

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: P323427

Luminaire Tested: **GLEON-SA3A-727-U-SL3-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P323427
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-23)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA3A-727-U-SL3-HSS
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(3) 70 CRI, 2700K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III
SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10165 lumens
Efficiency: N/A
Efficacy: 105.9 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G2

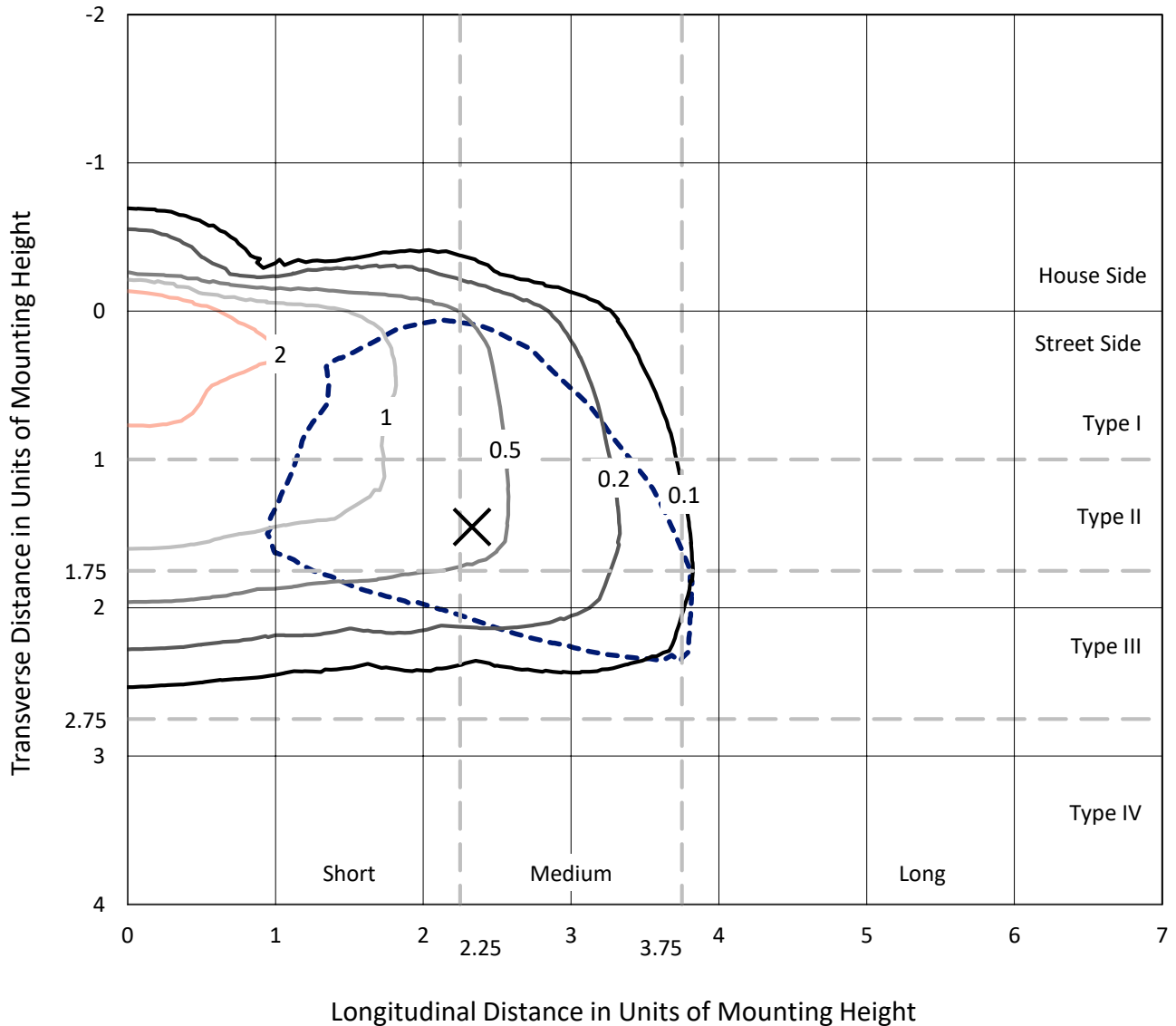
Input Watts (W): 96
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P323427
 CATALOG NUMBER: GLEON-SA3A-727-U-SL3-HSS

Iso-Footcandle Lines of Horizontal Illumination

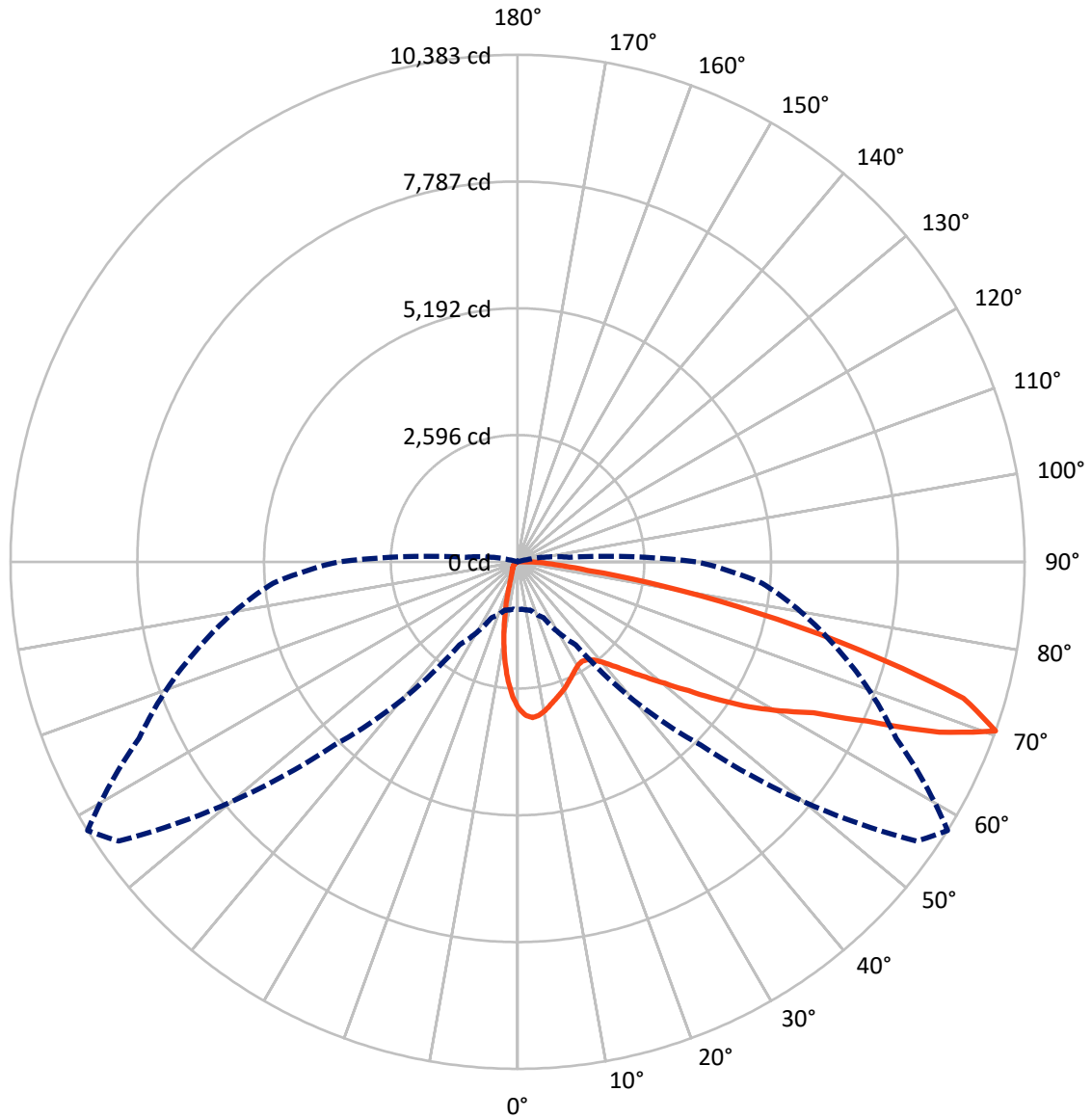
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 4.9 fc
 Type III - Medium - N/A

REPORT NUMBER: P323427
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Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 869.9 | 0.0 | 869.9 |
| | % Fixture | 8.6 | 0.0 | 8.6 |
| Street Side | Lumens | 9295.1 | 0.0 | 9295.1 |
| | % Fixture | 91.4 | 0.0 | 91.4 |
| Total | Lumens | 10165.0 | 0.0 | 10165.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 245.5 | 2.4 |
| 10°-20° | 515.3 | 5.1 |
| 20°-30° | 677.5 | 6.7 |
| 30°-40° | 897.3 | 8.8 |
| 40°-50° | 1341.1 | 13.2 |
| 50°-60° | 2148.4 | 21.1 |
| 60°-70° | 2708.1 | 26.6 |
| 70°-80° | 1460.7 | 14.4 |
| 80°-90° | 171.0 | 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° | 10165.0 | 100.0 |
| 0°-180° | 10165.0 | 100.0 |

Coefficient of Utilization

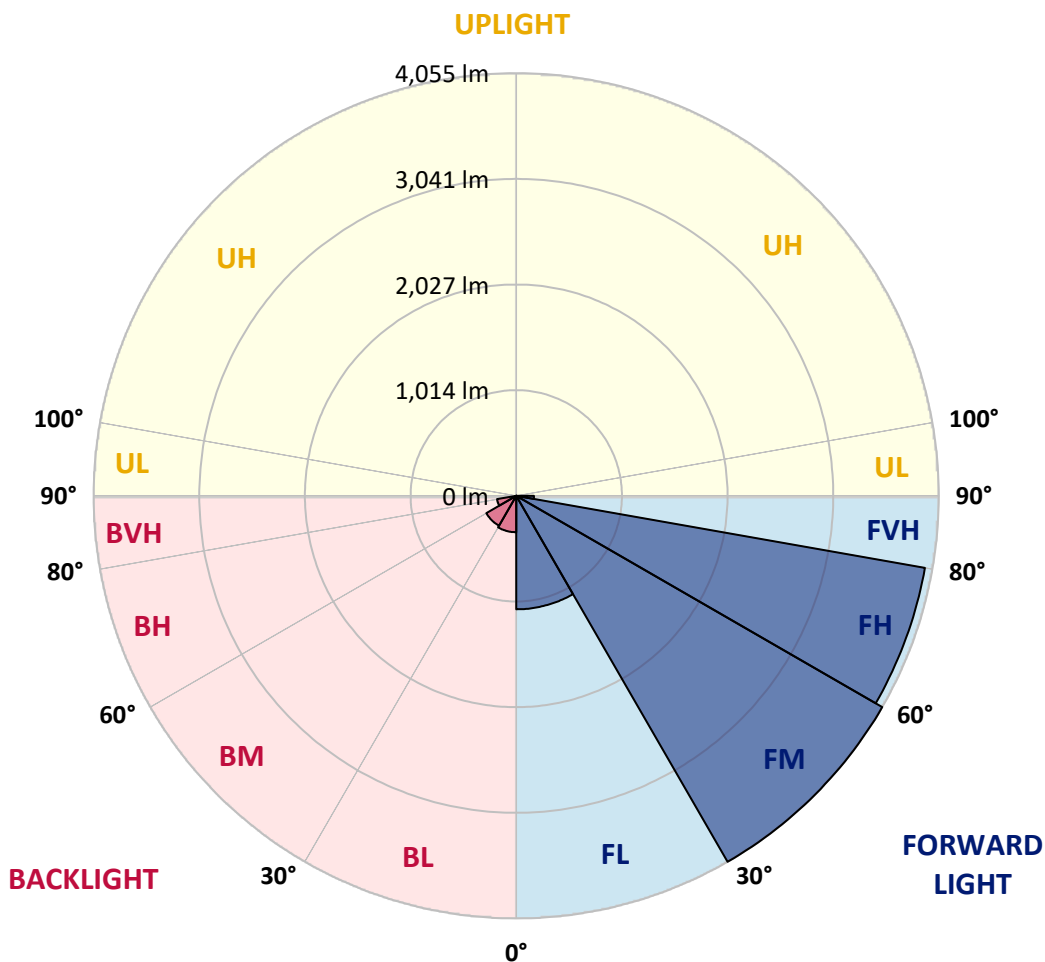


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1088.9 | 10.7 | | | |
| FM (30°-60°) | 4055.0 | 39.9 | | | |
| FH (60°-80°) | 3981.7 | 39.2 | | | G2/5000 |
| FVH (80°-90°) | 169.5 | 1.7 | | | G2/225 |
| BL (0°-30°) | 349.5 | 3.4 | B1/500 | | |
| BM (30°-60°) | 331.9 | 3.3 | B1/1000 | | |
| BH (60°-80°) | 187.1 | 1.8 | B1/500 | | G1/500 |
| BVH (80°-90°) | 1.5 | 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





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CATALOG NUMBER: GLEON-SA3A-727-U-SL3-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|
| 0° | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 |
| 2.5° | 3251.6 | 3243.6 | 3240.7 | 3235.6 | 3216.1 | 3197.1 | 3159.5 | 3148.9 | 3125.3 | 3069.1 | 3009.5 |
| 5° | 3254.2 | 3253.8 | 3262.6 | 3260.5 | 3253.8 | 3244.9 | 3217.8 | 3203.9 | 3163.7 | 3083.4 | 2974.4 |
| 7.5° | 3097.4 | 3105.4 | 3125.3 | 3141.3 | 3159.9 | 3184.0 | 3187.4 | 3173.9 | 3140.9 | 3054.3 | 2909.7 |
| 10° | 2886.9 | 2899.6 | 2927.5 | 2959.2 | 3007.8 | 3056.0 | 3099.1 | 3097.4 | 3086.0 | 3000.6 | 2831.9 |
| 12.5° | 2676.0 | 2690.8 | 2722.9 | 2769.8 | 2838.7 | 2917.3 | 2994.2 | 3004.8 | 3023.8 | 2952.4 | 2760.1 |
| 15° | 2491.3 | 2503.9 | 2535.6 | 2593.1 | 2678.5 | 2784.2 | 2897.0 | 2916.5 | 2965.5 | 2914.8 | 2700.1 |
| 17.5° | 2334.4 | 2342.5 | 2365.7 | 2429.5 | 2528.5 | 2656.5 | 2803.2 | 2841.2 | 2914.4 | 2885.2 | 2648.1 |
| 20° | 2225.0 | 2226.2 | 2241.5 | 2286.3 | 2385.2 | 2528.5 | 2706.0 | 2760.5 | 2860.3 | 2859.8 | 2594.4 |
| 22.5° | 2170.9 | 2166.6 | 2169.6 | 2195.4 | 2268.1 | 2406.3 | 2608.8 | 2673.4 | 2811.6 | 2838.3 | 2539.9 |
| 25° | 2160.7 | 2157.3 | 2148.9 | 2152.3 | 2196.2 | 2299.4 | 2510.7 | 2585.5 | 2769.0 | 2825.2 | 2492.5 |
| 27.5° | 2192.4 | 2195.8 | 2181.4 | 2166.2 | 2169.6 | 2230.0 | 2423.6 | 2510.3 | 2734.3 | 2825.2 | 2459.1 |
| 30° | 2256.2 | 2257.9 | 2247.4 | 2227.5 | 2200.9 | 2210.6 | 2363.2 | 2449.8 | 2717.0 | 2844.6 | 2438.0 |
| 32.5° | 2326.8 | 2336.1 | 2334.9 | 2318.8 | 2280.8 | 2241.5 | 2348.8 | 2427.9 | 2715.7 | 2887.7 | 2435.9 |
| 35° | 2414.3 | 2424.9 | 2442.6 | 2439.3 | 2399.5 | 2334.9 | 2397.8 | 2460.0 | 2740.6 | 2958.7 | 2458.7 |
| 37.5° | 2507.3 | 2523.4 | 2561.4 | 2579.6 | 2553.8 | 2480.7 | 2507.7 | 2552.1 | 2807.4 | 3073.7 | 2516.6 |
| 40° | 2597.3 | 2615.5 | 2684.8 | 2756.3 | 2736.8 | 2661.6 | 2674.3 | 2709.8 | 2926.2 | 3239.0 | 2626.5 |
| 42.5° | 2685.7 | 2712.7 | 2814.6 | 2932.1 | 2955.4 | 2895.3 | 2902.1 | 2930.4 | 3102.4 | 3466.4 | 2806.1 |
| 45° | 2791.4 | 2821.8 | 2972.7 | 3117.7 | 3179.8 | 3153.6 | 3182.3 | 3200.9 | 3332.8 | 3766.9 | 3048.3 |
| 47.5° | 2946.5 | 2981.6 | 3166.7 | 3332.0 | 3441.0 | 3457.9 | 3515.8 | 3528.1 | 3624.0 | 4116.9 | 3364.1 |
| 50° | 3249.1 | 3258.8 | 3426.2 | 3576.3 | 3733.5 | 3834.9 | 3900.9 | 3910.2 | 3976.5 | 4499.4 | 3758.4 |
| 52.5° | 3629.9 | 3636.3 | 3731.0 | 3831.6 | 4010.4 | 4217.5 | 4371.7 | 4384.8 | 4398.8 | 4872.2 | 4147.7 |
| 55° | 4008.2 | 4007.4 | 4070.0 | 4129.1 | 4333.7 | 4634.6 | 4969.4 | 4977.4 | 4877.3 | 5226.0 | 4445.3 |
| 57.5° | 4244.5 | 4267.3 | 4362.4 | 4438.5 | 4724.3 | 5110.2 | 5574.7 | 5604.3 | 5379.8 | 5488.0 | 4739.5 |
| 60° | 4169.3 | 4180.3 | 4391.2 | 4672.7 | 5210.8 | 5786.0 | 6187.1 | 6194.7 | 5757.7 | 5749.7 | 5111.4 |
| 62.5° | 3552.2 | 3558.1 | 3889.5 | 4469.8 | 5457.2 | 6662.6 | 6926.0 | 6802.1 | 6192.2 | 6112.7 | 5556.5 |
| 65° | 2434.6 | 2473.1 | 2749.9 | 3467.2 | 5004.5 | 7212.5 | 8069.7 | 7864.7 | 6854.5 | 6636.0 | 5958.9 |
| 67.5° | 1433.7 | 1425.7 | 1562.6 | 2091.0 | 3675.6 | 6847.4 | 9516.6 | 9312.8 | 7757.8 | 6986.4 | 5841.0 |
| 70° | 979.3 | 973.8 | 1026.3 | 1265.9 | 2074.9 | 5311.8 | 9971.8 | 10383.0 | 8555.4 | 6750.6 | 5026.9 |
| 72.5° | 699.1 | 702.1 | 779.4 | 983.6 | 1302.7 | 3094.8 | 8575.3 | 9548.7 | 8305.6 | 5884.9 | 3821.0 |
| 75° | 474.7 | 482.7 | 593.4 | 806.9 | 1142.1 | 1574.5 | 6085.3 | 7258.6 | 6763.2 | 4277.1 | 2196.2 |
| 77.5° | 255.3 | 264.2 | 394.8 | 650.1 | 1032.6 | 1093.9 | 3914.4 | 4995.6 | 4248.3 | 1922.8 | 636.6 |
| 80° | 106.5 | 111.6 | 184.7 | 472.6 | 892.3 | 960.7 | 2303.2 | 3029.3 | 1810.3 | 379.1 | 142.0 |
| 82.5° | 46.1 | 48.6 | 76.9 | 281.9 | 667.0 | 811.1 | 1219.4 | 1457.4 | 548.6 | 83.3 | 71.4 |
| 85° | 8.9 | 9.3 | 31.7 | 149.2 | 425.6 | 457.8 | 790.4 | 774.8 | 246.4 | 35.9 | 52.0 |
| 87.5° | 0.0 | 0.0 | 7.6 | 46.9 | 125.1 | 249.4 | 482.3 | 476.4 | 83.7 | 17.3 | 19.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P323427

CATALOG NUMBER: GLEON-SA3A-727-U-SL3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 | 3002.7 |
| 2.5° | 2979.0 | 2949.9 | 2888.6 | 2812.9 | 2755.0 | 2691.2 | 2640.5 | 2576.2 | 2548.3 | 2549.6 | 2534.4 |
| 5° | 2912.2 | 2852.2 | 2716.5 | 2545.4 | 2413.5 | 2277.4 | 2160.3 | 2043.6 | 1974.7 | 1952.3 | 1931.2 |
| 7.5° | 2816.7 | 2721.6 | 2505.2 | 2241.5 | 2018.3 | 1800.2 | 1610.4 | 1443.4 | 1337.8 | 1286.2 | 1267.2 |
| 10° | 2708.9 | 2575.4 | 2262.2 | 1914.7 | 1596.0 | 1301.0 | 1055.0 | 841.1 | 755.7 | 697.8 | 683.0 |
| 12.5° | 2614.3 | 2433.3 | 2024.6 | 1579.5 | 1201.2 | 845.4 | 610.8 | 477.6 | 419.7 | 396.9 | 393.1 |
| 15° | 2525.1 | 2300.6 | 1796.0 | 1276.1 | 831.8 | 520.3 | 388.4 | 343.2 | 329.7 | 325.9 | 325.9 |
| 17.5° | 2441.0 | 2174.2 | 1572.4 | 977.2 | 550.3 | 364.8 | 321.7 | 311.5 | 307.3 | 306.9 | 307.3 |
| 20° | 2353.0 | 2047.9 | 1352.6 | 716.0 | 384.2 | 309.0 | 297.1 | 291.6 | 290.4 | 290.4 | 290.4 |
| 22.5° | 2268.9 | 1921.5 | 1138.7 | 511.4 | 308.1 | 281.9 | 276.0 | 272.2 | 270.9 | 270.5 | 269.7 |
| 25° | 2188.2 | 1801.4 | 929.9 | 361.4 | 270.5 | 258.3 | 253.2 | 248.1 | 244.3 | 242.2 | 240.9 |
| 27.5° | 2121.8 | 1694.5 | 735.5 | 290.0 | 244.3 | 233.7 | 227.4 | 219.8 | 210.5 | 206.3 | 204.6 |
| 30° | 2069.0 | 1596.9 | 566.8 | 244.7 | 219.8 | 209.2 | 199.5 | 186.4 | 172.9 | 165.7 | 165.3 |
| 32.5° | 2027.6 | 1500.9 | 430.3 | 216.4 | 197.8 | 184.7 | 170.8 | 154.3 | 138.6 | 130.6 | 130.2 |
| 35° | 2007.3 | 1416.4 | 328.8 | 195.7 | 178.4 | 161.9 | 144.6 | 126.4 | 111.2 | 103.6 | 102.7 |
| 37.5° | 2020.8 | 1345.0 | 256.6 | 178.4 | 161.9 | 142.9 | 122.6 | 103.6 | 90.0 | 83.3 | 82.8 |
| 40° | 2070.3 | 1299.3 | 208.4 | 163.6 | 147.9 | 124.7 | 102.7 | 85.0 | 73.5 | 68.1 | 67.6 |
| 42.5° | 2175.5 | 1282.4 | 177.9 | 151.3 | 134.4 | 107.8 | 85.4 | 70.2 | 59.6 | 55.8 | 54.9 |
| 45° | 2351.3 | 1307.3 | 157.2 | 139.5 | 120.5 | 91.7 | 70.6 | 57.5 | 48.2 | 45.2 | 44.8 |
| 47.5° | 2585.5 | 1372.9 | 142.4 | 128.1 | 107.8 | 77.3 | 58.8 | 46.5 | 39.3 | 36.4 | 35.9 |
| 50° | 2887.3 | 1476.8 | 130.2 | 116.7 | 95.9 | 65.5 | 48.6 | 36.8 | 30.4 | 28.3 | 28.3 |
| 52.5° | 3215.7 | 1600.7 | 119.2 | 106.1 | 84.1 | 54.5 | 39.3 | 28.3 | 24.1 | 21.6 | 21.6 |
| 55° | 3487.1 | 1708.9 | 107.4 | 98.1 | 69.7 | 45.2 | 30.0 | 21.6 | 17.8 | 16.5 | 16.5 |
| 57.5° | 3758.0 | 1824.3 | 93.8 | 84.1 | 55.8 | 36.8 | 22.8 | 16.1 | 13.1 | 12.3 | 12.3 |
| 60° | 4109.3 | 1965.4 | 80.7 | 68.5 | 44.0 | 27.9 | 16.9 | 11.4 | 9.7 | 9.3 | 9.3 |
| 62.5° | 4495.6 | 2048.3 | 68.9 | 54.9 | 34.2 | 20.7 | 12.3 | 7.6 | 7.2 | 7.2 | 6.8 |
| 65° | 4731.9 | 1931.2 | 57.9 | 44.0 | 26.6 | 15.6 | 8.0 | 5.5 | 6.3 | 5.9 | 5.1 |
| 67.5° | 4430.5 | 1511.9 | 47.3 | 34.2 | 20.7 | 11.8 | 5.1 | 3.8 | 6.8 | 5.5 | 4.2 |
| 70° | 3668.4 | 1058.4 | 36.8 | 24.1 | 16.5 | 10.1 | 3.4 | 2.5 | 7.2 | 5.5 | 3.4 |
| 72.5° | 2745.3 | 708.4 | 29.2 | 16.1 | 12.3 | 8.9 | 3.0 | 1.3 | 6.3 | 4.6 | 3.0 |
| 75° | 1500.1 | 285.3 | 23.2 | 10.1 | 7.6 | 6.3 | 2.1 | 0.8 | 4.2 | 3.4 | 2.1 |
| 77.5° | 394.8 | 75.2 | 16.9 | 6.8 | 4.2 | 2.5 | 1.3 | 0.4 | 2.1 | 1.7 | 0.8 |
| 80° | 100.6 | 29.2 | 11.0 | 4.6 | 3.0 | 1.3 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 |
| 82.5° | 53.7 | 12.3 | 6.8 | 3.4 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 40.6 | 8.0 | 3.8 | 2.1 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 15.6 | 2.5 | 1.3 | 0.0 | 0.0 | 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 |

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
 Rf: 69.9
 Rg: 98.3

| | | | |
|-----------|------|------|-------|
| 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 | | |



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

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 | | | |

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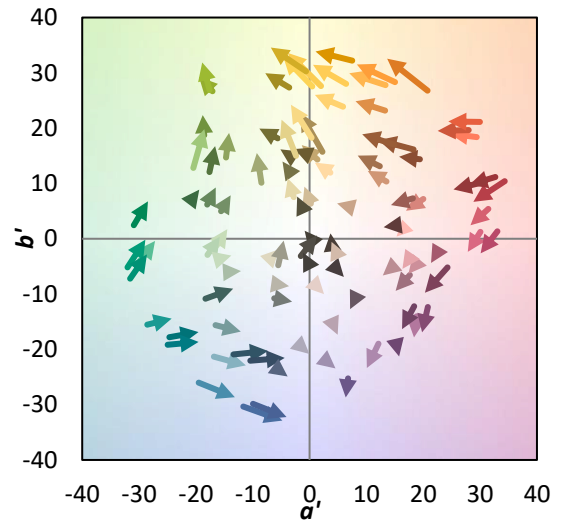
TM-30-18

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)