

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: P383436

Luminaire Tested: **GLEON-SA7B-735-U-T4W-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P383436
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-19)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA7B-735-U-T4W-HSS
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(7) 70 CRI, 3500K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 27291.6 lumens
Efficiency: N/A
Efficacy: 92.5 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B2 - U0 - G5

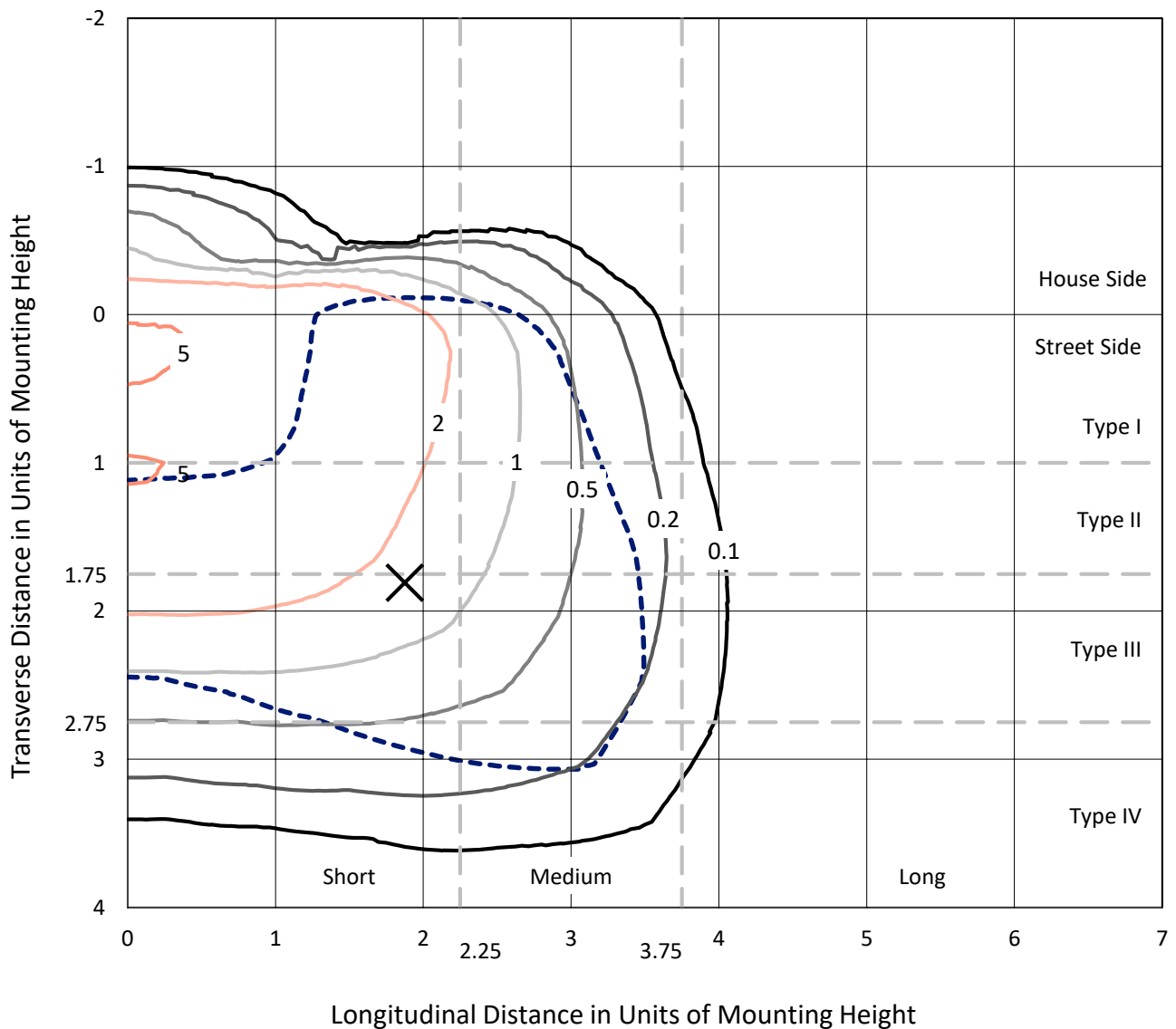
Input Watts (W): 295
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P383436
 CATALOG NUMBER: GLEON-SA7B-735-U-T4W-HSS

Iso-Footcandle Lines of Horizontal Illumination

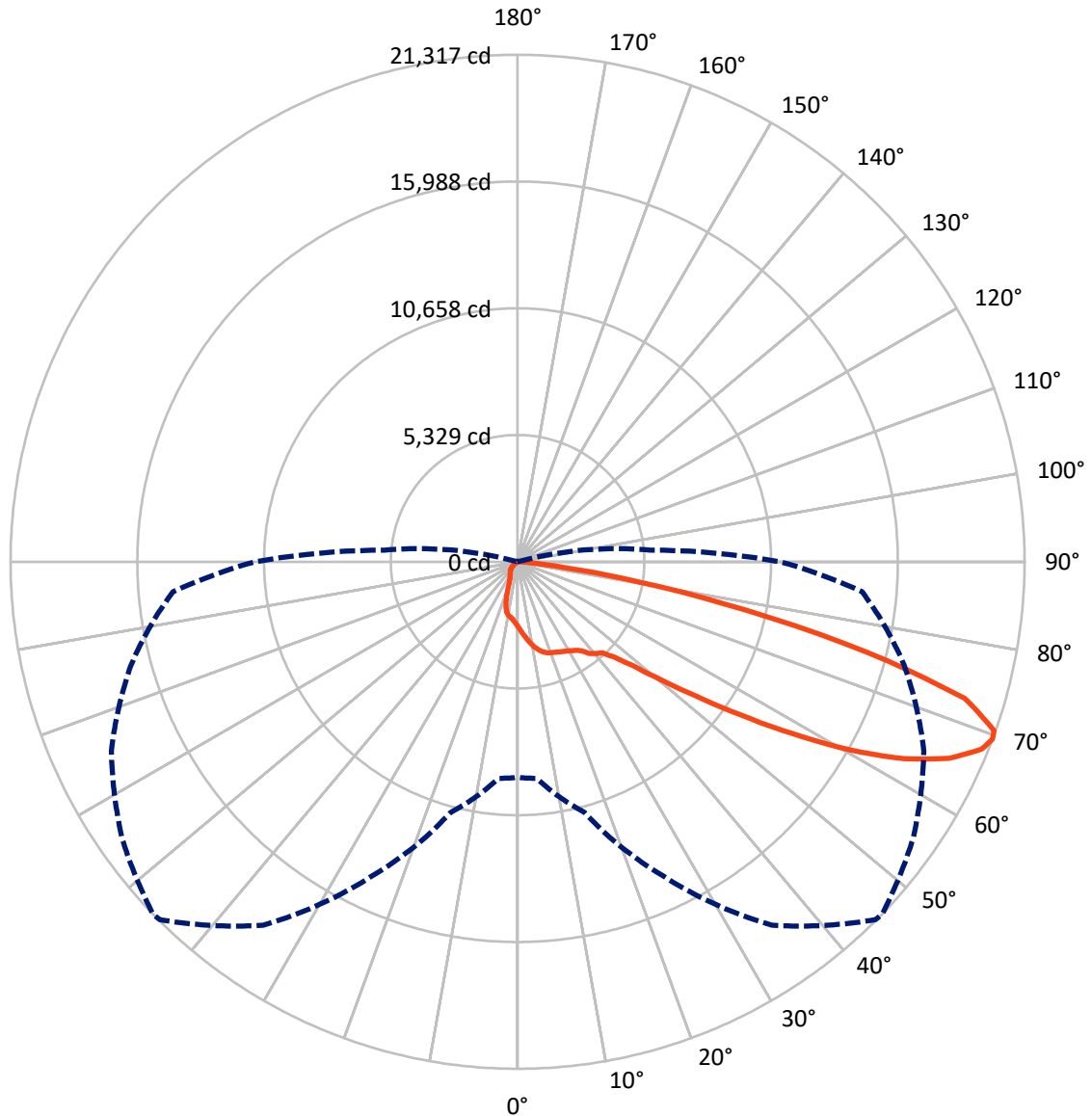
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 6.4 fc
 Type IV - Short - N/A

REPORT NUMBER: P383436
CATALOG NUMBER: GLEON-SA7B-735-U-T4W-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 46-Deg Lateral - - - Horizontal Cone Through 69-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2800.9 | 0.0 | 2800.9 |
| | % Fixture | 10.3 | 0.0 | 10.3 |
| Street Side | Lumens | 24490.7 | 0.0 | 24490.7 |
| | % Fixture | 89.7 | 0.0 | 89.7 |
| Total | Lumens | 27291.6 | 0.0 | 27291.6 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 272.2 | 1.0 |
| 10°-20° | 825.7 | 3.0 |
| 20°-30° | 1298.6 | 4.8 |
| 30°-40° | 1862.2 | 6.8 |
| 40°-50° | 3218.6 | 11.8 |
| 50°-60° | 6358.5 | 23.3 |
| 60°-70° | 8886.6 | 32.6 |
| 70°-80° | 4293.2 | 15.7 |
| 80°-90° | 275.9 | 1.0 |
| 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° | 27291.6 | 100.0 |
| 0°-180° | 27291.6 | 100.0 |

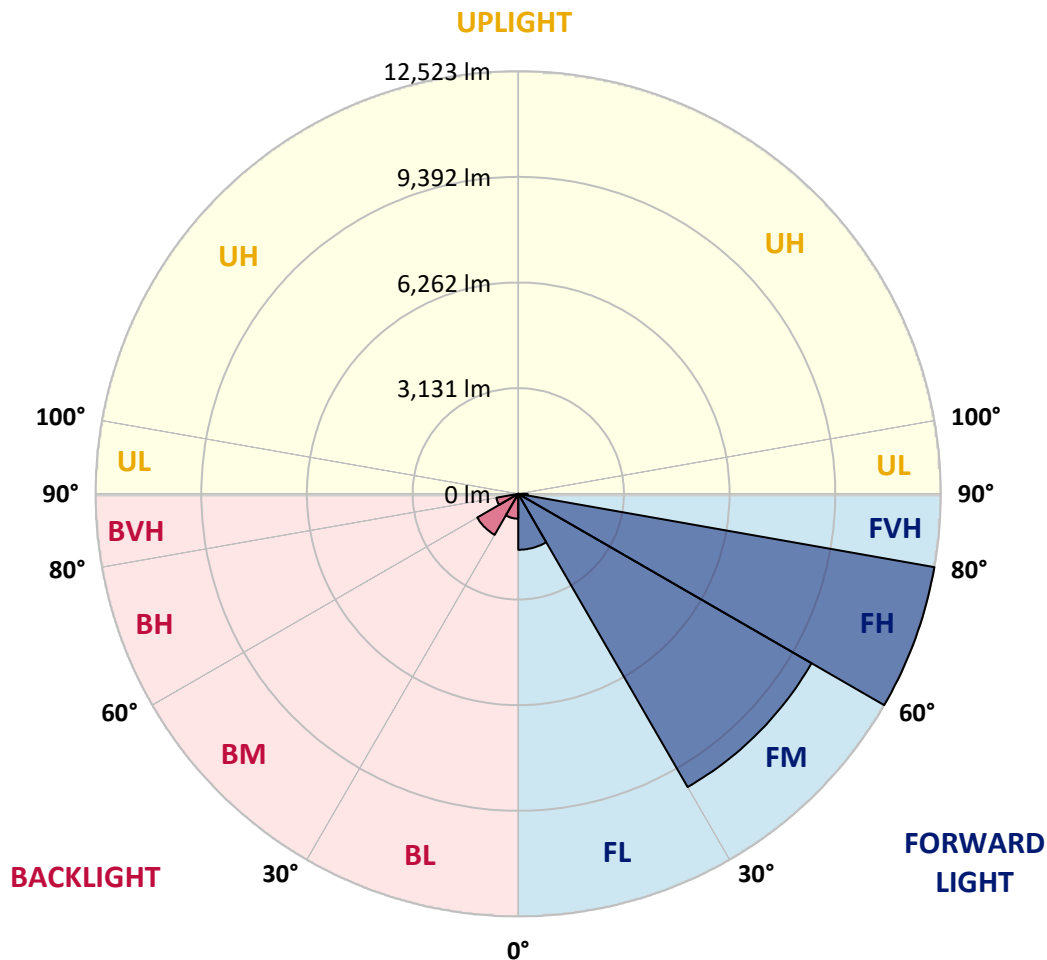


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1658.3 | 6.1 | | | |
| FM (30°-60°) | 10035.7 | 36.8 | | | |
| FH (60°-80°) | 12523.1 | 45.9 | | | G5 |
| FVH (80°-90°) | 273.6 | 1.0 | | | G3/500 |
| BL (0°-30°) | 738.2 | 2.7 | B2/1000 | | |
| BM (30°-60°) | 1403.6 | 5.1 | B2/2500 | | |
| BH (60°-80°) | 656.8 | 2.4 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 2.3 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G5
 Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 46° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 |
| 2.5° | 3037.8 | 3034.0 | 3016.0 | 3008.3 | 2964.8 | 2939.2 | 2929.0 | 2897.0 | 2851.0 | 2804.9 | 2753.7 |
| 5° | 3383.3 | 3382.0 | 3348.7 | 3316.8 | 3234.8 | 3158.0 | 3144.0 | 3069.7 | 2966.1 | 2868.9 | 2771.6 |
| 7.5° | 3736.4 | 3719.8 | 3686.5 | 3625.1 | 3506.1 | 3383.3 | 3371.7 | 3266.8 | 3119.7 | 2978.9 | 2839.5 |
| 10° | 4035.8 | 4025.6 | 3982.1 | 3888.7 | 3749.2 | 3609.7 | 3595.7 | 3466.5 | 3300.1 | 3127.4 | 2949.5 |
| 12.5° | 4268.7 | 4261.1 | 4203.5 | 4087.1 | 3938.6 | 3794.0 | 3774.8 | 3659.7 | 3481.8 | 3288.5 | 3078.8 |
| 15° | 4410.8 | 4407.0 | 4336.5 | 4212.5 | 4066.6 | 3941.2 | 3924.5 | 3823.4 | 3658.4 | 3456.2 | 3219.5 |
| 17.5° | 4444.0 | 4445.3 | 4372.4 | 4247.0 | 4126.8 | 4037.1 | 4024.4 | 3947.6 | 3809.4 | 3608.4 | 3360.3 |
| 20° | 4369.9 | 4385.2 | 4320.0 | 4211.2 | 4136.9 | 4089.6 | 4079.3 | 4033.3 | 3916.9 | 3727.5 | 3472.8 |
| 22.5° | 4264.9 | 4272.6 | 4227.8 | 4154.9 | 4124.1 | 4133.1 | 4128.0 | 4102.4 | 4003.9 | 3829.9 | 3584.1 |
| 25° | 4200.9 | 4200.9 | 4174.1 | 4112.7 | 4133.1 | 4188.1 | 4189.4 | 4184.3 | 4106.3 | 3955.3 | 3719.8 |
| 27.5° | 4198.4 | 4190.7 | 4160.0 | 4113.9 | 4170.3 | 4254.7 | 4259.8 | 4294.3 | 4245.7 | 4107.6 | 3888.7 |
| 30° | 4300.8 | 4291.8 | 4226.5 | 4166.3 | 4238.1 | 4328.9 | 4341.7 | 4417.2 | 4392.9 | 4272.6 | 4076.8 |
| 32.5° | 4540.0 | 4508.0 | 4363.5 | 4264.9 | 4318.7 | 4427.5 | 4444.0 | 4564.3 | 4602.8 | 4476.1 | 4258.5 |
| 35° | 4867.6 | 4766.5 | 4558.0 | 4451.8 | 4456.9 | 4570.7 | 4586.1 | 4762.7 | 4876.6 | 4662.9 | 4399.2 |
| 37.5° | 5319.3 | 5269.4 | 4930.3 | 4646.3 | 4669.3 | 4842.0 | 4886.8 | 5078.7 | 5046.8 | 4765.2 | 4559.2 |
| 40° | 6309.7 | 6231.7 | 5870.8 | 5191.3 | 4872.7 | 5062.1 | 5076.2 | 5178.6 | 5181.1 | 4996.8 | 4891.9 |
| 42.5° | 7658.4 | 7626.4 | 7246.4 | 6180.4 | 5273.2 | 5209.3 | 5234.8 | 5407.6 | 5600.8 | 5485.7 | 5480.6 |
| 45° | 9151.7 | 9135.1 | 8732.0 | 7493.4 | 6083.2 | 5691.7 | 5723.7 | 5955.3 | 6325.1 | 6350.6 | 6513.2 |
| 47.5° | 10353.3 | 10345.6 | 10114.0 | 8958.5 | 7323.2 | 6509.4 | 6519.6 | 6765.3 | 7415.3 | 7736.5 | 7996.2 |
| 50° | 11448.6 | 11485.7 | 11302.7 | 10543.9 | 9012.3 | 7790.3 | 7765.9 | 7929.7 | 8973.9 | 9499.7 | 9822.2 |
| 52.5° | 12971.3 | 13023.8 | 12510.7 | 12023.1 | 10784.5 | 9379.5 | 9360.3 | 9531.8 | 10847.2 | 11241.4 | 11298.9 |
| 55° | 14316.2 | 14226.6 | 13821.0 | 13680.2 | 12945.7 | 11342.4 | 11337.3 | 11488.3 | 12659.1 | 12826.8 | 12933.0 |
| 57.5° | 14910.0 | 14875.4 | 15071.1 | 15393.6 | 15209.4 | 13662.4 | 13650.8 | 13535.7 | 14280.3 | 14298.3 | 14624.6 |
| 60° | 15284.8 | 15327.1 | 15927.2 | 16921.5 | 17380.8 | 16158.8 | 16084.6 | 15382.1 | 15828.7 | 15789.0 | 16138.3 |
| 62.5° | 15003.3 | 15086.5 | 16166.5 | 17823.6 | 19005.9 | 18338.0 | 18233.1 | 17073.8 | 17151.8 | 17014.9 | 17339.9 |
| 65° | 13508.7 | 13638.0 | 15407.7 | 17653.4 | 19812.1 | 20041.1 | 19934.9 | 18567.0 | 18202.3 | 17977.1 | 17796.8 |
| 67.5° | 10968.8 | 11045.5 | 12893.3 | 16172.9 | 19448.7 | 21057.2 | 21035.4 | 19876.1 | 18995.7 | 17814.6 | 16414.7 |
| 69° | 9064.7 | 9140.2 | 10918.9 | 14614.3 | 18648.9 | 21274.7 | 21316.9 | 20295.8 | 18844.7 | 16826.8 | 14544.0 |
| 70° | 7677.6 | 7758.2 | 9415.3 | 13278.5 | 17721.2 | 21173.6 | 21249.1 | 20256.1 | 18412.2 | 15682.8 | 12902.2 |
| 72.5° | 4026.9 | 4096.0 | 5796.6 | 9147.9 | 14446.7 | 19442.3 | 19671.3 | 18544.0 | 15607.3 | 11389.8 | 7629.0 |
| 75° | 1265.5 | 1305.2 | 2263.7 | 4781.9 | 9891.4 | 15117.2 | 15169.7 | 14546.5 | 11082.6 | 6264.9 | 3177.2 |
| 77.5° | 482.4 | 470.9 | 753.7 | 1762.0 | 5000.7 | 9518.9 | 9840.1 | 9090.3 | 5815.8 | 2215.0 | 733.2 |
| 80° | 259.7 | 261.0 | 391.5 | 729.4 | 2139.5 | 4891.9 | 5163.2 | 4405.7 | 2066.5 | 691.0 | 168.9 |
| 82.5° | 112.6 | 117.7 | 220.1 | 386.4 | 982.7 | 1804.2 | 1939.9 | 1614.8 | 789.5 | 464.5 | 62.7 |
| 85° | 24.3 | 26.8 | 106.2 | 209.9 | 400.5 | 506.8 | 531.1 | 523.3 | 502.8 | 360.9 | 24.3 |
| 87.5° | 0.0 | 0.0 | 47.3 | 75.5 | 101.1 | 115.1 | 101.1 | 131.8 | 277.7 | 243.1 | 12.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P383436

CATALOG NUMBER: GLEON-SA7B-735-U-T4W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 | 2734.5 |
| 2.5° | 2737.1 | 2714.1 | 2674.4 | 2630.9 | 2600.1 | 2568.2 | 2542.6 | 2531.0 | 2518.3 | 2509.3 | 2520.9 |
| 5° | 2731.9 | 2687.1 | 2610.4 | 2536.1 | 2482.4 | 2438.9 | 2403.1 | 2389.0 | 2375.0 | 2364.7 | 2363.4 |
| 7.5° | 2776.8 | 2714.1 | 2596.3 | 2487.5 | 2404.4 | 2345.5 | 2296.9 | 2276.4 | 2259.7 | 2252.1 | 2245.7 |
| 10° | 2862.5 | 2781.9 | 2624.4 | 2482.4 | 2375.0 | 2275.1 | 2170.2 | 2089.6 | 2037.1 | 2012.8 | 2003.9 |
| 12.5° | 2973.8 | 2872.7 | 2678.2 | 2509.3 | 2353.2 | 2161.3 | 1938.6 | 1746.7 | 1622.6 | 1581.6 | 1557.3 |
| 15° | 3104.3 | 2978.9 | 2748.6 | 2543.9 | 2273.8 | 1923.3 | 1545.7 | 1294.9 | 1179.8 | 1156.8 | 1131.2 |
| 17.5° | 3229.7 | 3091.5 | 2833.0 | 2550.2 | 2099.8 | 1536.8 | 1132.5 | 962.3 | 917.5 | 932.9 | 936.7 |
| 20° | 3339.8 | 3202.8 | 2916.2 | 2493.9 | 1783.7 | 1152.9 | 876.5 | 834.3 | 851.0 | 880.4 | 885.5 |
| 22.5° | 3451.1 | 3310.3 | 2993.0 | 2345.5 | 1379.4 | 875.3 | 789.5 | 799.7 | 816.4 | 845.8 | 851.0 |
| 25° | 3586.7 | 3440.9 | 3064.6 | 2073.0 | 1035.2 | 744.8 | 749.8 | 765.2 | 781.8 | 808.7 | 811.3 |
| 27.5° | 3742.9 | 3605.9 | 3112.0 | 1718.5 | 767.8 | 684.6 | 701.2 | 724.3 | 740.9 | 766.5 | 771.6 |
| 30° | 3950.1 | 3823.4 | 3127.4 | 1351.3 | 643.6 | 630.8 | 638.5 | 666.7 | 691.0 | 714.0 | 717.9 |
| 32.5° | 4144.6 | 4038.4 | 3076.2 | 1019.9 | 596.3 | 580.9 | 580.9 | 597.6 | 625.7 | 647.5 | 652.6 |
| 35° | 4323.8 | 4254.7 | 2912.4 | 746.0 | 560.5 | 534.9 | 522.0 | 522.0 | 540.0 | 557.9 | 563.0 |
| 37.5° | 4560.5 | 4558.0 | 2647.5 | 595.0 | 526.0 | 496.5 | 469.6 | 449.1 | 442.8 | 446.6 | 449.1 |
| 40° | 4966.2 | 4970.0 | 2302.0 | 533.6 | 496.5 | 456.8 | 415.8 | 378.8 | 344.2 | 332.7 | 331.4 |
| 42.5° | 5599.5 | 5542.0 | 1939.9 | 504.2 | 470.9 | 415.8 | 354.5 | 304.5 | 250.8 | 234.2 | 232.9 |
| 45° | 6605.3 | 6263.6 | 1556.0 | 477.3 | 444.1 | 369.8 | 293.1 | 225.2 | 181.7 | 168.9 | 168.9 |
| 47.5° | 8070.5 | 7211.9 | 1205.4 | 447.9 | 408.2 | 317.4 | 221.3 | 162.6 | 133.1 | 126.7 | 128.0 |
| 50° | 9585.5 | 8140.8 | 923.9 | 410.7 | 364.7 | 262.3 | 163.8 | 117.7 | 101.1 | 101.1 | 102.4 |
| 52.5° | 10929.1 | 8821.6 | 720.5 | 371.1 | 311.0 | 206.1 | 124.1 | 92.1 | 84.5 | 83.2 | 84.5 |
| 55° | 12187.0 | 9260.5 | 551.5 | 325.0 | 247.0 | 153.5 | 94.6 | 75.5 | 70.3 | 67.8 | 66.5 |
| 57.5° | 13400.0 | 9478.0 | 413.3 | 262.3 | 179.1 | 111.3 | 75.5 | 64.0 | 58.9 | 55.1 | 53.8 |
| 60° | 14207.4 | 9301.4 | 284.0 | 193.2 | 124.1 | 80.6 | 62.7 | 55.1 | 48.6 | 44.8 | 43.5 |
| 62.5° | 14662.9 | 8819.1 | 183.0 | 139.5 | 88.3 | 60.2 | 49.9 | 46.1 | 37.1 | 33.3 | 33.3 |
| 65° | 14478.7 | 8023.1 | 128.0 | 99.8 | 64.0 | 44.8 | 37.1 | 37.1 | 26.8 | 21.8 | 20.5 |
| 67.5° | 12830.6 | 6778.0 | 97.3 | 74.2 | 46.1 | 33.3 | 28.1 | 32.0 | 16.7 | 10.2 | 10.2 |
| 69° | 11039.1 | 5617.4 | 83.2 | 61.4 | 38.4 | 26.8 | 24.3 | 29.4 | 11.6 | 7.6 | 6.4 |
| 70° | 9594.5 | 4845.8 | 75.5 | 53.8 | 32.0 | 23.0 | 21.8 | 28.1 | 11.6 | 6.4 | 5.1 |
| 72.5° | 5740.3 | 2702.5 | 57.6 | 38.4 | 20.5 | 17.9 | 17.9 | 32.0 | 11.6 | 6.4 | 5.1 |
| 75° | 2319.9 | 952.0 | 42.2 | 26.8 | 15.4 | 15.4 | 21.8 | 41.0 | 10.2 | 5.1 | 3.8 |
| 77.5° | 526.0 | 208.6 | 24.3 | 16.7 | 10.2 | 15.4 | 25.6 | 32.0 | 6.4 | 2.5 | 0.0 |
| 80° | 128.0 | 51.1 | 15.4 | 10.2 | 6.4 | 11.6 | 19.2 | 17.9 | 1.3 | 0.0 | 0.0 |
| 82.5° | 42.2 | 17.9 | 6.4 | 5.1 | 1.3 | 3.8 | 8.9 | 5.1 | 0.0 | 0.0 | 0.0 |
| 85° | 17.9 | 10.2 | 2.5 | 1.3 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 11.6 | 3.8 | 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 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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

Report Prepared for

Cooper Lighting Solutions

All Brands

Data applicable to all product families using SA light engines

Report Number: SP1-2101-121-7

Luminaire Tested: IFLD-S-SA2A-735-U-T2

Test Date: 03/04/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2101-121-7
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 03/04/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: STREETWORKS
 Catalog Number: **IFLD-S-SA2A-735-U-T2**
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

Spectral Parameters

CCT (K): 3388
 CIE u': 0.2371
 CIE v': 0.5177
 Duv: 0.0032
 CIE x: 0.4153
 CIE y: 0.4030
 CIE z: 0.1817
 Peak Wavelength (nm): 590
 Dominant Wavelength (nm): 580
 Purity: 45.7

 Rf: 76.9
 Rg: 94.4

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 73.1 | | |
| R1: | 68.9 | R9: | -34.6 |
| R2: | 81.1 | R10: | 57.8 |
| R3: | 93.1 | R11: | 68.6 |
| R4: | 71.6 | R12: | 53.9 |
| R5: | 69.4 | R13: | 70.9 |
| R6: | 75.0 | R14: | 96.2 |
| R7: | 79.5 | | |
| R8: | 46.4 | | |

Test Conditions

Stabilization Time: 81M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0/30%
 Sphere Temperature (°C): 24.1



REPORT NUMBER: SP1-2101-121-7

| 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 |

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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 3500K 4-step quadrangle

REPORT NUMBER: SP1-2101-121-7

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 | 2672 | 0.0 | 490 | 34553 | 4.9 | 620 | 136720 | 35.6 | 750 | 5870 | 0.0 | 880 | 4216 | 0.0 |
| 365 | 2252 | 0.0 | 495 | 44336 | 8.0 | 625 | 126308 | 27.9 | 755 | 5421 | 0.0 | 885 | 4132 | 0.0 |
| 370 | 2217 | 0.0 | 500 | 54643 | 12.1 | 630 | 114625 | 20.7 | 760 | 5097 | 0.0 | 890 | 3992 | 0.0 |
| 375 | 2697 | 0.0 | 505 | 64676 | 18.1 | 635 | 103216 | 15.5 | 765 | 4626 | 0.0 | 895 | 3214 | 0.0 |
| 380 | 3039 | 0.0 | 510 | 73825 | 25.4 | 640 | 92605 | 11.1 | 770 | 3782 | 0.0 | 900 | 2580 | 0.0 |
| 385 | 2655 | 0.0 | 515 | 81872 | 33.9 | 645 | 83234 | 8.0 | 775 | 3506 | 0.0 | 905 | 1776 | 0.0 |
| 390 | 2357 | 0.0 | 520 | 88574 | 43.0 | 650 | 73263 | 5.4 | 780 | 3507 | 0.0 | 910 | 3995 | 0.0 |
| 395 | 2186 | 0.0 | 525 | 93289 | 50.1 | 655 | 64627 | 3.7 | 785 | 3267 | 0.0 | 915 | 4288 | 0.0 |
| 400 | 2015 | 0.0 | 530 | 98393 | 57.9 | 660 | 56614 | 2.4 | 790 | 2849 | 0.0 | 920 | 2446 | 0.0 |
| 405 | 2234 | 0.0 | 535 | 103269 | 64.0 | 665 | 49537 | 1.6 | 795 | 3037 | 0.0 | 925 | 3009 | 0.0 |
| 410 | 3412 | 0.0 | 540 | 107316 | 69.9 | 670 | 42866 | 0.9 | 800 | 2716 | 0.0 | 930 | 3026 | 0.0 |
| 415 | 6135 | 0.0 | 545 | 113101 | 75.3 | 675 | 36708 | 0.6 | 805 | 2648 | 0.0 | 935 | 4734 | 0.0 |
| 420 | 12146 | 0.0 | 550 | 120690 | 82.0 | 680 | 31814 | 0.4 | 810 | 3187 | 0.0 | 940 | 3719 | 0.0 |
| 425 | 23983 | 0.1 | 555 | 128583 | 87.8 | 685 | 27485 | 0.2 | 815 | 2931 | 0.0 | 945 | 1480 | 0.0 |
| 430 | 42142 | 0.3 | 560 | 137796 | 93.6 | 690 | 23698 | 0.1 | 820 | 2717 | 0.0 | 950 | 3450 | 0.0 |
| 435 | 68228 | 0.8 | 565 | 146577 | 97.5 | 695 | 20309 | 0.1 | 825 | 2236 | 0.0 | 955 | 5051 | 0.0 |
| 440 | 99323 | 1.6 | 570 | 154581 | 100.5 | 700 | 17890 | 0.1 | 830 | 2628 | 0.0 | 960 | 3176 | 0.0 |
| 445 | 115584 | 2.4 | 575 | 162633 | 101.2 | 705 | 15500 | 0.0 | 835 | 3140 | 0.0 | 965 | 5178 | 0.0 |
| 450 | 94997 | 2.5 | 580 | 168101 | 99.9 | 710 | 13699 | 0.0 | 840 | 3675 | 0.0 | 970 | 6385 | 0.0 |
| 455 | 61433 | 2.1 | 585 | 173145 | 96.2 | 715 | 12398 | 0.0 | 845 | 3283 | 0.0 | 975 | 3810 | 0.0 |
| 460 | 43373 | 1.8 | 590 | 174675 | 90.3 | 720 | 11147 | 0.0 | 850 | 3055 | 0.0 | 980 | 4322 | 0.0 |
| 465 | 32472 | 1.7 | 595 | 173724 | 82.3 | 725 | 9761 | 0.0 | 855 | 2932 | 0.0 | 985 | 4200 | 0.0 |
| 470 | 24257 | 1.5 | 600 | 171241 | 73.8 | 730 | 8651 | 0.0 | 860 | 3382 | 0.0 | 990 | 4661 | 0.0 |
| 475 | 21690 | 1.7 | 605 | 165134 | 64.0 | 735 | 7730 | 0.0 | 865 | 2605 | 0.0 | 995 | 6746 | 0.0 |
| 480 | 23173 | 2.2 | 610 | 156652 | 53.8 | 740 | 6847 | 0.0 | 870 | 3325 | 0.0 | 1000 | 4150 | 0.0 |
| 485 | 27564 | 3.3 | 615 | 147879 | 44.6 | 745 | 6124 | 0.0 | 875 | 3325 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-7

Scotopic Flux vs. Wavelength



Scotopic Lumens: 12126

S/P: 1.36

| 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 | 2672 | 0.0 | 490 | 34553 | 53.2 | 620 | 136720 | 1.7 | 750 | 5870 | 0.0 | 880 | 4216 | 0.0 |
| 365 | 2252 | 0.0 | 495 | 44336 | 71.7 | 625 | 126308 | 1.1 | 755 | 5421 | 0.0 | 885 | 4132 | 0.0 |
| 370 | 2217 | 0.0 | 500 | 54643 | 91.4 | 630 | 114625 | 0.6 | 760 | 5097 | 0.0 | 890 | 3992 | 0.0 |
| 375 | 2697 | 0.0 | 505 | 64676 | 110.0 | 635 | 103216 | 0.4 | 765 | 4626 | 0.0 | 895 | 3214 | 0.0 |
| 380 | 3039 | 0.0 | 510 | 73825 | 125.1 | 640 | 92605 | 0.2 | 770 | 3782 | 0.0 | 900 | 2580 | 0.0 |
| 385 | 2655 | 0.0 | 515 | 81872 | 135.7 | 645 | 83234 | 0.1 | 775 | 3506 | 0.0 | 905 | 1776 | 0.0 |
| 390 | 2357 | 0.0 | 520 | 88574 | 140.8 | 650 | 73263 | 0.1 | 780 | 3507 | 0.0 | 910 | 3995 | 0.0 |
| 395 | 2186 | 0.0 | 525 | 93289 | 139.6 | 655 | 64627 | 0.1 | 785 | 3267 | 0.0 | 915 | 4288 | 0.0 |
| 400 | 2015 | 0.0 | 530 | 98393 | 135.7 | 660 | 56614 | 0.0 | 790 | 2849 | 0.0 | 920 | 2446 | 0.0 |
| 405 | 2234 | 0.1 | 535 | 103269 | 128.7 | 665 | 49537 | 0.0 | 795 | 3037 | 0.0 | 925 | 3009 | 0.0 |
| 410 | 3412 | 0.2 | 540 | 107316 | 118.6 | 670 | 42866 | 0.0 | 800 | 2716 | 0.0 | 930 | 3026 | 0.0 |
| 415 | 6135 | 0.6 | 545 | 113101 | 108.4 | 675 | 36708 | 0.0 | 805 | 2648 | 0.0 | 935 | 4734 | 0.0 |
| 420 | 12146 | 2.0 | 550 | 120690 | 98.7 | 680 | 31814 | 0.0 | 810 | 3187 | 0.0 | 940 | 3719 | 0.0 |
| 425 | 23983 | 5.9 | 555 | 128583 | 87.9 | 685 | 27485 | 0.0 | 815 | 2931 | 0.0 | 945 | 1480 | 0.0 |
| 430 | 42142 | 14.3 | 560 | 137796 | 77.0 | 690 | 23698 | 0.0 | 820 | 2717 | 0.0 | 950 | 3450 | 0.0 |
| 435 | 68228 | 30.5 | 565 | 146577 | 65.8 | 695 | 20309 | 0.0 | 825 | 2236 | 0.0 | 955 | 5051 | 0.0 |
| 440 | 99323 | 55.5 | 570 | 154581 | 54.6 | 700 | 17890 | 0.0 | 830 | 2628 | 0.0 | 960 | 3176 | 0.0 |
| 445 | 115584 | 77.4 | 575 | 162633 | 44.3 | 705 | 15500 | 0.0 | 835 | 3140 | 0.0 | 965 | 5178 | 0.0 |
| 450 | 94997 | 73.6 | 580 | 168101 | 34.6 | 710 | 13699 | 0.0 | 840 | 3675 | 0.0 | 970 | 6385 | 0.0 |
| 455 | 61433 | 53.7 | 585 | 173145 | 26.5 | 715 | 12398 | 0.0 | 845 | 3283 | 0.0 | 975 | 3810 | 0.0 |
| 460 | 43373 | 41.9 | 590 | 174675 | 19.5 | 720 | 11147 | 0.0 | 850 | 3055 | 0.0 | 980 | 4322 | 0.0 |
| 465 | 32472 | 34.3 | 595 | 173724 | 13.9 | 725 | 9761 | 0.0 | 855 | 2932 | 0.0 | 985 | 4200 | 0.0 |
| 470 | 24257 | 27.9 | 600 | 171241 | 9.7 | 730 | 8651 | 0.0 | 860 | 3382 | 0.0 | 990 | 4661 | 0.0 |
| 475 | 21690 | 27.1 | 605 | 165134 | 6.5 | 735 | 7730 | 0.0 | 865 | 2605 | 0.0 | 995 | 6746 | 0.0 |
| 480 | 23173 | 31.3 | 610 | 156652 | 4.2 | 740 | 6847 | 0.0 | 870 | 3325 | 0.0 | 1000 | 4150 | 0.0 |
| 485 | 27564 | 40.0 | 615 | 147879 | 2.7 | 745 | 6124 | 0.0 | 875 | 3325 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-7

Melanopic Flux vs. Wavelength



Melanopic Lumens: 4490.7 M/P: 0.5

| 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 | 2672 | 0.0 | 490 | 34553 | 28.8 | 620 | 136720 | 0.1 | 750 | 5870 | 0.0 | 880 | 4216 | 0.0 |
| 365 | 2252 | 0.0 | 495 | 44336 | 36.6 | 625 | 126308 | 0.1 | 755 | 5421 | 0.0 | 885 | 4132 | 0.0 |
| 370 | 2217 | 0.0 | 500 | 54643 | 43.9 | 630 | 114625 | 0.0 | 760 | 5097 | 0.0 | 890 | 3992 | 0.0 |
| 375 | 2697 | 0.0 | 505 | 64676 | 49.6 | 635 | 103216 | 0.0 | 765 | 4626 | 0.0 | 895 | 3214 | 0.0 |
| 380 | 3039 | 0.0 | 510 | 73825 | 53.0 | 640 | 92605 | 0.0 | 770 | 3782 | 0.0 | 900 | 2580 | 0.0 |
| 385 | 2655 | 0.0 | 515 | 81872 | 53.5 | 645 | 83234 | 0.0 | 775 | 3506 | 0.0 | 905 | 1776 | 0.0 |
| 390 | 2357 | 0.0 | 520 | 88574 | 51.6 | 650 | 73263 | 0.0 | 780 | 3507 | 0.0 | 910 | 3995 | 0.0 |
| 395 | 2186 | 0.0 | 525 | 93289 | 47.3 | 655 | 64627 | 0.0 | 785 | 3267 | 0.0 | 915 | 4288 | 0.0 |
| 400 | 2015 | 0.0 | 530 | 98393 | 42.5 | 660 | 56614 | 0.0 | 790 | 2849 | 0.0 | 920 | 2446 | 0.0 |
| 405 | 2234 | 0.0 | 535 | 103269 | 37.2 | 665 | 49537 | 0.0 | 795 | 3037 | 0.0 | 925 | 3009 | 0.0 |
| 410 | 3412 | 0.1 | 540 | 107316 | 31.4 | 670 | 42866 | 0.0 | 800 | 2716 | 0.0 | 930 | 3026 | 0.0 |
| 415 | 6135 | 0.4 | 545 | 113101 | 26.3 | 675 | 36708 | 0.0 | 805 | 2648 | 0.0 | 935 | 4734 | 0.0 |
| 420 | 12146 | 1.4 | 550 | 120690 | 21.7 | 680 | 31814 | 0.0 | 810 | 3187 | 0.0 | 940 | 3719 | 0.0 |
| 425 | 23983 | 3.7 | 555 | 128583 | 17.3 | 685 | 27485 | 0.0 | 815 | 2931 | 0.0 | 945 | 1480 | 0.0 |
| 430 | 42142 | 8.9 | 560 | 137796 | 13.6 | 690 | 23698 | 0.0 | 820 | 2717 | 0.0 | 950 | 3450 | 0.0 |
| 435 | 68228 | 18.2 | 565 | 146577 | 10.3 | 695 | 20309 | 0.0 | 825 | 2236 | 0.0 | 955 | 5051 | 0.0 |
| 440 | 99323 | 33.2 | 570 | 154581 | 7.6 | 700 | 17890 | 0.0 | 830 | 2628 | 0.0 | 960 | 3176 | 0.0 |
| 445 | 115584 | 45.6 | 575 | 162633 | 5.4 | 705 | 15500 | 0.0 | 835 | 3140 | 0.0 | 965 | 5178 | 0.0 |
| 450 | 94997 | 43.8 | 580 | 168101 | 3.8 | 710 | 13699 | 0.0 | 840 | 3675 | 0.0 | 970 | 6385 | 0.0 |
| 455 | 61433 | 32.2 | 585 | 173145 | 2.6 | 715 | 12398 | 0.0 | 845 | 3283 | 0.0 | 975 | 3810 | 0.0 |
| 460 | 43373 | 25.6 | 590 | 174675 | 1.7 | 720 | 11147 | 0.0 | 850 | 3055 | 0.0 | 980 | 4322 | 0.0 |
| 465 | 32472 | 21.2 | 595 | 173724 | 1.1 | 725 | 9761 | 0.0 | 855 | 2932 | 0.0 | 985 | 4200 | 0.0 |
| 470 | 24257 | 17.4 | 600 | 171241 | 0.7 | 730 | 8651 | 0.0 | 860 | 3382 | 0.0 | 990 | 4661 | 0.0 |
| 475 | 21690 | 16.6 | 605 | 165134 | 0.5 | 735 | 7730 | 0.0 | 865 | 2605 | 0.0 | 995 | 6746 | 0.0 |
| 480 | 23173 | 18.6 | 610 | 156652 | 0.3 | 740 | 6847 | 0.0 | 870 | 3325 | 0.0 | 1000 | 4150 | 0.0 |
| 485 | 27564 | 22.7 | 615 | 147879 | 0.2 | 745 | 6124 | 0.0 | 875 | 3325 | 0.0 | | | |

Summary

$R_f = 76.9$
 $R_g = 94.4$
 $CIE R_a = 73.1$
 $R_g = -34.6$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 68 | CES51 = 90 | CES76 = 63 |
| CES02 = 62 | CES27 = 88 | CES52 = 89 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 80 | CES78 = 65 |
| CES04 = 70 | CES29 = 67 | CES54 = 84 | CES79 = 87 |
| CES05 = 48 | CES30 = 74 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 71 | CES56 = 75 | CES81 = 75 |
| CES07 = 40 | CES32 = 67 | CES57 = 74 | CES82 = 94 |
| CES08 = 39 | CES33 = 74 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 78 | CES59 = 87 | CES84 = 89 |
| CES10 = 75 | CES35 = 89 | CES60 = 93 | CES85 = 80 |
| CES11 = 58 | CES36 = 98 | CES61 = 86 | CES86 = 66 |
| CES12 = 64 | CES37 = 86 | CES62 = 89 | CES87 = 79 |
| CES13 = 43 | CES38 = 82 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 95 | CES64 = 74 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 68 | CES90 = 77 |
| CES16 = 47 | CES41 = 89 | CES66 = 71 | CES91 = 88 |
| CES17 = 50 | CES42 = 88 | CES67 = 69 | CES92 = 60 |
| CES18 = 56 | CES43 = 82 | CES68 = 74 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 82 | CES94 = 52 |
| CES20 = 65 | CES45 = 87 | CES70 = 67 | CES95 = 69 |
| CES21 = 86 | CES46 = 82 | CES71 = 66 | CES96 = 78 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 85 |
| CES23 = 92 | CES48 = 72 | CES73 = 59 | CES98 = 76 |
| CES24 = 91 | CES49 = 82 | CES74 = 97 | CES99 = 63 |
| CES25 = 72 | CES50 = 88 | CES75 = 66 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)