11190.9 | 11820.8 | 14484.9 | 18321.8 | 18379.7 | 15107.9 | 8237.4 | 3901.7 | 2373.0 | 1375.5 |
| 75° | 9110.7 | 9155.0 | 9817.2 | 12673.6 | 15703.7 | 15754.8 | 12316.1 | 4856.7 | 1853.8 | 1161.0 | 880.1 |
| 77.5° | 3922.1 | 4168.9 | 5474.6 | 8928.6 | 11247.1 | 11088.8 | 6347.9 | 1967.9 | 989.0 | 827.3 | 674.1 |
| 80° | 1132.0 | 1229.1 | 1950.8 | 4245.5 | 6739.4 | 6620.2 | 2512.6 | 737.1 | 689.4 | 621.3 | 483.5 |
| 82.5° | 366.0 | 405.1 | 715.0 | 1690.4 | 3019.9 | 3016.5 | 953.3 | 435.8 | 451.1 | 422.2 | 311.5 |
| 85° | 102.1 | 117.5 | 219.6 | 512.4 | 934.6 | 915.8 | 275.8 | 206.0 | 240.0 | 243.4 | 154.9 |
| 87.5° | 0.0 | 0.0 | 1.7 | 3.4 | 3.4 | 3.4 | 6.8 | 30.6 | 69.8 | 88.5 | 63.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P642080
 CATALOG NUMBER: GWS-SA6C-727-U-T4FT-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 | 3356.9 |
| 2.5° | 3377.4 | 3372.3 | 3442.0 | 3496.5 | 3547.6 | 3581.6 | 3591.8 | 3598.7 | 3612.3 | 3619.1 | 3612.3 |
| 5° | 3401.2 | 3426.7 | 3542.5 | 3627.6 | 3695.7 | 3736.5 | 3738.2 | 3734.8 | 3745.1 | 3736.5 | 3731.4 |
| 7.5° | 3452.3 | 3501.6 | 3648.0 | 3738.2 | 3782.5 | 3784.2 | 3743.4 | 3695.7 | 3671.9 | 3651.4 | 3644.6 |
| 10° | 3520.4 | 3593.6 | 3753.6 | 3813.1 | 3799.5 | 3736.5 | 3646.3 | 3571.4 | 3528.9 | 3498.2 | 3491.4 |
| 12.5° | 3614.0 | 3695.7 | 3847.2 | 3845.5 | 3760.4 | 3648.0 | 3542.5 | 3452.3 | 3391.0 | 3355.2 | 3343.3 |
| 15° | 3702.5 | 3806.3 | 3915.3 | 3835.3 | 3700.8 | 3564.6 | 3428.4 | 3307.6 | 3225.9 | 3169.7 | 3159.5 |
| 17.5° | 3811.4 | 3922.1 | 3964.7 | 3802.9 | 3625.9 | 3450.6 | 3268.4 | 3110.1 | 2999.4 | 2933.1 | 2928.0 |
| 20° | 3937.4 | 4036.1 | 3988.5 | 3746.8 | 3528.9 | 3299.1 | 3052.2 | 2875.2 | 2756.0 | 2691.3 | 2696.4 |
| 22.5° | 4083.8 | 4155.3 | 3995.3 | 3670.2 | 3394.4 | 3084.6 | 2808.8 | 2638.6 | 2558.6 | 2524.5 | 2526.2 |
| 25° | 4240.4 | 4286.4 | 3983.4 | 3566.3 | 3188.4 | 2822.4 | 2558.6 | 2480.2 | 2473.4 | 2464.9 | 2468.3 |
| 27.5° | 4426.0 | 4415.8 | 3947.6 | 3419.9 | 2910.9 | 2517.7 | 2383.2 | 2403.6 | 2430.9 | 2427.5 | 2430.9 |
| 30° | 4674.5 | 4577.5 | 3901.7 | 3217.3 | 2580.7 | 2262.4 | 2279.4 | 2337.3 | 2373.0 | 2376.4 | 2386.6 |
| 32.5° | 4958.8 | 4756.2 | 3828.5 | 2941.6 | 2265.8 | 2119.4 | 2182.3 | 2252.1 | 2294.7 | 2303.2 | 2316.8 |
| 35° | 5297.6 | 4960.5 | 3699.1 | 2597.7 | 2039.4 | 2034.2 | 2092.1 | 2139.8 | 2185.8 | 2189.2 | 2189.2 |
| 37.5° | 5687.4 | 5164.8 | 3493.1 | 2218.1 | 1899.8 | 1961.0 | 2015.5 | 2025.7 | 2037.7 | 2027.4 | 2032.5 |
| 40° | 6044.9 | 5362.2 | 3200.3 | 1872.5 | 1785.7 | 1896.4 | 1942.3 | 1908.3 | 1870.8 | 1845.3 | 1850.4 |
| 42.5° | 6344.5 | 5496.7 | 2812.2 | 1630.8 | 1670.0 | 1838.5 | 1874.2 | 1804.4 | 1731.2 | 1683.6 | 1690.4 |
| 45° | 6681.5 | 5621.0 | 2356.0 | 1467.4 | 1571.2 | 1797.6 | 1821.5 | 1731.2 | 1637.6 | 1566.1 | 1555.9 |
| 47.5° | 7146.2 | 5874.6 | 1950.8 | 1353.3 | 1501.4 | 1775.5 | 1814.7 | 1692.1 | 1569.5 | 1462.3 | 1450.4 |
| 50° | 7719.9 | 6233.8 | 1612.1 | 1278.4 | 1469.1 | 1763.6 | 1812.9 | 1649.5 | 1503.1 | 1377.2 | 1368.6 |
| 52.5° | 8346.4 | 6584.5 | 1361.8 | 1220.5 | 1436.7 | 1727.8 | 1804.4 | 1601.9 | 1433.3 | 1297.2 | 1286.9 |
| 55° | 8763.4 | 6722.4 | 1193.3 | 1166.1 | 1384.0 | 1671.7 | 1770.4 | 1555.9 | 1327.8 | 1203.5 | 1188.2 |
| 57.5° | 8886.0 | 6545.3 | 1075.9 | 1116.7 | 1315.9 | 1593.4 | 1705.7 | 1458.9 | 1263.1 | 1164.4 | 1152.5 |
| 60° | 8674.9 | 6099.3 | 1002.7 | 1075.9 | 1241.0 | 1492.9 | 1593.4 | 1402.7 | 1212.0 | 1123.5 | 1115.0 |
| 62.5° | 8079.1 | 5411.6 | 946.5 | 1033.3 | 1164.4 | 1387.4 | 1521.9 | 1334.6 | 1155.9 | 1086.1 | 1074.2 |
| 65° | 6880.7 | 4437.9 | 900.5 | 989.0 | 1091.2 | 1286.9 | 1443.5 | 1266.5 | 1094.6 | 1041.8 | 1028.2 |
| 67.5° | 4812.4 | 3116.9 | 851.1 | 936.3 | 1018.0 | 1189.9 | 1361.8 | 1203.5 | 1031.6 | 992.4 | 978.8 |
| 70° | 2352.6 | 1652.9 | 791.6 | 875.0 | 939.7 | 1091.2 | 1280.1 | 1126.9 | 948.2 | 926.1 | 907.3 |
| 72.5° | 1120.1 | 924.3 | 721.8 | 791.6 | 832.4 | 960.1 | 1143.9 | 1016.3 | 849.4 | 801.8 | 769.4 |
| 75° | 750.7 | 657.1 | 629.9 | 692.8 | 703.0 | 805.2 | 980.5 | 876.7 | 749.0 | 694.5 | 667.3 |
| 77.5° | 568.6 | 502.2 | 529.4 | 585.6 | 565.2 | 662.2 | 806.9 | 781.4 | 675.8 | 626.4 | 612.8 |
| 80° | 400.0 | 366.0 | 420.5 | 454.5 | 439.2 | 563.5 | 726.9 | 669.0 | 556.7 | 502.2 | 492.0 |
| 82.5° | 251.9 | 245.1 | 309.8 | 314.9 | 320.0 | 446.0 | 597.5 | 526.0 | 432.4 | 355.8 | 330.2 |
| 85° | 126.0 | 139.6 | 185.6 | 185.6 | 183.8 | 229.8 | 340.5 | 296.2 | 233.2 | 185.6 | 180.4 |
| 87.5° | 42.6 | 59.6 | 80.0 | 64.7 | 49.4 | 39.2 | 44.3 | 54.5 | 57.9 | 56.2 | 56.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-1-R4

Test Date: 08/20/2019

Luminaire Tested: SA1C-727-U-5WQ

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-1-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: McGRAW-EDISON
 Catalog Number: **SA1C-727-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-1-R3. TO UPDATE THE CATALOG NUMBER.TESTED IN
 SITU. (1) 70 CRI, 2700K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2741
 CIE u': 0.2605
 CIE v': 0.5272
 Duv: 0.0005
 CIE x: 0.4573
 CIE y: 0.4113
 CIE z: 0.1313
 Peak Wavelength (nm): 602
 Dominant Wavelength (nm): 583
 Purity: 61.2

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.5 | | |
| R1: | 69.2 | R9: | -16.1 |
| R2: | 79.4 | R10: | 51.4 |
| R3: | 87.8 | R11: | 63.1 |
| R4: | 69.4 | R12: | 42.0 |
| R5: | 66.4 | R13: | 70.2 |
| R6: | 69.8 | R14: | 92.4 |
| R7: | 79.8 | | |
| R8: | 50.1 | | |

Rf: 69.9
 Rg: 98.3



Test Conditions

Stabilization Time: 56M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.3./42%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-1-R4

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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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 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: 6211.7

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|
| 360 | 2044 | 0.0 | 490 | 7179 | 1.0 | 620 | 118034 | 30.7 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 1.9 | 625 | 111884 | 24.7 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 3.4 | 630 | 106119 | 19.2 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 6.3 | 635 | 99706 | 15.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 10.4 | 640 | 92142 | 11.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 16.3 | 645 | 84987 | 8.2 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 22.9 | 650 | 78016 | 5.7 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 29.7 | 655 | 71541 | 4.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 36.7 | 660 | 64863 | 2.7 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 42.5 | 665 | 58485 | 1.9 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.0 | 540 | 73435 | 47.8 | 670 | 51641 | 1.1 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.0 | 545 | 78677 | 52.4 | 675 | 46030 | 0.8 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 0.0 | 550 | 83331 | 56.6 | 680 | 40590 | 0.5 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 0.1 | 555 | 89120 | 60.9 | 685 | 35691 | 0.3 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 0.3 | 560 | 94613 | 64.3 | 690 | 31631 | 0.2 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 0.6 | 565 | 99818 | 66.4 | 695 | 27437 | 0.1 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 0.9 | 570 | 106526 | 69.3 | 700 | 24589 | 0.1 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 1.1 | 575 | 111610 | 69.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 1.0 | 580 | 117163 | 69.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 0.8 | 585 | 122201 | 67.9 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 0.6 | 590 | 125662 | 65.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 0.5 | 595 | 127415 | 60.4 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 0.4 | 600 | 129155 | 55.7 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 0.4 | 605 | 128057 | 49.6 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 0.5 | 610 | 126031 | 43.3 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 0.7 | 615 | 123059 | 37.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 6474.3

S/P: 1.04

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2044 | 0.0 | 490 | 7179 | 6.0 | 620 | 118034 | 0.1 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 8.6 | 625 | 111884 | 0.1 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 12.5 | 630 | 106119 | 0.0 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 17.3 | 635 | 99706 | 0.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 21.8 | 640 | 92142 | 0.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 25.7 | 645 | 84987 | 0.0 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 27.5 | 650 | 78016 | 0.0 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 28.1 | 655 | 71541 | 0.0 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 27.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 24.7 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.1 | 540 | 73435 | 21.5 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.5 | 545 | 78677 | 18.3 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 1.6 | 550 | 83331 | 15.0 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 3.9 | 555 | 89120 | 12.0 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 8.1 | 560 | 94613 | 9.3 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 13.3 | 565 | 99818 | 7.0 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 19.1 | 570 | 106526 | 5.2 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 21.6 | 575 | 111610 | 3.7 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 18.1 | 580 | 117163 | 2.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 11.8 | 585 | 122201 | 1.8 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 8.1 | 590 | 125662 | 1.2 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 6.2 | 595 | 127415 | 0.8 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 4.8 | 600 | 129155 | 0.5 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 4.1 | 605 | 128057 | 0.4 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 4.1 | 610 | 126031 | 0.2 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 4.6 | 615 | 123059 | 0.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 2145.7 M/P: 0.35

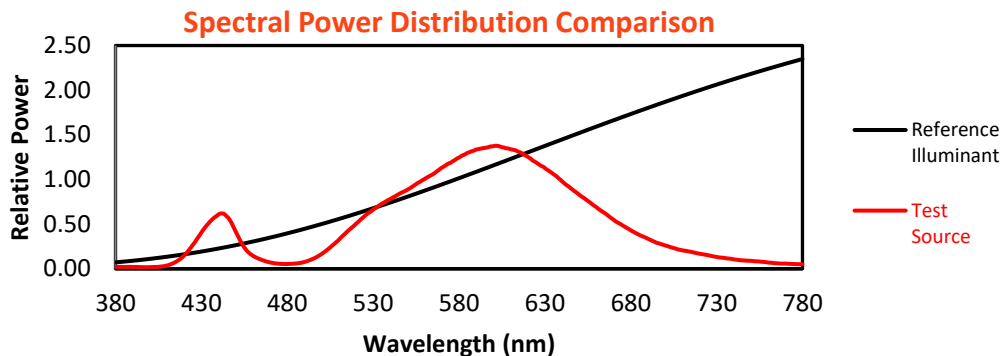
| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|
| 360 | 2044 | 0.0 | 490 | 7179 | 11.1 | 620 | 118034 | 1.5 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 16.9 | 625 | 111884 | 0.9 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 26.0 | 630 | 106119 | 0.6 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 38.2 | 635 | 99706 | 0.4 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 51.6 | 640 | 92142 | 0.2 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 65.1 | 645 | 84987 | 0.1 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 75.2 | 650 | 78016 | 0.1 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 82.9 | 655 | 71541 | 0.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 86.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.1 | 535 | 68520 | 85.4 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.2 | 540 | 73435 | 81.1 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.7 | 545 | 78677 | 75.4 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 2.3 | 550 | 83331 | 68.1 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 6.2 | 555 | 89120 | 60.9 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 13.0 | 560 | 94613 | 52.9 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 22.2 | 565 | 99818 | 44.8 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 32.0 | 570 | 106526 | 37.6 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 36.7 | 575 | 111610 | 30.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 30.4 | 580 | 117163 | 24.1 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 19.7 | 585 | 122201 | 18.7 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 13.2 | 590 | 125662 | 14.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 10.0 | 595 | 127415 | 10.2 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 7.7 | 600 | 129155 | 7.3 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 6.7 | 605 | 128057 | 5.0 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 6.9 | 610 | 126031 | 3.4 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 8.1 | 615 | 123059 | 2.3 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

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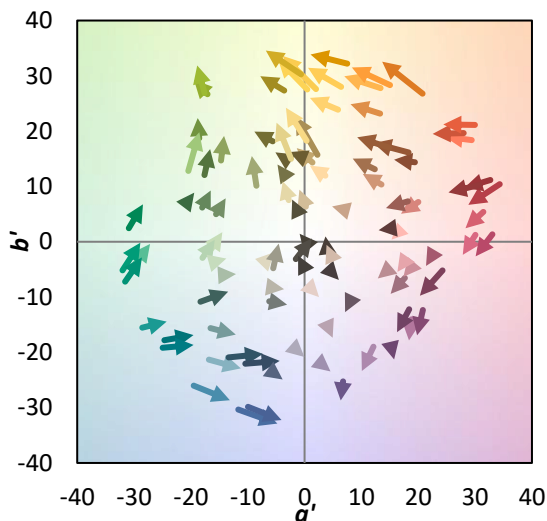
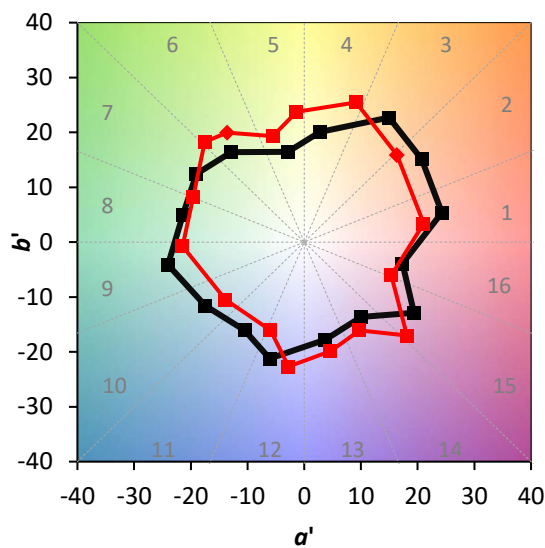
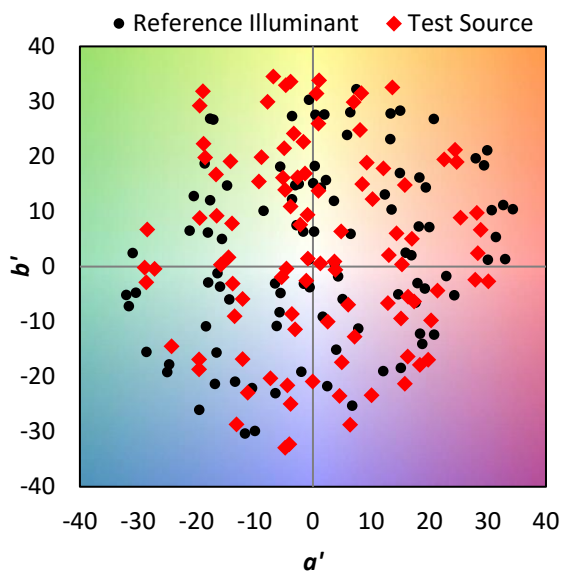
TM-30-18

Summary

$R_f = 69.9$
 $R_g = 98.3$
 CIE $R_a = 71.5$
 $R_9 = -16.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 54 | CES51 = 77 | CES76 = 48 |
| CES02 = 63 | CES27 = 74 | CES52 = 80 | CES77 = 75 |
| CES03 = 31 | CES28 = 80 | CES53 = 66 | CES78 = 56 |
| CES04 = 71 | CES29 = 44 | CES54 = 77 | CES79 = 81 |
| CES05 = 50 | CES30 = 46 | CES55 = 74 | CES80 = 80 |
| CES06 = 52 | CES31 = 50 | CES56 = 63 | CES81 = 73 |
| CES07 = 42 | CES32 = 49 | CES57 = 60 | CES82 = 91 |
| CES08 = 41 | CES33 = 53 | CES58 = 63 | CES83 = 84 |
| CES09 = 29 | CES34 = 66 | CES59 = 85 | CES84 = 90 |
| CES10 = 77 | CES35 = 82 | CES60 = 89 | CES85 = 87 |
| CES11 = 60 | CES36 = 78 | CES61 = 85 | CES86 = 65 |
| CES12 = 66 | CES37 = 75 | CES62 = 69 | CES87 = 78 |
| CES13 = 43 | CES38 = 53 | CES63 = 68 | CES88 = 73 |
| CES14 = 74 | CES39 = 91 | CES64 = 68 | CES89 = 68 |
| CES15 = 71 | CES40 = 85 | CES65 = 65 | CES90 = 68 |
| CES16 = 48 | CES41 = 76 | CES66 = 62 | CES91 = 91 |
| CES17 = 50 | CES42 = 76 | CES67 = 60 | CES92 = 71 |
| CES18 = 57 | CES43 = 65 | CES68 = 68 | CES93 = 82 |
| CES19 = 73 | CES44 = 98 | CES69 = 77 | CES94 = 57 |
| CES20 = 67 | CES45 = 75 | CES70 = 60 | CES95 = 78 |
| CES21 = 88 | CES46 = 70 | CES71 = 57 | CES96 = 80 |
| CES22 = 80 | CES47 = 63 | CES72 = 86 | CES97 = 79 |
| CES23 = 92 | CES48 = 51 | CES73 = 52 | CES98 = 71 |
| CES24 = 91 | CES49 = 68 | CES74 = 90 | CES99 = 64 |
| CES25 = 73 | CES50 = 77 | CES75 = 58 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)