

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: P638218

Luminaire Tested: GWS-SA4E-735-U-T2R-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P638218
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-13)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4E-735-U-T2R-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (64) 3500K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 26564.3 lumens
Efficiency: N/A
Efficacy: 131.1 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G3

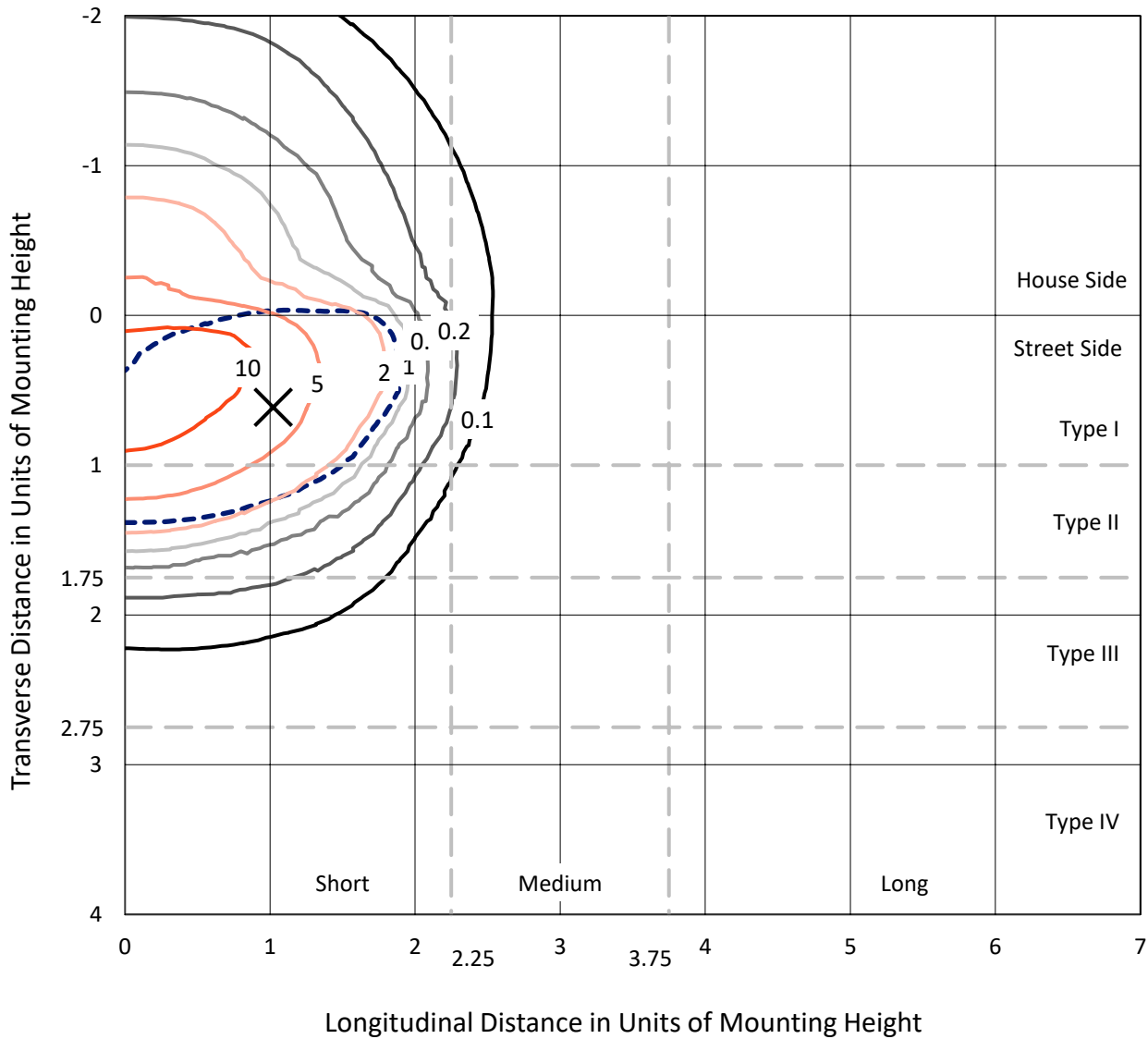
Input Watts (W): 202.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

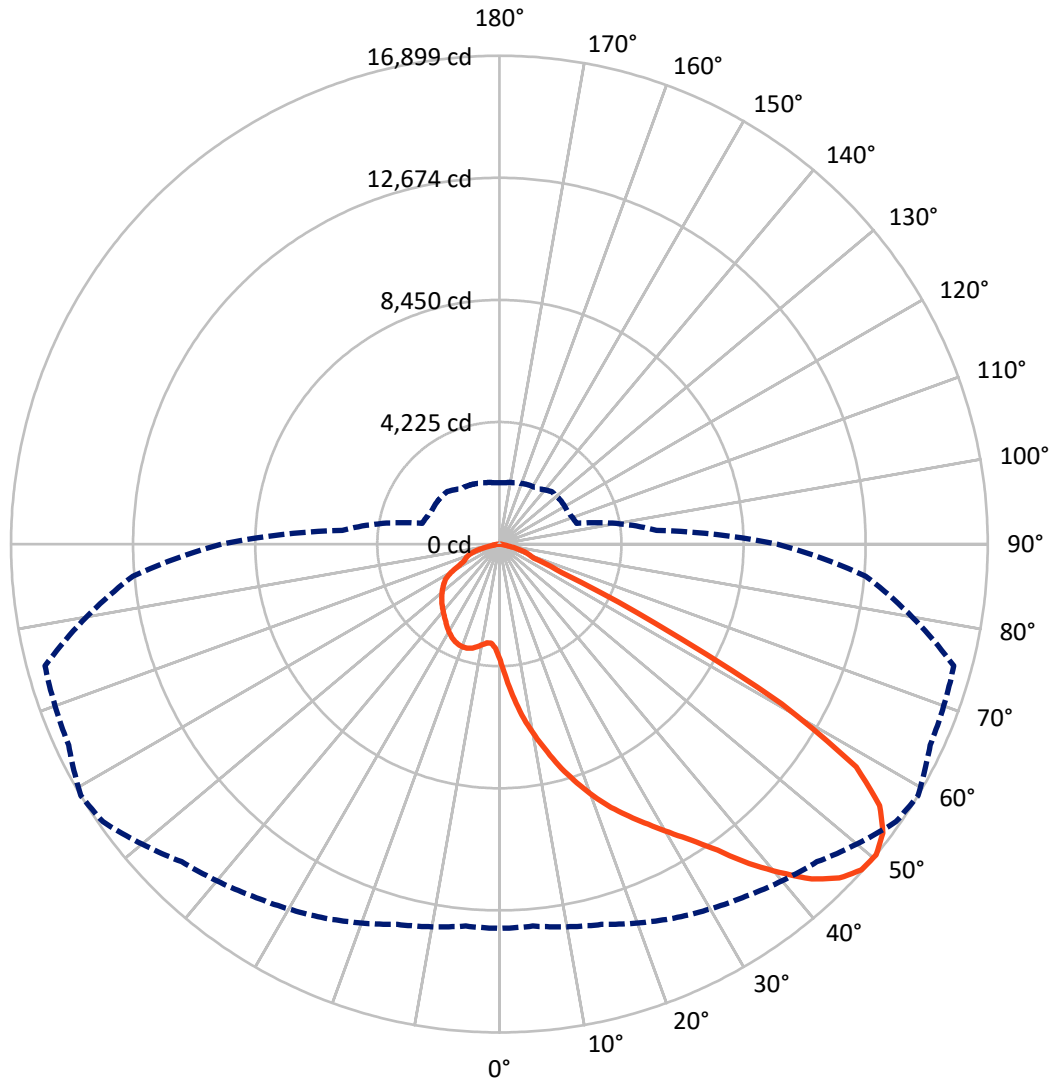
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 12.7 fc
 Type II - Short - N/A

REPORT NUMBER: P638218
CATALOG NUMBER: GWS-SA4E-735-U-T2R-W-GRSWH

Luminous Intensity Polar Plot



— Vertical Plane Through 59-Deg Lateral - - - Horizontal Cone Through 50-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 6110.3 | 0.0 | 6110.3 |
| | % Fixture | 23.0 | 0.0 | 23.0 |
| Street Side | Lumens | 20454.0 | 0.0 | 20454.0 |
| | % Fixture | 77.0 | 0.0 | 77.0 |
| Total | Lumens | 26564.3 | 0.0 | 26564.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 451.5 | 1.7 |
| 10°-20° | 1639.0 | 6.2 |
| 20°-30° | 3103.6 | 11.7 |
| 30°-40° | 5146.8 | 19.4 |
| 40°-50° | 7030.8 | 26.5 |
| 50°-60° | 6382.2 | 24.0 |
| 60°-70° | 2125.3 | 8.0 |
| 70°-80° | 619.9 | 2.3 |
| 80°-90° | 65.1 | 0.2 |
| 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° | 26564.3 | 100.0 |
| 0°-180° | 26564.3 | 100.0 |

Coefficient of Utilization



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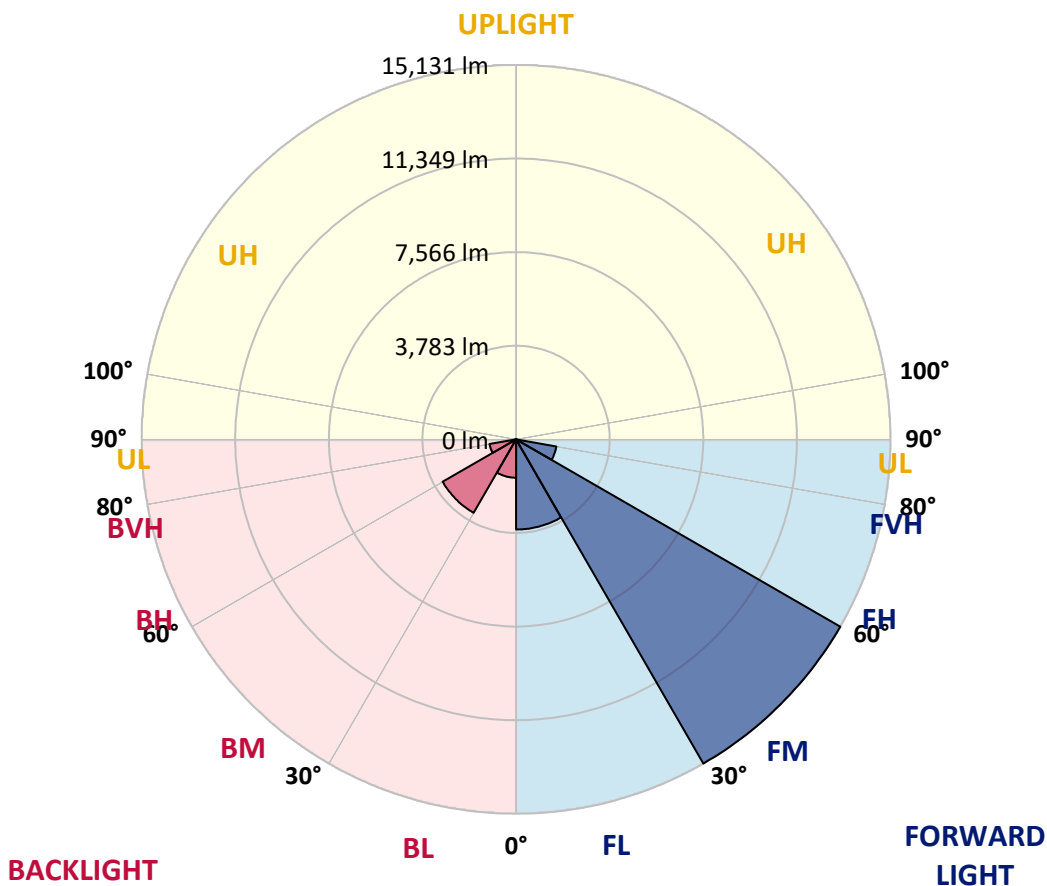
CATALOG NUMBER: GWS-SA4E-735-U-T2R-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 3642.6 | 13.7 | | | |
| FM (30°-60°) | 15131.4 | 57.0 | | | |
| FH (60°-80°) | 1654.6 | 6.2 | | | G1/1800 |
| FVH (80°-90°) | 25.5 | 0.1 | | | G1/100 |
| BL (0°-30°) | 1551.5 | 5.8 | B3/2500 | | |
| BM (30°-60°) | 3428.5 | 12.9 | B3/5000 | | |
| BH (60°-80°) | 1090.6 | 4.1 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 39.6 | 0.1 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G3

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 59° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 |
| 2.5° | 5214.8 | 5253.7 | 5193.1 | 5197.5 | 5046.0 | 4976.8 | 4782.0 | 4667.3 | 4591.6 | 4379.5 | 4187.0 |
| 5° | 6266.4 | 6220.9 | 6173.3 | 6145.2 | 6013.2 | 5827.1 | 5584.8 | 5392.2 | 5214.8 | 4799.3 | 4399.0 |
| 7.5° | 6911.2 | 6887.4 | 6854.9 | 6837.6 | 6707.8 | 6513.1 | 6270.7 | 6106.3 | 5848.8 | 5286.2 | 4656.5 |
| 10° | 7458.6 | 7430.5 | 7411.0 | 7424.0 | 7318.0 | 7192.5 | 6928.5 | 6740.3 | 6450.3 | 5801.2 | 4968.1 |
| 12.5° | 7882.7 | 7897.9 | 7904.4 | 7973.6 | 7928.2 | 7852.5 | 7579.8 | 7380.7 | 7058.3 | 6344.3 | 5333.8 |
| 15° | 8218.1 | 8213.8 | 8289.5 | 8421.5 | 8495.1 | 8447.5 | 8229.0 | 8062.3 | 7668.5 | 6878.7 | 5727.6 |
| 17.5° | 8296.0 | 8300.4 | 8419.4 | 8650.9 | 8891.1 | 9007.9 | 8884.6 | 8685.5 | 8296.0 | 7406.7 | 6136.6 |
| 20° | 8358.8 | 8367.4 | 8490.8 | 8754.8 | 9105.3 | 9432.0 | 9451.5 | 9308.7 | 8973.3 | 7978.0 | 6552.0 |
| 22.5° | 8754.8 | 8774.2 | 8806.7 | 8973.3 | 9289.2 | 9702.5 | 9929.7 | 9899.4 | 9618.1 | 8577.3 | 6999.9 |
| 25° | 9795.6 | 9737.1 | 9579.2 | 9531.6 | 9652.7 | 9988.1 | 10375.5 | 10433.9 | 10295.4 | 9237.3 | 7482.4 |
| 27.5° | 11080.9 | 11018.1 | 10784.4 | 10537.7 | 10275.9 | 10392.8 | 10806.0 | 10981.3 | 10983.5 | 9964.3 | 7967.1 |
| 30° | 12247.1 | 12197.4 | 12007.0 | 11654.3 | 11202.0 | 11033.2 | 11338.3 | 11574.2 | 11714.8 | 10803.9 | 8518.9 |
| 32.5° | 13244.7 | 13199.2 | 12941.7 | 12653.9 | 12212.5 | 11872.8 | 11983.2 | 12210.4 | 12539.3 | 11890.1 | 9204.8 |
| 35° | 14084.2 | 14038.8 | 13792.1 | 13502.1 | 13093.2 | 12889.8 | 12850.8 | 13006.6 | 13432.9 | 13023.9 | 9992.5 |
| 37.5° | 14765.8 | 14720.4 | 14462.9 | 14190.2 | 13878.7 | 13891.6 | 13950.1 | 14025.8 | 14270.3 | 14237.8 | 10834.2 |
| 40° | 15207.2 | 15159.6 | 14975.7 | 14781.0 | 14584.1 | 14739.8 | 15029.8 | 14938.9 | 15068.7 | 15218.0 | 11608.8 |
| 42.5° | 15404.1 | 15343.5 | 15237.5 | 15194.2 | 15133.7 | 15376.0 | 15934.3 | 15843.4 | 15687.6 | 15871.5 | 12184.4 |
| 45° | 15207.2 | 15155.3 | 15153.1 | 15285.1 | 15425.8 | 15737.4 | 16559.6 | 16486.0 | 16092.2 | 16187.4 | 12528.4 |
| 47.5° | 14603.5 | 14558.1 | 14681.4 | 15027.6 | 15373.8 | 15828.2 | 16838.7 | 16851.7 | 16380.0 | 16319.4 | 12751.3 |
| 50° | 13298.8 | 13268.5 | 13625.5 | 14281.1 | 14878.3 | 15544.8 | 16750.0 | 16899.3 | 16449.3 | 16278.3 | 12723.2 |
| 52.5° | 10645.9 | 10786.6 | 11563.4 | 12658.3 | 13818.1 | 15047.1 | 16421.1 | 16615.9 | 16116.0 | 16007.8 | 12571.7 |
| 55° | 7287.7 | 7352.6 | 8129.4 | 9728.5 | 11567.7 | 13969.5 | 15666.0 | 15966.7 | 15722.2 | 15962.4 | 12729.7 |
| 57.5° | 3773.7 | 3825.6 | 4438.0 | 5857.4 | 7846.0 | 11039.7 | 13569.2 | 14555.9 | 14928.1 | 16191.8 | 13220.9 |
| 60° | 1549.3 | 1592.6 | 1845.7 | 2531.7 | 3957.6 | 6428.7 | 9765.3 | 11228.0 | 12102.2 | 14787.5 | 11740.8 |
| 62.5° | 1125.2 | 1146.8 | 1268.0 | 1510.3 | 2072.9 | 3150.5 | 5526.4 | 6065.1 | 6679.7 | 9267.6 | 7454.3 |
| 65° | 947.7 | 971.5 | 1068.9 | 1216.1 | 1512.5 | 1932.3 | 2360.7 | 2373.7 | 2616.0 | 3775.8 | 2763.2 |
| 67.5° | 794.1 | 815.8 | 902.3 | 1027.8 | 1222.6 | 1371.9 | 1268.0 | 1270.2 | 1265.8 | 1369.7 | 1324.2 |
| 70° | 618.8 | 636.2 | 722.7 | 856.9 | 958.6 | 880.7 | 991.0 | 1097.0 | 1051.6 | 1092.7 | 1155.5 |
| 72.5° | 452.2 | 471.7 | 547.4 | 649.1 | 623.2 | 627.5 | 802.8 | 911.0 | 885.0 | 930.4 | 988.9 |
| 75° | 326.7 | 339.7 | 378.7 | 324.6 | 341.9 | 413.3 | 564.8 | 623.2 | 649.1 | 688.1 | 740.0 |
| 77.5° | 106.0 | 106.0 | 119.0 | 149.3 | 186.1 | 229.4 | 287.8 | 311.6 | 350.5 | 393.8 | 430.6 |
| 80° | 54.1 | 56.3 | 67.1 | 82.2 | 103.9 | 132.0 | 168.8 | 179.6 | 199.1 | 222.9 | 238.0 |
| 82.5° | 26.0 | 28.1 | 32.5 | 41.1 | 54.1 | 69.2 | 93.0 | 103.9 | 116.8 | 132.0 | 142.8 |
| 85° | 6.5 | 6.5 | 8.7 | 13.0 | 17.3 | 26.0 | 34.6 | 41.1 | 51.9 | 62.8 | 69.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 6.5 | 8.7 | 10.8 | 13.0 | 17.3 |
| 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: P638218

CATALOG NUMBER: GWS-SA4E-735-U-T2R-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 | 4024.7 |
| 2.5° | 4100.4 | 3979.2 | 3823.4 | 3691.5 | 3570.3 | 3477.2 | 3397.2 | 3358.2 | 3321.4 | 3295.5 | 3304.1 |
| 5° | 4212.9 | 4005.2 | 3715.3 | 3514.0 | 3390.7 | 3327.9 | 3284.7 | 3263.0 | 3258.7 | 3241.4 | 3234.9 |
| 7.5° | 4377.4 | 4080.9 | 3693.6 | 3490.2 | 3408.0 | 3375.5 | 3351.7 | 3338.8 | 3345.2 | 3327.9 | 3321.4 |
| 10° | 4580.8 | 4206.4 | 3747.7 | 3568.1 | 3496.7 | 3472.9 | 3446.9 | 3429.6 | 3421.0 | 3395.0 | 3390.7 |
| 12.5° | 4833.9 | 4362.2 | 3845.1 | 3667.7 | 3596.2 | 3555.1 | 3520.5 | 3490.2 | 3470.7 | 3438.3 | 3429.6 |
| 15° | 5106.6 | 4535.3 | 3959.8 | 3765.0 | 3680.6 | 3620.0 | 3563.8 | 3518.3 | 3483.7 | 3440.5 | 3434.0 |
| 17.5° | 5403.0 | 4717.1 | 4055.0 | 3832.1 | 3723.9 | 3643.8 | 3561.6 | 3494.5 | 3446.9 | 3390.7 | 3384.2 |
| 20° | 5712.4 | 4901.0 | 4126.4 | 3864.6 | 3726.1 | 3617.9 | 3507.5 | 3418.8 | 3358.2 | 3302.0 | 3297.6 |
| 22.5° | 6032.7 | 5069.8 | 4169.7 | 3855.9 | 3691.5 | 3557.3 | 3425.3 | 3325.8 | 3254.4 | 3187.3 | 3183.0 |
| 25° | 6355.1 | 5232.1 | 4180.5 | 3821.3 | 3622.2 | 3466.4 | 3334.4 | 3217.6 | 3137.5 | 3061.8 | 3053.1 |
| 27.5° | 6681.8 | 5368.4 | 4154.5 | 3752.0 | 3529.2 | 3360.4 | 3228.4 | 3113.7 | 3031.5 | 2955.8 | 2942.8 |
| 30° | 7030.2 | 5485.2 | 4098.2 | 3661.2 | 3421.0 | 3247.9 | 3118.0 | 3031.5 | 2953.6 | 2877.9 | 2864.9 |
| 32.5° | 7402.4 | 5586.9 | 4018.2 | 3550.8 | 3295.5 | 3135.4 | 3040.1 | 2962.3 | 2884.4 | 2817.3 | 2804.3 |
| 35° | 7846.0 | 5654.0 | 3899.2 | 3408.0 | 3178.6 | 3053.1 | 2988.2 | 2897.3 | 2802.1 | 2728.6 | 2722.1 |
| 37.5° | 8304.7 | 5706.0 | 3756.4 | 3271.7 | 3076.9 | 3005.5 | 2951.4 | 2828.1 | 2709.1 | 2620.4 | 2609.6 |
| 40° | 8748.3 | 5749.2 | 3578.9 | 3144.0 | 2983.9 | 2970.9 | 2897.3 | 2743.7 | 2538.1 | 2438.6 | 2430.0 |
| 42.5° | 9161.6 | 5762.2 | 3392.8 | 3007.7 | 2899.5 | 2893.0 | 2810.8 | 2572.8 | 2414.8 | 2352.1 | 2343.4 |
| 45° | 9445.0 | 5751.4 | 3200.3 | 2880.0 | 2815.1 | 2780.5 | 2693.9 | 2449.4 | 2352.1 | 2295.8 | 2285.0 |
| 47.5° | 9654.9 | 5695.1 | 2983.9 | 2745.9 | 2719.9 | 2672.3 | 2486.2 | 2371.5 | 2280.7 | 2224.4 | 2213.6 |
| 50° | 9618.1 | 5461.4 | 2765.3 | 2616.0 | 2605.2 | 2564.1 | 2334.7 | 2274.2 | 2194.1 | 2133.5 | 2124.9 |
| 52.5° | 9427.7 | 5017.9 | 2542.5 | 2473.2 | 2494.9 | 2414.8 | 2226.6 | 2157.3 | 2088.1 | 2018.8 | 2003.7 |
| 55° | 9475.3 | 4697.6 | 2373.7 | 2334.7 | 2373.7 | 2191.9 | 2105.4 | 2031.8 | 1966.9 | 1899.8 | 1886.8 |
| 57.5° | 9683.0 | 4381.7 | 2194.1 | 2185.4 | 2226.6 | 2021.0 | 1949.6 | 1856.5 | 1763.5 | 1709.4 | 1709.4 |
| 60° | 8131.6 | 3193.8 | 1878.2 | 1899.8 | 1992.9 | 1882.5 | 1819.8 | 1724.6 | 1622.9 | 1575.3 | 1575.3 |
| 62.5° | 4808.0 | 2003.7 | 1557.9 | 1534.1 | 1592.6 | 1661.8 | 1696.4 | 1618.5 | 1497.4 | 1434.6 | 1436.8 |
| 65° | 2118.4 | 1458.4 | 1374.0 | 1354.5 | 1337.2 | 1384.8 | 1480.0 | 1486.5 | 1358.9 | 1285.3 | 1287.5 |
| 67.5° | 1304.8 | 1319.9 | 1285.3 | 1270.2 | 1255.0 | 1246.4 | 1237.7 | 1242.0 | 1207.4 | 1140.3 | 1138.2 |
| 70° | 1177.1 | 1218.2 | 1194.4 | 1181.4 | 1162.0 | 1146.8 | 1094.9 | 1010.5 | 952.1 | 934.8 | 954.2 |
| 72.5° | 1012.7 | 1068.9 | 1055.9 | 1049.4 | 1025.6 | 988.9 | 919.6 | 837.4 | 768.2 | 724.9 | 733.5 |
| 75° | 763.8 | 809.3 | 815.8 | 817.9 | 792.0 | 757.3 | 685.9 | 616.7 | 556.1 | 510.7 | 521.5 |
| 77.5° | 439.3 | 465.2 | 471.7 | 478.2 | 458.7 | 445.7 | 398.1 | 348.4 | 315.9 | 268.3 | 281.3 |
| 80° | 244.5 | 255.3 | 255.3 | 257.5 | 246.7 | 231.5 | 199.1 | 170.9 | 155.8 | 134.2 | 136.3 |
| 82.5° | 147.1 | 151.5 | 153.6 | 155.8 | 149.3 | 134.2 | 110.4 | 90.9 | 82.2 | 71.4 | 69.2 |
| 85° | 71.4 | 75.7 | 75.7 | 77.9 | 67.1 | 58.4 | 45.4 | 34.6 | 30.3 | 21.6 | 23.8 |
| 87.5° | 17.3 | 19.5 | 19.5 | 17.3 | 15.1 | 10.8 | 6.5 | 2.2 | 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

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 |

REPORT NUMBER: SP1-2101-121-7

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 (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 | 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

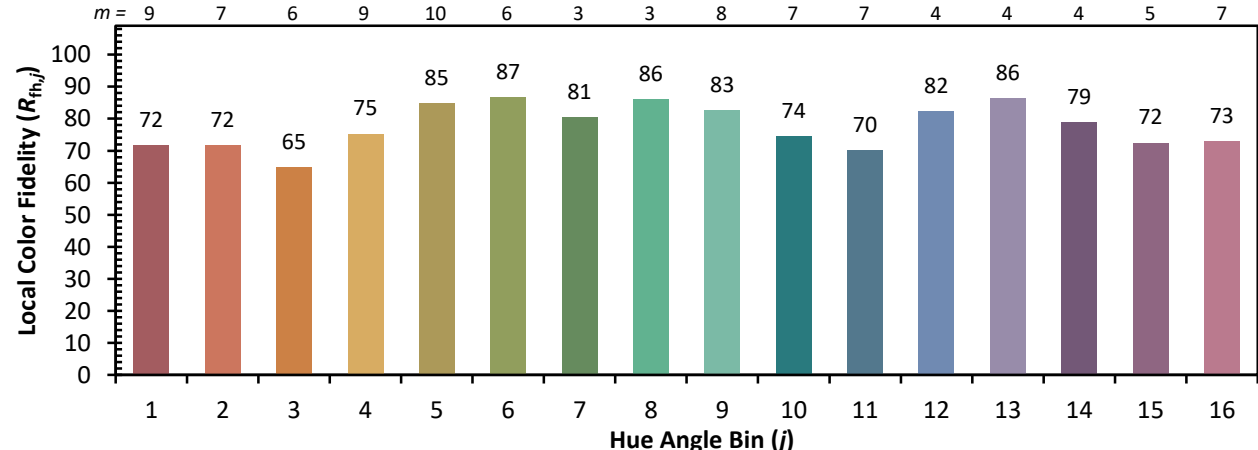
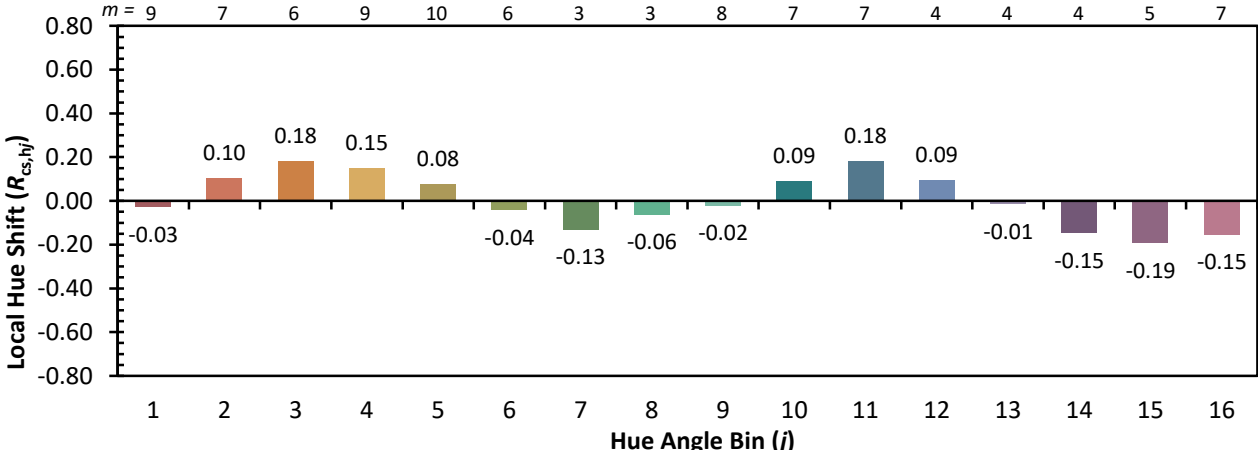
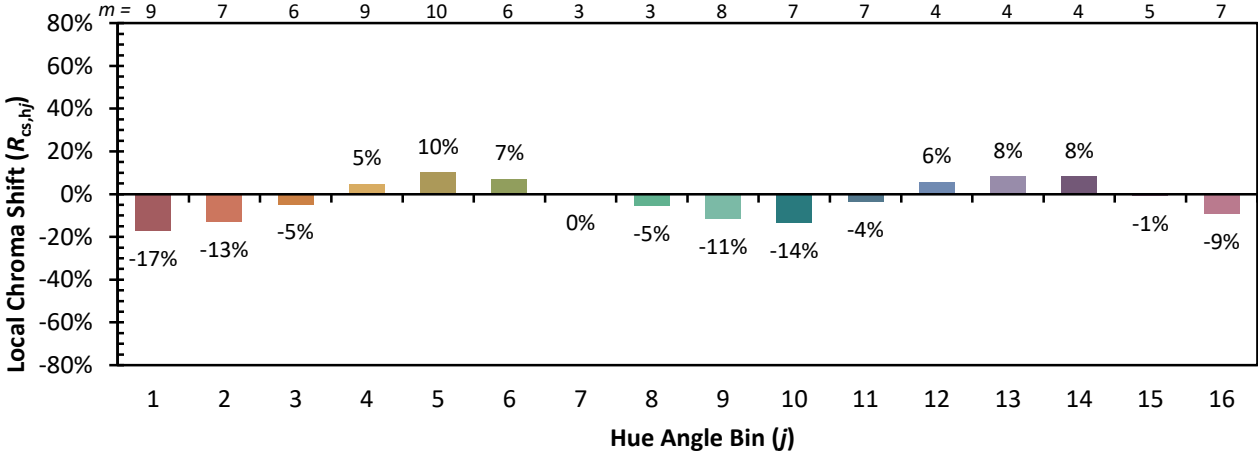


Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| 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)