

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: P633195

Luminaire Tested: GWS-SA2E-730-U-SL3-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P633195
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-34)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA2E-730-U-SL3-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: (32) 3000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10761.3 lumens
Efficiency: N/A
Efficacy: 99.5 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

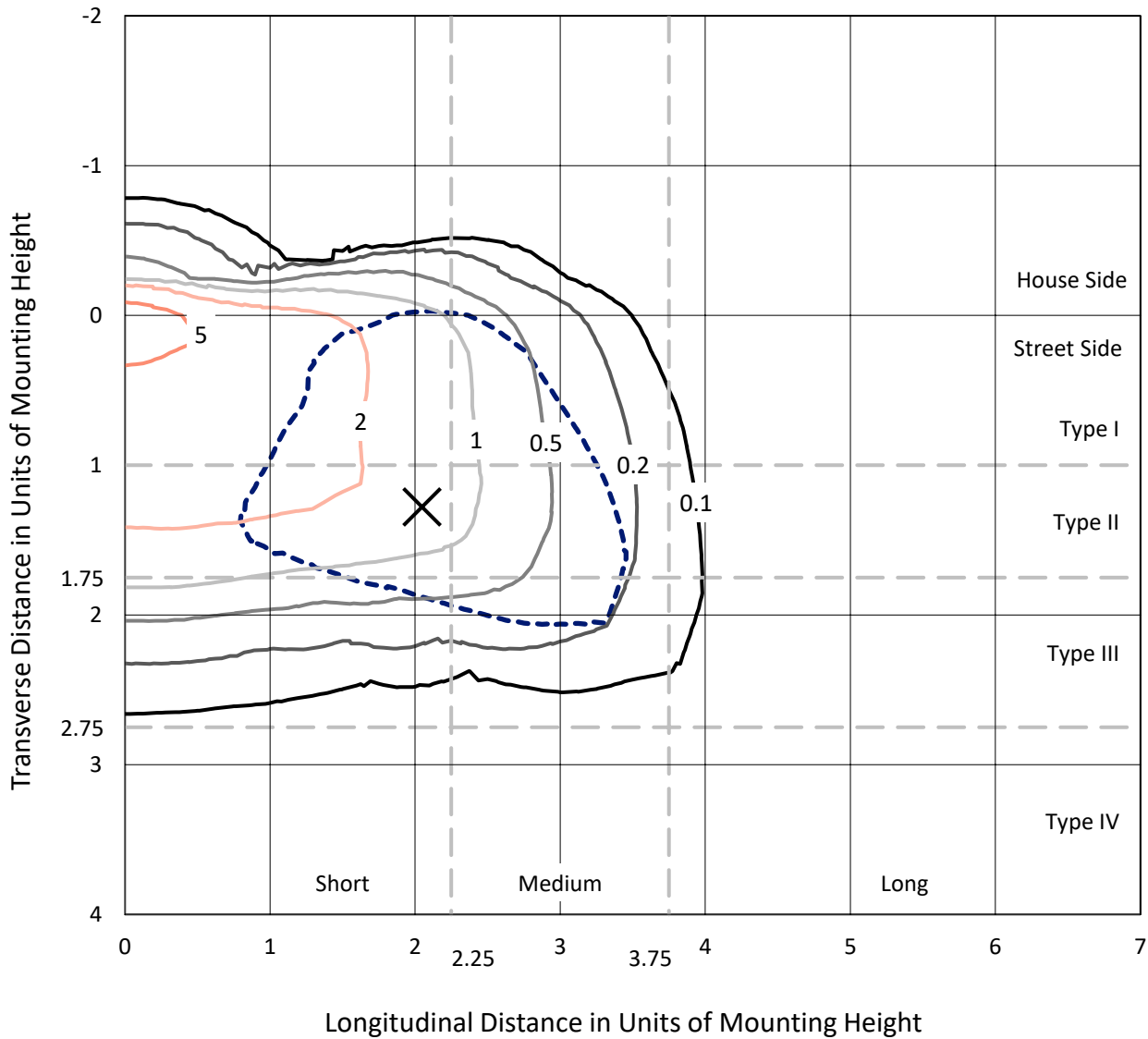
Input Watts (W): 108.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P633195
 CATALOG NUMBER: GWS-SA2E-730-U-SL3-W-HSS

Iso-Footcandle Lines of Horizontal Illumination

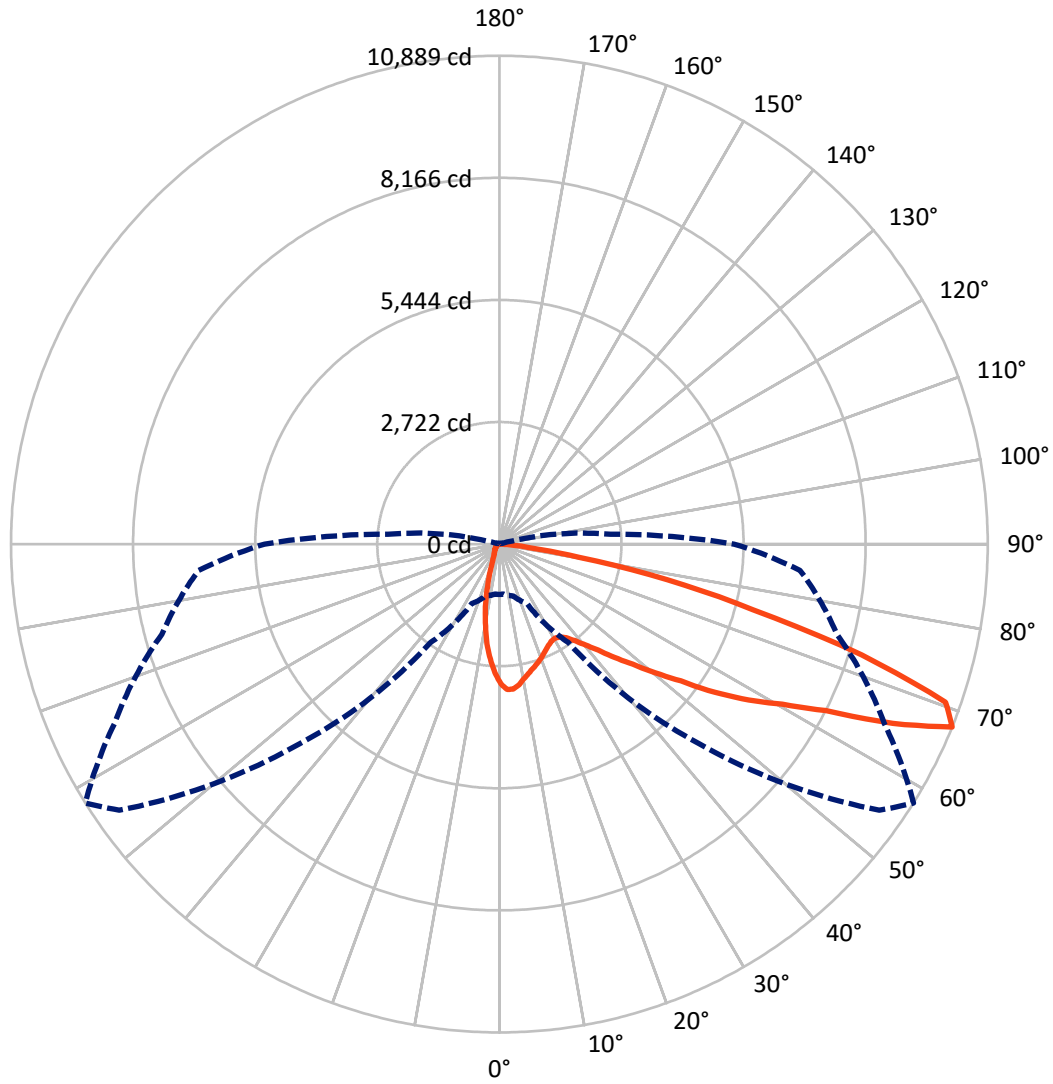
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 7.8 fc
 Type III - Short - N/A

REPORT NUMBER: P633195
CATALOG NUMBER: GWS-SA2E-730-U-SL3-W-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

REPORT NUMBER: P633195
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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1051.3 | 0.0 | 1051.3 |
| | % Fixture | 9.8 | 0.0 | 9.8 |
| Street Side | Lumens | 9710.0 | 0.0 | 9710.0 |
| | % Fixture | 90.2 | 0.0 | 90.2 |
| Total | Lumens | 10761.3 | 0.0 | 10761.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 252.2 | 2.3 |
| 10°-20° | 525.1 | 4.9 |
| 20°-30° | 708.1 | 6.6 |
| 30°-40° | 995.0 | 9.2 |
| 40°-50° | 1536.7 | 14.3 |
| 50°-60° | 2457.4 | 22.8 |
| 60°-70° | 2909.7 | 27.0 |
| 70°-80° | 1287.2 | 12.0 |
| 80°-90° | 90.0 | 0.8 |
| 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° | 10761.3 | 100.0 |
| 0°-180° | 10761.3 | 100.0 |

Coefficient of Utilization



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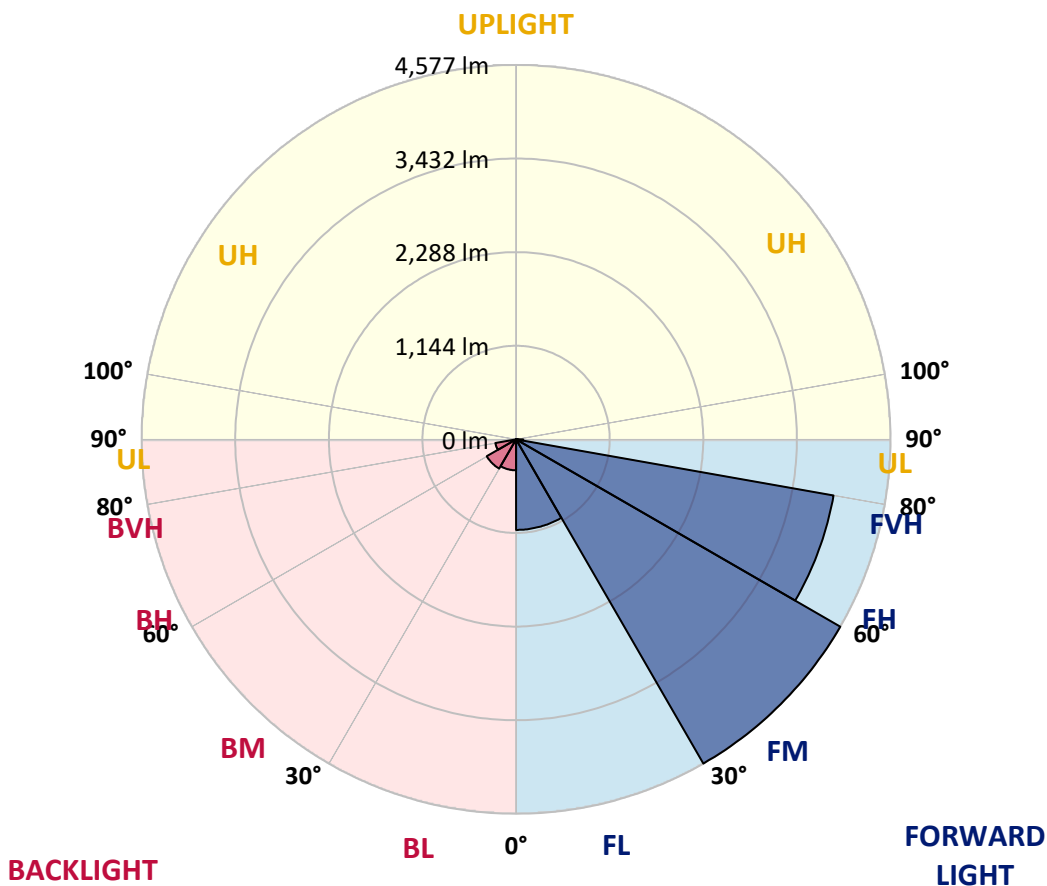
CATALOG NUMBER: GWS-SA2E-730-U-SL3-W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1107.1 | 10.3 | | | |
| FM (30°-60°) | 4576.6 | 42.5 | | | |
| FH (60°-80°) | 3940.2 | 36.6 | | | G2/5000 |
| FVH (80°-90°) | 86.2 | 0.8 | | | G1/100 |
| BL (0°-30°) | 378.3 | 3.5 | B1/500 | | |
| BM (30°-60°) | 412.5 | 3.8 | B1/1000 | | |
| BH (60°-80°) | 256.7 | 2.4 | B1/500 | | G1/500 |
| BVH (80°-90°) | 3.8 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|--------|--------|--------|
| 0° | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 |
| 2.5° | 3265.0 | 3270.7 | 3278.4 | 3287.9 | 3286.0 | 3277.4 | 3266.9 | 3243.1 | 3227.9 | 3180.3 | 3122.2 |
| 5° | 3160.3 | 3159.3 | 3178.4 | 3196.5 | 3228.8 | 3246.0 | 3269.8 | 3247.9 | 3240.3 | 3183.1 | 3088.8 |
| 7.5° | 2955.5 | 2966.0 | 2987.9 | 3016.4 | 3063.1 | 3113.6 | 3170.7 | 3164.1 | 3186.9 | 3148.8 | 3031.7 |
| 10° | 2754.5 | 2748.8 | 2783.1 | 2825.9 | 2897.4 | 2962.1 | 3045.0 | 3044.1 | 3104.1 | 3100.3 | 2966.9 |
| 12.5° | 2578.3 | 2577.4 | 2604.0 | 2652.6 | 2736.4 | 2826.9 | 2939.3 | 2942.1 | 3016.4 | 3046.9 | 2911.7 |
| 15° | 2429.7 | 2431.6 | 2457.3 | 2507.8 | 2594.5 | 2705.0 | 2835.5 | 2859.3 | 2943.1 | 3005.0 | 2857.4 |
| 17.5° | 2324.0 | 2325.0 | 2340.2 | 2384.0 | 2468.8 | 2586.9 | 2744.0 | 2776.4 | 2884.0 | 2973.6 | 2813.6 |
| 20° | 2275.4 | 2271.6 | 2274.5 | 2296.4 | 2362.1 | 2469.7 | 2650.7 | 2692.6 | 2829.8 | 2951.7 | 2773.6 |
| 22.5° | 2282.1 | 2276.4 | 2263.0 | 2260.2 | 2289.7 | 2371.6 | 2551.6 | 2603.1 | 2770.7 | 2938.3 | 2737.4 |
| 25° | 2341.1 | 2328.8 | 2309.7 | 2281.1 | 2269.7 | 2310.7 | 2465.0 | 2518.3 | 2715.5 | 2939.3 | 2709.7 |
| 27.5° | 2431.6 | 2418.3 | 2394.5 | 2356.4 | 2311.6 | 2294.5 | 2405.9 | 2456.4 | 2676.4 | 2961.2 | 2696.4 |
| 30° | 2546.9 | 2536.4 | 2513.5 | 2467.8 | 2407.8 | 2337.3 | 2393.5 | 2435.4 | 2657.4 | 3006.0 | 2702.1 |
| 32.5° | 2683.1 | 2675.5 | 2656.4 | 2614.5 | 2545.9 | 2438.3 | 2435.4 | 2467.8 | 2672.6 | 3070.7 | 2724.0 |
| 35° | 2814.5 | 2817.4 | 2818.3 | 2795.5 | 2722.1 | 2591.6 | 2550.7 | 2562.1 | 2735.5 | 3167.9 | 2773.6 |
| 37.5° | 2956.4 | 2949.8 | 2984.1 | 3000.2 | 2929.8 | 2790.7 | 2728.8 | 2729.7 | 2855.5 | 3311.7 | 2866.9 |
| 40° | 3064.1 | 3066.0 | 3140.3 | 3206.9 | 3177.4 | 3043.1 | 2954.5 | 2953.6 | 3040.2 | 3508.9 | 3017.4 |
| 42.5° | 3165.0 | 3177.4 | 3286.9 | 3401.2 | 3442.2 | 3323.1 | 3259.3 | 3235.5 | 3299.3 | 3775.5 | 3243.1 |
| 45° | 3272.6 | 3290.7 | 3444.1 | 3607.0 | 3714.6 | 3644.1 | 3593.6 | 3603.2 | 3610.8 | 4086.0 | 3547.0 |
| 47.5° | 3398.4 | 3409.8 | 3599.3 | 3828.9 | 4029.9 | 4011.8 | 4014.6 | 4003.2 | 3999.4 | 4477.5 | 3948.9 |
| 50° | 3550.8 | 3577.4 | 3795.5 | 4069.9 | 4344.2 | 4464.2 | 4504.2 | 4508.9 | 4447.0 | 4904.2 | 4365.1 |
| 52.5° | 3874.6 | 3907.0 | 4093.7 | 4333.7 | 4687.1 | 4939.5 | 5102.3 | 5069.9 | 4974.7 | 5317.6 | 4821.3 |
| 55° | 4256.5 | 4281.3 | 4461.3 | 4709.9 | 5106.1 | 5460.4 | 5847.1 | 5833.8 | 5600.5 | 5752.9 | 5196.6 |
| 57.5° | 4292.7 | 4320.4 | 4599.4 | 4980.4 | 5644.3 | 6104.3 | 6511.0 | 6553.9 | 6211.9 | 6061.4 | 5531.9 |
| 60° | 3886.0 | 3942.2 | 4323.2 | 4835.6 | 5850.0 | 6970.1 | 7238.7 | 7247.3 | 6660.5 | 6374.8 | 5941.4 |
| 62.5° | 3114.5 | 3141.2 | 3525.1 | 4193.7 | 5532.8 | 7474.9 | 8350.2 | 8169.2 | 7236.8 | 6859.6 | 6590.1 |
| 65° | 1632.5 | 1741.1 | 2075.4 | 2815.5 | 4487.0 | 7298.7 | 9687.5 | 9637.9 | 8273.1 | 7554.0 | 7094.9 |
| 67.5° | 1120.1 | 1119.1 | 1198.2 | 1467.7 | 2675.5 | 6284.3 | 10343.7 | 10888.5 | 9471.3 | 7792.1 | 6729.1 |
| 70° | 852.5 | 855.3 | 925.8 | 1101.0 | 1385.8 | 4183.2 | 9623.6 | 10555.2 | 9694.1 | 7074.9 | 5442.4 |
| 72.5° | 565.8 | 571.5 | 688.6 | 889.6 | 1106.8 | 2050.6 | 7478.7 | 8445.5 | 8156.9 | 5682.4 | 3830.8 |
| 75° | 338.1 | 342.9 | 426.7 | 646.7 | 983.9 | 1147.7 | 4751.8 | 5838.6 | 5614.7 | 3916.5 | 2053.5 |
| 77.5° | 139.1 | 142.9 | 219.1 | 402.9 | 720.1 | 891.5 | 2627.8 | 3820.3 | 3363.1 | 1557.3 | 561.0 |
| 80° | 58.1 | 60.0 | 105.7 | 281.9 | 519.1 | 559.1 | 1217.2 | 1795.4 | 1378.2 | 335.3 | 171.4 |
| 82.5° | 21.0 | 21.9 | 39.1 | 155.3 | 322.9 | 421.0 | 614.3 | 709.6 | 388.6 | 109.5 | 92.4 |
| 85° | 1.0 | 1.0 | 9.5 | 52.4 | 122.9 | 119.1 | 351.5 | 340.0 | 128.6 | 45.7 | 55.2 |
| 87.5° | 0.0 | 0.0 | 1.0 | 1.0 | 1.9 | 4.8 | 33.3 | 59.1 | 27.6 | 11.4 | 23.8 |
| 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: P633195

CATALOG NUMBER: GWS-SA2E-730-U-SL3-W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 | 3104.1 |
| 2.5° | 3084.1 | 3033.6 | 2978.3 | 2926.9 | 2845.0 | 2796.4 | 2736.4 | 2709.7 | 2671.6 | 2662.1 | 2667.8 |
| 5° | 3021.2 | 2934.5 | 2802.1 | 2682.1 | 2526.9 | 2402.1 | 2276.4 | 2223.0 | 2154.5 | 2108.7 | 2089.7 |
| 7.5° | 2932.6 | 2819.3 | 2612.6 | 2394.5 | 2181.1 | 1953.5 | 1780.1 | 1665.9 | 1562.0 | 1504.9 | 1493.5 |
| 10° | 2843.1 | 2695.5 | 2399.2 | 2086.8 | 1756.3 | 1483.9 | 1249.6 | 1076.3 | 935.3 | 871.5 | 822.0 |
| 12.5° | 2750.7 | 2566.9 | 2182.1 | 1774.4 | 1390.6 | 1019.1 | 729.6 | 561.0 | 460.0 | 420.0 | 426.7 |
| 15° | 2665.9 | 2443.1 | 1966.8 | 1462.0 | 979.1 | 615.3 | 402.9 | 340.0 | 316.2 | 308.6 | 307.6 |
| 17.5° | 2585.0 | 2325.9 | 1752.5 | 1158.2 | 645.8 | 377.2 | 308.6 | 293.4 | 286.7 | 282.9 | 282.9 |
| 20° | 2511.6 | 2213.5 | 1543.0 | 872.5 | 417.2 | 299.1 | 279.1 | 271.5 | 265.7 | 262.9 | 262.9 |
| 22.5° | 2443.1 | 2104.9 | 1338.2 | 617.2 | 307.6 | 268.6 | 256.2 | 248.6 | 241.9 | 238.1 | 238.1 |
| 25° | 2381.1 | 2006.8 | 1143.0 | 424.8 | 264.8 | 245.7 | 232.4 | 223.8 | 212.4 | 205.7 | 205.7 |
| 27.5° | 2336.4 | 1919.2 | 955.3 | 309.5 | 239.1 | 221.0 | 205.7 | 194.3 | 181.9 | 174.3 | 172.4 |
| 30° | 2309.7 | 1844.9 | 765.8 | 254.3 | 215.3 | 197.2 | 180.0 | 165.7 | 151.4 | 143.8 | 142.9 |
| 32.5° | 2294.5 | 1776.3 | 592.4 | 221.9 | 195.3 | 174.3 | 155.3 | 140.0 | 125.7 | 117.2 | 116.2 |
| 35° | 2300.2 | 1723.0 | 443.8 | 200.0 | 176.2 | 154.3 | 133.3 | 118.1 | 105.7 | 98.1 | 96.2 |
| 37.5° | 2349.7 | 1699.2 | 333.4 | 182.9 | 160.0 | 137.2 | 115.2 | 101.0 | 89.5 | 83.8 | 82.9 |
| 40° | 2445.9 | 1703.9 | 261.9 | 169.5 | 146.7 | 120.0 | 99.1 | 85.7 | 77.1 | 72.4 | 71.4 |
| 42.5° | 2595.5 | 1744.0 | 216.2 | 158.1 | 132.4 | 104.8 | 85.7 | 75.2 | 66.7 | 61.9 | 61.0 |
| 45° | 2818.3 | 1826.8 | 188.6 | 144.8 | 117.2 | 90.5 | 74.3 | 64.8 | 57.1 | 51.4 | 50.5 |
| 47.5° | 3141.2 | 1970.6 | 170.5 | 132.4 | 103.8 | 78.1 | 63.8 | 54.3 | 47.6 | 42.9 | 41.9 |
| 50° | 3485.0 | 2143.0 | 155.3 | 120.0 | 92.4 | 67.6 | 54.3 | 44.8 | 39.1 | 34.3 | 33.3 |
| 52.5° | 3851.7 | 2328.8 | 143.8 | 108.6 | 81.9 | 58.1 | 45.7 | 37.1 | 31.4 | 26.7 | 25.7 |
| 55° | 4204.2 | 2515.4 | 130.5 | 101.0 | 69.5 | 49.5 | 38.1 | 30.5 | 24.8 | 21.0 | 21.0 |
| 57.5° | 4547.0 | 2686.9 | 116.2 | 88.6 | 57.1 | 41.9 | 31.4 | 24.8 | 20.0 | 17.1 | 16.2 |
| 60° | 4956.6 | 2924.0 | 100.0 | 75.2 | 47.6 | 35.2 | 25.7 | 20.0 | 16.2 | 13.3 | 13.3 |
| 62.5° | 5565.2 | 3170.7 | 85.7 | 62.9 | 40.0 | 29.5 | 21.0 | 16.2 | 13.3 | 11.4 | 10.5 |
| 65° | 5764.3 | 3037.4 | 72.4 | 51.4 | 32.4 | 23.8 | 17.1 | 14.3 | 11.4 | 10.5 | 9.5 |
| 67.5° | 5232.8 | 2489.7 | 60.0 | 41.9 | 26.7 | 20.0 | 15.2 | 12.4 | 10.5 | 9.5 | 8.6 |
| 70° | 4083.2 | 1766.8 | 46.7 | 31.4 | 21.9 | 16.2 | 13.3 | 11.4 | 9.5 | 8.6 | 8.6 |
| 72.5° | 2777.4 | 1044.8 | 37.1 | 23.8 | 18.1 | 14.3 | 11.4 | 10.5 | 9.5 | 8.6 | 7.6 |
| 75° | 1367.7 | 371.5 | 28.6 | 18.1 | 14.3 | 12.4 | 10.5 | 9.5 | 8.6 | 7.6 | 7.6 |
| 77.5° | 368.6 | 102.9 | 21.9 | 14.3 | 11.4 | 9.5 | 9.5 | 9.5 | 8.6 | 6.7 | 6.7 |
| 80° | 124.8 | 42.9 | 16.2 | 10.5 | 9.5 | 7.6 | 6.7 | 8.6 | 7.6 | 6.7 | 5.7 |
| 82.5° | 68.6 | 21.0 | 11.4 | 8.6 | 6.7 | 5.7 | 5.7 | 5.7 | 5.7 | 4.8 | 4.8 |
| 85° | 43.8 | 11.4 | 7.6 | 6.7 | 6.7 | 4.8 | 3.8 | 3.8 | 2.9 | 2.9 | 2.9 |
| 87.5° | 20.0 | 6.7 | 6.7 | 5.7 | 5.7 | 4.8 | 2.9 | 1.9 | 1.0 | 1.0 | 1.0 |
| 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: SP1-1908-441-2-R4

Test Date: 10/03/2019

Luminaire Tested: SA1C-730-U-5WQ

Data in this report applies to families of products SA1C-730-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-2-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-730-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

| | | | | | |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K): | 2993 | CRI (Ra): | 71.8 | R9: | -38.3 |
| CIE u': | 0.2508 | R1: | 67.5 | R10: | 62.5 |
| CIE v': | 0.5215 | R2: | 82.9 | R11: | 63.7 |
| Duv: | 0.0000 | R3: | 94.7 | R12: | 57.8 |
| CIE x: | 0.4374 | R4: | 67.7 | R13: | 70.4 |
| CIE y: | 0.4043 | R5: | 67.9 | R14: | 97.3 |
| CIE z: | 0.1583 | R6: | 77.6 | | |
| Peak Wavelength (nm): | 593 | R7: | 76.0 | | |
| Dominant Wavelength (nm): | 582 | R8: | 40.5 | | |
| Purity: | 53 | | | | |
| Rf: | 75.7 | | | | |
| Rg: | 93.9 | | | | |



Test Conditions

Stabilization Time: 53M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

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| 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 3000K 4-step quadrangle

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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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8

S/P: 1.23

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 M/P: 0.45

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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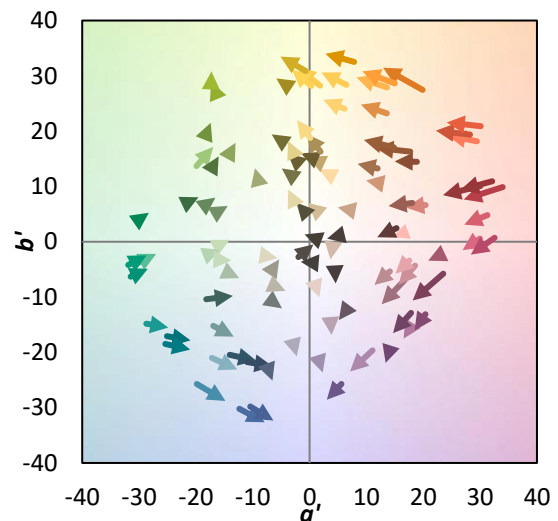
TM-30-18

Summary

$R_f = 75.7$
 $R_g = 93.9$
 CIE $R_a = 71.8$
 $R_9 = -38.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)