

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: P636657

Luminaire Tested: GWS-SA4B-730-U-SL2-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P636657
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-27)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4B-730-U-SL2-W
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL LIGHT ELIMINATOR OPTICS
Light Source: (64) 3000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12952.3 lumens
Efficiency: N/A
Efficacy: 137.2 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G2

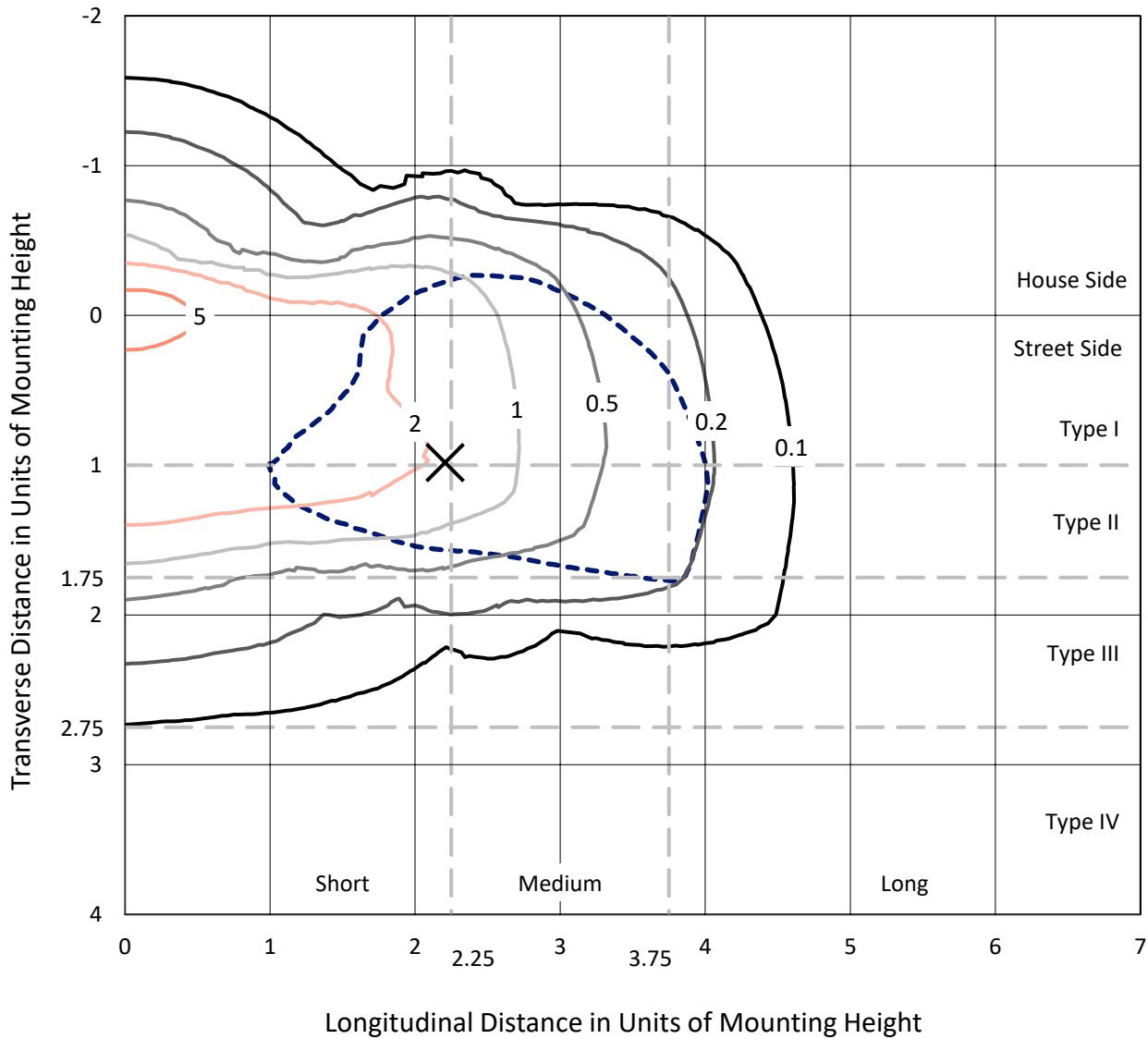
Input Watts (W): 94.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P636657
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Iso-Footcandle Lines of Horizontal Illumination

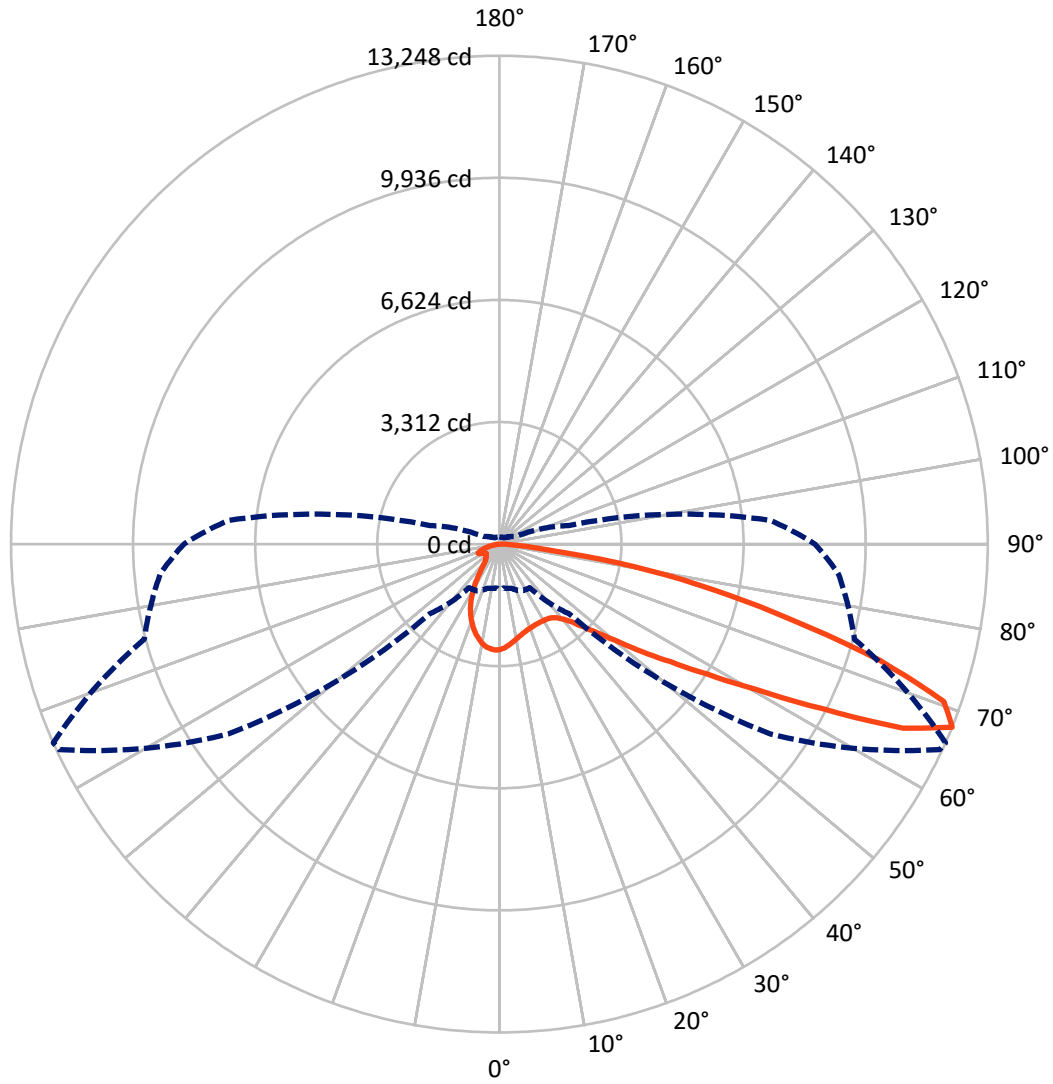
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 7.2 fc
 Type II - Short - N/A

REPORT NUMBER: P636657
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Luminous Intensity Polar Plot



— Vertical Plane Through 66-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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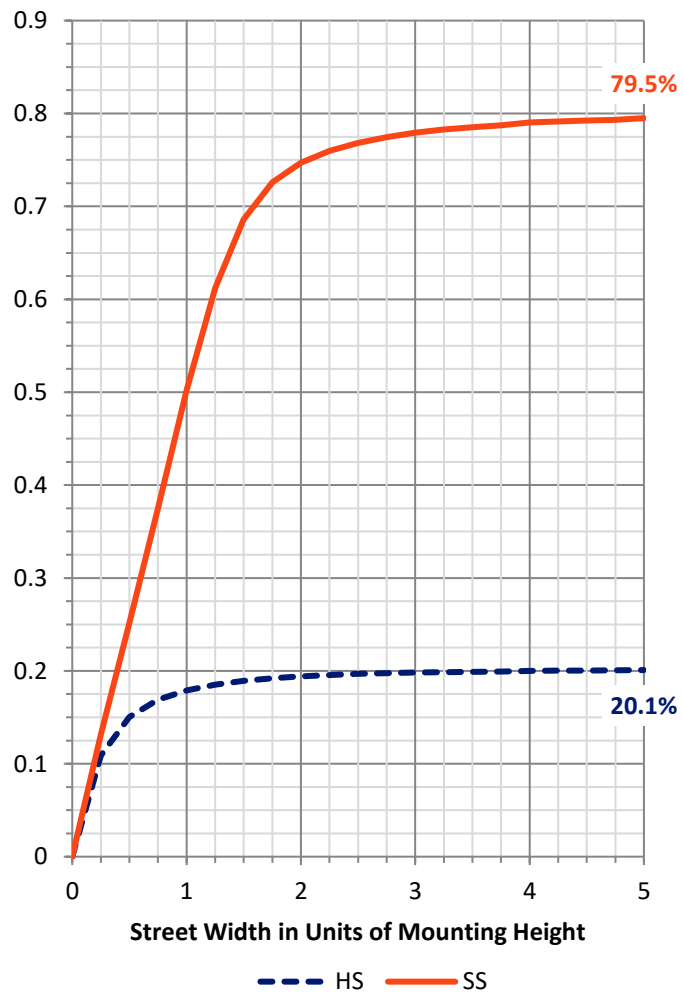
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2628.3 | 0.0 | 2628.3 |
| | % Fixture | 20.3 | 0.0 | 20.3 |
| Street Side | Lumens | 10324.0 | 0.0 | 10324.0 |
| | % Fixture | 79.7 | 0.0 | 79.7 |
| Total | Lumens | 12952.3 | 0.0 | 12952.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 251.2 | 1.9 |
| 10°-20° | 617.3 | 4.8 |
| 20°-30° | 848.5 | 6.6 |
| 30°-40° | 1160.1 | 9.0 |
| 40°-50° | 1757.8 | 13.6 |
| 50°-60° | 2732.6 | 21.1 |
| 60°-70° | 3326.8 | 25.7 |
| 70°-80° | 2026.5 | 15.6 |
| 80°-90° | 231.5 | 1.8 |
| 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° | 12952.3 | 100.0 |
| 0°-180° | 12952.3 | 100.0 |

Coefficient of Utilization



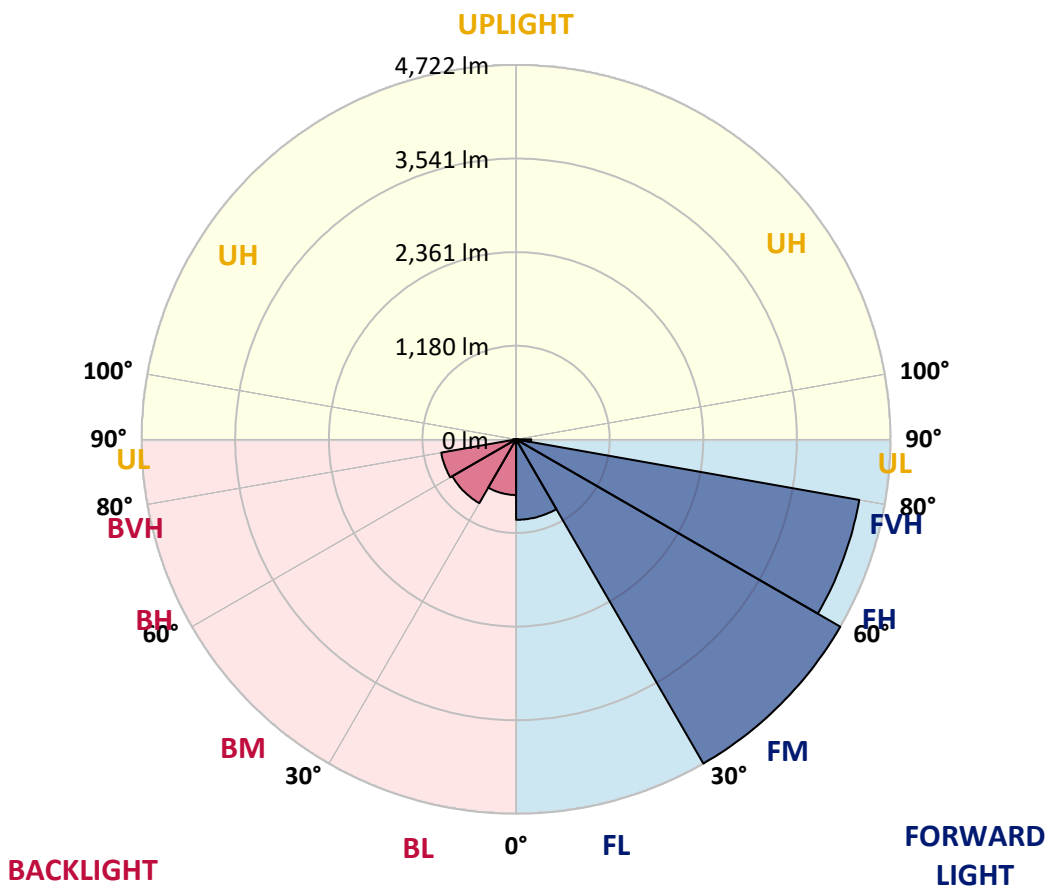
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1014.9 | 7.8 | | | |
| FM (30°-60°) | 4721.6 | 36.5 | | | |
| FH (60°-80°) | 4395.0 | 33.9 | | | G2/5000 |
| FVH (80°-90°) | 192.5 | 1.5 | | | G2/225 |
| BL (0°-30°) | 702.1 | 5.4 | B2/1000 | | |
| BM (30°-60°) | 928.8 | 7.2 | B1/1000 | | |
| BH (60°-80°) | 958.3 | 7.4 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 39.0 | 0.3 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G2
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 66° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|--------|
| 0° | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 |
| 2.5° | 2680.7 | 2690.1 | 2684.5 | 2720.4 | 2722.2 | 2767.6 | 2793.1 | 2814.8 | 2816.7 | 2845.1 | 2864.0 |
| 5° | 2497.4 | 2503.0 | 2503.0 | 2537.0 | 2559.7 | 2620.2 | 2678.8 | 2741.1 | 2745.9 | 2813.9 | 2865.9 |
| 7.5° | 2349.0 | 2354.7 | 2350.9 | 2396.3 | 2425.5 | 2492.6 | 2567.3 | 2662.7 | 2672.2 | 2781.8 | 2872.5 |
| 10° | 2232.8 | 2230.9 | 2240.3 | 2281.9 | 2319.7 | 2400.0 | 2483.2 | 2591.9 | 2606.0 | 2744.9 | 2880.0 |
| 12.5° | 2153.4 | 2155.3 | 2161.0 | 2204.4 | 2245.1 | 2324.4 | 2410.4 | 2528.5 | 2543.7 | 2702.4 | 2876.3 |
| 15° | 2115.6 | 2111.8 | 2116.6 | 2156.3 | 2195.0 | 2264.9 | 2353.7 | 2475.6 | 2490.7 | 2664.6 | 2877.2 |
| 17.5° | 2107.1 | 2104.3 | 2103.3 | 2131.7 | 2161.0 | 2226.2 | 2311.2 | 2435.0 | 2451.1 | 2640.0 | 2882.9 |
| 20° | 2133.6 | 2129.8 | 2119.4 | 2131.7 | 2144.0 | 2198.8 | 2281.0 | 2405.7 | 2423.7 | 2624.0 | 2894.2 |
| 22.5° | 2206.3 | 2199.7 | 2183.7 | 2168.5 | 2152.5 | 2185.5 | 2262.1 | 2384.0 | 2401.9 | 2613.6 | 2905.6 |
| 25° | 2316.9 | 2311.2 | 2294.2 | 2260.2 | 2201.6 | 2195.9 | 2258.3 | 2374.5 | 2392.5 | 2606.0 | 2910.3 |
| 27.5° | 2469.0 | 2460.5 | 2443.5 | 2394.4 | 2298.9 | 2234.7 | 2272.5 | 2373.6 | 2390.6 | 2597.5 | 2905.6 |
| 30° | 2649.5 | 2643.8 | 2634.4 | 2574.8 | 2447.3 | 2316.9 | 2304.6 | 2381.1 | 2394.4 | 2592.8 | 2896.1 |
| 32.5° | 2832.8 | 2827.1 | 2834.7 | 2806.3 | 2649.5 | 2453.0 | 2374.5 | 2401.9 | 2411.4 | 2591.9 | 2887.6 |
| 35° | 2994.4 | 3001.0 | 3055.8 | 3060.5 | 2906.5 | 2637.2 | 2485.1 | 2450.1 | 2452.0 | 2610.7 | 2891.4 |
| 37.5° | 3163.5 | 3189.0 | 3260.8 | 3322.3 | 3193.7 | 2881.0 | 2649.5 | 2540.8 | 2538.9 | 2658.9 | 2915.0 |
| 40° | 3387.5 | 3398.8 | 3490.4 | 3605.7 | 3525.4 | 3215.5 | 2882.9 | 2689.2 | 2675.9 | 2757.2 | 2978.3 |
| 42.5° | 3605.7 | 3633.1 | 3779.6 | 3911.9 | 3885.4 | 3592.5 | 3176.7 | 2911.2 | 2887.6 | 2931.1 | 3108.7 |
| 45° | 3883.5 | 3910.0 | 4074.4 | 4244.5 | 4292.7 | 4018.6 | 3552.8 | 3226.8 | 3203.2 | 3192.8 | 3347.8 |
| 47.5° | 4161.3 | 4188.7 | 4336.1 | 4581.8 | 4750.9 | 4551.6 | 4042.3 | 3643.5 | 3604.8 | 3564.1 | 3708.7 |
| 50° | 4348.4 | 4380.5 | 4521.3 | 4816.1 | 5213.0 | 5216.8 | 4622.4 | 4189.7 | 4140.5 | 4076.3 | 4217.1 |
| 52.5° | 4341.8 | 4362.6 | 4496.8 | 4836.9 | 5545.6 | 5981.2 | 5399.1 | 4885.1 | 4845.4 | 4705.6 | 4828.4 |
| 55° | 4000.7 | 4031.9 | 4167.0 | 4592.2 | 5581.5 | 6705.9 | 6540.6 | 5705.3 | 5634.4 | 5384.0 | 5519.1 |
| 57.5° | 3315.6 | 3342.1 | 3478.2 | 4002.6 | 5263.1 | 7077.3 | 7990.0 | 6750.3 | 6653.0 | 6122.9 | 6278.8 |
| 60° | 2503.0 | 2470.9 | 2535.2 | 2994.4 | 4501.5 | 7086.7 | 9269.4 | 8167.7 | 8005.2 | 6912.9 | 7043.3 |
| 62.5° | 1878.5 | 1846.3 | 1860.5 | 1990.0 | 3052.0 | 6514.1 | 9998.9 | 10106.6 | 9838.3 | 7804.8 | 7779.3 |
| 65° | 1484.4 | 1466.5 | 1507.1 | 1595.9 | 1779.2 | 4960.7 | 10004.6 | 12203.3 | 12034.2 | 8838.6 | 8534.3 |
| 67.5° | 1209.5 | 1198.1 | 1239.7 | 1404.1 | 1442.9 | 2665.6 | 8970.8 | 13182.2 | 13248.4 | 9970.5 | 9234.5 |
| 70° | 974.2 | 957.2 | 1022.4 | 1238.8 | 1341.8 | 1612.9 | 6426.2 | 12683.3 | 12790.1 | 10645.2 | 9037.0 |
| 72.5° | 672.8 | 673.7 | 706.8 | 1003.5 | 1295.5 | 1392.8 | 3635.0 | 10561.1 | 10792.6 | 10033.9 | 7944.7 |
| 75° | 453.6 | 457.3 | 466.8 | 662.4 | 1193.4 | 1351.2 | 1937.0 | 7995.7 | 8159.2 | 8293.4 | 6567.0 |
| 77.5° | 274.0 | 275.9 | 297.6 | 400.6 | 823.0 | 1261.4 | 1312.5 | 5796.0 | 5924.5 | 5467.2 | 4070.6 |
| 80° | 158.7 | 165.4 | 185.2 | 268.4 | 555.6 | 947.7 | 1015.8 | 3553.8 | 3699.3 | 2430.3 | 1293.6 |
| 82.5° | 69.9 | 74.6 | 101.1 | 155.9 | 324.1 | 806.0 | 792.8 | 1404.1 | 1383.3 | 677.5 | 448.8 |
| 85° | 12.3 | 15.1 | 21.7 | 49.1 | 119.1 | 425.2 | 615.1 | 619.9 | 583.0 | 257.0 | 186.1 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 92.6 | 166.3 | 165.4 | 72.8 | 64.3 |
| 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: P636657
 CATALOG NUMBER: GWS-SA4B-730-U-SL2-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 | 2862.1 |
| 2.5° | 2876.3 | 2850.8 | 2873.4 | 2876.3 | 2871.5 | 2867.8 | 2839.4 | 2814.8 | 2812.0 | 2785.6 | 2785.6 |
| 5° | 2886.7 | 2863.0 | 2874.4 | 2852.6 | 2818.6 | 2783.7 | 2723.2 | 2681.6 | 2662.7 | 2628.7 | 2628.7 |
| 7.5° | 2900.8 | 2876.3 | 2863.0 | 2809.2 | 2729.8 | 2653.3 | 2555.9 | 2474.7 | 2441.6 | 2393.4 | 2391.5 |
| 10° | 2914.1 | 2882.9 | 2837.5 | 2732.6 | 2606.0 | 2484.1 | 2342.4 | 2227.1 | 2148.7 | 2091.1 | 2091.1 |
| 12.5° | 2913.1 | 2872.5 | 2782.7 | 2627.8 | 2453.0 | 2276.3 | 2087.3 | 1913.4 | 1809.5 | 1719.7 | 1714.0 |
| 15° | 2911.2 | 2855.5 | 2712.8 | 2505.9 | 2274.4 | 2029.6 | 1772.6 | 1545.9 | 1391.8 | 1304.0 | 1296.4 |
| 17.5° | 2909.3 | 2833.7 | 2634.4 | 2367.0 | 2057.0 | 1723.5 | 1384.3 | 1138.6 | 1010.1 | 956.2 | 958.1 |
| 20° | 2909.3 | 2809.2 | 2550.3 | 2207.3 | 1806.6 | 1356.9 | 1015.8 | 837.2 | 805.1 | 807.9 | 810.7 |
| 22.5° | 2900.8 | 2778.9 | 2456.7 | 2033.4 | 1527.9 | 997.8 | 749.3 | 688.8 | 705.8 | 732.3 | 736.1 |
| 25° | 2881.0 | 2728.9 | 2348.1 | 1840.7 | 1196.2 | 726.6 | 611.3 | 600.0 | 631.2 | 664.3 | 673.7 |
| 27.5° | 2849.8 | 2671.2 | 2226.2 | 1614.8 | 880.6 | 583.9 | 537.6 | 536.7 | 561.3 | 585.8 | 594.3 |
| 30° | 2816.7 | 2607.0 | 2097.7 | 1363.5 | 637.8 | 508.4 | 490.4 | 490.4 | 502.7 | 517.8 | 515.9 |
| 32.5° | 2778.0 | 2541.8 | 1959.7 | 1101.7 | 519.7 | 465.8 | 460.2 | 457.3 | 459.2 | 464.9 | 464.9 |
| 35° | 2744.9 | 2484.1 | 1818.0 | 824.9 | 465.8 | 442.2 | 436.5 | 429.9 | 427.1 | 423.3 | 425.2 |
| 37.5° | 2732.6 | 2438.8 | 1671.5 | 621.7 | 439.4 | 425.2 | 415.8 | 406.3 | 399.7 | 397.8 | 396.9 |
| 40° | 2752.5 | 2419.9 | 1525.1 | 512.1 | 420.5 | 407.3 | 396.9 | 384.6 | 378.9 | 378.9 | 378.9 |
| 42.5° | 2830.0 | 2434.1 | 1375.8 | 463.0 | 407.3 | 392.1 | 377.0 | 365.7 | 363.8 | 365.7 | 366.6 |
| 45° | 2971.7 | 2488.9 | 1220.8 | 438.4 | 395.9 | 377.0 | 359.1 | 350.6 | 350.6 | 352.4 | 352.4 |
| 47.5° | 3224.9 | 2632.5 | 1067.7 | 423.3 | 384.6 | 364.7 | 345.8 | 337.3 | 336.4 | 338.3 | 338.3 |
| 50° | 3663.4 | 2891.4 | 929.8 | 412.9 | 376.1 | 355.3 | 336.4 | 325.0 | 322.2 | 321.3 | 321.3 |
| 52.5° | 4216.1 | 3340.2 | 841.9 | 405.4 | 365.7 | 344.9 | 326.0 | 310.9 | 305.2 | 302.4 | 302.4 |
| 55° | 4884.2 | 3938.3 | 841.9 | 399.7 | 352.4 | 332.6 | 310.9 | 295.8 | 287.2 | 283.5 | 283.5 |
| 57.5° | 5641.0 | 4634.7 | 987.4 | 395.0 | 342.1 | 318.4 | 294.8 | 279.7 | 270.2 | 264.6 | 264.6 |
| 60° | 6411.1 | 5370.8 | 1347.4 | 388.4 | 332.6 | 300.5 | 276.9 | 262.7 | 250.4 | 243.8 | 242.8 |
| 62.5° | 7209.6 | 6181.5 | 1821.8 | 392.1 | 326.0 | 283.5 | 258.0 | 241.9 | 231.5 | 224.9 | 223.9 |
| 65° | 7940.9 | 6953.5 | 2236.6 | 421.4 | 326.9 | 268.4 | 236.2 | 222.1 | 213.5 | 205.0 | 204.1 |
| 67.5° | 8561.7 | 7379.6 | 1945.5 | 481.0 | 346.8 | 250.4 | 214.5 | 200.3 | 192.8 | 187.1 | 186.1 |
| 70° | 8127.1 | 6729.6 | 1103.6 | 517.8 | 374.2 | 231.5 | 189.9 | 180.5 | 172.9 | 169.1 | 168.2 |
| 72.5° | 6949.7 | 5697.7 | 738.0 | 457.3 | 341.1 | 206.9 | 167.2 | 159.7 | 154.0 | 149.3 | 148.3 |
| 75° | 5629.7 | 4518.5 | 564.1 | 375.1 | 265.5 | 168.2 | 143.6 | 138.0 | 132.3 | 127.6 | 126.6 |
| 77.5° | 3330.8 | 2610.7 | 415.8 | 296.7 | 187.1 | 131.3 | 119.1 | 114.3 | 108.7 | 104.9 | 103.9 |
| 80° | 1063.0 | 907.1 | 263.6 | 204.1 | 123.8 | 101.1 | 91.7 | 87.9 | 82.2 | 77.5 | 76.5 |
| 82.5° | 405.4 | 350.6 | 139.8 | 103.9 | 82.2 | 69.0 | 61.4 | 57.6 | 53.9 | 49.1 | 48.2 |
| 85° | 179.5 | 168.2 | 77.5 | 55.7 | 44.4 | 34.0 | 30.2 | 28.3 | 23.6 | 19.8 | 18.9 |
| 87.5° | 63.3 | 63.3 | 33.1 | 16.1 | 9.4 | 4.7 | 2.8 | 0.9 | 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: SP1-1908-441-2-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

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