

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: P633794

Luminaire Tested: GWS-SA2F-740-U-SL2-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P633794
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-28)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA2F-740-U-SL2-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL LIGHT ELIMINATOR OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (32) 4000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9525.7 lumens
Efficiency: N/A
Efficacy: 76.5 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G1

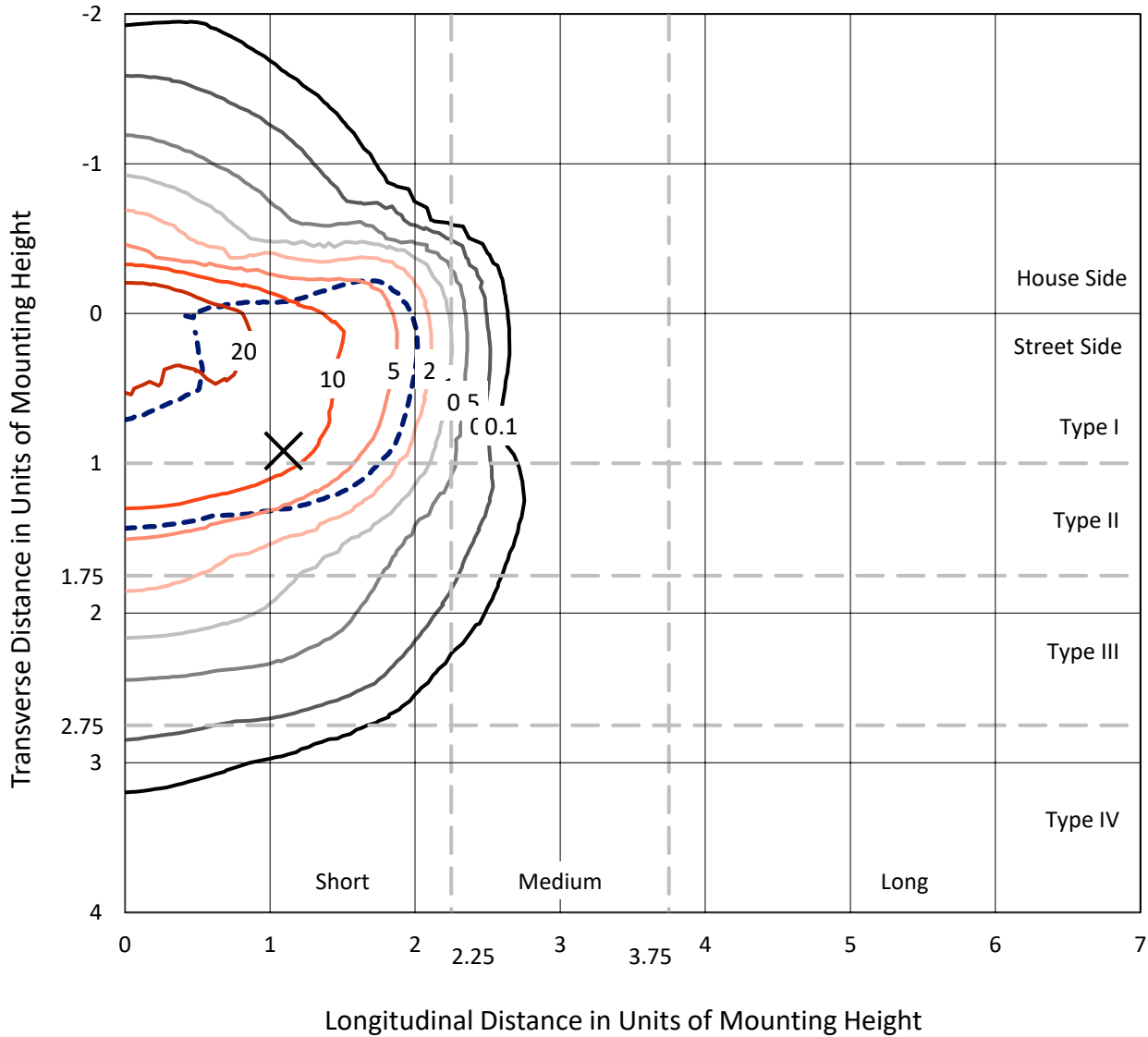
Input Watts (W): 124.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P633794
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Iso-Footcandle Lines of Horizontal Illumination

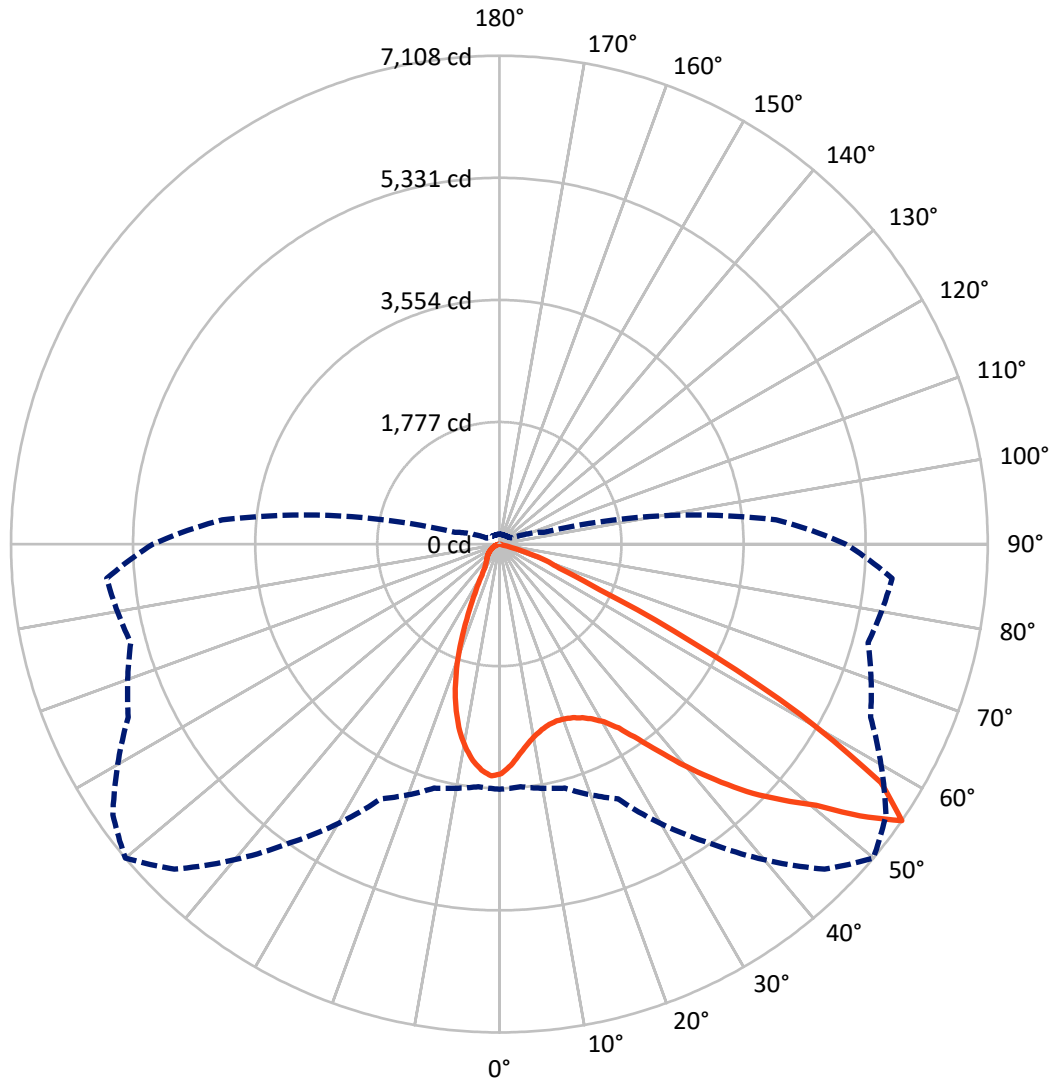
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 33.4 fc
 Type II - Short - N/A

REPORT NUMBER: P633794
CATALOG NUMBER: GWS-SA2F-740-U-SL2-W-GRSBK

Luminous Intensity Polar Plot



— Vertical Plane Through 50-Deg Lateral - - - Horizontal Cone Through 55-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1877.0 | 0.0 | 1877.0 |
| | % Fixture | 19.7 | 0.0 | 19.7 |
| Street Side | Lumens | 7648.7 | 0.0 | 7648.7 |
| | % Fixture | 80.3 | 0.0 | 80.3 |
| Total | Lumens | 9525.7 | 0.0 | 9525.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 293.5 | 3.1 |
| 10°-20° | 722.3 | 7.6 |
| 20°-30° | 1018.8 | 10.7 |
| 30°-40° | 1507.6 | 15.8 |
| 40°-50° | 2175.0 | 22.8 |
| 50°-60° | 2565.6 | 26.9 |
| 60°-70° | 1144.5 | 12.0 |
| 70°-80° | 98.4 | 1.0 |
| 80°-90° | 0.0 | 0.0 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 9525.7 | 100.0 |
| 0°-180° | 9525.7 | 100.0 |

Coefficient of Utilization



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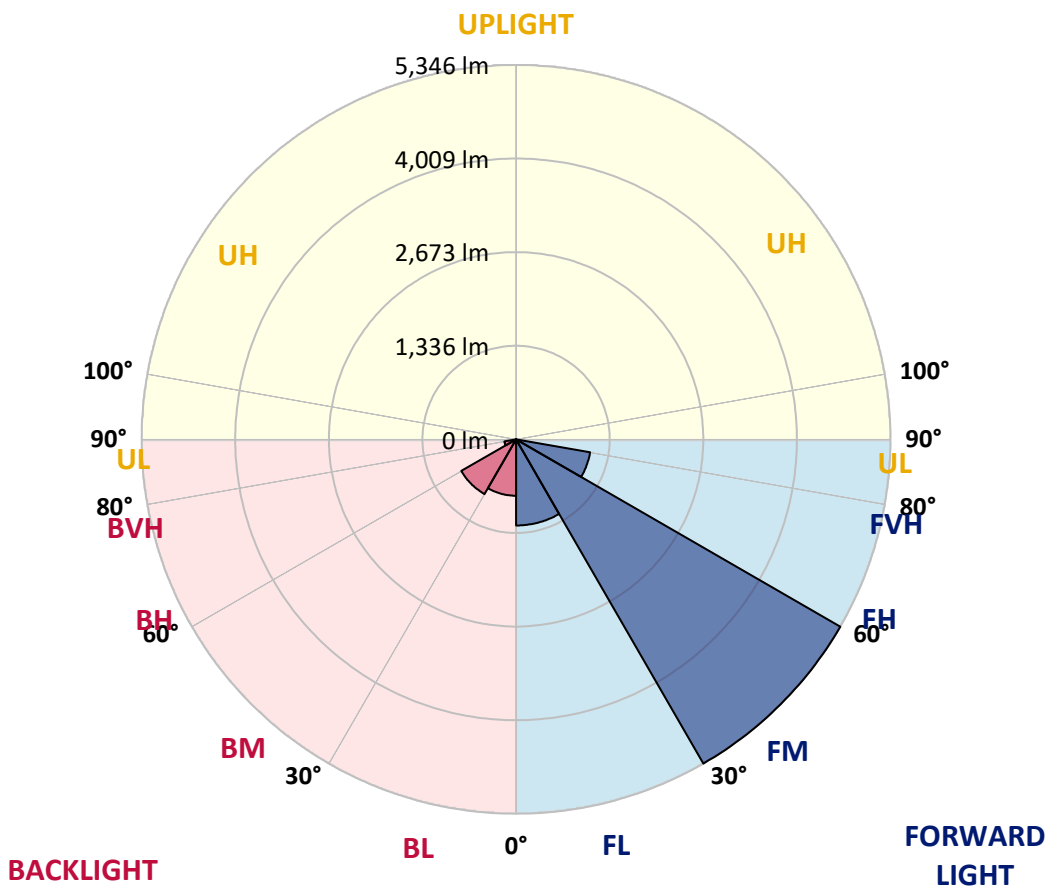
CATALOG NUMBER: GWS-SA2F-740-U-SL2-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1229.8 | 12.9 | | | |
| FM (30°-60°) | 5345.5 | 56.1 | | | |
| FH (60°-80°) | 1073.4 | 11.3 | | | G1/1800 |
| FVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| BL (0°-30°) | 804.8 | 8.4 | B2/1000 | | |
| BM (30°-60°) | 902.7 | 9.5 | B1/1000 | | |
| BH (60°-80°) | 169.5 | 1.8 | B1/500 | | G1/500 |
| BVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G1

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 50° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 |
| 2.5° | 3104.9 | 3107.2 | 3108.4 | 3139.8 | 3151.4 | 3197.9 | 3222.4 | 3235.2 | 3268.9 | 3308.4 | 3341.0 |
| 5° | 2896.8 | 2893.3 | 2899.1 | 2938.6 | 2964.2 | 3032.8 | 3070.0 | 3095.6 | 3170.0 | 3263.1 | 3341.0 |
| 7.5° | 2715.3 | 2722.3 | 2729.3 | 2772.3 | 2810.7 | 2885.1 | 2938.6 | 2977.0 | 3080.5 | 3218.9 | 3350.3 |
| 10° | 2587.4 | 2587.4 | 2597.9 | 2646.7 | 2692.1 | 2784.0 | 2837.5 | 2886.3 | 3009.6 | 3179.3 | 3360.8 |
| 12.5° | 2493.2 | 2494.4 | 2507.2 | 2563.0 | 2615.3 | 2710.7 | 2766.5 | 2814.2 | 2950.3 | 3139.8 | 3363.1 |
| 15° | 2449.0 | 2445.6 | 2456.0 | 2515.3 | 2573.5 | 2663.0 | 2721.2 | 2767.7 | 2908.4 | 3117.7 | 3374.7 |
| 17.5° | 2437.4 | 2435.1 | 2443.2 | 2501.4 | 2560.7 | 2647.9 | 2704.9 | 2751.4 | 2902.6 | 3124.7 | 3409.6 |
| 20° | 2471.1 | 2466.5 | 2463.0 | 2513.0 | 2568.8 | 2654.9 | 2714.2 | 2766.5 | 2930.5 | 3163.1 | 3463.1 |
| 22.5° | 2551.4 | 2551.4 | 2543.2 | 2567.7 | 2604.9 | 2682.8 | 2744.4 | 2813.0 | 3003.7 | 3239.8 | 3542.2 |
| 25° | 2699.1 | 2687.4 | 2672.3 | 2682.8 | 2678.1 | 2727.0 | 2800.2 | 2895.6 | 3142.1 | 3366.6 | 3638.7 |
| 27.5° | 2867.7 | 2878.2 | 2852.6 | 2853.7 | 2813.0 | 2795.6 | 2880.5 | 3024.7 | 3348.0 | 3545.7 | 3781.7 |
| 30° | 3096.8 | 3088.6 | 3089.8 | 3086.3 | 2992.1 | 2909.6 | 3001.4 | 3193.3 | 3607.3 | 3818.9 | 3967.8 |
| 32.5° | 3275.9 | 3287.5 | 3325.9 | 3348.0 | 3224.7 | 3092.1 | 3189.8 | 3422.4 | 3902.7 | 4130.6 | 4195.7 |
| 35° | 3465.4 | 3486.3 | 3564.3 | 3636.4 | 3532.9 | 3380.5 | 3485.2 | 3725.9 | 4180.6 | 4438.8 | 4457.4 |
| 37.5° | 3665.4 | 3707.3 | 3800.3 | 3927.1 | 3910.8 | 3775.9 | 3871.3 | 4082.9 | 4399.2 | 4624.8 | 4673.7 |
| 40° | 3894.5 | 3935.2 | 4087.6 | 4270.1 | 4308.5 | 4278.3 | 4309.7 | 4432.9 | 4543.4 | 4633.0 | 4766.7 |
| 42.5° | 4145.7 | 4201.5 | 4394.6 | 4638.8 | 4783.0 | 4809.7 | 4736.5 | 4723.7 | 4606.2 | 4539.9 | 4746.9 |
| 45° | 4442.2 | 4507.4 | 4726.0 | 5042.3 | 5271.4 | 5307.4 | 5180.7 | 5016.7 | 4645.7 | 4471.3 | 4687.6 |
| 47.5° | 4774.8 | 4836.5 | 5053.9 | 5434.2 | 5774.9 | 5788.9 | 5567.9 | 5303.9 | 4763.2 | 4550.4 | 4733.0 |
| 50° | 4886.5 | 4924.8 | 5113.2 | 5559.8 | 6187.7 | 6294.7 | 5974.9 | 5627.2 | 4999.3 | 4783.0 | 4953.9 |
| 52.5° | 4502.7 | 4517.8 | 4681.8 | 5133.0 | 6104.0 | 6791.3 | 6569.2 | 6109.8 | 5419.1 | 5137.6 | 5294.6 |
| 55° | 3567.7 | 3543.3 | 3675.9 | 4089.9 | 5305.1 | 6690.1 | 7107.6 | 6868.0 | 5959.8 | 5554.0 | 5737.7 |
| 57.5° | 2495.6 | 2466.5 | 2436.3 | 2716.5 | 3958.5 | 5671.4 | 6549.4 | 6973.8 | 6475.0 | 5966.8 | 6215.6 |
| 60° | 2051.3 | 2023.4 | 1876.9 | 1747.8 | 2393.2 | 4072.4 | 5030.7 | 5829.6 | 6433.1 | 5945.9 | 6200.5 |
| 62.5° | 1772.2 | 1756.0 | 1696.7 | 1521.1 | 1408.3 | 2324.6 | 3150.3 | 3915.4 | 4936.5 | 4669.0 | 4683.0 |
| 65° | 1392.0 | 1387.3 | 1428.0 | 1446.6 | 1245.5 | 1286.2 | 1607.1 | 2035.1 | 2668.8 | 2516.5 | 2386.2 |
| 67.5° | 951.2 | 940.8 | 1017.5 | 1251.3 | 1197.8 | 1015.2 | 940.8 | 948.9 | 1154.7 | 705.9 | 560.5 |
| 70° | 604.7 | 580.3 | 581.4 | 775.6 | 974.5 | 801.2 | 725.6 | 638.4 | 574.5 | 104.7 | 118.6 |
| 72.5° | 387.2 | 372.1 | 319.8 | 350.0 | 451.2 | 390.7 | 394.2 | 339.6 | 226.8 | 55.8 | 65.1 |
| 75° | 162.8 | 150.0 | 115.1 | 91.9 | 90.7 | 57.0 | 50.0 | 46.5 | 31.4 | 31.4 | 33.7 |
| 77.5° | 1.2 | 0.0 | 0.0 | 1.2 | 2.3 | 1.2 | 1.2 | 2.3 | 4.7 | 7.0 | 8.1 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 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 |



REPORT NUMBER: P633794
 CATALOG NUMBER: GWS-SA2F-740-U-SL2-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 | 3342.1 |
| 2.5° | 3360.8 | 3332.8 | 3364.2 | 3375.9 | 3374.7 | 3375.9 | 3342.1 | 3318.9 | 3317.7 | 3288.7 | 3274.7 |
| 5° | 3373.5 | 3351.4 | 3374.7 | 3359.6 | 3323.5 | 3278.2 | 3217.7 | 3165.4 | 3142.1 | 3108.4 | 3092.1 |
| 7.5° | 3398.0 | 3374.7 | 3371.2 | 3310.7 | 3221.2 | 3125.8 | 3018.9 | 2923.5 | 2872.3 | 2810.7 | 2814.2 |
| 10° | 3415.4 | 3388.7 | 3343.3 | 3220.0 | 3071.2 | 2918.9 | 2759.5 | 2617.7 | 2528.1 | 2445.6 | 2431.6 |
| 12.5° | 3422.4 | 3382.8 | 3277.0 | 3091.0 | 2881.6 | 2682.8 | 2449.0 | 2246.7 | 2107.2 | 1999.0 | 1983.9 |
| 15° | 3435.2 | 3371.2 | 3192.1 | 2935.1 | 2647.9 | 2366.5 | 2068.8 | 1792.0 | 1607.1 | 1482.7 | 1493.2 |
| 17.5° | 3454.9 | 3358.4 | 3096.8 | 2760.7 | 2396.7 | 1999.0 | 1596.6 | 1279.2 | 1109.4 | 1037.3 | 1038.5 |
| 20° | 3482.9 | 3343.3 | 2992.1 | 2568.8 | 2095.5 | 1583.9 | 1116.4 | 876.8 | 829.1 | 826.8 | 823.3 |
| 22.5° | 3520.1 | 3328.2 | 2880.5 | 2358.3 | 1738.5 | 1109.4 | 743.1 | 668.7 | 688.4 | 726.8 | 733.8 |
| 25° | 3564.3 | 3309.6 | 2756.0 | 2121.1 | 1349.0 | 728.0 | 557.0 | 545.4 | 593.1 | 644.2 | 655.9 |
| 27.5° | 3632.9 | 3300.3 | 2614.2 | 1851.3 | 946.6 | 522.1 | 455.9 | 462.8 | 505.9 | 548.9 | 559.3 |
| 30° | 3749.2 | 3317.7 | 2459.5 | 1549.0 | 608.2 | 416.3 | 395.4 | 405.8 | 429.1 | 451.2 | 460.5 |
| 32.5° | 3907.3 | 3368.9 | 2309.5 | 1218.7 | 433.8 | 361.7 | 357.0 | 362.8 | 372.1 | 384.9 | 388.4 |
| 35° | 4092.2 | 3457.3 | 2154.8 | 872.2 | 358.2 | 330.3 | 325.6 | 325.6 | 330.3 | 332.6 | 333.7 |
| 37.5° | 4244.5 | 3550.3 | 2009.5 | 580.3 | 321.0 | 305.8 | 298.9 | 295.4 | 294.2 | 296.5 | 297.7 |
| 40° | 4310.8 | 3588.7 | 1851.3 | 422.1 | 294.2 | 283.7 | 273.3 | 262.8 | 262.8 | 271.0 | 272.1 |
| 42.5° | 4264.3 | 3545.7 | 1668.7 | 348.9 | 275.6 | 260.5 | 244.2 | 234.9 | 239.6 | 247.7 | 250.0 |
| 45° | 4165.5 | 3439.8 | 1467.6 | 308.2 | 257.0 | 237.2 | 218.6 | 212.8 | 217.5 | 227.9 | 230.3 |
| 47.5° | 4149.2 | 3370.1 | 1226.8 | 281.4 | 237.2 | 217.5 | 197.7 | 191.9 | 197.7 | 205.8 | 208.2 |
| 50° | 4310.8 | 3430.5 | 959.4 | 258.2 | 218.6 | 196.5 | 180.2 | 174.4 | 177.9 | 182.6 | 184.9 |
| 52.5° | 4606.2 | 3655.0 | 774.5 | 236.1 | 196.5 | 175.6 | 165.1 | 158.2 | 158.2 | 162.8 | 164.0 |
| 55° | 5042.3 | 4046.9 | 668.7 | 210.5 | 170.9 | 159.3 | 150.0 | 143.0 | 143.0 | 145.4 | 146.5 |
| 57.5° | 5544.7 | 4521.3 | 693.1 | 176.8 | 150.0 | 144.2 | 136.1 | 130.2 | 132.6 | 132.6 | 132.6 |
| 60° | 5474.9 | 4486.4 | 741.9 | 148.8 | 132.6 | 130.2 | 123.3 | 120.9 | 126.8 | 122.1 | 119.8 |
| 62.5° | 4032.9 | 3099.1 | 388.4 | 122.1 | 114.0 | 111.6 | 107.0 | 111.6 | 119.8 | 107.0 | 102.3 |
| 65° | 1958.3 | 1500.1 | 155.8 | 100.0 | 96.5 | 94.2 | 91.9 | 98.8 | 103.5 | 83.7 | 79.1 |
| 67.5° | 460.5 | 374.5 | 101.2 | 84.9 | 80.2 | 75.6 | 77.9 | 79.1 | 75.6 | 57.0 | 54.7 |
| 70° | 119.8 | 117.5 | 79.1 | 70.9 | 64.0 | 59.3 | 59.3 | 58.1 | 50.0 | 36.0 | 33.7 |
| 72.5° | 65.1 | 64.0 | 57.0 | 53.5 | 44.2 | 39.5 | 40.7 | 36.0 | 27.9 | 20.9 | 19.8 |
| 75° | 32.6 | 34.9 | 32.6 | 30.2 | 24.4 | 22.1 | 22.1 | 19.8 | 14.0 | 8.1 | 8.1 |
| 77.5° | 7.0 | 8.1 | 8.1 | 7.0 | 5.8 | 4.7 | 4.7 | 5.8 | 2.3 | 0.0 | 0.0 |
| 80° | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 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 |

LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW, INVUE, LUMARK AND STREETWORKS

DATA VALID FOR LUMINAIRES UTILIZING SA LIGHT ENGINES

Report Number: SP1-2101-121-2

Luminaire Tested: IFLD-S-SA2A-740-U-T3R-HSS

Test Date: 03/05/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2101-121-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 03/05/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: STREETWORKS
 Catalog Number: **IFLD-S-SA2A-740-U-T3R-HSS**
 Description: STREETWORKS INF FLOOD

SHIELD, DRIVER PROGRAMMED @ 615mA.

Spectral Parameters

| | | | | | |
|---------------------------|---------|-----------|------|------|-------|
| CCT (K): | 3905 | CRI (Ra): | 71.2 | R9: | -29.7 |
| CIE u': | 0.2273 | R1: | 68.9 | R10: | 46.2 |
| CIE v': | 0.5024 | R2: | 77.0 | R11: | 68.8 |
| Duv: | -0.0008 | R3: | 84.0 | R12: | 45.6 |
| CIE x: | 0.3841 | R4: | 71.6 | R13: | 69.5 |
| CIE y: | 0.3774 | R5: | 68.9 | R14: | 90.7 |
| CIE z: | 0.2385 | R6: | 68.3 | | |
| Peak Wavelength (nm): | 443 | R7: | 78.7 | | |
| Dominant Wavelength (nm): | 579 | R8: | 52.2 | | |
| Purity: | 28.7 | | | | |
| Rf: | 71.7 | | | | |
| Rg: | 96.9 | | | | |



Test Conditions

Stabilization Time: 211M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.8/312%
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2101-121-2

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 1/31/2021 | 7/31/2021 |
| Power Meter | IN0071 | 12/1/2020 | 12/1/2021 |
| AC Power Source | IN0063 | 12/1/2020 | 12/1/2021 |
| DC Power Source | IN0208 | 12/1/2020 | 12/1/2021 |
| Sphere Thermometer | IN0085 | 12/1/2020 | 12/1/2021 |
| Room Thermometer | IN0046 | 12/1/2020 | 12/1/2021 |

REPORT NUMBER: SP1-2101-121-2

CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2101-121-2

Photopic Flux vs. Wavelength



#####

| 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 | 2304 | 0.0 | 490 | 19043 | 2.7 | 620 | 97577 | 25.4 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 4.8 | 625 | 90158 | 19.9 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 8.0 | 630 | 82240 | 14.9 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 13.3 | 635 | 74361 | 11.2 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 20.2 | 640 | 66994 | 8.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 28.5 | 645 | 60405 | 5.8 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 37.4 | 650 | 53806 | 3.9 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 44.9 | 655 | 47610 | 2.7 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 52.6 | 660 | 42018 | 1.8 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 58.4 | 665 | 36742 | 1.2 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.0 | 540 | 96845 | 63.1 | 670 | 32105 | 0.7 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.0 | 545 | 100829 | 67.1 | 675 | 27946 | 0.5 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 0.1 | 550 | 105648 | 71.8 | 680 | 24146 | 0.3 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 0.2 | 555 | 110017 | 75.1 | 685 | 21191 | 0.2 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 0.5 | 560 | 114586 | 77.9 | 690 | 18544 | 0.1 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 1.2 | 565 | 118987 | 79.1 | 695 | 16058 | 0.1 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 2.1 | 570 | 122326 | 79.5 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 2.9 | 575 | 125968 | 78.4 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 2.7 | 580 | 127613 | 75.8 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 2.0 | 585 | 129466 | 71.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 1.5 | 590 | 128813 | 66.6 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 1.3 | 595 | 126387 | 59.9 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 1.0 | 600 | 123477 | 53.2 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 1.1 | 605 | 118718 | 46.0 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 1.2 | 610 | 112091 | 38.5 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 1.7 | 615 | 105039 | 31.7 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: 10425.8 S/P: 1.47

| 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 | 2304 | 0.0 | 490 | 19043 | 29.3 | 620 | 97577 | 1.2 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 43.0 | 625 | 90158 | 0.8 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 60.8 | 630 | 82240 | 0.5 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 81.1 | 635 | 74361 | 0.3 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 99.6 | 640 | 66994 | 0.2 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 113.9 | 645 | 60405 | 0.1 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 122.6 | 650 | 53806 | 0.1 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 125.0 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 123.1 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.1 | 535 | 94097 | 117.3 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 107.0 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.9 | 545 | 100829 | 96.7 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 3.0 | 550 | 105648 | 86.4 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 9.3 | 555 | 110017 | 75.2 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 23.0 | 560 | 114586 | 64.0 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 45.7 | 565 | 118987 | 53.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 75.5 | 570 | 122326 | 43.2 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 93.8 | 575 | 125968 | 34.3 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 79.3 | 580 | 127613 | 26.3 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 51.3 | 585 | 129466 | 19.8 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 35.6 | 590 | 128813 | 14.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 26.0 | 595 | 126387 | 10.1 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 19.3 | 600 | 123477 | 7.0 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 16.8 | 605 | 118718 | 4.7 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 17.7 | 610 | 112091 | 3.0 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 21.4 | 615 | 105039 | 1.9 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3927.2 M/P: 0.55

| 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 | 2304 | 0.0 | 490 | 19043 | 15.8 | 620 | 97577 | 0.1 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 22.0 | 625 | 90158 | 0.0 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 29.2 | 630 | 82240 | 0.0 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 36.6 | 635 | 74361 | 0.0 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 42.2 | 640 | 66994 | 0.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 44.9 | 645 | 60405 | 0.0 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 44.9 | 650 | 53806 | 0.0 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 42.4 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 38.6 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 33.9 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 28.3 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.6 | 545 | 100829 | 23.4 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 2.1 | 550 | 105648 | 19.0 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 5.9 | 555 | 110017 | 14.8 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 14.3 | 560 | 114586 | 11.3 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 27.3 | 565 | 118987 | 8.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 45.1 | 570 | 122326 | 6.0 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 55.3 | 575 | 125968 | 4.2 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 47.2 | 580 | 127613 | 2.9 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 30.8 | 585 | 129466 | 1.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 21.7 | 590 | 128813 | 1.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 16.1 | 595 | 126387 | 0.8 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 12.0 | 600 | 123477 | 0.5 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 10.3 | 605 | 118718 | 0.3 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 10.5 | 610 | 112091 | 0.2 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 12.1 | 615 | 105039 | 0.1 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

Summary

$R_f = 71.7$
 $R_g = 96.9$
 CIE $R_a = 71.2$
 $R_g = -29.7$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 55 | CES51 = 86 | CES76 = 45 |
| CES02 = 61 | CES27 = 80 | CES52 = 87 | CES77 = 68 |
| CES03 = 30 | CES28 = 79 | CES53 = 74 | CES78 = 49 |
| CES04 = 70 | CES29 = 51 | CES54 = 81 | CES79 = 77 |
| CES05 = 47 | CES30 = 60 | CES55 = 80 | CES80 = 75 |
| CES06 = 50 | CES31 = 56 | CES56 = 69 | CES81 = 75 |
| CES07 = 40 | CES32 = 52 | CES57 = 67 | CES82 = 90 |
| CES08 = 39 | CES33 = 62 | CES58 = 69 | CES83 = 85 |
| CES09 = 29 | CES34 = 65 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 81 | CES60 = 91 | CES85 = 83 |
| CES11 = 57 | CES36 = 92 | CES61 = 85 | CES86 = 72 |
| CES12 = 63 | CES37 = 74 | CES62 = 81 | CES87 = 77 |
| CES13 = 42 | CES38 = 69 | CES63 = 72 | CES88 = 77 |
| CES14 = 74 | CES39 = 92 | CES64 = 69 | CES89 = 72 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 75 |
| CES16 = 46 | CES41 = 84 | CES66 = 63 | CES91 = 91 |
| CES17 = 49 | CES42 = 75 | CES67 = 60 | CES92 = 66 |
| CES18 = 56 | CES43 = 70 | CES68 = 67 | CES93 = 80 |
| CES19 = 72 | CES44 = 98 | CES69 = 77 | CES94 = 56 |
| CES20 = 65 | CES45 = 80 | CES70 = 57 | CES95 = 72 |
| CES21 = 86 | CES46 = 77 | CES71 = 53 | CES96 = 78 |
| CES22 = 78 | CES47 = 74 | CES72 = 84 | CES97 = 83 |
| CES23 = 92 | CES48 = 66 | CES73 = 47 | CES98 = 73 |
| CES24 = 91 | CES49 = 76 | CES74 = 96 | CES99 = 63 |
| CES25 = 72 | CES50 = 85 | CES75 = 52 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)