

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: P320013

Luminaire Tested: **GLEON-SA9C-740-U-SL4**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P320013
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-24)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA9C-740-U-SL4
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(9) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV
SPILL LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 60087 lumens
Efficiency: N/A
Efficacy: 119.9 lumens/watt
Luminous Opening: Rectangular (W 2.5' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B3 - U0 - G5

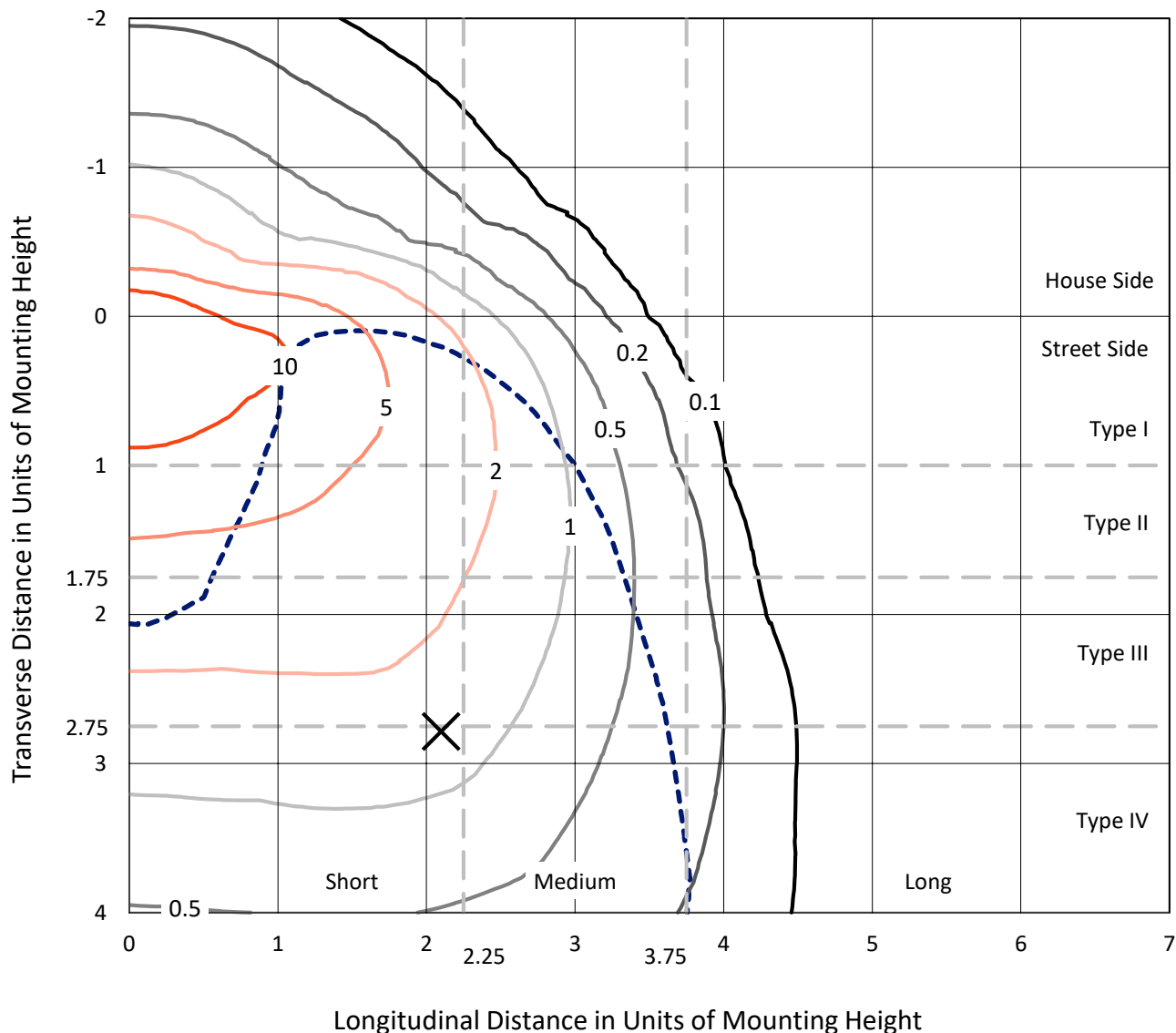
Input Watts (W): 501
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P320013
 CATALOG NUMBER: GLEON-SA9C-740-U-SL4

Iso-Footcandle Lines of Horizontal Illumination

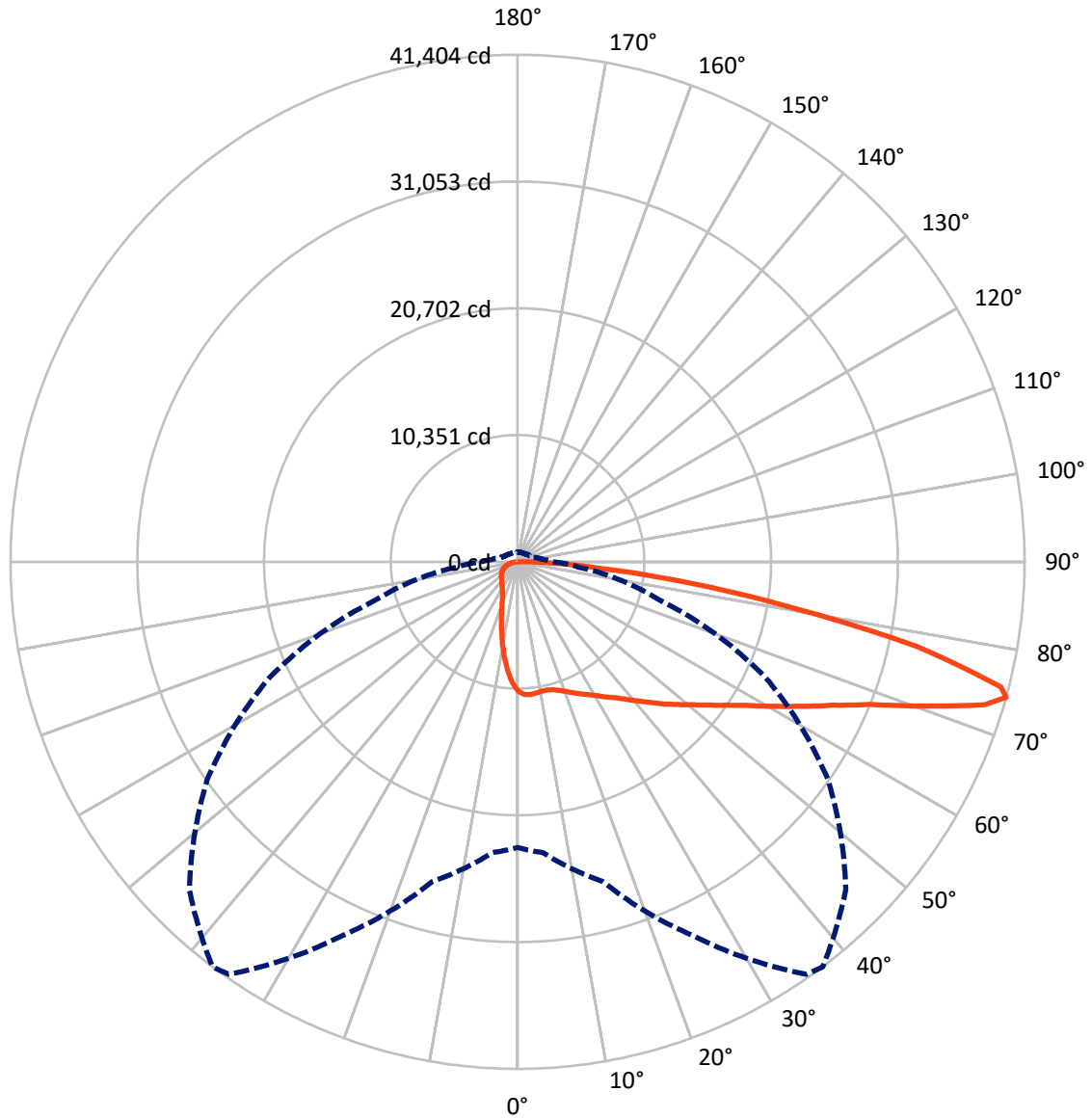
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 17.2 fc
 Type IV - Short - N/A

REPORT NUMBER: P320013
CATALOG NUMBER: GLEON-SA9C-740-U-SL4

Luminous Intensity Polar Plot



— Vertical Plane Through 37-Deg Lateral - - - Horizontal Cone Through 74-Deg Vertical

REPORT NUMBER: P320013
 CATALOG NUMBER: GLEON-SA9C-740-U-SL4

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 8267.6 | 0.0 | 8267.6 |
| | % Fixture | 13.8 | 0.0 | 13.8 |
| Street Side | Lumens | 51819.5 | 0.0 | 51819.5 |
| | % Fixture | 86.2 | 0.0 | 86.2 |
| Total | Lumens | 60087.0 | 0.0 | 60087.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 932.3 | 1.6 |
| 10°-20° | 2389.8 | 4.0 |
| 20°-30° | 3682.2 | 6.1 |
| 30°-40° | 5354.4 | 8.9 |
| 40°-50° | 7880.8 | 13.1 |
| 50°-60° | 11067.1 | 18.4 |
| 60°-70° | 14007.6 | 23.3 |
| 70°-80° | 12334.2 | 20.5 |
| 80°-90° | 2438.7 | 4.1 |
| 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° | 60087.0 | 100.0 |
| 0°-180° | 60087.0 | 100.0 |

Coefficient of Utilization

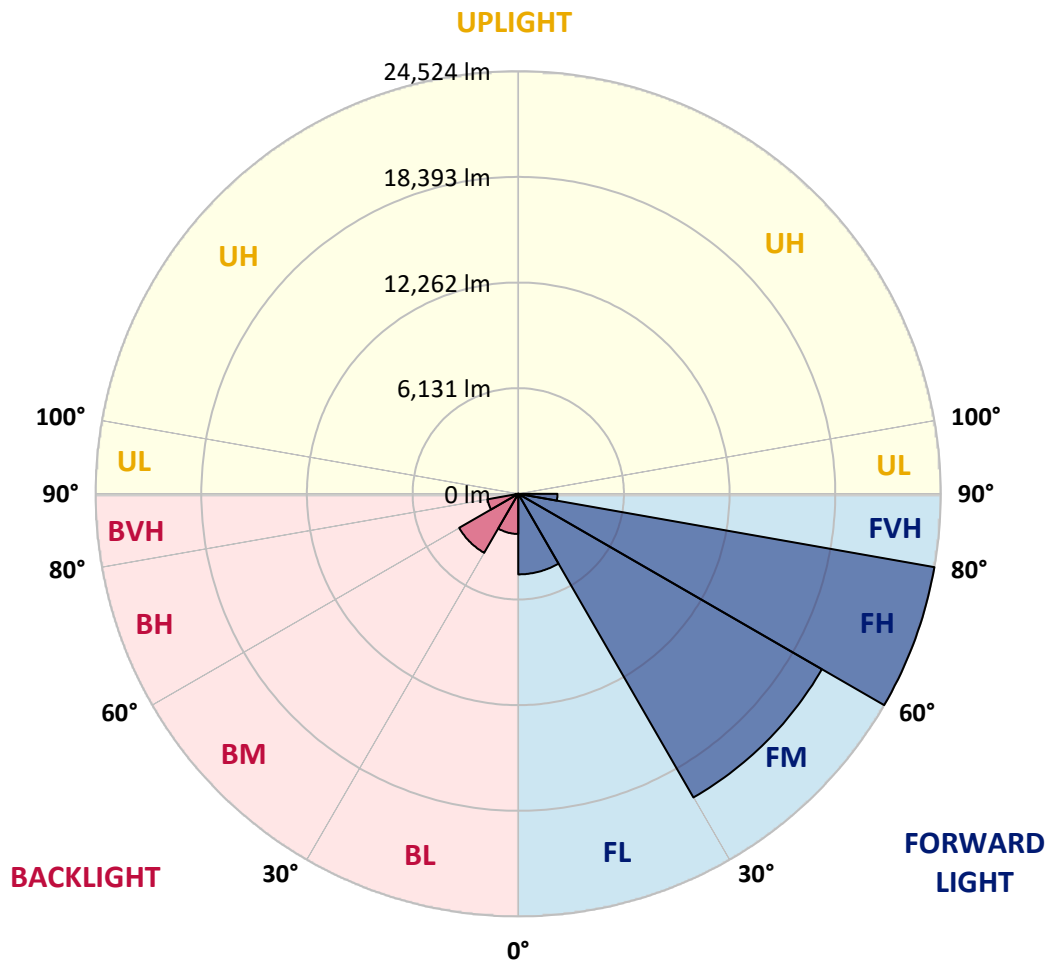


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 CATALOG NUMBER: GLEON-SA9C-740-U-SL4

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 4675.5 | 7.8 | | | |
| FM (30°-60°) | 20345.9 | 33.9 | | | |
| FH (60°-80°) | 24524.5 | 40.8 | | | G5 |
| FVH (80°-90°) | 2273.6 | 3.8 | | | G5 |
| BL (0°-30°) | 2328.8 | 3.9 | B3/2500 | | |
| BM (30°-60°) | 3956.3 | 6.6 | B3/5000 | | |
| BH (60°-80°) | 1817.3 | 3.0 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 165.1 | 0.3 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G5
 Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 37° | 45° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 |
| 2.5° | 10949.0 | 10951.1 | 10949.0 | 10932.1 | 10891.9 | 10858.0 | 10830.5 | 10790.3 | 10701.4 | 10633.7 | 10532.1 |
| 5° | 11052.7 | 11040.0 | 11031.6 | 10999.8 | 10936.3 | 10898.2 | 10845.3 | 10769.1 | 10623.1 | 10487.6 | 10322.5 |
| 7.5° | 11004.1 | 10989.2 | 10970.2 | 10932.1 | 10860.1 | 10828.4 | 10754.3 | 10654.8 | 10479.2 | 10301.4 | 10064.3 |
| 10° | 10853.8 | 10849.6 | 10841.1 | 10832.6 | 10771.2 | 10745.8 | 10678.1 | 10572.3 | 10398.7 | 10182.8 | 9905.6 |
| 12.5° | 10686.6 | 10697.2 | 10731.0 | 10775.5 | 10748.0 | 10735.3 | 10692.9 | 10621.0 | 10443.2 | 10210.3 | 9875.9 |
| 15° | 10580.7 | 10610.4 | 10701.4 | 10817.8 | 10841.1 | 10836.9 | 10826.3 | 10779.7 | 10591.3 | 10333.1 | 9943.7 |
| 17.5° | 10544.8 | 10593.4 | 10767.0 | 10959.6 | 11027.3 | 11042.2 | 11046.4 | 10966.0 | 10756.4 | 10483.4 | 10013.5 |
| 20° | 10610.4 | 10671.8 | 10925.7 | 11190.3 | 11298.3 | 11306.7 | 11287.7 | 11148.0 | 10913.0 | 10612.5 | 10051.6 |
| 22.5° | 10809.3 | 10864.4 | 11181.9 | 11480.3 | 11603.1 | 11615.8 | 11558.6 | 11346.9 | 11078.1 | 10764.9 | 10104.5 |
| 25° | 11192.4 | 11260.2 | 11577.7 | 11876.1 | 11939.6 | 11941.7 | 11859.2 | 11596.7 | 11294.0 | 10978.7 | 10218.8 |
| 27.5° | 11691.9 | 11759.7 | 12045.4 | 12337.5 | 12303.6 | 12284.6 | 12172.4 | 11910.0 | 11575.5 | 11272.9 | 10422.0 |
| 30° | 12248.6 | 12322.7 | 12593.6 | 12801.0 | 12720.6 | 12682.5 | 12591.5 | 12252.8 | 11967.1 | 11675.0 | 10733.1 |
| 32.5° | 12824.3 | 12892.0 | 13129.1 | 13270.9 | 13169.3 | 13152.4 | 13014.8 | 12705.8 | 12477.2 | 12288.8 | 11236.9 |
| 35° | 13414.8 | 13463.5 | 13696.3 | 13776.8 | 13641.3 | 13637.1 | 13599.0 | 13315.4 | 13171.4 | 13260.3 | 11969.2 |
| 37.5° | 14018.1 | 14030.8 | 14229.7 | 14234.0 | 14193.7 | 14210.7 | 14250.9 | 14073.1 | 14113.3 | 14390.6 | 12921.7 |
| 40° | 14555.7 | 14589.5 | 14733.5 | 14777.9 | 14847.8 | 14907.0 | 15108.1 | 14991.7 | 15302.8 | 15793.9 | 14107.0 |
| 42.5° | 14953.6 | 15019.2 | 15249.9 | 15364.2 | 15590.7 | 15683.8 | 15967.4 | 16075.4 | 16701.9 | 17438.4 | 15516.6 |
| 45° | 15290.1 | 15391.7 | 15762.1 | 15997.1 | 16380.2 | 16543.1 | 16949.5 | 17311.4 | 18283.0 | 19222.7 | 17000.3 |
| 47.5° | 15654.2 | 15783.3 | 16246.8 | 16695.5 | 17216.2 | 17400.3 | 18139.0 | 18680.9 | 19969.9 | 21017.6 | 18399.4 |
| 50° | 16189.7 | 16289.1 | 16742.1 | 17446.9 | 18096.7 | 18333.8 | 19356.1 | 20132.8 | 21684.3 | 22727.8 | 19612.2 |
| 52.5° | 16936.8 | 16898.7 | 17281.8 | 18270.3 | 19142.3 | 19434.4 | 20655.6 | 21677.9 | 23422.0 | 24275.0 | 20636.6 |
| 55° | 17688.2 | 17624.7 | 17893.5 | 19131.7 | 20361.4 | 20668.3 | 22086.4 | 23229.4 | 25075.0 | 25667.7 | 21421.8 |
| 57.5° | 18524.2 | 18403.6 | 18630.1 | 20103.2 | 21749.9 | 22116.1 | 23688.7 | 24878.2 | 26700.6 | 26793.7 | 21921.3 |
| 60° | 19385.7 | 19222.7 | 19476.7 | 21307.5 | 23513.0 | 23944.8 | 25564.0 | 26486.8 | 28233.0 | 27695.4 | 22082.2 |
| 62.5° | 20139.2 | 20024.9 | 20416.5 | 22651.6 | 25500.5 | 25974.6 | 27405.4 | 28197.0 | 29744.2 | 28070.0 | 21502.3 |
| 65° | 20797.4 | 20816.5 | 21493.8 | 24162.8 | 27716.5 | 28222.4 | 29517.7 | 30305.1 | 30933.7 | 27847.7 | 20145.5 |
| 67.5° | 21582.7 | 21690.6 | 22846.3 | 26152.4 | 30506.2 | 31060.7 | 32591.0 | 32603.7 | 31598.3 | 26543.9 | 17474.4 |
| 70° | 22727.8 | 22950.0 | 24706.8 | 28912.4 | 34472.6 | 35234.6 | 36415.6 | 33954.1 | 30664.9 | 23009.3 | 13749.3 |
| 72.5° | 23743.7 | 24158.6 | 26685.7 | 32070.3 | 39306.9 | 39884.7 | 38652.9 | 33175.2 | 26764.1 | 17243.7 | 8565.8 |
| 74° | 23331.0 | 23845.3 | 27045.6 | 33626.0 | 41127.1 | 41404.4 | 37897.2 | 30902.0 | 22315.0 | 11941.7 | 4978.2 |
| 75° | 22442.0 | 23000.8 | 26520.7 | 33611.2 | 40896.4 | 40741.9 | 36072.7 | 28304.9 | 18378.2 | 8144.6 | 3312.4 |
| 77.5° | 18111.5 | 18702.0 | 22346.8 | 28806.6 | 33532.9 | 33386.8 | 27710.2 | 18987.8 | 8049.3 | 2671.1 | 1682.7 |
| 80° | 10529.9 | 10980.8 | 13872.0 | 18293.5 | 22611.3 | 22875.9 | 18223.7 | 9395.5 | 3166.4 | 1500.7 | 1140.8 |
| 82.5° | 4677.6 | 4988.8 | 6701.1 | 9338.3 | 13645.5 | 13986.3 | 9543.6 | 4923.1 | 1955.7 | 912.2 | 685.8 |
| 85° | 3069.0 | 3299.7 | 4068.1 | 4446.9 | 6497.9 | 6730.7 | 4671.3 | 3833.1 | 1291.1 | 501.6 | 503.7 |
| 87.5° | 2207.6 | 2429.8 | 3022.5 | 2639.4 | 2982.3 | 2823.5 | 2542.0 | 3547.4 | 518.6 | 285.7 | 169.3 |
| 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: P320013
 CATALOG NUMBER: GLEON-SA9C-740-U-SL4

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 | 10587.1 |
| 2.5° | 10487.6 | 10453.8 | 10377.6 | 10233.6 | 10153.2 | 10085.5 | 9973.3 | 9907.7 | 9878.0 | 9875.9 | 9888.6 |
| 5° | 10227.3 | 10149.0 | 9952.1 | 9710.8 | 9518.2 | 9342.6 | 9124.5 | 8993.3 | 8900.2 | 8845.2 | 8860.0 |
| 7.5° | 9924.6 | 9801.8 | 9492.8 | 9107.6 | 8798.6 | 8457.8 | 8121.3 | 7920.2 | 7763.6 | 7647.2 | 7668.3 |
| 10° | 9717.2 | 9547.9 | 9097.0 | 8542.5 | 8028.2 | 7532.9 | 7069.4 | 6792.1 | 6572.0 | 6402.6 | 6415.3 |
| 12.5° | 9647.3 | 9418.7 | 8794.4 | 8053.6 | 7331.8 | 6654.5 | 6049.2 | 5623.7 | 5397.3 | 5204.7 | 5219.5 |
| 15° | 9657.9 | 9351.0 | 8540.4 | 7613.3 | 6705.3 | 5852.3 | 5117.9 | 4620.5 | 4313.6 | 4180.2 | 4182.3 |
| 17.5° | 9666.4 | 9272.7 | 8273.7 | 7141.3 | 6085.1 | 5103.1 | 4305.1 | 3801.4 | 3511.4 | 3388.6 | 3390.7 |
| 20° | 9638.9 | 9145.7 | 7943.5 | 6599.5 | 5437.5 | 4415.2 | 3642.6 | 3215.1 | 2995.0 | 2899.7 | 2899.7 |
| 22.5° | 9602.9 | 8995.4 | 7571.0 | 6055.5 | 4798.3 | 3818.3 | 3168.5 | 2842.6 | 2715.6 | 2652.1 | 2649.9 |
| 25° | 9619.8 | 8883.3 | 7190.0 | 5496.7 | 4209.9 | 3342.1 | 2853.1 | 2637.2 | 2552.6 | 2512.4 | 2510.3 |
| 27.5° | 9710.8 | 8830.3 | 6838.6 | 4940.1 | 3695.5 | 2984.4 | 2641.5 | 2489.1 | 2434.1 | 2408.7 | 2408.7 |
| 30° | 9875.9 | 8830.3 | 6472.5 | 4466.0 | 3268.0 | 2719.8 | 2478.5 | 2374.8 | 2336.7 | 2319.8 | 2319.8 |
| 32.5° | 10163.8 | 8879.0 | 6119.0 | 3996.1 | 2927.2 | 2512.4 | 2343.0 | 2273.2 | 2243.6 | 2235.1 | 2235.1 |
| 35° | 10659.1 | 9044.1 | 5774.0 | 3551.6 | 2652.1 | 2343.0 | 2213.9 | 2173.7 | 2152.6 | 2150.4 | 2156.8 |
| 37.5° | 11355.4 | 9380.7 | 5450.2 | 3223.5 | 2457.3 | 2205.5 | 2106.0 | 2074.2 | 2061.5 | 2072.1 | 2080.6 |
| 40° | 12231.7 | 9837.8 | 5156.0 | 2927.2 | 2309.2 | 2095.4 | 2006.5 | 1985.3 | 1979.0 | 1993.8 | 2006.5 |
| 42.5° | 13290.0 | 10455.9 | 4914.7 | 2713.4 | 2194.9 | 2002.3 | 1921.8 | 1896.4 | 1890.1 | 1907.0 | 1924.0 |
| 45° | 14435.0 | 11120.5 | 4745.4 | 2554.7 | 2106.0 | 1932.4 | 1847.8 | 1820.3 | 1807.6 | 1816.0 | 1835.1 |
| 47.5° | 15476.4 | 11749.1 | 4677.6 | 2442.5 | 2021.3 | 1873.2 | 1782.2 | 1748.3 | 1727.1 | 1722.9 | 1737.7 |
| 50° | 16354.8 | 12216.9 | 4709.4 | 2374.8 | 1953.6 | 1807.6 | 1718.7 | 1680.6 | 1648.8 | 1629.8 | 1640.3 |
| 52.5° | 16994.0 | 12511.1 | 4739.0 | 2345.2 | 1900.7 | 1735.6 | 1648.8 | 1612.8 | 1570.5 | 1538.7 | 1538.7 |
| 55° | 17457.5 | 12578.8 | 4673.4 | 2321.9 | 1860.5 | 1657.3 | 1570.5 | 1536.6 | 1494.3 | 1458.3 | 1454.1 |
| 57.5° | 17639.5 | 12388.3 | 4430.0 | 2288.0 | 1833.0 | 1583.2 | 1488.0 | 1462.6 | 1426.6 | 1384.2 | 1382.1 |
| 60° | 17394.0 | 11799.9 | 3960.1 | 2216.1 | 1797.0 | 1521.8 | 1405.4 | 1388.5 | 1371.5 | 1331.3 | 1329.2 |
| 62.5° | 16407.7 | 10508.8 | 3352.7 | 2070.0 | 1725.0 | 1456.2 | 1329.2 | 1337.7 | 1339.8 | 1312.3 | 1308.0 |
| 65° | 14619.2 | 8735.1 | 2760.0 | 1879.5 | 1617.1 | 1377.9 | 1250.9 | 1291.1 | 1314.4 | 1310.2 | 1303.8 |
| 67.5° | 12020.0 | 6798.4 | 2338.8 | 1678.4 | 1475.3 | 1269.9 | 1166.2 | 1212.8 | 1231.8 | 1246.7 | 1242.4 |
| 70° | 8921.4 | 4794.0 | 1934.5 | 1466.8 | 1303.8 | 1142.9 | 1056.2 | 1079.5 | 1066.8 | 1083.7 | 1090.0 |
| 72.5° | 4973.9 | 2876.4 | 1576.8 | 1255.1 | 1126.0 | 994.8 | 933.4 | 929.2 | 901.7 | 901.7 | 901.7 |
| 74° | 2984.4 | 2110.2 | 1386.4 | 1123.9 | 1018.1 | 897.4 | 844.5 | 825.5 | 800.1 | 802.2 | 800.1 |
| 75° | 2400.2 | 1813.9 | 1272.1 | 1037.1 | 941.9 | 840.3 | 787.4 | 762.0 | 742.9 | 742.9 | 740.8 |
| 77.5° | 1515.5 | 1377.9 | 1024.4 | 825.5 | 753.5 | 692.1 | 656.1 | 622.3 | 622.3 | 620.2 | 618.0 |
| 80° | 1145.1 | 1096.4 | 797.9 | 624.4 | 577.8 | 531.3 | 508.0 | 493.2 | 493.2 | 499.5 | 497.4 |
| 82.5° | 785.2 | 825.5 | 560.9 | 436.0 | 412.7 | 378.9 | 374.6 | 376.7 | 370.4 | 361.9 | 359.8 |
| 85° | 573.6 | 620.2 | 378.9 | 275.2 | 251.9 | 230.7 | 247.6 | 256.1 | 245.5 | 226.5 | 218.0 |
| 87.5° | 220.1 | 406.4 | 203.2 | 114.3 | 105.8 | 91.0 | 105.8 | 110.1 | 118.5 | 93.1 | 95.2 |
| 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



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

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 ($\mu\text{W}/\text{nm}$) | 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 | 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

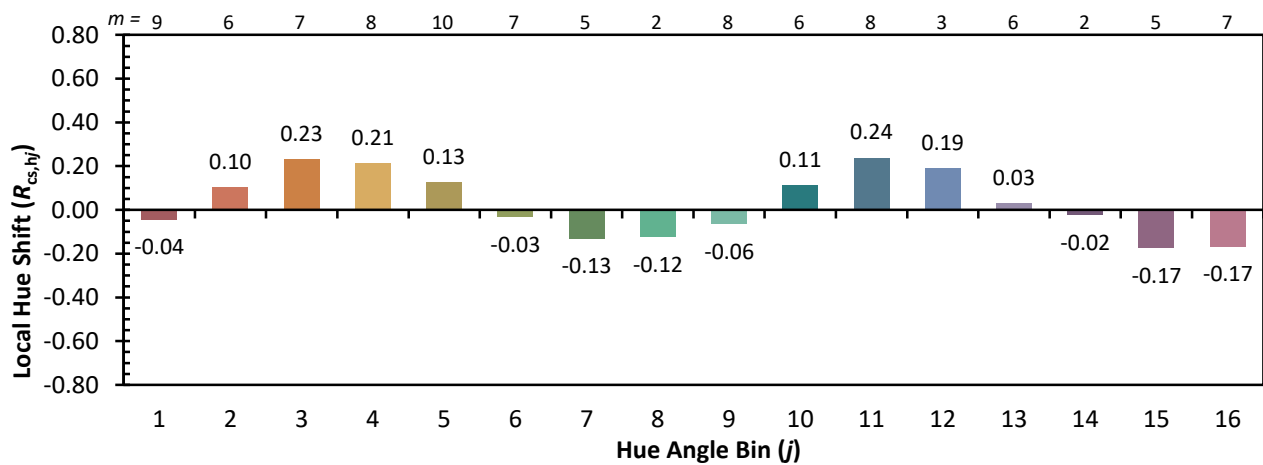
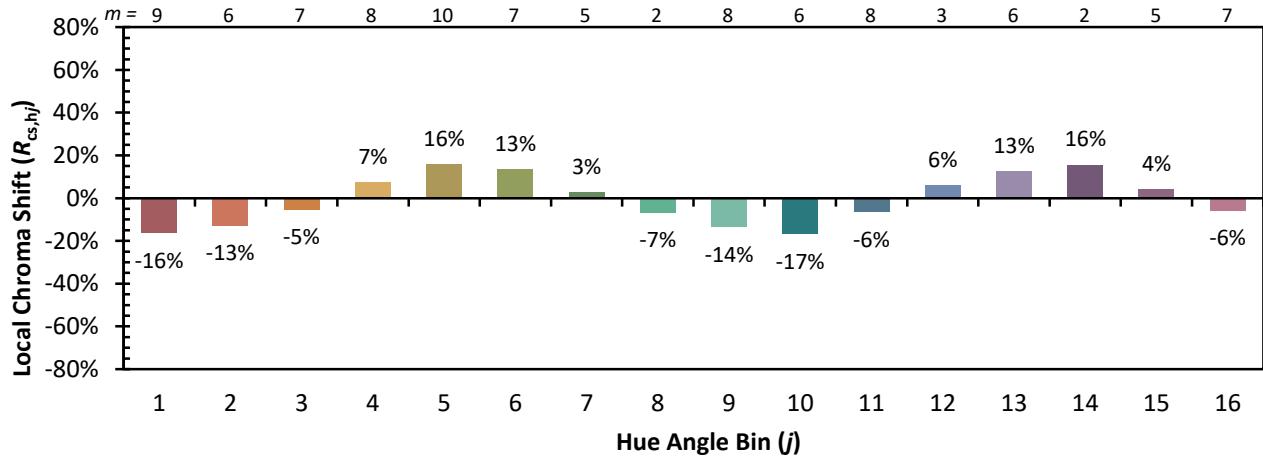


Individual Sample Fidelity Index ($R_{f,i}$)

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