

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: P632831

Luminaire Tested: GWS-SA2D-740-U-T3-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P632831
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-24)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA2D-740-U-T3-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III 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: 7210.1 lumens
Efficiency: N/A
Efficacy: 87.8 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G1

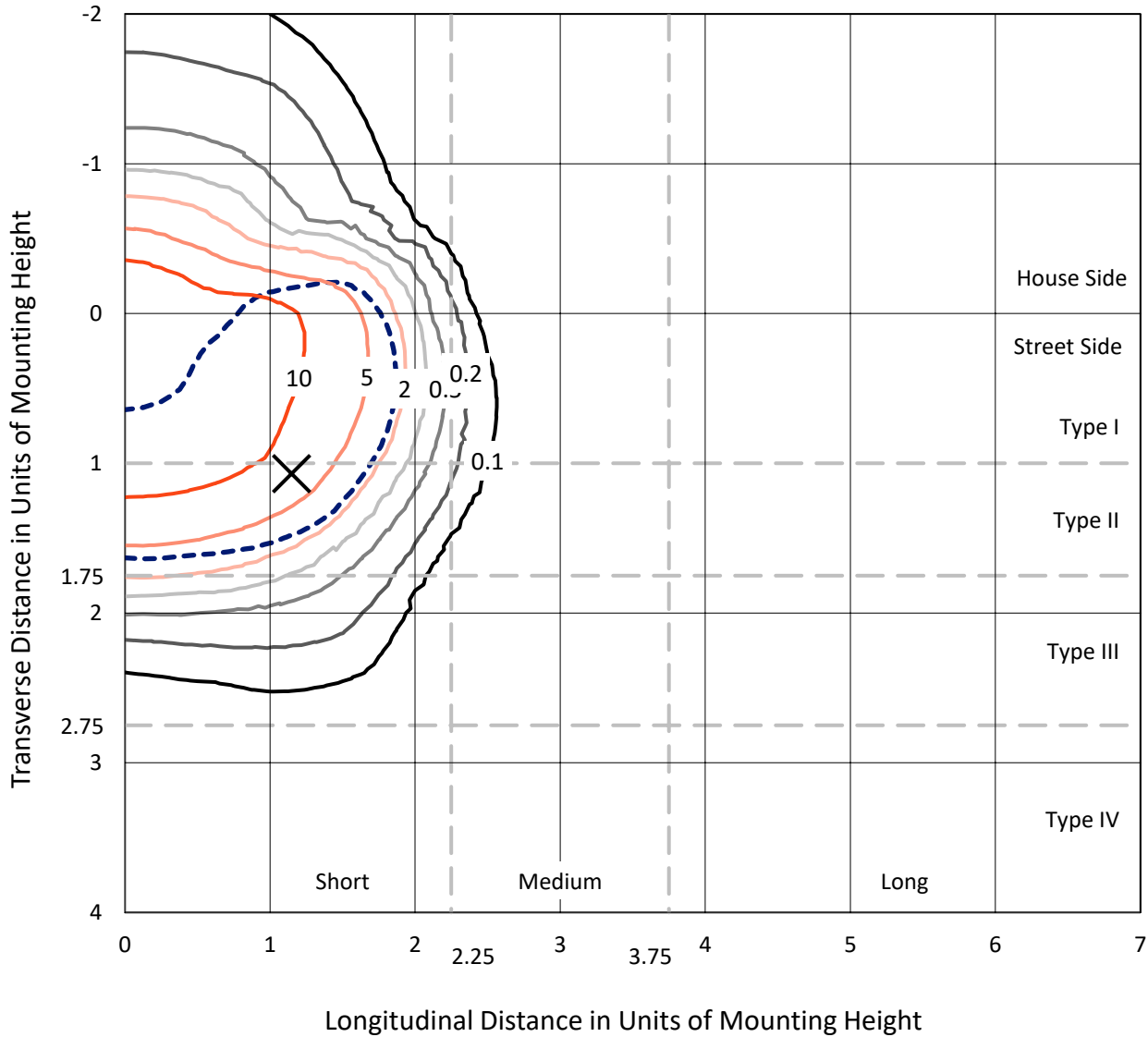
Input Watts (W): 82.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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 CATALOG NUMBER: GWS-SA2D-740-U-T3-W-GRSBK

Iso-Footcandle Lines of Horizontal Illumination

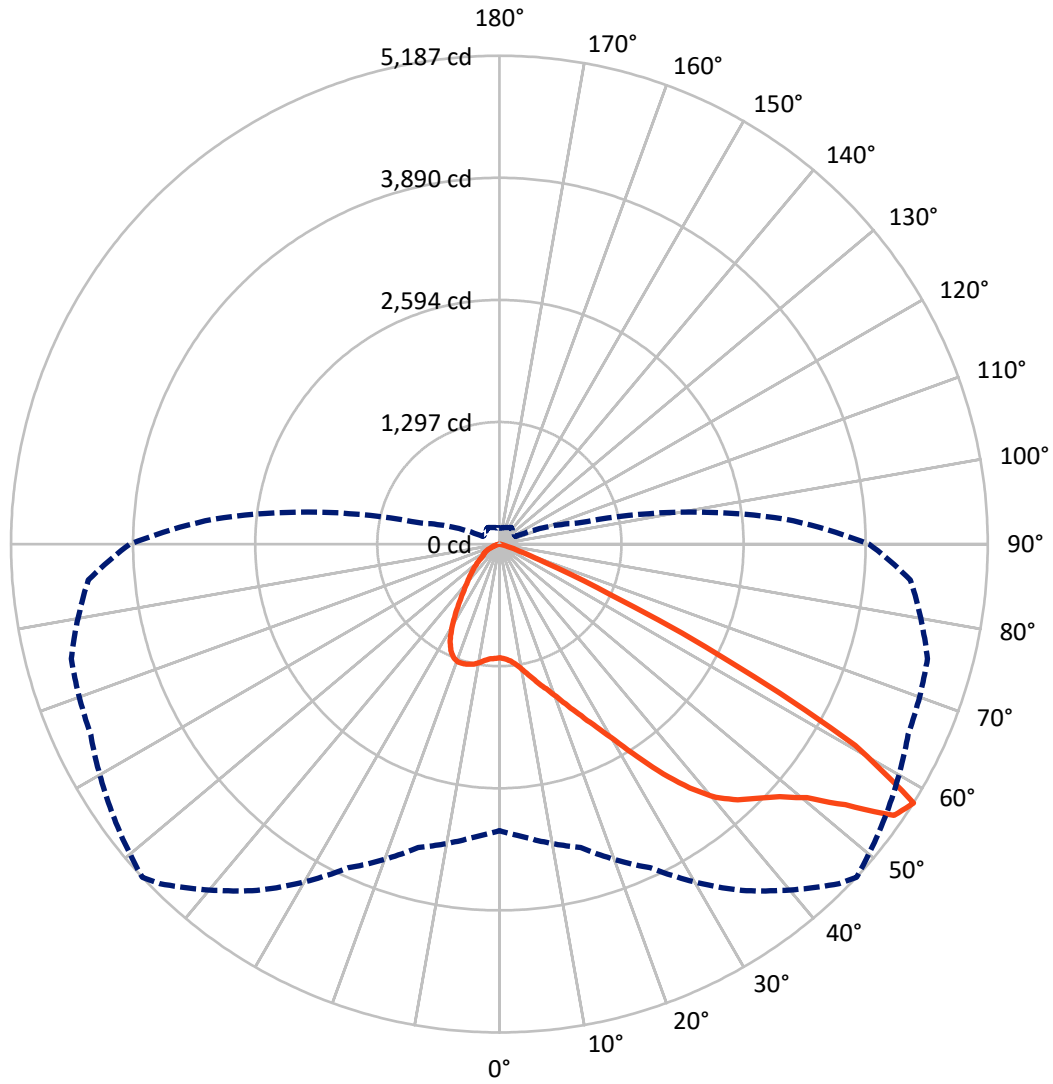
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 17.1 fc
 Type II - Short - N/A

REPORT NUMBER: P632831
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Luminous Intensity Polar Plot



— Vertical Plane Through 47-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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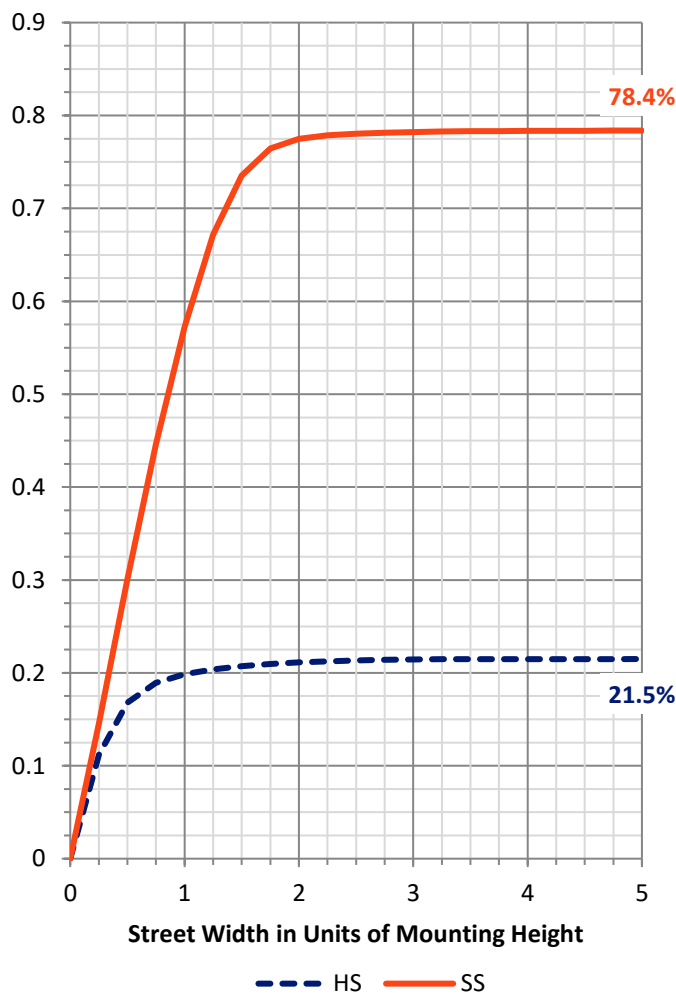
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1564.2 | 0.0 | 1564.2 |
| | % Fixture | 21.7 | 0.0 | 21.7 |
| Street Side | Lumens | 5645.9 | 0.0 | 5645.9 |
| | % Fixture | 78.3 | 0.0 | 78.3 |
| Total | Lumens | 7210.1 | 0.0 | 7210.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 120.1 | 1.7 |
| 10°-20° | 405.2 | 5.6 |
| 20°-30° | 752.3 | 10.4 |
| 30°-40° | 1204.3 | 16.7 |
| 40°-50° | 1760.4 | 24.4 |
| 50°-60° | 2172.7 | 30.1 |
| 60°-70° | 726.0 | 10.1 |
| 70°-80° | 67.7 | 0.9 |
| 80°-90° | 1.4 | 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° | 7210.1 | 100.0 |
| 0°-180° | 7210.1 | 100.0 |

Coefficient of Utilization



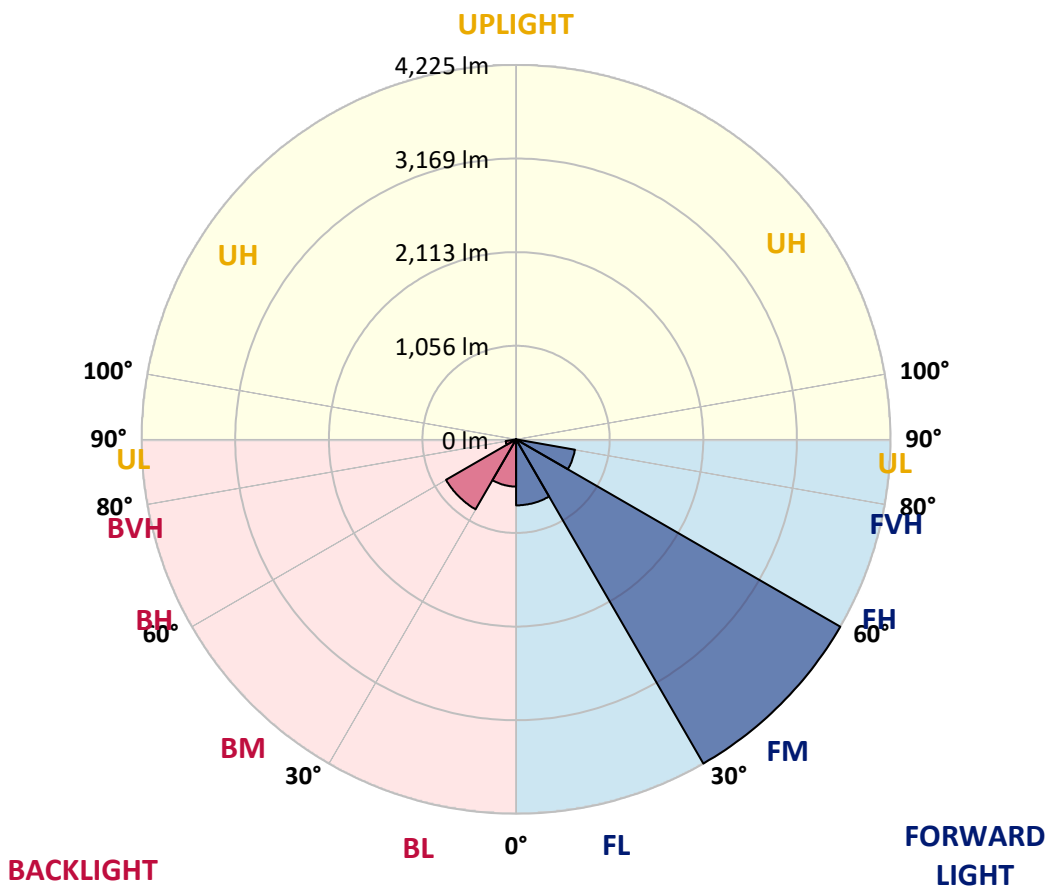
REPORT NUMBER: P632831

CATALOG NUMBER: GWS-SA2D-740-U-T3-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 745.1 | 10.3 | | | |
| FM (30°-60°) | 4225.1 | 58.6 | | | |
| FH (60°-80°) | 674.7 | 9.4 | | | G1/1800 |
| FVH (80°-90°) | 1.0 | 0.0 | | | G0/10 |
| BL (0°-30°) | 532.4 | 7.4 | B2/1000 | | |
| BM (30°-60°) | 912.4 | 12.7 | B1/1000 | | |
| BH (60°-80°) | 118.9 | 1.6 | B1/500 | | G1/500 |
| BVH (80°-90°) | 0.4 | 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° | 47° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 |
| 2.5° | 1219.5 | 1218.7 | 1217.9 | 1222.9 | 1221.2 | 1220.4 | 1222.0 | 1222.0 | 1222.0 | 1217.0 | 1207.0 |
| 5° | 1248.8 | 1248.8 | 1248.0 | 1253.0 | 1248.8 | 1246.3 | 1247.2 | 1247.2 | 1243.8 | 1234.6 | 1222.0 |
| 7.5° | 1294.9 | 1293.2 | 1291.5 | 1296.5 | 1292.4 | 1291.5 | 1293.2 | 1288.2 | 1282.3 | 1267.2 | 1249.7 |
| 10° | 1361.0 | 1361.0 | 1358.5 | 1363.5 | 1360.2 | 1358.5 | 1358.5 | 1355.1 | 1344.2 | 1320.8 | 1294.9 |
| 12.5° | 1452.2 | 1448.0 | 1442.2 | 1438.0 | 1436.3 | 1435.5 | 1436.3 | 1431.3 | 1419.6 | 1389.4 | 1353.5 |
| 15° | 1551.8 | 1548.5 | 1539.3 | 1532.6 | 1523.4 | 1521.7 | 1526.7 | 1522.5 | 1510.8 | 1469.8 | 1418.7 |
| 17.5° | 1677.4 | 1681.6 | 1658.1 | 1643.9 | 1617.1 | 1615.4 | 1617.1 | 1623.8 | 1615.4 | 1562.7 | 1488.2 |
| 20° | 1784.5 | 1787.9 | 1770.3 | 1760.2 | 1736.0 | 1725.1 | 1728.4 | 1739.3 | 1730.1 | 1668.2 | 1564.4 |
| 22.5° | 1899.2 | 1903.4 | 1885.0 | 1864.0 | 1853.2 | 1853.2 | 1865.7 | 1880.8 | 1868.2 | 1787.0 | 1651.4 |
| 25° | 2036.5 | 2039.8 | 2024.7 | 1997.1 | 1977.9 | 2002.1 | 2020.6 | 2060.7 | 2039.8 | 1929.3 | 1754.4 |
| 27.5° | 2193.8 | 2194.7 | 2172.9 | 2144.4 | 2134.4 | 2179.6 | 2198.0 | 2259.9 | 2251.6 | 2089.2 | 1863.2 |
| 30° | 2362.1 | 2362.9 | 2357.9 | 2338.6 | 2329.4 | 2388.8 | 2414.0 | 2503.5 | 2497.7 | 2287.6 | 2011.4 |
| 32.5° | 2537.0 | 2537.0 | 2546.2 | 2544.5 | 2555.4 | 2652.5 | 2692.7 | 2794.8 | 2788.9 | 2530.3 | 2195.5 |
| 35° | 2712.8 | 2713.6 | 2729.5 | 2769.7 | 2814.9 | 2943.8 | 2996.5 | 3120.4 | 3107.0 | 2820.7 | 2430.7 |
| 37.5° | 2912.8 | 2904.4 | 2926.2 | 2986.5 | 3086.9 | 3235.9 | 3286.1 | 3404.1 | 3389.1 | 3117.9 | 2737.9 |
| 40° | 3153.9 | 3138.8 | 3138.8 | 3209.1 | 3323.0 | 3494.5 | 3537.2 | 3595.8 | 3544.8 | 3358.1 | 3039.2 |
| 42.5° | 3420.1 | 3405.8 | 3387.4 | 3449.3 | 3544.8 | 3678.7 | 3713.8 | 3697.9 | 3656.1 | 3584.9 | 3382.4 |
| 45° | 3689.6 | 3667.8 | 3680.4 | 3718.0 | 3773.3 | 3836.9 | 3850.3 | 3776.6 | 3757.4 | 3777.5 | 3666.1 |
| 47.5° | 3894.6 | 3879.6 | 3910.5 | 3963.3 | 4008.5 | 4017.7 | 4008.5 | 3906.4 | 3904.7 | 3975.8 | 3862.8 |
| 50° | 3963.3 | 3964.9 | 4050.3 | 4165.8 | 4238.7 | 4246.2 | 4233.6 | 4116.4 | 4100.5 | 4121.5 | 3969.1 |
| 52.5° | 3970.0 | 3976.7 | 4101.4 | 4321.5 | 4519.9 | 4610.3 | 4600.2 | 4473.9 | 4318.2 | 4295.6 | 4129.8 |
| 55° | 3808.4 | 3847.8 | 4021.9 | 4343.3 | 4765.1 | 5053.9 | 5087.4 | 4845.5 | 4614.5 | 4595.2 | 4475.5 |
| 57.5° | 3044.2 | 3124.6 | 3334.7 | 3792.5 | 4491.4 | 5099.9 | 5187.0 | 5012.9 | 4789.4 | 4707.4 | 4382.6 |
| 60° | 1819.7 | 1919.3 | 2121.0 | 2682.6 | 3418.4 | 4191.8 | 4341.6 | 4365.9 | 4262.9 | 4026.1 | 3362.3 |
| 62.5° | 780.9 | 772.6 | 1021.2 | 1451.4 | 2033.1 | 2664.2 | 2732.0 | 2837.5 | 2927.0 | 2679.3 | 2040.6 |
| 65° | 267.8 | 291.3 | 405.1 | 654.5 | 1017.8 | 1237.1 | 1297.4 | 1392.0 | 1519.2 | 1253.9 | 747.5 |
| 67.5° | 165.7 | 175.8 | 233.5 | 386.7 | 549.1 | 540.7 | 513.9 | 498.9 | 485.5 | 332.3 | 205.1 |
| 70° | 120.5 | 128.9 | 164.1 | 266.2 | 369.1 | 259.5 | 225.2 | 182.5 | 202.6 | 186.7 | 145.6 |
| 72.5° | 81.2 | 87.9 | 113.0 | 161.5 | 189.2 | 126.4 | 117.2 | 133.1 | 160.7 | 153.2 | 118.9 |
| 75° | 48.5 | 52.7 | 64.5 | 78.7 | 77.0 | 65.3 | 66.1 | 93.7 | 123.0 | 114.7 | 84.5 |
| 77.5° | 33.5 | 35.2 | 42.7 | 51.1 | 37.7 | 20.1 | 18.4 | 25.9 | 41.9 | 41.9 | 28.5 |
| 80° | 8.4 | 10.9 | 10.9 | 6.7 | 5.9 | 5.0 | 5.0 | 7.5 | 11.7 | 8.4 | 4.2 |
| 82.5° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 1.7 | 1.7 | 1.7 | 1.7 |
| 85° | 0.0 | 0.0 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 1.7 | 1.7 | 1.7 |
| 87.5° | 0.0 | 0.0 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 1.7 | 1.7 |
| 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: P632831

CATALOG NUMBER: GWS-SA2D-740-U-T3-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 | 1207.0 |
| 2.5° | 1212.8 | 1202.8 | 1209.5 | 1207.8 | 1212.8 | 1214.5 | 1207.0 | 1205.3 | 1206.1 | 1196.1 | 1192.7 |
| 5° | 1224.6 | 1212.8 | 1216.2 | 1212.8 | 1218.7 | 1223.7 | 1221.2 | 1224.6 | 1228.7 | 1221.2 | 1217.9 |
| 7.5° | 1249.7 | 1237.9 | 1237.1 | 1232.1 | 1240.5 | 1243.8 | 1243.0 | 1252.2 | 1260.5 | 1255.5 | 1250.5 |
| 10° | 1293.2 | 1277.3 | 1275.6 | 1271.4 | 1273.9 | 1276.5 | 1267.2 | 1268.9 | 1276.5 | 1270.6 | 1268.1 |
| 12.5° | 1346.8 | 1327.5 | 1323.3 | 1313.3 | 1313.3 | 1300.7 | 1280.6 | 1276.5 | 1282.3 | 1278.1 | 1273.9 |
| 15° | 1404.5 | 1378.6 | 1371.9 | 1354.3 | 1337.6 | 1314.1 | 1293.2 | 1288.2 | 1292.4 | 1287.3 | 1284.0 |
| 17.5° | 1469.0 | 1439.7 | 1417.9 | 1386.9 | 1350.1 | 1322.5 | 1299.1 | 1288.2 | 1281.5 | 1271.4 | 1270.6 |
| 20° | 1532.6 | 1494.1 | 1457.2 | 1407.9 | 1359.3 | 1317.5 | 1279.0 | 1250.5 | 1226.2 | 1211.2 | 1205.3 |
| 22.5° | 1606.2 | 1549.3 | 1489.9 | 1420.4 | 1350.9 | 1287.3 | 1219.5 | 1171.0 | 1129.1 | 1114.9 | 1108.2 |
| 25° | 1684.9 | 1611.3 | 1522.5 | 1432.1 | 1322.5 | 1220.4 | 1128.3 | 1056.3 | 1001.1 | 982.7 | 975.1 |
| 27.5° | 1772.0 | 1670.7 | 1556.0 | 1429.6 | 1263.9 | 1125.0 | 1002.7 | 913.2 | 858.8 | 842.0 | 847.9 |
| 30° | 1882.5 | 1747.7 | 1597.9 | 1403.7 | 1176.0 | 991.0 | 847.9 | 772.6 | 731.6 | 715.6 | 716.5 |
| 32.5° | 2029.8 | 1858.2 | 1659.0 | 1348.4 | 1063.0 | 838.7 | 713.1 | 657.9 | 630.3 | 609.3 | 607.7 |
| 35° | 2240.7 | 2026.4 | 1715.9 | 1259.7 | 925.7 | 703.1 | 611.9 | 568.3 | 529.8 | 505.6 | 509.7 |
| 37.5° | 2493.5 | 2238.2 | 1746.9 | 1140.0 | 771.7 | 597.6 | 535.7 | 491.3 | 447.8 | 411.8 | 416.0 |
| 40° | 2793.1 | 2515.2 | 1744.3 | 982.7 | 631.1 | 525.6 | 472.1 | 420.2 | 365.8 | 333.1 | 336.5 |
| 42.5° | 3127.1 | 2777.2 | 1689.9 | 816.1 | 523.1 | 467.1 | 411.0 | 345.7 | 293.0 | 272.9 | 273.7 |
| 45° | 3416.7 | 2989.8 | 1594.5 | 643.7 | 440.3 | 410.1 | 347.4 | 280.4 | 257.0 | 242.7 | 241.9 |
| 47.5° | 3631.0 | 3145.5 | 1458.1 | 506.4 | 373.3 | 358.2 | 285.4 | 251.1 | 232.7 | 221.0 | 219.3 |
| 50° | 3750.7 | 3199.9 | 1307.4 | 396.7 | 315.6 | 303.8 | 255.3 | 227.7 | 215.1 | 207.6 | 205.9 |
| 52.5° | 3911.4 | 3265.2 | 1199.4 | 313.0 | 264.5 | 248.6 | 235.2 | 211.8 | 203.4 | 197.5 | 195.0 |
| 55° | 4165.8 | 3391.6 | 1105.7 | 248.6 | 220.1 | 216.8 | 221.8 | 202.6 | 197.5 | 188.3 | 185.0 |
| 57.5° | 3926.4 | 3046.7 | 858.8 | 192.5 | 185.8 | 198.4 | 214.3 | 193.4 | 180.8 | 172.4 | 169.1 |
| 60° | 2763.0 | 2025.6 | 431.9 | 154.8 | 165.7 | 185.8 | 201.7 | 174.9 | 162.4 | 164.1 | 162.4 |
| 62.5° | 1523.4 | 1013.6 | 194.2 | 129.7 | 144.0 | 164.1 | 172.4 | 151.5 | 143.1 | 157.4 | 159.9 |
| 65° | 498.0 | 344.9 | 112.2 | 100.4 | 113.8 | 133.9 | 149.0 | 144.0 | 142.3 | 159.0 | 164.1 |
| 67.5° | 153.2 | 113.8 | 76.2 | 72.0 | 78.7 | 98.8 | 125.6 | 155.7 | 167.4 | 172.4 | 174.9 |
| 70° | 114.7 | 89.6 | 65.3 | 61.1 | 64.5 | 75.3 | 106.3 | 129.7 | 122.2 | 123.0 | 121.4 |
| 72.5° | 92.1 | 71.1 | 56.1 | 53.6 | 53.6 | 51.9 | 56.1 | 70.3 | 79.5 | 83.7 | 83.7 |
| 75° | 64.5 | 50.2 | 42.7 | 39.3 | 31.0 | 25.1 | 22.6 | 22.6 | 20.1 | 19.3 | 18.4 |
| 77.5° | 21.8 | 18.4 | 16.7 | 13.4 | 9.2 | 7.5 | 6.7 | 5.9 | 4.2 | 2.5 | 1.7 |
| 80° | 3.3 | 2.5 | 1.7 | 1.7 | 1.7 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 |
| 82.5° | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 1.7 | 1.7 | 1.7 | 1.7 | 0.8 | 0.8 | 0.8 | 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 |

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CIE 1931 Chromaticity Diagram



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



CCT = 3905K
 CIE x = 0.3841
 CIE y = 0.3774
 Duv = -0.0008

Point lies inside the ANSI 4000K 4-step quadrangle

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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 $R_a = 71.2$
 $R_9 = -29.7$



Color Vector Graphics

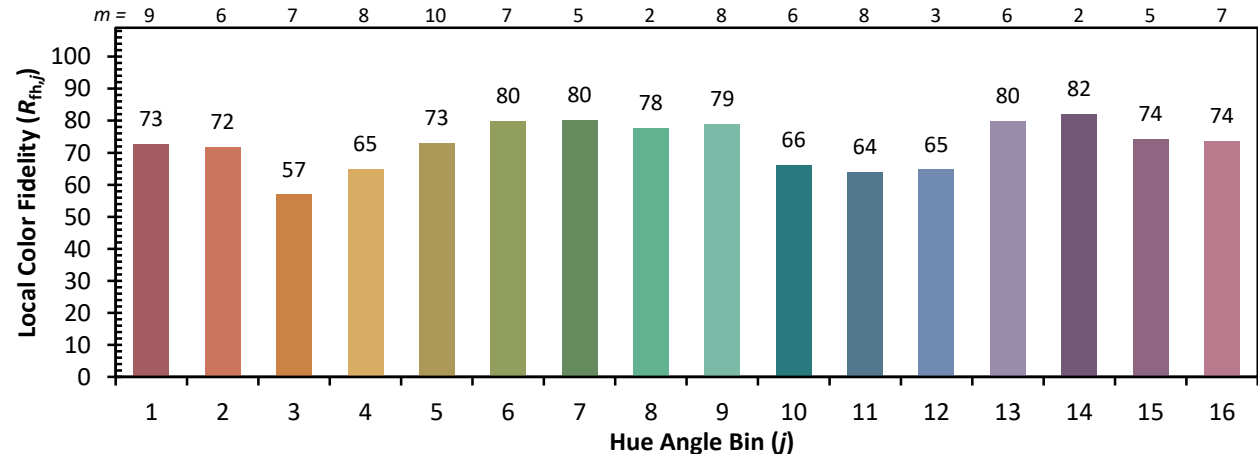
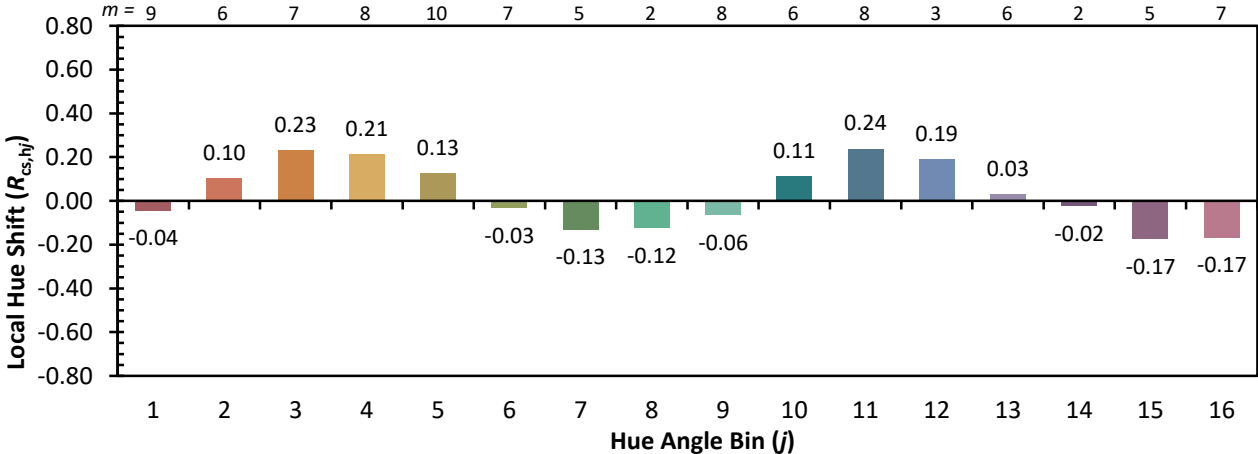
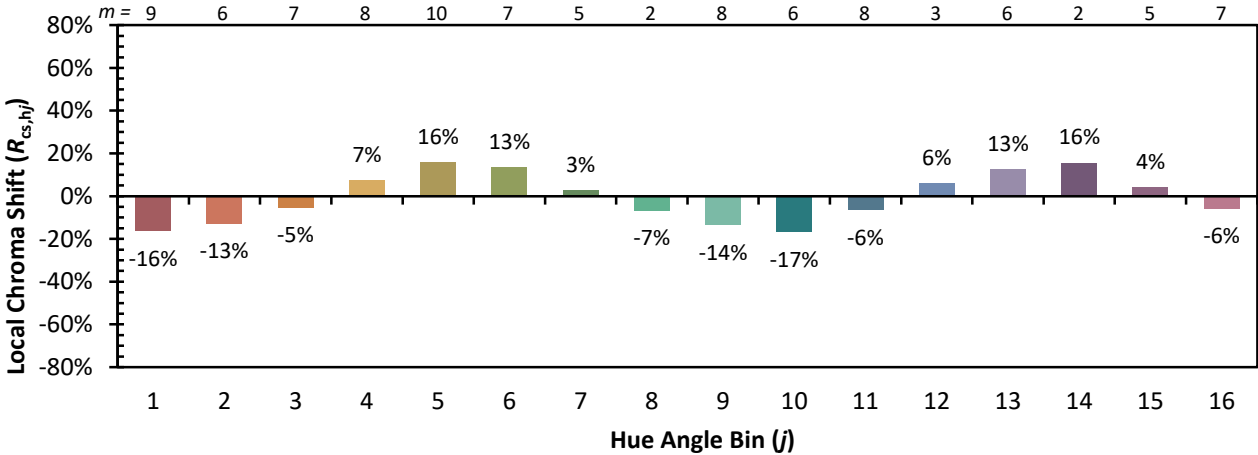


Individual Sample Fidelity Index ($R_{f,i}$)

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