

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: P643193

Luminaire Tested: GWS-SA6E-740-U-AFL-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P643193
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-47)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SAGE-740-U-AFL-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (6) LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (96) 4000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 40610.4 lumens
Efficiency: N/A
Efficacy: 125.4 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B4 - U0 - G3

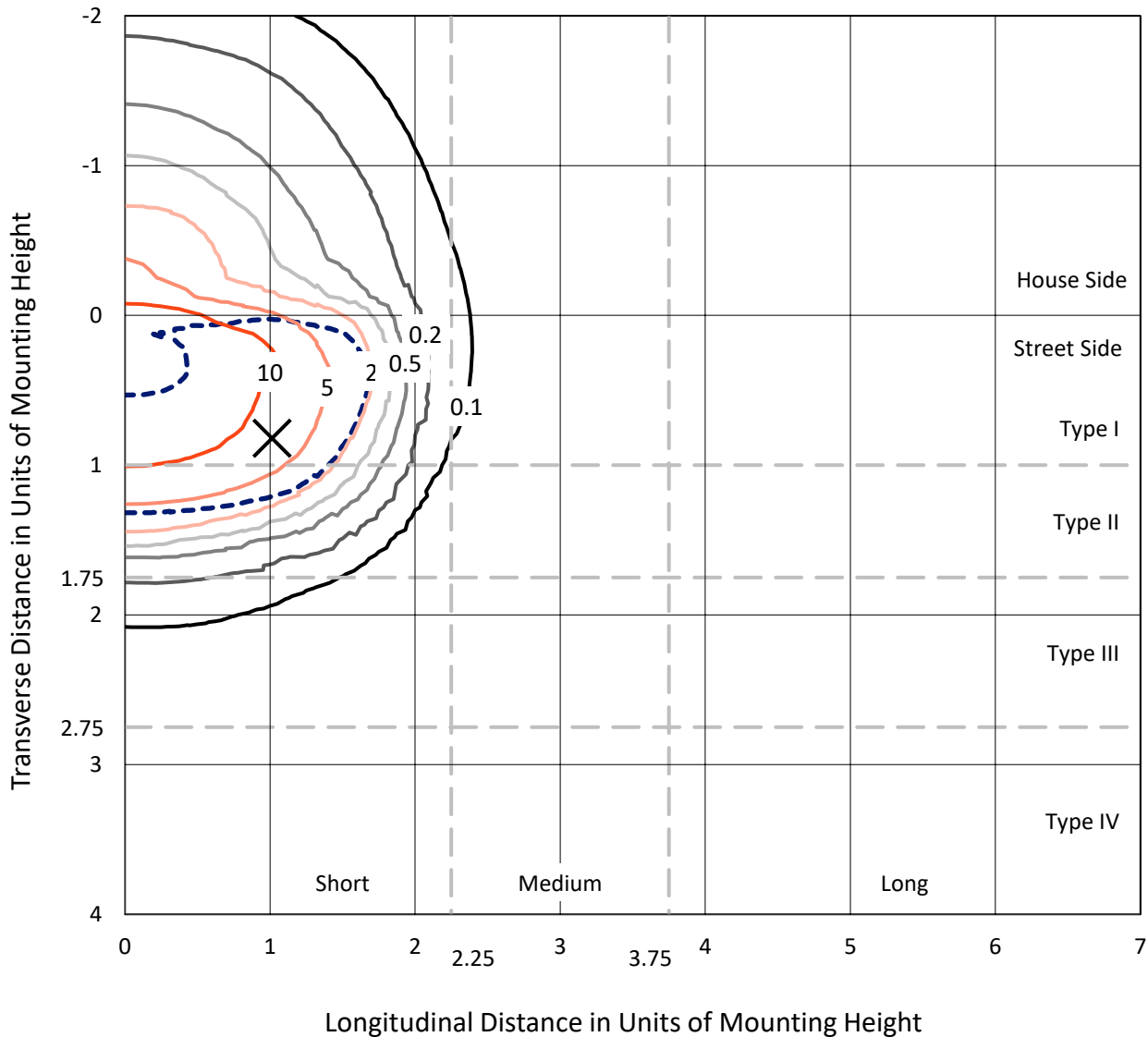
Input Watts (W): 323.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P643193
 CATALOG NUMBER: GWS-SA6E-740-U-AFL-W-GRSWH

Iso-Footcandle Lines of Horizontal Illumination

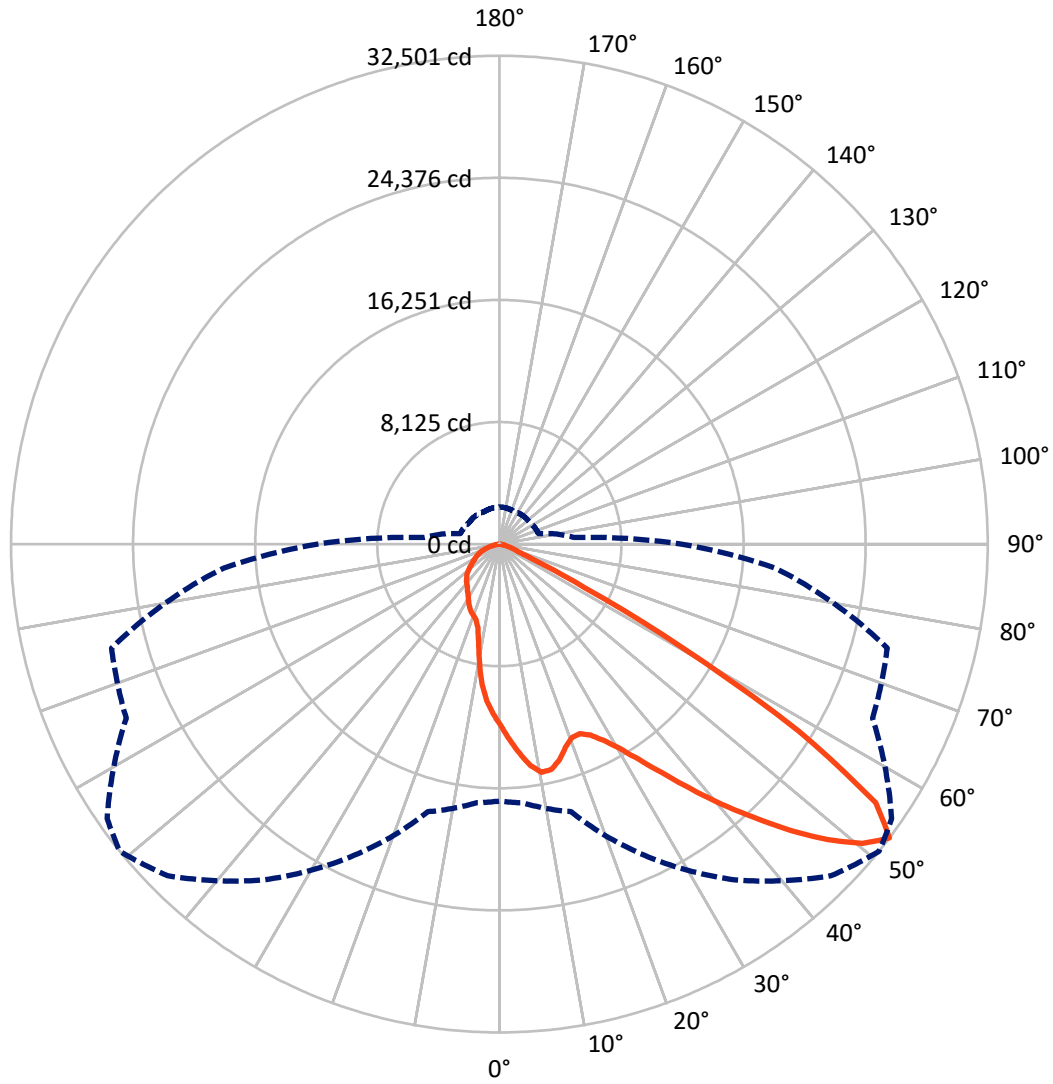
✕ Max cd
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 16.4 fc
 Type II - Short - N/A

REPORT NUMBER: P643193
CATALOG NUMBER: GWS-SA6E-740-U-AFL-W-GRSWH

Luminous Intensity Polar Plot



— Vertical Plane Through 51-Deg Lateral - - - Horizontal Cone Through 52.5-Deg Vertical

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CATALOG NUMBER: GWS-SA6E-740-U-AFL-W-GRSWH

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 7912.6 | 0.0 | 7912.6 |
| | % Fixture | 19.5 | 0.0 | 19.5 |
| Street Side | Lumens | 32697.8 | 0.0 | 32697.8 |
| | % Fixture | 80.5 | 0.0 | 80.5 |
| Total | Lumens | 40610.4 | 0.0 | 40610.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 1128.3 | 2.8 |
| 10°-20° | 2931.8 | 7.2 |
| 20°-30° | 4766.9 | 11.7 |
| 30°-40° | 7554.5 | 18.6 |
| 40°-50° | 11393.9 | 28.1 |
| 50°-60° | 9856.6 | 24.3 |
| 60°-70° | 2234.6 | 5.5 |
| 70°-80° | 658.9 | 1.6 |
| 80°-90° | 84.9 | 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° | 40610.4 | 100.0 |
| 0°-180° | 40610.4 | 100.0 |

Coefficient of Utilization



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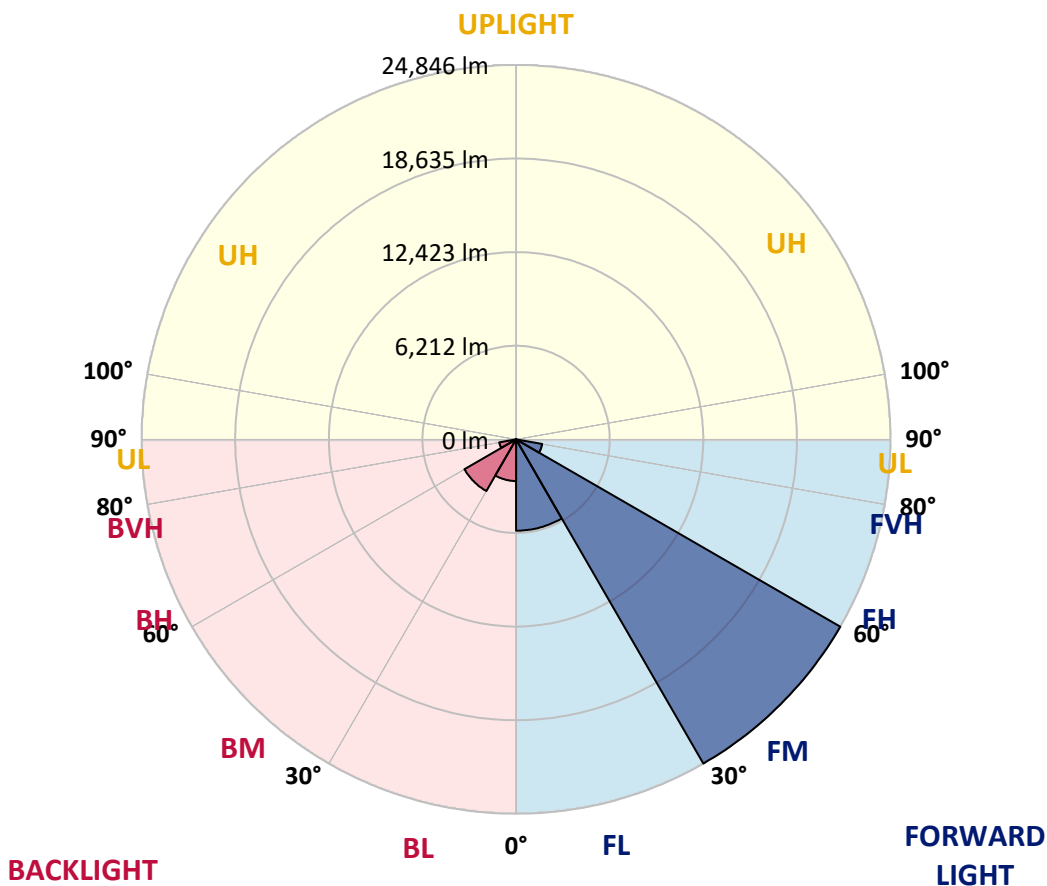
CATALOG NUMBER: GWS-SA6E-740-U-AFL-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 6061.2 | 14.9 | | | |
| FM (30°-60°) | 24846.0 | 61.2 | | | |
| FH (60°-80°) | 1758.6 | 4.3 | | | G1/1800 |
| FVH (80°-90°) | 32.0 | 0.1 | | | G1/100 |
| BL (0°-30°) | 2765.9 | 6.8 | B4/5000 | | |
| BM (30°-60°) | 3958.9 | 9.7 | B3/5000 | | |
| BH (60°-80°) | 1134.9 | 2.8 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 52.9 | 0.1 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B4-U0-G3

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 51° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 |
| 2.5° | 13474.8 | 13551.9 | 13433.1 | 13388.2 | 13314.4 | 13186.0 | 13038.4 | 12996.7 | 12679.0 | 12470.4 | 12236.1 |
| 5° | 14829.1 | 14870.8 | 14774.5 | 14678.2 | 14495.3 | 14267.5 | 13981.9 | 13920.9 | 13343.3 | 12865.1 | 12367.7 |
| 7.5° | 15130.7 | 15114.7 | 15198.1 | 15252.7 | 15230.2 | 15140.4 | 14886.8 | 14768.1 | 14078.2 | 13320.8 | 12585.9 |
| 10° | 13937.0 | 13847.1 | 14155.2 | 14521.0 | 14960.6 | 15467.7 | 15438.8 | 15429.2 | 14829.1 | 13933.7 | 12865.1 |
| 12.5° | 12354.9 | 12310.0 | 12560.3 | 13019.2 | 13850.3 | 14973.5 | 15393.9 | 15721.2 | 15506.2 | 14517.8 | 13176.4 |
| 15° | 11449.9 | 11433.9 | 11604.0 | 11934.5 | 12595.6 | 14014.0 | 14912.5 | 15560.7 | 16087.0 | 15143.6 | 13506.9 |
| 17.5° | 11286.3 | 11295.9 | 11353.7 | 11543.0 | 12017.9 | 13186.0 | 14225.8 | 15130.7 | 16539.5 | 15830.3 | 13920.9 |
| 20° | 11764.4 | 11828.6 | 11729.1 | 11758.0 | 12014.7 | 12887.6 | 13757.2 | 14697.5 | 16828.3 | 16520.2 | 14367.0 |
| 22.5° | 12826.6 | 12804.2 | 12585.9 | 12457.6 | 12460.8 | 13070.5 | 13705.9 | 14495.3 | 17017.7 | 17190.9 | 14771.3 |
| 25° | 14030.0 | 14004.3 | 13744.4 | 13458.8 | 13279.1 | 13567.9 | 14074.9 | 14710.3 | 17187.7 | 17803.9 | 15095.4 |
| 27.5° | 15451.6 | 15371.4 | 15082.6 | 14716.8 | 14318.8 | 14444.0 | 14787.4 | 15291.2 | 17450.9 | 18407.2 | 15310.4 |
| 30° | 16828.3 | 16921.4 | 16507.4 | 16074.2 | 15653.8 | 15576.8 | 15775.7 | 16231.4 | 17986.8 | 19113.2 | 15567.2 |
| 32.5° | 18654.3 | 18622.2 | 18163.3 | 17598.5 | 16998.4 | 16940.6 | 17097.9 | 17515.1 | 18949.5 | 20088.7 | 15958.7 |
| 35° | 20865.3 | 20871.7 | 20220.3 | 19456.5 | 18602.9 | 18448.9 | 18712.0 | 19116.4 | 20384.0 | 21410.9 | 16578.0 |
| 37.5° | 23163.0 | 23153.4 | 22585.4 | 21718.9 | 20554.0 | 20335.8 | 20637.5 | 20939.1 | 22177.8 | 23211.1 | 17540.7 |
| 40° | 24774.0 | 24838.1 | 24571.8 | 24116.1 | 23012.2 | 22479.5 | 22745.8 | 22954.4 | 24128.9 | 25329.1 | 18808.3 |
| 42.5° | 25688.5 | 25784.8 | 25842.6 | 26115.3 | 25534.5 | 24966.5 | 24870.2 | 24979.3 | 25871.5 | 27296.3 | 19998.9 |
| 45° | 25884.3 | 26012.6 | 26433.0 | 27443.9 | 27668.5 | 27508.1 | 27193.6 | 26930.4 | 27171.1 | 28692.2 | 20778.7 |
| 47.5° | 25021.0 | 25245.7 | 26144.2 | 27912.4 | 29224.9 | 29728.7 | 29379.0 | 28977.8 | 27922.0 | 29051.6 | 20698.4 |
| 50° | 21600.2 | 21863.3 | 23888.3 | 26956.1 | 29446.3 | 31281.9 | 31314.0 | 30720.3 | 27832.2 | 28015.1 | 19690.8 |
| 52.5° | 17101.1 | 17280.8 | 18439.3 | 22851.7 | 27273.8 | 31217.7 | 32501.4 | 31866.0 | 27399.0 | 26718.6 | 18429.6 |
| 55° | 10220.9 | 10509.7 | 11591.1 | 15076.2 | 21247.2 | 27668.5 | 30402.6 | 30710.7 | 27187.2 | 25630.8 | 17569.6 |
| 57.5° | 3449.7 | 3590.9 | 4624.3 | 6658.8 | 12521.8 | 20258.8 | 23490.3 | 24741.9 | 24680.9 | 23968.5 | 15891.3 |
| 60° | 1643.0 | 1675.1 | 1883.7 | 2525.5 | 5012.6 | 10586.7 | 13904.9 | 15348.9 | 16664.7 | 16796.2 | 9887.1 |
| 62.5° | 1251.5 | 1270.8 | 1376.7 | 1514.7 | 2015.3 | 4460.6 | 6373.2 | 7477.1 | 7987.4 | 6854.6 | 3600.6 |
| 65° | 1046.2 | 1062.2 | 1142.4 | 1229.1 | 1370.3 | 1931.9 | 2445.3 | 2820.8 | 2541.6 | 1980.0 | 1716.8 |
| 67.5° | 872.9 | 885.7 | 946.7 | 1039.7 | 1136.0 | 1293.3 | 1357.4 | 1395.9 | 1463.3 | 1643.0 | 1578.9 |
| 70° | 683.5 | 696.4 | 760.5 | 840.8 | 933.8 | 972.3 | 1033.3 | 1071.8 | 1206.6 | 1437.7 | 1431.2 |
| 72.5° | 526.3 | 542.3 | 577.6 | 629.0 | 706.0 | 744.5 | 811.9 | 856.8 | 933.8 | 1120.0 | 1197.0 |
| 75° | 385.1 | 394.7 | 426.8 | 442.9 | 452.5 | 442.9 | 510.2 | 561.6 | 664.3 | 734.9 | 754.1 |
| 77.5° | 157.2 | 176.5 | 170.1 | 170.1 | 202.2 | 243.9 | 279.2 | 311.3 | 381.9 | 423.6 | 426.8 |
| 80° | 64.2 | 70.6 | 83.4 | 93.1 | 112.3 | 144.4 | 166.9 | 179.7 | 211.8 | 237.5 | 256.7 |
| 82.5° | 38.5 | 41.7 | 48.1 | 51.3 | 64.2 | 83.4 | 96.3 | 105.9 | 131.6 | 157.2 | 166.9 |
| 85° | 19.3 | 19.3 | 22.5 | 25.7 | 32.1 | 38.5 | 44.9 | 51.3 | 67.4 | 83.4 | 93.1 |
| 87.5° | 3.2 | 3.2 | 3.2 | 6.4 | 9.6 | 12.8 | 16.0 | 19.3 | 22.5 | 25.7 | 32.1 |
| 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: P643193

CATALOG NUMBER: GWS-SA6E-740-U-AFL-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 | 12091.7 |
| 2.5° | 12098.2 | 11924.9 | 11722.7 | 11562.2 | 11376.1 | 11238.1 | 11042.4 | 10920.4 | 10804.9 | 10708.6 | 10638.0 |
| 5° | 12111.0 | 11819.0 | 11398.6 | 11026.3 | 10641.2 | 10275.4 | 9900.0 | 9595.1 | 9322.3 | 9094.5 | 9075.2 |
| 7.5° | 12184.8 | 11764.4 | 11106.6 | 10455.1 | 9704.2 | 8979.0 | 8253.7 | 7663.2 | 7214.0 | 6979.7 | 6931.6 |
| 10° | 12310.0 | 11758.0 | 10808.1 | 9768.4 | 8488.0 | 7319.9 | 6459.8 | 6010.6 | 5750.6 | 5657.6 | 5625.5 |
| 12.5° | 12441.5 | 11742.0 | 10426.2 | 8799.2 | 7021.4 | 5997.7 | 5526.0 | 5471.4 | 5519.6 | 5526.0 | 5522.8 |
| 15° | 12602.0 | 11732.3 | 9944.9 | 7663.2 | 5949.6 | 5384.8 | 5416.9 | 5532.4 | 5644.7 | 5670.4 | 5670.4 |
| 17.5° | 12797.7 | 11709.9 | 9290.2 | 6552.9 | 5278.9 | 5266.1 | 5436.1 | 5590.2 | 5696.1 | 5715.3 | 5715.3 |
| 20° | 13003.1 | 11652.1 | 8484.8 | 5647.9 | 5006.1 | 5192.3 | 5375.2 | 5493.9 | 5567.7 | 5593.4 | 5596.6 |
| 22.5° | 13144.3 | 11498.1 | 7557.3 | 4977.3 | 4836.1 | 5051.1 | 5182.6 | 5304.6 | 5304.6 | 5240.4 | 5221.1 |
| 25° | 13173.2 | 11167.5 | 6552.9 | 4518.4 | 4633.9 | 4832.8 | 4967.6 | 4897.0 | 4765.5 | 4714.1 | 4710.9 |
| 27.5° | 13067.3 | 10686.2 | 5561.3 | 4191.0 | 4390.0 | 4589.0 | 4566.5 | 4463.8 | 4406.0 | 4354.7 | 4374.0 |
| 30° | 12938.9 | 10108.5 | 4701.3 | 3921.5 | 4107.6 | 4303.4 | 4226.3 | 4191.0 | 4149.3 | 4091.6 | 4104.4 |
| 32.5° | 12852.3 | 9463.5 | 4040.2 | 3712.9 | 3918.3 | 3950.4 | 4004.9 | 4001.7 | 3963.2 | 3854.1 | 3847.7 |
| 35° | 12878.0 | 8812.1 | 3597.4 | 3542.8 | 3761.0 | 3748.2 | 3850.9 | 3831.6 | 3565.3 | 3414.4 | 3404.8 |
| 37.5° | 13083.3 | 8186.3 | 3337.4 | 3408.0 | 3510.7 | 3590.9 | 3680.8 | 3449.7 | 3356.7 | 3260.4 | 3266.8 |
| 40° | 13474.8 | 7605.5 | 3196.2 | 3334.2 | 3359.9 | 3478.6 | 3270.0 | 3266.8 | 3225.1 | 3138.5 | 3135.3 |
| 42.5° | 13917.7 | 7114.5 | 3100.0 | 3298.9 | 3263.6 | 3286.1 | 3064.7 | 3090.3 | 3087.1 | 3032.6 | 3016.5 |
| 45° | 14187.3 | 6662.0 | 3022.9 | 3167.3 | 3177.0 | 2952.3 | 2884.9 | 2913.8 | 2929.9 | 2901.0 | 2897.8 |
| 47.5° | 13908.1 | 6142.1 | 2942.7 | 2965.2 | 3048.6 | 2801.5 | 2718.1 | 2721.3 | 2750.2 | 2753.4 | 2740.5 |
| 50° | 13125.1 | 5561.3 | 2846.4 | 2791.9 | 2737.3 | 2644.3 | 2567.2 | 2551.2 | 2580.1 | 2609.0 | 2618.6 |
| 52.5° | 12114.2 | 5006.1 | 2686.0 | 2602.5 | 2474.2 | 2474.2 | 2438.9 | 2387.5 | 2426.1 | 2464.6 | 2477.4 |
| 55° | 11372.9 | 4595.4 | 2458.1 | 2365.1 | 2223.9 | 2272.0 | 2265.6 | 2220.7 | 2272.0 | 2300.9 | 2310.5 |
| 57.5° | 9855.0 | 3693.6 | 2162.9 | 2134.0 | 2015.3 | 2073.1 | 2085.9 | 2028.1 | 2002.5 | 2008.9 | 2018.5 |
| 60° | 5850.1 | 2384.3 | 1951.1 | 1947.9 | 1842.0 | 1909.4 | 1947.9 | 1890.1 | 1813.1 | 1822.7 | 1835.6 |
| 62.5° | 2625.0 | 1822.7 | 1684.8 | 1671.9 | 1668.7 | 1755.4 | 1797.1 | 1742.5 | 1633.4 | 1643.0 | 1655.9 |
| 65° | 1652.7 | 1575.6 | 1463.3 | 1463.3 | 1514.7 | 1588.5 | 1620.6 | 1575.6 | 1450.5 | 1434.5 | 1447.3 |
| 67.5° | 1533.9 | 1466.5 | 1351.0 | 1328.6 | 1354.2 | 1415.2 | 1418.4 | 1331.8 | 1258.0 | 1245.1 | 1245.1 |
| 70° | 1376.7 | 1325.3 | 1213.0 | 1168.1 | 1158.5 | 1155.3 | 1145.6 | 1123.2 | 1075.0 | 1062.2 | 1068.6 |
| 72.5° | 1139.2 | 1103.9 | 1033.3 | 985.2 | 959.5 | 956.3 | 917.8 | 898.5 | 856.8 | 850.4 | 847.2 |
| 75° | 754.1 | 763.8 | 763.8 | 757.3 | 734.9 | 725.2 | 683.5 | 664.3 | 616.1 | 596.9 | 593.7 |
| 77.5° | 446.1 | 455.7 | 468.5 | 471.7 | 468.5 | 468.5 | 430.0 | 407.6 | 359.4 | 333.7 | 327.3 |
| 80° | 272.8 | 279.2 | 285.6 | 295.2 | 282.4 | 272.8 | 237.5 | 215.0 | 192.5 | 176.5 | 173.3 |
| 82.5° | 176.5 | 182.9 | 186.1 | 192.5 | 186.1 | 173.3 | 144.4 | 131.6 | 115.5 | 102.7 | 99.5 |
| 85° | 99.5 | 102.7 | 109.1 | 109.1 | 99.5 | 89.9 | 73.8 | 64.2 | 54.6 | 48.1 | 48.1 |
| 87.5° | 35.3 | 35.3 | 35.3 | 38.5 | 32.1 | 28.9 | 19.3 | 12.8 | 9.6 | 9.6 | 9.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

Report Prepared for

Cooper Lighting Solutions

MCGRAW, INVUE, LUMARK AND STREETWORKS

DATA VALID FOR LUMINAIRES UTILIZING SA LIGHT ENGINES

Report Number: SP1-2101-121-2

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

Test Date: 03/05/2021

Test Information

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

SHIELD, DRIVER PROGRAMMED @ 615mA.

Spectral Parameters

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



Test Conditions

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

REPORT NUMBER: SP1-2101-121-2

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

REPORT NUMBER: SP1-2101-121-2

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2101-121-2

Photopic Flux vs. Wavelength



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2304 | 0.0 | 490 | 19043 | 2.7 | 620 | 97577 | 25.4 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 4.8 | 625 | 90158 | 19.9 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 8.0 | 630 | 82240 | 14.9 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 13.3 | 635 | 74361 | 11.2 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 20.2 | 640 | 66994 | 8.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 28.5 | 645 | 60405 | 5.8 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 37.4 | 650 | 53806 | 3.9 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 44.9 | 655 | 47610 | 2.7 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 52.6 | 660 | 42018 | 1.8 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 58.4 | 665 | 36742 | 1.2 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.0 | 540 | 96845 | 63.1 | 670 | 32105 | 0.7 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.0 | 545 | 100829 | 67.1 | 675 | 27946 | 0.5 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 0.1 | 550 | 105648 | 71.8 | 680 | 24146 | 0.3 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 0.2 | 555 | 110017 | 75.1 | 685 | 21191 | 0.2 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 0.5 | 560 | 114586 | 77.9 | 690 | 18544 | 0.1 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 1.2 | 565 | 118987 | 79.1 | 695 | 16058 | 0.1 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 2.1 | 570 | 122326 | 79.5 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 2.9 | 575 | 125968 | 78.4 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 2.7 | 580 | 127613 | 75.8 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 2.0 | 585 | 129466 | 71.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 1.5 | 590 | 128813 | 66.6 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 1.3 | 595 | 126387 | 59.9 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 1.0 | 600 | 123477 | 53.2 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 1.1 | 605 | 118718 | 46.0 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 1.2 | 610 | 112091 | 38.5 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 1.7 | 615 | 105039 | 31.7 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: 10425.8 S/P: 1.47

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2304 | 0.0 | 490 | 19043 | 29.3 | 620 | 97577 | 1.2 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 43.0 | 625 | 90158 | 0.8 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 60.8 | 630 | 82240 | 0.5 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 81.1 | 635 | 74361 | 0.3 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 99.6 | 640 | 66994 | 0.2 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 113.9 | 645 | 60405 | 0.1 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 122.6 | 650 | 53806 | 0.1 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 125.0 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 123.1 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.1 | 535 | 94097 | 117.3 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 107.0 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.9 | 545 | 100829 | 96.7 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 3.0 | 550 | 105648 | 86.4 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 9.3 | 555 | 110017 | 75.2 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 23.0 | 560 | 114586 | 64.0 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 45.7 | 565 | 118987 | 53.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 75.5 | 570 | 122326 | 43.2 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 93.8 | 575 | 125968 | 34.3 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 79.3 | 580 | 127613 | 26.3 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 51.3 | 585 | 129466 | 19.8 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 35.6 | 590 | 128813 | 14.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 26.0 | 595 | 126387 | 10.1 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 19.3 | 600 | 123477 | 7.0 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 16.8 | 605 | 118718 | 4.7 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 17.7 | 610 | 112091 | 3.0 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 21.4 | 615 | 105039 | 1.9 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3927.2 M/P: 0.55

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2304 | 0.0 | 490 | 19043 | 15.8 | 620 | 97577 | 0.1 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 22.0 | 625 | 90158 | 0.0 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 29.2 | 630 | 82240 | 0.0 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 36.6 | 635 | 74361 | 0.0 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 42.2 | 640 | 66994 | 0.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 44.9 | 645 | 60405 | 0.0 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 44.9 | 650 | 53806 | 0.0 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 42.4 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 38.6 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 33.9 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 28.3 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.6 | 545 | 100829 | 23.4 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 2.1 | 550 | 105648 | 19.0 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 5.9 | 555 | 110017 | 14.8 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 14.3 | 560 | 114586 | 11.3 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 27.3 | 565 | 118987 | 8.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 45.1 | 570 | 122326 | 6.0 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 55.3 | 575 | 125968 | 4.2 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 47.2 | 580 | 127613 | 2.9 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 30.8 | 585 | 129466 | 1.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 21.7 | 590 | 128813 | 1.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 16.1 | 595 | 126387 | 0.8 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 12.0 | 600 | 123477 | 0.5 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 10.3 | 605 | 118718 | 0.3 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 10.5 | 610 | 112091 | 0.2 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 12.1 | 615 | 105039 | 0.1 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

Summary

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

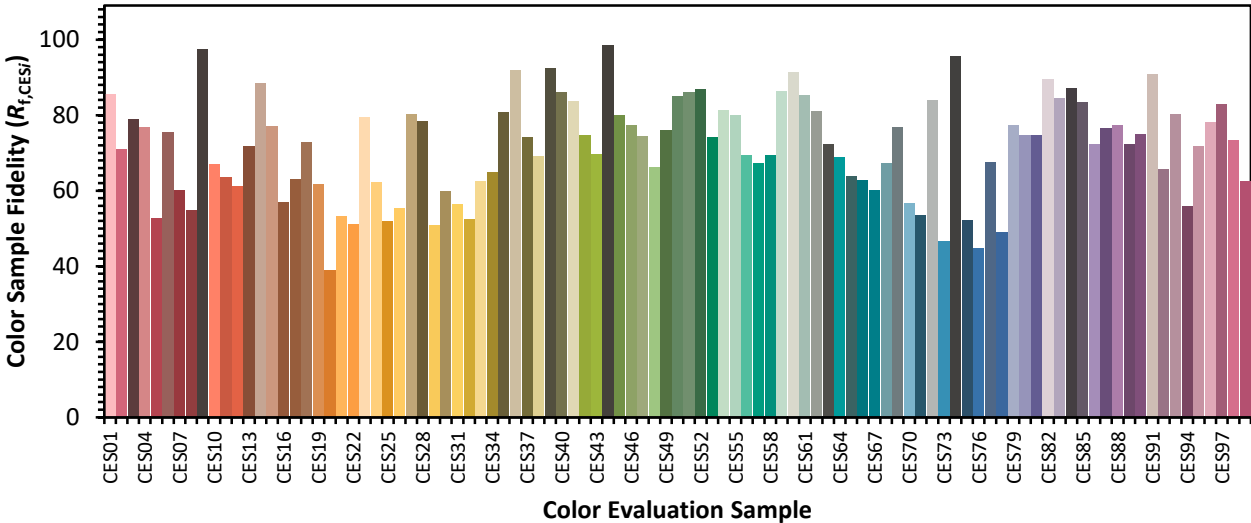


Color Vector Graphics



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

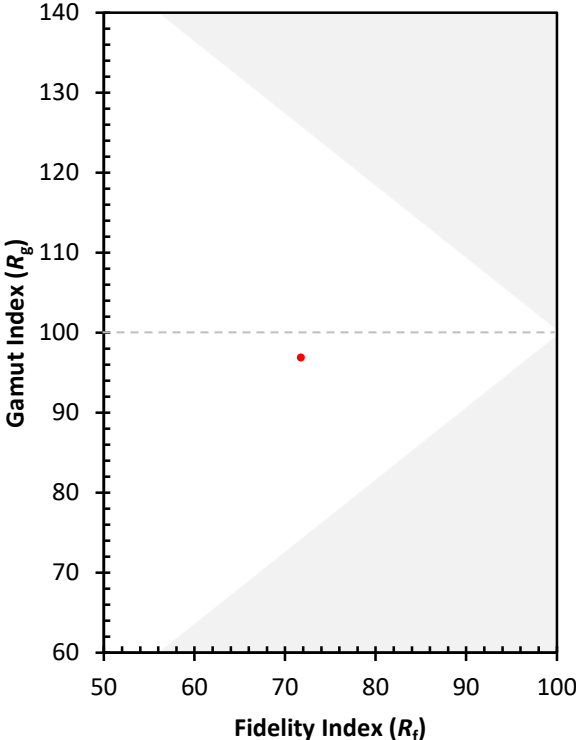
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 55 | CES51 = 86 | CES76 = 45 |
| CES02 = 61 | CES27 = 80 | CES52 = 87 | CES77 = 68 |
| CES03 = 30 | CES28 = 79 | CES53 = 74 | CES78 = 49 |
| CES04 = 70 | CES29 = 51 | CES54 = 81 | CES79 = 77 |
| CES05 = 47 | CES30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



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)