

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



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P387000

Luminaire Tested: **GPC-SA2D-727-U-SL2-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P387000
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-21)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GPC-SA2D-727-U-SL2-HSS
Description: GALLEON PEDESTRIAN LUMINAIRE
(2) 70 CRI, 2700K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II
SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11216 lumens
Efficiency: N/A
Efficacy: 86.9 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G2

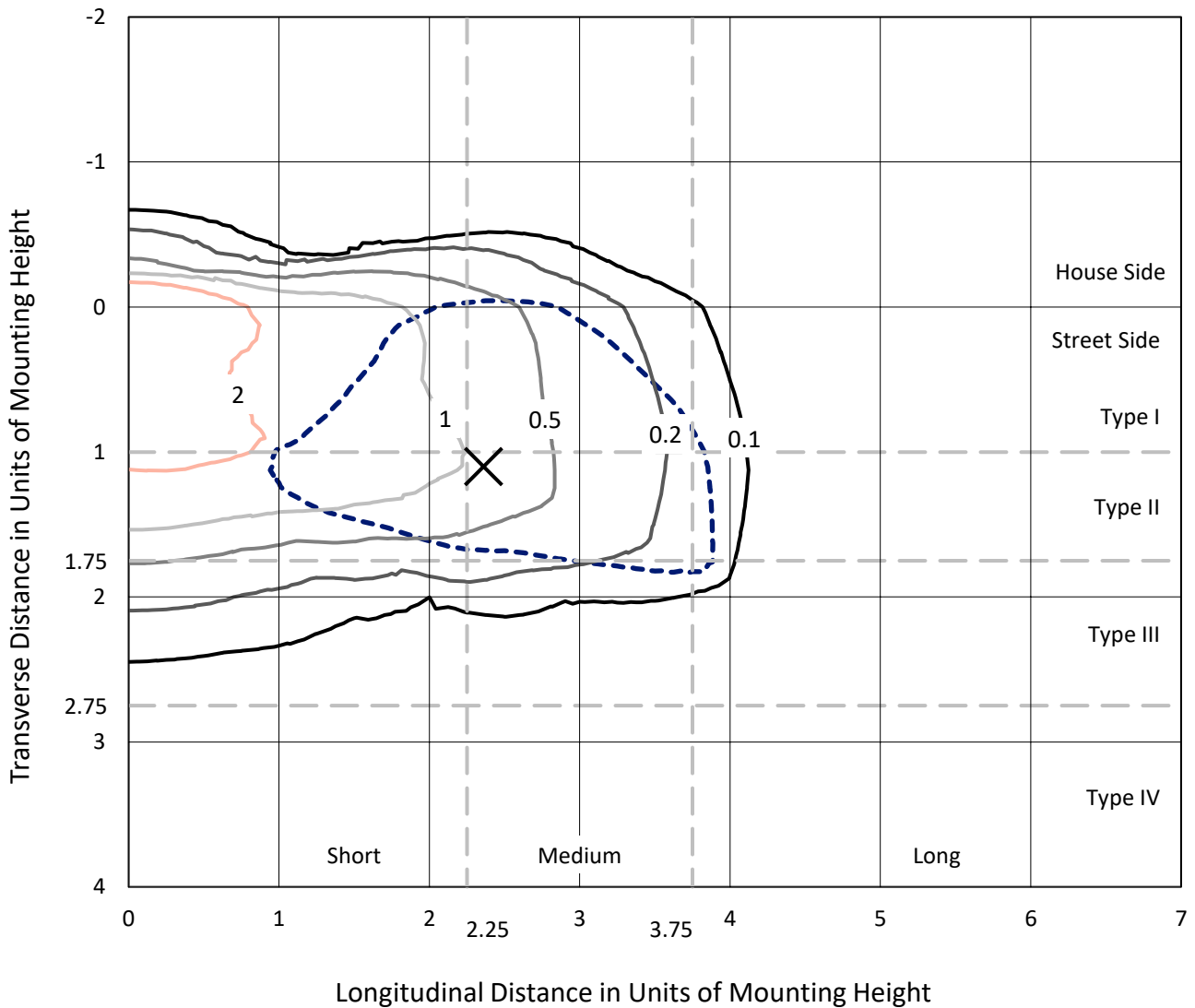
Input Watts (W): 129
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P387000
 CATALOG NUMBER: GPC-SA2D-727-U-SL2-HSS

Iso-Footcandle Lines of Horizontal Illumination

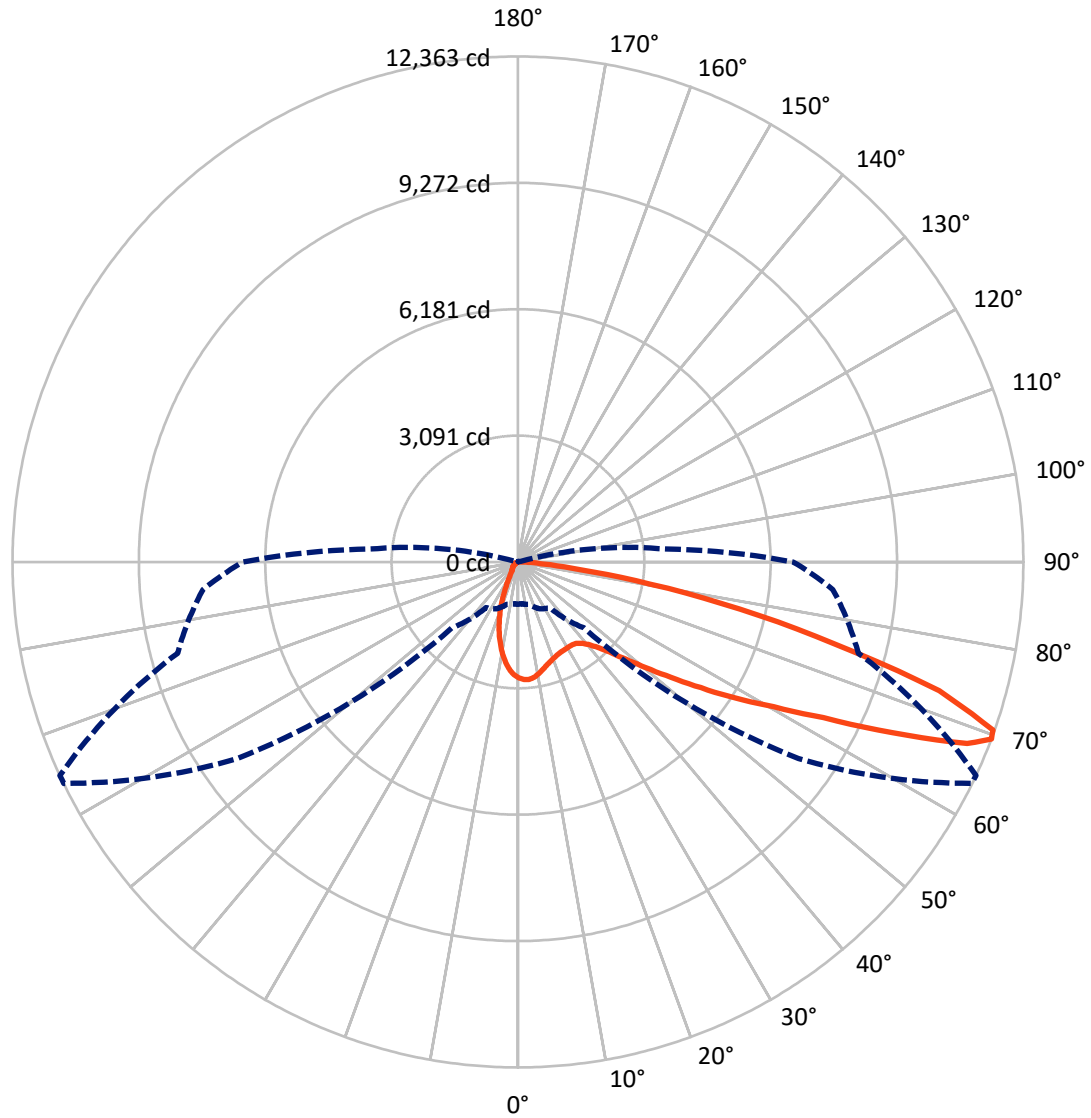
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 4.5 fc
 Type III - Medium - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 65-Deg Lateral - - - Horizontal Cone Through 69-Deg Vertical

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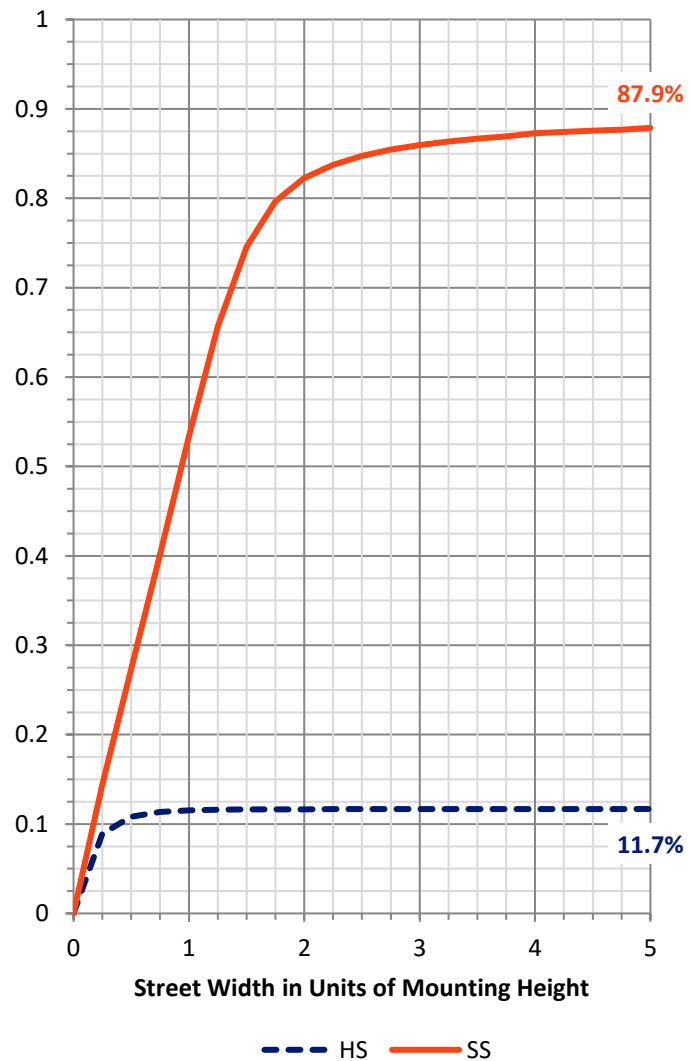
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1322.1 | 0.0 | 1322.1 |
| | % Fixture | 11.8 | 0.0 | 11.8 |
| Street Side | Lumens | 9893.9 | 0.0 | 9893.9 |
| | % Fixture | 88.2 | 0.0 | 88.2 |
| Total | Lumens | 11216.0 | 0.0 | 11216.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 237.0 | 2.1 |
| 10°-20° | 518.8 | 4.6 |
| 20°-30° | 718.6 | 6.4 |
| 30°-40° | 1001.9 | 8.9 |
| 40°-50° | 1557.3 | 13.9 |
| 50°-60° | 2500.1 | 22.3 |
| 60°-70° | 2828.1 | 25.2 |
| 70°-80° | 1660.9 | 14.8 |
| 80°-90° | 193.2 | 1.7 |
| 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° | 11216.0 | 100.0 |
| 0°-180° | 11216.0 | 100.0 |



REPORT NUMBER: P387000

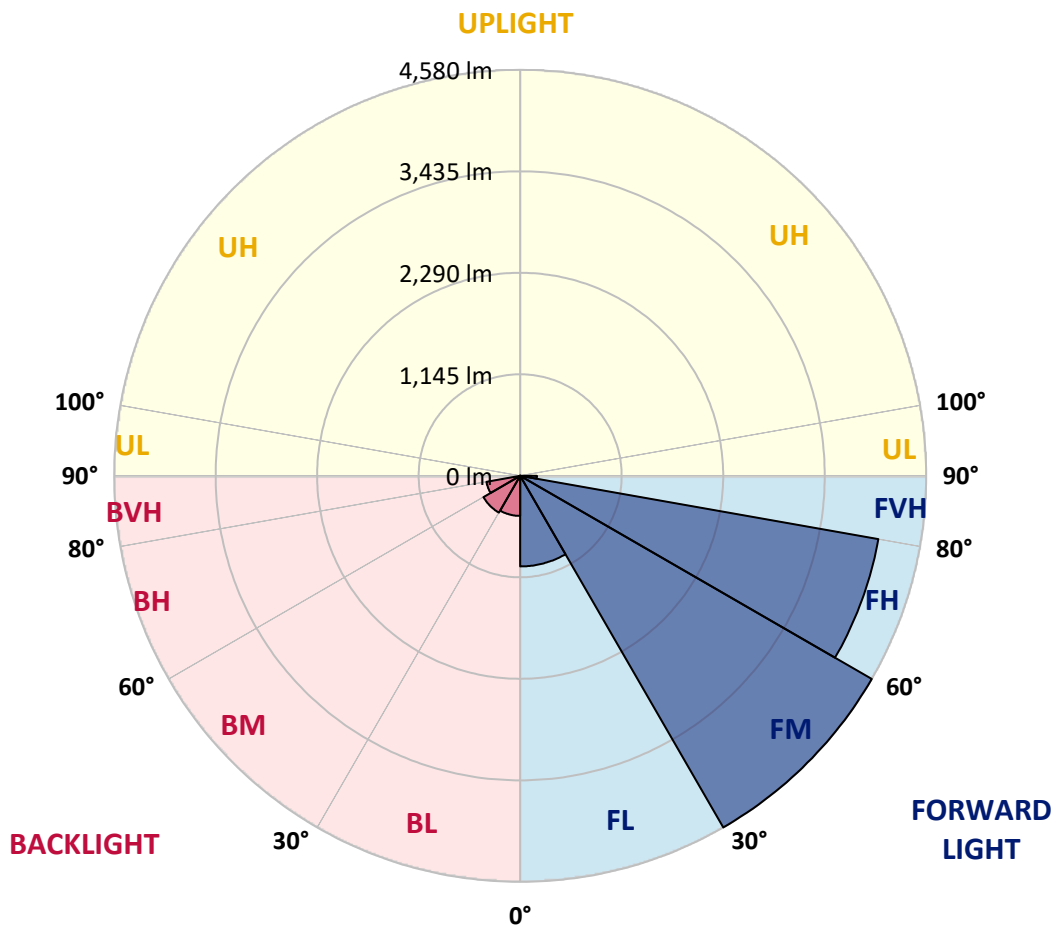
CATALOG NUMBER: GPC-SA2D-727-U-SL2-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1022.0 | 9.1 | | | |
| FM (30°-60°) | 4580.3 | 40.8 | | | |
| FH (60°-80°) | 4102.7 | 36.6 | | | G2/5000 |
| FVH (80°-90°) | 188.9 | 1.7 | | | G2/225 |
| BL (0°-30°) | 452.4 | 4.0 | B1/500 | | |
| BM (30°-60°) | 479.1 | 4.3 | B1/1000 | | |
| BH (60°-80°) | 386.3 | 3.4 | B1/500 | | G1/500 |
| BVH (80°-90°) | 4.3 | 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 Medium





REPORT NUMBER: P387000

CATALOG NUMBER: GPC-SA2D-727-U-SL2-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 64° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|--------|--------|
| 0° | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 |
| 2.5° | 2859.5 | 2852.3 | 2858.0 | 2870.4 | 2876.5 | 2876.5 | 2881.3 | 2875.6 | 2877.5 | 2863.7 | 2843.8 |
| 5° | 2680.5 | 2669.6 | 2685.3 | 2719.9 | 2762.6 | 2799.2 | 2853.3 | 2881.8 | 2884.6 | 2885.1 | 2861.8 |
| 7.5° | 2487.8 | 2477.9 | 2501.1 | 2542.0 | 2597.0 | 2664.9 | 2759.3 | 2841.9 | 2846.6 | 2891.3 | 2874.2 |
| 10° | 2331.2 | 2324.1 | 2351.2 | 2394.8 | 2459.4 | 2535.3 | 2651.1 | 2766.0 | 2779.7 | 2878.4 | 2872.3 |
| 12.5° | 2206.9 | 2201.2 | 2226.8 | 2277.1 | 2343.1 | 2427.1 | 2548.1 | 2681.5 | 2700.0 | 2849.5 | 2862.8 |
| 15° | 2116.2 | 2115.3 | 2136.6 | 2185.1 | 2258.1 | 2336.4 | 2460.3 | 2603.2 | 2624.5 | 2818.2 | 2861.4 |
| 17.5° | 2068.8 | 2070.2 | 2085.9 | 2127.2 | 2189.8 | 2267.6 | 2386.3 | 2537.2 | 2560.5 | 2790.2 | 2868.5 |
| 20° | 2064.0 | 2065.5 | 2074.0 | 2097.3 | 2148.0 | 2216.9 | 2326.0 | 2481.7 | 2505.9 | 2769.3 | 2879.9 |
| 22.5° | 2105.8 | 2104.8 | 2107.2 | 2104.8 | 2133.3 | 2185.5 | 2286.1 | 2439.0 | 2467.0 | 2755.5 | 2888.9 |
| 25° | 2186.0 | 2184.6 | 2183.6 | 2166.1 | 2147.1 | 2175.1 | 2269.5 | 2414.8 | 2441.3 | 2745.6 | 2894.1 |
| 27.5° | 2297.5 | 2296.6 | 2295.2 | 2266.2 | 2209.3 | 2191.7 | 2271.4 | 2405.7 | 2428.0 | 2737.5 | 2893.2 |
| 30° | 2444.2 | 2450.8 | 2448.9 | 2408.6 | 2319.8 | 2242.5 | 2291.4 | 2401.0 | 2420.5 | 2721.8 | 2883.2 |
| 32.5° | 2616.5 | 2629.8 | 2640.2 | 2597.0 | 2485.9 | 2343.1 | 2337.4 | 2406.2 | 2420.5 | 2710.0 | 2865.2 |
| 35° | 2795.4 | 2812.5 | 2850.9 | 2835.7 | 2689.6 | 2494.5 | 2416.7 | 2437.5 | 2449.4 | 2716.6 | 2856.6 |
| 37.5° | 2971.5 | 2991.9 | 3075.4 | 3119.5 | 2956.3 | 2694.8 | 2540.1 | 2514.9 | 2521.1 | 2756.9 | 2866.1 |
| 40° | 3176.0 | 3206.9 | 3333.6 | 3404.8 | 3274.7 | 2962.9 | 2724.7 | 2647.8 | 2650.2 | 2845.7 | 2910.2 |
| 42.5° | 3444.6 | 3476.4 | 3613.6 | 3725.1 | 3633.5 | 3301.8 | 2975.3 | 2850.9 | 2848.5 | 3011.8 | 3014.2 |
| 45° | 3772.1 | 3805.3 | 3947.2 | 4071.1 | 4029.8 | 3703.3 | 3296.1 | 3147.5 | 3144.7 | 3273.8 | 3211.1 |
| 47.5° | 4143.2 | 4176.0 | 4302.7 | 4430.4 | 4475.0 | 4172.2 | 3704.7 | 3552.4 | 3545.7 | 3637.8 | 3515.4 |
| 50° | 4461.7 | 4483.1 | 4599.8 | 4771.6 | 4972.8 | 4748.4 | 4213.0 | 4066.4 | 4059.2 | 4121.4 | 3961.9 |
| 52.5° | 4577.5 | 4589.8 | 4708.5 | 4949.1 | 5451.2 | 5528.6 | 4880.8 | 4691.9 | 4686.7 | 4713.7 | 4556.6 |
| 55° | 4343.1 | 4365.4 | 4511.1 | 4868.0 | 5710.4 | 6410.4 | 5723.7 | 5466.4 | 5427.0 | 5368.7 | 5178.3 |
| 57.5° | 3704.2 | 3739.8 | 3896.5 | 4371.1 | 5589.3 | 7110.0 | 6962.4 | 6342.5 | 6284.6 | 5927.7 | 5683.8 |
| 60° | 2775.5 | 2819.1 | 2949.2 | 3461.2 | 4943.4 | 7359.1 | 8315.9 | 7318.8 | 7188.3 | 6372.9 | 6148.4 |
| 62.5° | 1904.6 | 1926.4 | 2014.7 | 2348.3 | 3640.6 | 6951.0 | 9448.3 | 8626.3 | 8388.1 | 6857.0 | 6651.0 |
| 65° | 1454.6 | 1462.2 | 1498.3 | 1613.2 | 2168.0 | 5646.3 | 9898.7 | 10351.5 | 10063.4 | 7436.0 | 7172.6 |
| 67.5° | 1172.3 | 1166.1 | 1215.9 | 1380.1 | 1451.8 | 3444.6 | 9373.3 | 11983.6 | 11848.8 | 8210.1 | 7697.5 |
| 69° | 1033.7 | 1025.1 | 1075.9 | 1266.7 | 1363.5 | 2277.1 | 8379.5 | 12354.3 | 12362.8 | 8618.7 | 7733.6 |
| 70° | 930.2 | 935.9 | 986.2 | 1199.3 | 1333.6 | 1787.3 | 7430.3 | 12259.8 | 12327.2 | 8771.5 | 7517.2 |
| 72.5° | 621.2 | 636.4 | 737.5 | 995.7 | 1282.4 | 1352.6 | 4486.4 | 10520.4 | 10779.6 | 8427.4 | 6449.3 |
| 75° | 350.3 | 361.6 | 481.7 | 750.8 | 1208.3 | 1288.1 | 2369.7 | 7750.7 | 8001.3 | 7047.3 | 4973.3 |
| 77.5° | 171.8 | 178.0 | 272.4 | 484.6 | 1010.4 | 1227.3 | 1344.1 | 5264.7 | 5550.9 | 4599.8 | 2812.9 |
| 80° | 72.6 | 75.9 | 136.2 | 299.0 | 722.3 | 1171.3 | 998.1 | 3240.1 | 3275.7 | 1802.1 | 749.4 |
| 82.5° | 28.0 | 29.0 | 57.4 | 186.5 | 458.9 | 913.1 | 834.8 | 1536.3 | 1499.3 | 339.3 | 170.9 |
| 85° | 3.3 | 3.8 | 20.9 | 112.0 | 255.3 | 469.9 | 678.2 | 662.1 | 612.7 | 67.4 | 87.8 |
| 87.5° | 0.0 | 0.0 | 1.4 | 34.2 | 75.9 | 220.2 | 352.6 | 274.8 | 247.7 | 21.8 | 45.6 |
| 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: P387000
 CATALOG NUMBER: GPC-SA2D-727-U-SL2-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 | 2834.3 |
| 2.5° | 2827.2 | 2822.4 | 2796.8 | 2759.8 | 2724.7 | 2681.0 | 2639.2 | 2614.1 | 2594.2 | 2580.9 | 2596.5 |
| 5° | 2834.8 | 2813.9 | 2736.1 | 2636.4 | 2538.6 | 2428.5 | 2326.0 | 2239.2 | 2205.0 | 2167.0 | 2184.1 |
| 7.5° | 2832.4 | 2793.0 | 2653.0 | 2475.5 | 2296.1 | 2110.5 | 1934.9 | 1799.7 | 1729.4 | 1660.6 | 1678.2 |
| 10° | 2820.5 | 2754.1 | 2542.0 | 2279.0 | 2010.4 | 1743.7 | 1494.5 | 1305.1 | 1199.3 | 1103.4 | 1117.2 |
| 12.5° | 2794.4 | 2701.9 | 2411.0 | 2054.1 | 1694.8 | 1343.1 | 1051.2 | 808.7 | 678.7 | 621.2 | 628.4 |
| 15° | 2778.8 | 2651.1 | 2272.4 | 1826.3 | 1357.8 | 935.4 | 642.6 | 477.9 | 418.6 | 399.6 | 402.0 |
| 17.5° | 2771.2 | 2602.2 | 2129.0 | 1565.7 | 1013.3 | 595.6 | 415.3 | 366.4 | 353.6 | 350.3 | 351.2 |
| 20° | 2763.6 | 2552.9 | 1981.4 | 1308.0 | 698.1 | 400.6 | 341.2 | 327.0 | 322.3 | 318.0 | 318.9 |
| 22.5° | 2750.8 | 2505.4 | 1822.9 | 1047.0 | 470.8 | 325.1 | 307.5 | 293.8 | 283.8 | 278.6 | 279.5 |
| 25° | 2735.1 | 2455.6 | 1661.1 | 779.8 | 343.6 | 290.0 | 273.4 | 253.9 | 242.0 | 232.6 | 233.0 |
| 27.5° | 2710.0 | 2394.3 | 1494.0 | 567.6 | 288.6 | 259.6 | 237.3 | 215.9 | 196.0 | 185.1 | 185.1 |
| 30° | 2674.8 | 2325.1 | 1308.5 | 406.3 | 258.7 | 229.7 | 202.7 | 176.1 | 154.7 | 144.8 | 143.8 |
| 32.5° | 2635.9 | 2252.9 | 1121.0 | 308.0 | 234.9 | 201.7 | 170.9 | 142.9 | 123.9 | 115.8 | 115.3 |
| 35° | 2602.7 | 2175.1 | 934.0 | 258.2 | 211.2 | 174.7 | 141.0 | 117.2 | 102.0 | 95.4 | 94.9 |
| 37.5° | 2581.3 | 2097.3 | 751.8 | 230.7 | 189.8 | 149.5 | 118.2 | 96.8 | 85.9 | 80.7 | 80.2 |
| 40° | 2578.0 | 2039.4 | 585.2 | 209.8 | 169.9 | 127.2 | 98.7 | 82.1 | 72.1 | 66.4 | 66.0 |
| 42.5° | 2621.2 | 2006.1 | 449.0 | 192.2 | 149.5 | 107.7 | 84.0 | 70.2 | 59.8 | 54.1 | 53.6 |
| 45° | 2734.6 | 2016.6 | 345.5 | 176.6 | 129.1 | 91.1 | 71.2 | 58.4 | 48.9 | 44.6 | 43.7 |
| 47.5° | 2941.6 | 2088.7 | 274.8 | 160.9 | 109.6 | 77.4 | 60.7 | 48.4 | 40.3 | 36.1 | 35.6 |
| 50° | 3309.9 | 2258.1 | 229.7 | 143.8 | 91.6 | 66.0 | 50.3 | 39.4 | 32.7 | 29.0 | 28.5 |
| 52.5° | 3798.7 | 2560.0 | 205.0 | 127.2 | 75.9 | 56.0 | 41.3 | 31.3 | 25.6 | 22.8 | 22.3 |
| 55° | 4337.8 | 2925.4 | 188.9 | 109.2 | 62.2 | 46.5 | 32.7 | 24.7 | 19.9 | 17.6 | 16.6 |
| 57.5° | 4864.2 | 3242.0 | 173.7 | 91.6 | 51.7 | 38.0 | 26.1 | 19.5 | 15.7 | 13.3 | 12.8 |
| 60° | 5347.8 | 3532.9 | 156.1 | 73.6 | 42.2 | 29.9 | 20.4 | 15.2 | 12.3 | 10.0 | 10.0 |
| 62.5° | 5865.6 | 3757.9 | 131.9 | 57.4 | 34.6 | 22.8 | 16.6 | 13.8 | 10.0 | 8.5 | 8.1 |
| 65° | 6414.2 | 3924.9 | 103.5 | 44.6 | 27.1 | 17.1 | 13.8 | 14.2 | 8.1 | 6.2 | 5.7 |
| 67.5° | 6819.5 | 3891.7 | 76.4 | 35.1 | 20.9 | 13.3 | 13.3 | 15.2 | 7.1 | 4.7 | 4.3 |
| 69° | 6730.3 | 3621.7 | 64.1 | 30.4 | 18.0 | 11.4 | 12.3 | 15.2 | 6.6 | 4.3 | 3.8 |
| 70° | 6471.6 | 3322.7 | 56.5 | 27.1 | 16.1 | 10.4 | 11.9 | 14.7 | 6.2 | 4.3 | 3.8 |
| 72.5° | 5389.5 | 2502.6 | 44.1 | 20.4 | 12.8 | 8.5 | 10.0 | 12.8 | 6.2 | 4.3 | 3.3 |
| 75° | 4054.0 | 1601.8 | 33.7 | 14.7 | 9.5 | 6.6 | 7.6 | 9.5 | 6.2 | 3.8 | 3.3 |
| 77.5° | 2205.9 | 577.6 | 24.2 | 10.0 | 6.6 | 5.2 | 5.2 | 7.1 | 5.7 | 2.8 | 1.9 |
| 80° | 567.1 | 145.2 | 15.2 | 6.6 | 5.2 | 3.8 | 3.3 | 4.7 | 3.3 | 0.5 | 0.0 |
| 82.5° | 140.0 | 32.7 | 8.1 | 4.7 | 3.8 | 1.4 | 1.4 | 2.4 | 1.4 | 0.0 | 0.0 |
| 85° | 76.9 | 16.1 | 5.2 | 3.3 | 1.9 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 |
| 87.5° | 39.4 | 4.7 | 1.4 | 0.9 | 0.5 | 0.0 | 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 |

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 |

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

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

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

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 | | | |

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

TM-30-18

Summary

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



Color Vector Graphics



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

TM-30-18

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

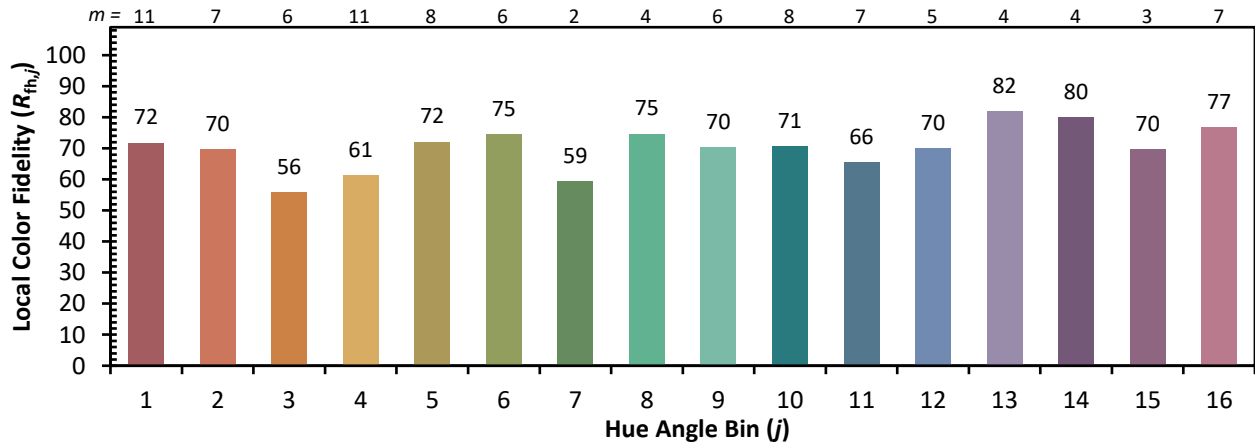
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 54 | CES51 = 77 | CES76 = 48 |
| CES02 = 63 | CES27 = 74 | CES52 = 80 | CES77 = 75 |
| CES03 = 31 | CES28 = 80 | CES53 = 66 | CES78 = 56 |
| CES04 = 71 | CES29 = 44 | CES54 = 77 | CES79 = 81 |
| CES05 = 50 | CES30 = 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 | |



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

TM-30-18

Color Rendition by Hue-Angle Bin



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

TM-30-18

Measure Comparisons



(END OF REPORT)