

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: P641820

Luminaire Tested: GWS-SA6B-760-U-AFL-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P641820
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-45)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA6B-760-U-AFL-W
Description: GALLEON WALL SLIM LUMINAIRE. (6) LIGHTSQUARES WITH 16 LEDS EACH AND
AUTOMOTIVE FRONTLINE OPTICS
Light Source: (96) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 21752.2 lumens
Efficiency: N/A
Efficacy: 156.6 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G2

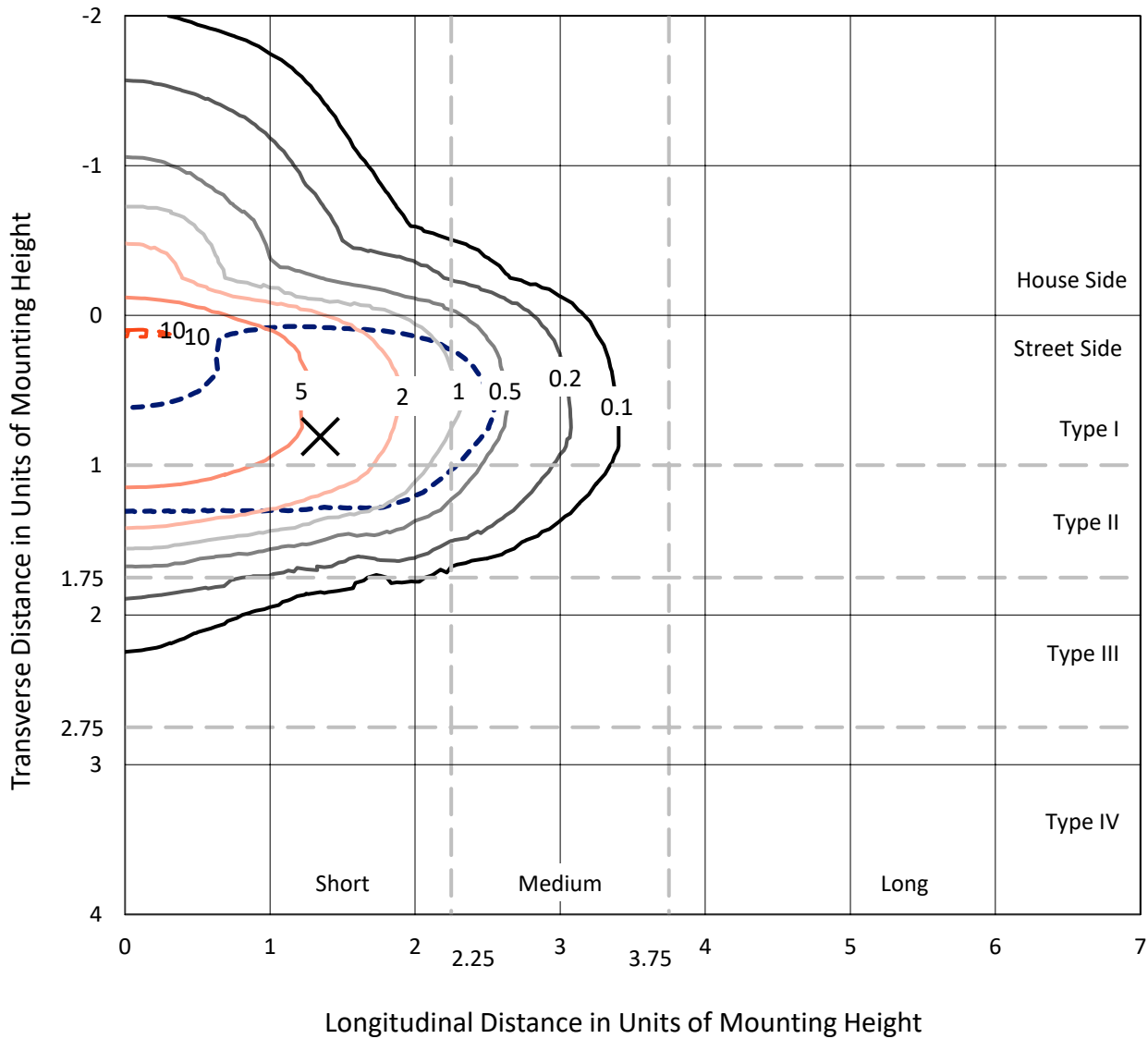
Input Watts (W): 138.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P641820
 CATALOG NUMBER: GWS-SA6B-760-U-AFL-W

Iso-Footcandle Lines of Horizontal Illumination

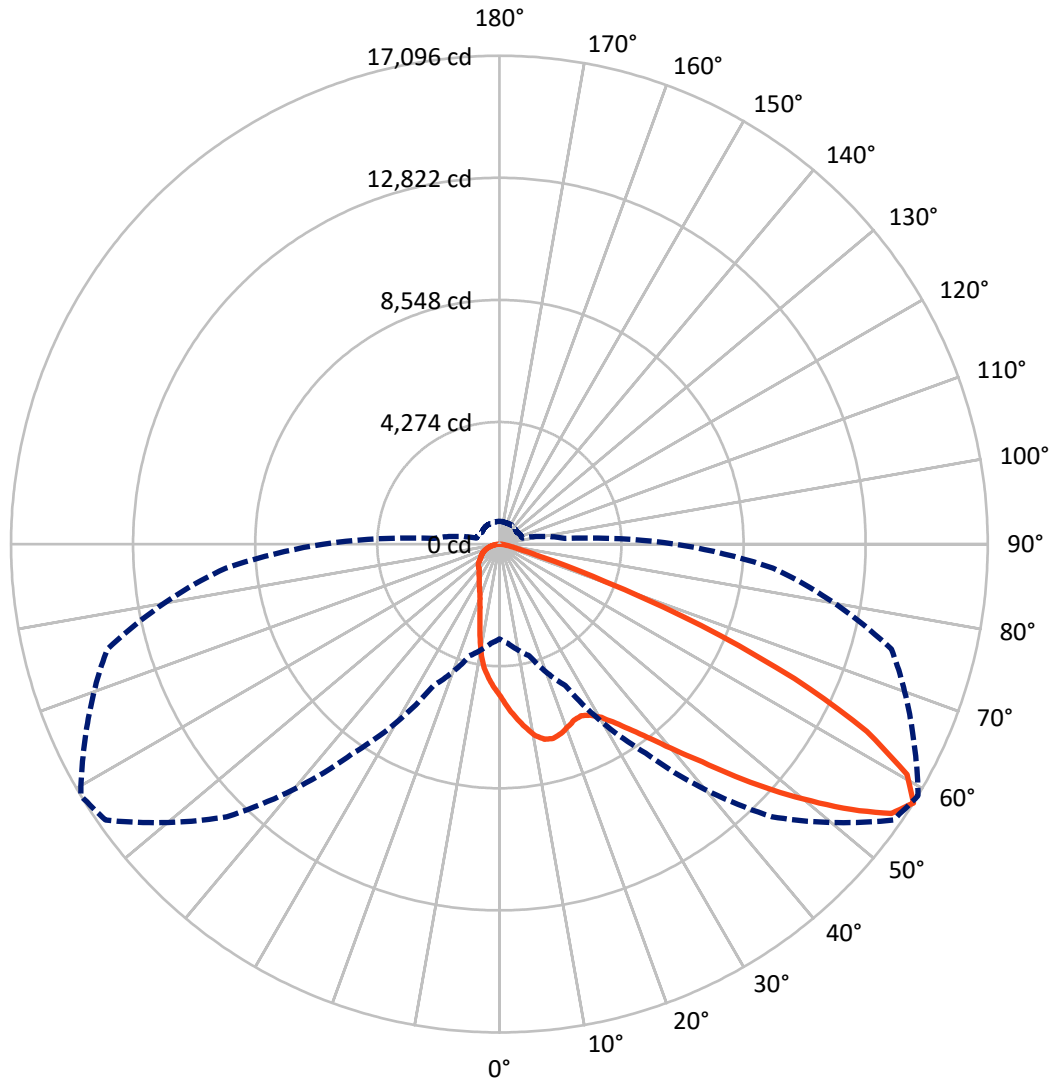
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 10.5 fc
 Type II - Short - N/A

REPORT NUMBER: P641820
CATALOG NUMBER: GWS-SA6B-760-U-AFL-W

Luminous Intensity Polar Plot



— Vertical Plane Through 59-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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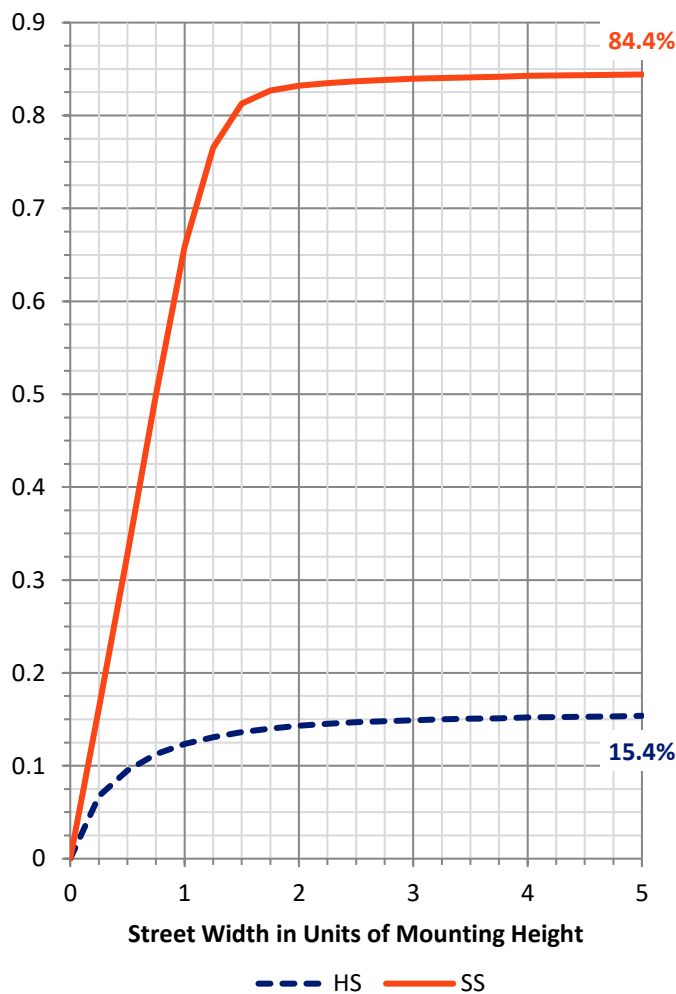
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 3375.8 | 0.0 | 3375.8 |
| | % Fixture | 15.5 | 0.0 | 15.5 |
| Street Side | Lumens | 18376.4 | 0.0 | 18376.4 |
| | % Fixture | 84.5 | 0.0 | 84.5 |
| Total | Lumens | 21752.2 | 0.0 | 21752.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 495.8 | 2.3 |
| 10°-20° | 1256.4 | 5.8 |
| 20°-30° | 2036.6 | 9.4 |
| 30°-40° | 3276.1 | 15.1 |
| 40°-50° | 5087.5 | 23.4 |
| 50°-60° | 5479.9 | 25.2 |
| 60°-70° | 3180.3 | 14.6 |
| 70°-80° | 830.2 | 3.8 |
| 80°-90° | 109.4 | 0.5 |
| 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° | 21752.2 | 100.0 |
| 0°-180° | 21752.2 | 100.0 |

Coefficient of Utilization



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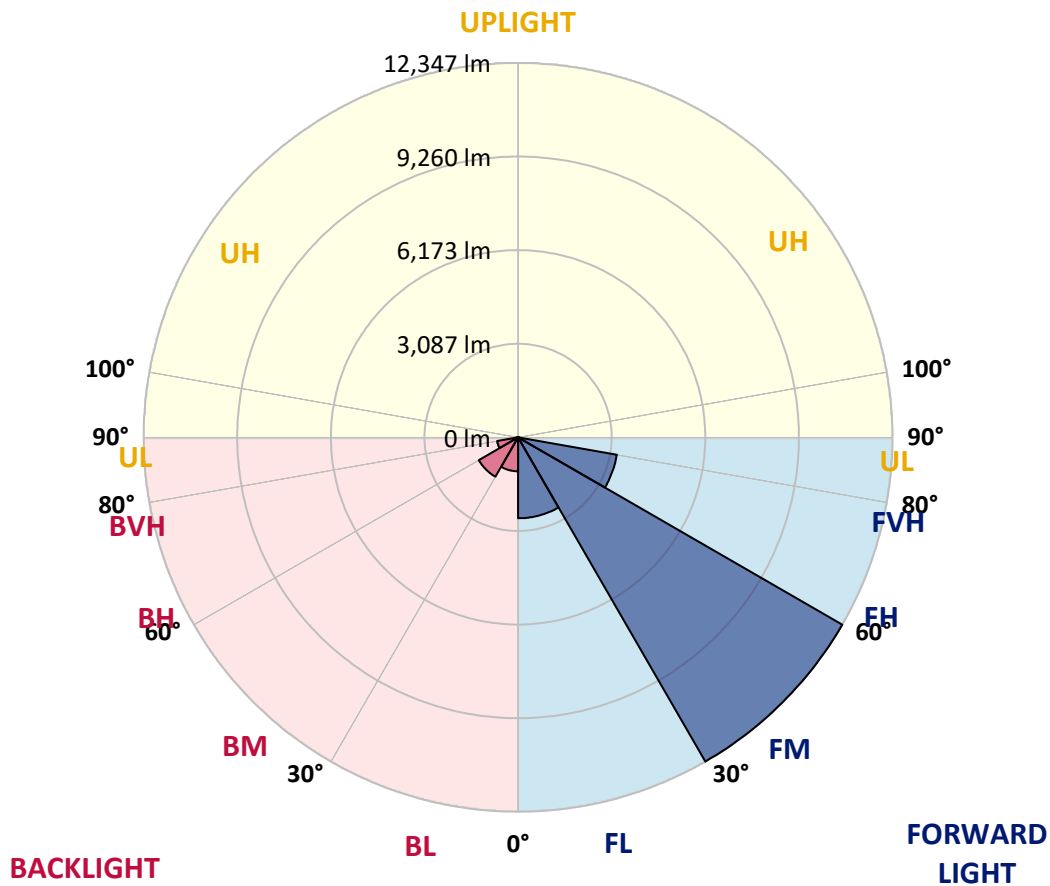
CATALOG NUMBER: GWS-SA6B-760-U-AFL-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 2668.8 | 12.3 | | | |
| FM (30°-60°) | 12346.8 | 56.8 | | | |
| FH (60°-80°) | 3308.4 | 15.2 | | | G2/5000 |
| FVH (80°-90°) | 52.4 | 0.2 | | | G1/100 |
| BL (0°-30°) | 1120.0 | 5.1 | B3/2500 | | |
| BM (30°-60°) | 1496.7 | 6.9 | B2/2500 | | |
| BH (60°-80°) | 702.2 | 3.2 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 57.0 | 0.3 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G2

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 59° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0° | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 |
| 2.5° | 6056.4 | 6005.9 | 6041.1 | 5978.3 | 5952.3 | 5883.4 | 5794.5 | 5734.8 | 5642.9 | 5523.5 | 5419.4 |
| 5° | 6658.2 | 6623.0 | 6630.6 | 6563.3 | 6503.5 | 6388.7 | 6206.5 | 6105.4 | 5949.2 | 5708.8 | 5485.2 |
| 7.5° | 6639.8 | 6681.2 | 6704.1 | 6762.3 | 6779.2 | 6768.5 | 6604.6 | 6463.7 | 6292.2 | 5930.8 | 5593.9 |
| 10° | 5952.3 | 6030.4 | 6100.8 | 6299.9 | 6541.8 | 6848.1 | 6886.4 | 6802.1 | 6629.1 | 6214.1 | 5724.1 |
| 12.5° | 5203.4 | 5263.2 | 5325.9 | 5564.8 | 5935.4 | 6547.9 | 6962.9 | 7015.0 | 6946.1 | 6494.3 | 5871.1 |
| 15° | 4835.9 | 4863.5 | 4923.2 | 5080.9 | 5376.5 | 6056.4 | 6829.7 | 7057.9 | 7181.9 | 6791.4 | 6036.5 |
| 17.5° | 4820.6 | 4832.9 | 4862.0 | 4946.2 | 5151.4 | 5676.6 | 6589.3 | 6972.1 | 7367.2 | 7105.3 | 6229.4 |
| 20° | 5137.6 | 5105.4 | 5087.1 | 5085.5 | 5186.6 | 5549.5 | 6356.5 | 6834.3 | 7454.5 | 7426.9 | 6436.2 |
| 22.5° | 5577.1 | 5587.8 | 5548.0 | 5450.0 | 5437.7 | 5639.9 | 6240.1 | 6695.0 | 7480.5 | 7711.8 | 6627.6 |
| 25° | 6200.3 | 6253.9 | 6136.0 | 5949.2 | 5857.3 | 5901.7 | 6312.1 | 6652.1 | 7477.5 | 7949.1 | 6747.0 |
| 27.5° | 6927.7 | 6969.1 | 6849.6 | 6604.6 | 6414.7 | 6307.5 | 6526.5 | 6779.2 | 7503.5 | 8154.3 | 6819.0 |
| 30° | 7756.2 | 7769.9 | 7606.1 | 7348.8 | 7071.7 | 6842.0 | 6883.3 | 7041.0 | 7636.7 | 8423.8 | 6903.2 |
| 32.5° | 8768.4 | 8826.6 | 8578.5 | 8171.2 | 7783.7 | 7489.7 | 7362.6 | 7463.7 | 7924.6 | 8742.3 | 7033.4 |
| 35° | 10053.1 | 10073.1 | 9757.6 | 9174.2 | 8626.0 | 8218.6 | 7952.2 | 8005.8 | 8362.6 | 9187.9 | 7229.4 |
| 37.5° | 11264.4 | 11284.3 | 10949.0 | 10406.9 | 9622.8 | 9065.4 | 8679.5 | 8655.0 | 8923.0 | 9817.3 | 7549.4 |
| 40° | 12033.2 | 12089.8 | 11939.7 | 11599.8 | 10851.0 | 10099.1 | 9575.4 | 9491.2 | 9658.1 | 10587.6 | 7995.0 |
| 42.5° | 12446.6 | 12471.1 | 12468.0 | 12512.5 | 12066.8 | 11319.6 | 10586.0 | 10417.6 | 10529.4 | 11419.1 | 8445.3 |
| 45° | 12449.7 | 12510.9 | 12674.8 | 13102.0 | 13121.9 | 12656.4 | 11863.2 | 11599.8 | 11497.2 | 12256.7 | 8915.4 |
| 47.5° | 11892.3 | 11958.1 | 12408.3 | 13249.0 | 13869.2 | 13974.9 | 13393.0 | 12864.7 | 12432.8 | 12978.0 | 9301.3 |
| 50° | 10204.7 | 10370.1 | 11227.7 | 12714.6 | 14016.2 | 15031.5 | 14852.3 | 14135.7 | 13264.3 | 13535.4 | 9543.2 |
| 52.5° | 8739.3 | 8733.1 | 9261.5 | 11204.7 | 13402.2 | 15497.0 | 16264.2 | 15443.4 | 14086.7 | 13889.1 | 9604.5 |
| 55° | 6399.4 | 6434.6 | 6975.2 | 8569.3 | 11763.6 | 15046.8 | 17040.6 | 16647.0 | 15030.0 | 14077.5 | 9580.0 |
| 57.5° | 3318.4 | 3493.0 | 4047.3 | 5468.4 | 8938.3 | 13497.1 | 16833.9 | 17095.7 | 15988.6 | 14210.7 | 9612.1 |
| 60° | 1676.8 | 1643.1 | 1842.2 | 2610.9 | 5178.9 | 10541.6 | 15559.8 | 16394.4 | 16161.6 | 14314.8 | 9632.0 |
| 62.5° | 1119.4 | 1110.2 | 1055.1 | 1209.7 | 2116.3 | 6243.2 | 13264.3 | 14434.3 | 14959.5 | 14069.8 | 9377.8 |
| 65° | 969.3 | 951.0 | 849.9 | 843.8 | 1027.5 | 2589.5 | 9722.4 | 11347.1 | 12363.9 | 12981.0 | 8769.9 |
| 67.5° | 872.9 | 845.3 | 742.7 | 692.2 | 738.1 | 1137.8 | 5479.1 | 7610.7 | 9129.8 | 10978.1 | 7437.6 |
| 70° | 779.4 | 765.7 | 663.1 | 589.6 | 585.0 | 693.7 | 2018.3 | 3927.8 | 5586.3 | 7489.7 | 5437.7 |
| 72.5° | 698.3 | 673.8 | 586.5 | 516.1 | 480.8 | 491.6 | 875.9 | 1512.9 | 2891.1 | 4672.1 | 3252.5 |
| 75° | 604.9 | 586.5 | 509.9 | 439.5 | 396.6 | 359.9 | 534.4 | 699.8 | 1318.5 | 2220.4 | 1535.9 |
| 77.5° | 467.1 | 454.8 | 402.7 | 349.1 | 324.6 | 268.0 | 324.6 | 441.0 | 609.5 | 935.6 | 799.4 |
| 80° | 271.0 | 278.7 | 300.1 | 272.6 | 238.9 | 191.4 | 211.3 | 254.2 | 366.0 | 506.9 | 453.3 |
| 82.5° | 136.3 | 145.5 | 194.5 | 157.7 | 142.4 | 111.8 | 125.6 | 150.1 | 191.4 | 280.2 | 177.6 |
| 85° | 10.7 | 10.7 | 35.2 | 39.8 | 49.0 | 39.8 | 50.5 | 61.3 | 87.3 | 111.8 | 59.7 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 | 7.7 | 13.8 | 26.0 | 16.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P641820
 CATALOG NUMBER: GWS-SA6B-760-U-AFL-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 | 5339.7 |
| 2.5° | 5348.9 | 5270.8 | 5177.4 | 5100.8 | 4982.9 | 4920.1 | 4840.5 | 4742.5 | 4702.7 | 4684.3 | 4673.6 |
| 5° | 5359.6 | 5221.8 | 5022.7 | 4839.0 | 4635.3 | 4474.5 | 4295.4 | 4108.5 | 4001.4 | 3975.3 | 3956.9 |
| 7.5° | 5399.5 | 5206.5 | 4889.5 | 4586.3 | 4208.1 | 3857.4 | 3515.9 | 3177.5 | 3004.5 | 2938.6 | 2932.5 |
| 10° | 5454.6 | 5200.4 | 4754.8 | 4251.0 | 3612.4 | 3058.1 | 2658.4 | 2393.5 | 2281.7 | 2244.9 | 2232.7 |
| 12.5° | 5523.5 | 5195.8 | 4577.1 | 3785.4 | 2924.8 | 2401.1 | 2173.0 | 2130.1 | 2145.4 | 2142.3 | 2142.3 |
| 15° | 5610.8 | 5201.9 | 4362.7 | 3258.7 | 2365.9 | 2084.1 | 2088.7 | 2139.3 | 2186.7 | 2194.4 | 2194.4 |
| 17.5° | 5705.7 | 5195.8 | 4051.9 | 2730.4 | 2030.5 | 2009.1 | 2079.5 | 2150.0 | 2192.9 | 2199.0 | 2199.0 |
| 20° | 5808.3 | 5166.7 | 3659.9 | 2232.7 | 1883.5 | 1961.6 | 2038.2 | 2093.3 | 2119.4 | 2125.5 | 2125.5 |
| 22.5° | 5869.6 | 5084.0 | 3234.2 | 1889.7 | 1790.1 | 1886.6 | 1937.1 | 1993.8 | 1996.8 | 1947.8 | 1946.3 |
| 25° | 5860.4 | 4929.3 | 2748.7 | 1669.1 | 1690.6 | 1774.8 | 1839.1 | 1799.3 | 1750.3 | 1722.7 | 1718.1 |
| 27.5° | 5802.2 | 4696.6 | 2254.1 | 1502.2 | 1572.7 | 1667.6 | 1647.7 | 1614.0 | 1601.8 | 1571.1 | 1568.1 |
| 30° | 5728.7 | 4410.2 | 1810.0 | 1372.1 | 1450.2 | 1537.5 | 1506.8 | 1503.8 | 1491.5 | 1457.8 | 1457.8 |
| 32.5° | 5658.2 | 4114.7 | 1474.7 | 1275.6 | 1372.1 | 1378.2 | 1421.1 | 1424.1 | 1418.0 | 1359.8 | 1353.7 |
| 35° | 5638.3 | 3819.1 | 1248.0 | 1199.0 | 1295.5 | 1292.4 | 1353.7 | 1352.2 | 1246.5 | 1165.3 | 1163.8 |
| 37.5° | 5698.1 | 3519.0 | 1113.3 | 1136.2 | 1189.8 | 1229.7 | 1278.7 | 1189.8 | 1154.6 | 1105.6 | 1102.6 |
| 40° | 5825.2 | 3241.8 | 1044.4 | 1099.5 | 1122.5 | 1180.7 | 1104.1 | 1110.2 | 1101.0 | 1064.3 | 1059.7 |
| 42.5° | 5993.6 | 3006.0 | 1006.1 | 1087.2 | 1084.2 | 1099.5 | 1015.3 | 1039.8 | 1053.6 | 1026.0 | 1021.4 |
| 45° | 6155.9 | 2800.8 | 986.2 | 1041.3 | 1056.6 | 967.8 | 951.0 | 973.9 | 995.4 | 984.6 | 980.0 |
| 47.5° | 6275.4 | 2623.2 | 975.5 | 978.5 | 1021.4 | 923.4 | 895.8 | 906.5 | 932.6 | 937.2 | 935.6 |
| 50° | 6312.1 | 2471.6 | 963.2 | 926.5 | 917.3 | 879.0 | 857.5 | 854.5 | 885.1 | 906.5 | 909.6 |
| 52.5° | 6241.7 | 2336.8 | 931.0 | 880.5 | 836.1 | 842.2 | 834.6 | 819.3 | 849.9 | 879.0 | 882.0 |
| 55° | 6137.6 | 2260.2 | 880.5 | 836.1 | 784.0 | 808.5 | 811.6 | 797.8 | 817.7 | 837.6 | 837.6 |
| 57.5° | 6145.2 | 2304.6 | 831.5 | 794.8 | 738.1 | 770.3 | 787.1 | 781.0 | 781.0 | 796.3 | 797.8 |
| 60° | 6195.7 | 2369.0 | 799.4 | 742.7 | 692.2 | 725.8 | 764.1 | 758.0 | 744.2 | 764.1 | 764.1 |
| 62.5° | 6050.3 | 2283.2 | 777.9 | 692.2 | 643.2 | 683.0 | 728.9 | 725.8 | 710.5 | 742.7 | 745.8 |
| 65° | 5621.5 | 2053.5 | 753.4 | 629.4 | 594.2 | 640.1 | 679.9 | 690.6 | 676.8 | 719.7 | 727.4 |
| 67.5° | 4711.9 | 1727.3 | 705.9 | 569.7 | 545.2 | 588.0 | 626.3 | 641.6 | 630.9 | 681.4 | 687.6 |
| 70° | 3512.9 | 1398.1 | 630.9 | 503.8 | 485.4 | 523.7 | 558.9 | 565.1 | 566.6 | 626.3 | 632.4 |
| 72.5° | 2240.3 | 1087.2 | 531.4 | 430.3 | 416.5 | 445.6 | 471.6 | 496.1 | 506.9 | 563.5 | 562.0 |
| 75° | 1249.6 | 808.5 | 427.2 | 364.5 | 340.0 | 362.9 | 393.6 | 422.6 | 453.3 | 536.0 | 545.2 |
| 77.5° | 719.7 | 568.1 | 338.4 | 292.5 | 263.4 | 287.9 | 313.9 | 355.3 | 447.1 | 519.1 | 509.9 |
| 80° | 405.8 | 369.0 | 255.7 | 214.4 | 196.0 | 214.4 | 234.3 | 312.4 | 352.2 | 382.8 | 387.4 |
| 82.5° | 189.9 | 206.7 | 174.6 | 131.7 | 131.7 | 143.9 | 162.3 | 241.9 | 266.5 | 217.4 | 189.9 |
| 85° | 68.9 | 93.4 | 85.8 | 67.4 | 59.7 | 58.2 | 101.1 | 137.8 | 85.8 | 76.6 | 65.8 |
| 87.5° | 18.4 | 26.0 | 24.5 | 16.8 | 9.2 | 7.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-9-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW-EDISON
 Catalog Number: **SA1C-760-U-5WQ**
 Description: MCGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

| | | | | | |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K): | 5474 | CRI (Ra): | 71.7 | R9: | -27.1 |
| CIE u': | 0.2052 | R1: | 70.6 | R10: | 40.8 |
| CIE v': | 0.4804 | R2: | 74.6 | R11: | 74.6 |
| Duv: | 0.0025 | R3: | 78.3 | R12: | 50.4 |
| CIE x: | 0.3330 | R4: | 73.8 | R13: | 70.0 |
| CIE y: | 0.3466 | R5: | 72.4 | R14: | 87.8 |
| CIE z: | 0.3204 | R6: | 67.5 | | |
| Peak Wavelength (nm): | 442 | R7: | 77.5 | | |
| Dominant Wavelength (nm): | 554 | R8: | 58.9 | | |
| Purity: | 4.1 | | | | |
| Rf: | 72.1 | | | | |
| Rg: | 97.2 | | | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

REPORT NUMBER: SP1-1908-441-9-R4

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 5700K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-9-R4

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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5527.6 M/P: 0.74

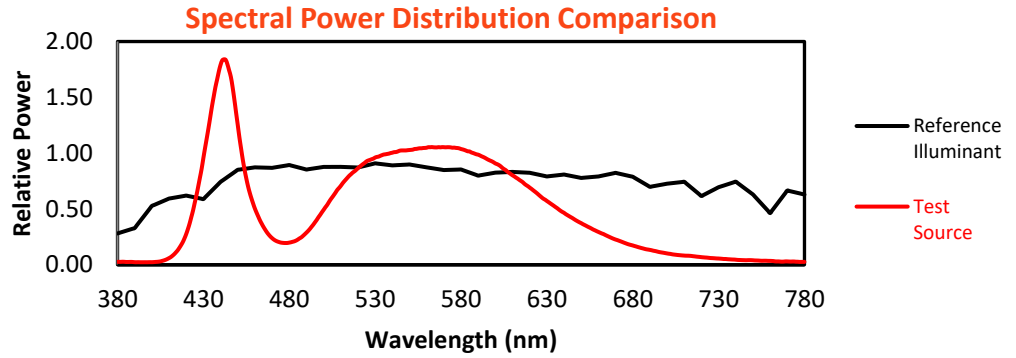
| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

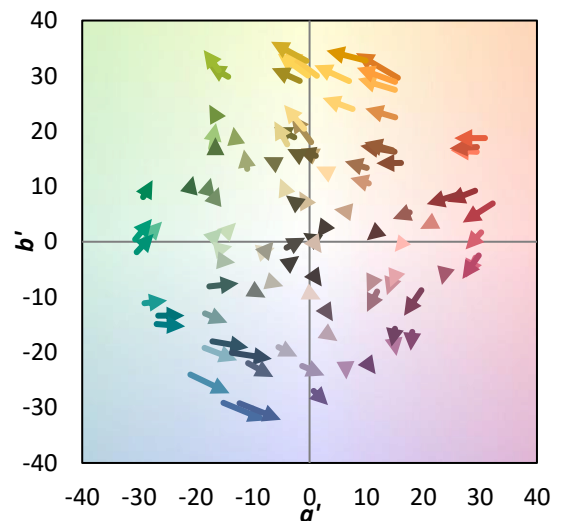
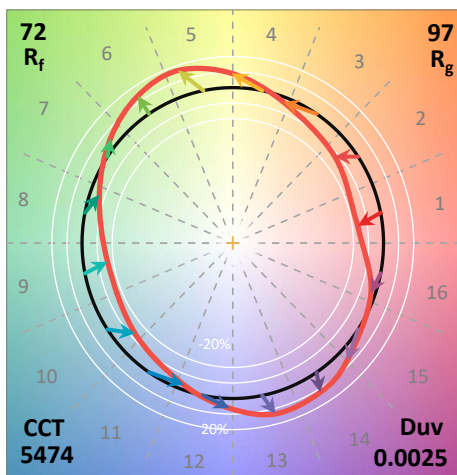
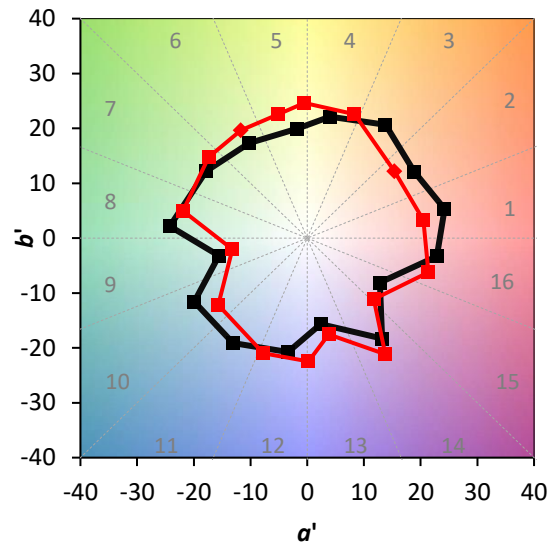
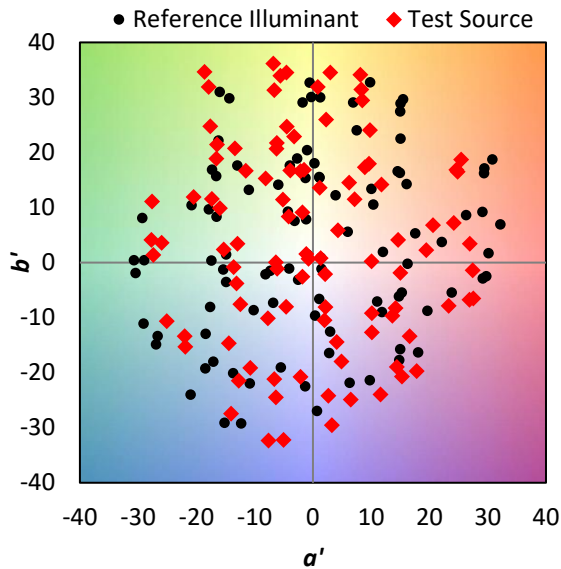
TM-30-18

Summary

$R_f = 72.1$
 $R_g = 97.2$
 CIE $R_a = 71.7$
 $R_g = -27.1$



Color Vector Graphics



REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

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

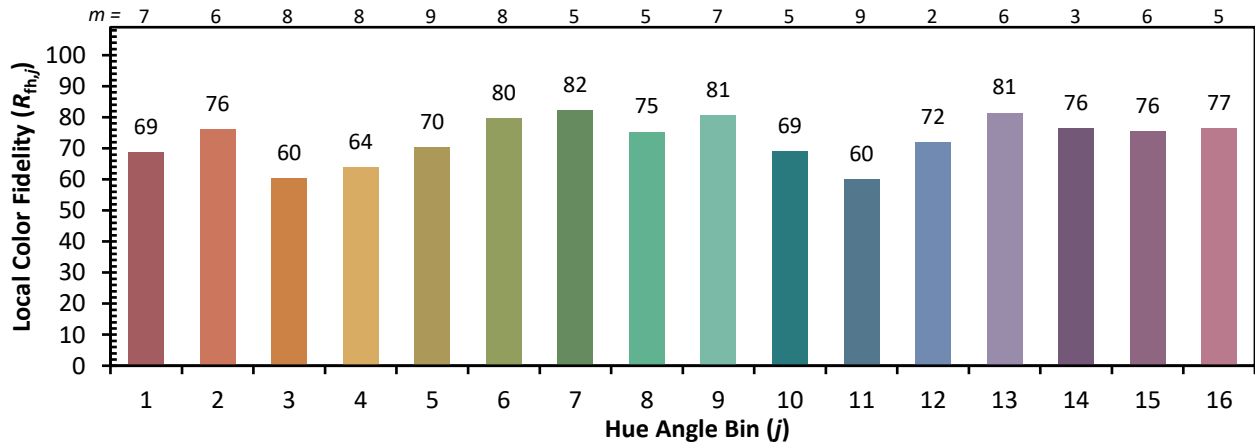
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 | |



REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Color Rendition by Hue-Angle Bin



REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Measure Comparisons



(END OF REPORT)