

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: P630686

Luminaire Tested: GWS-SA1E-727-U-T3-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P630686
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-SA1E-727-U-T3-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (16) 2700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3913.3 lumens
Efficiency: N/A
Efficacy: 67.0 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G0

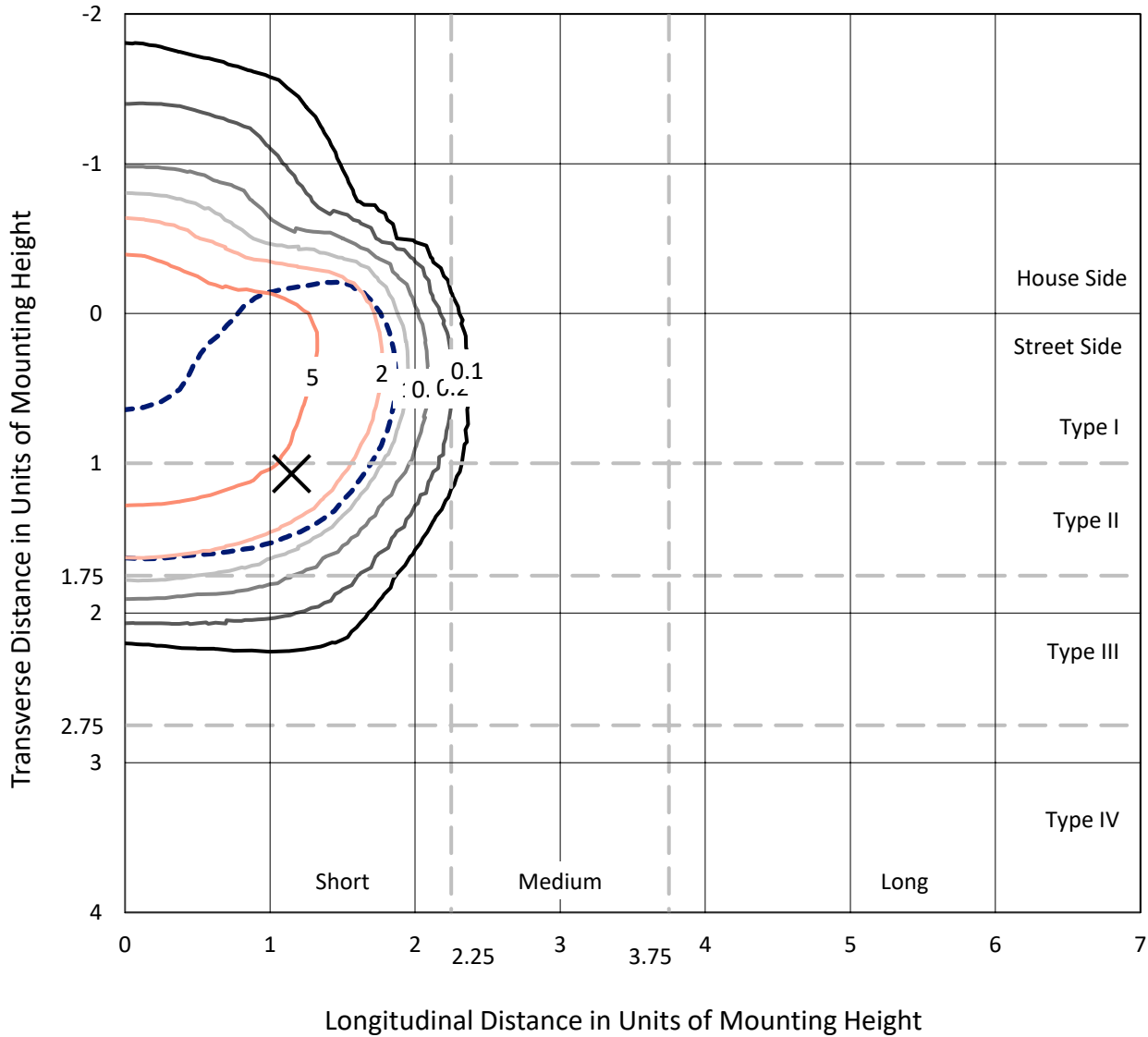
Input Watts (W): 58.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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 CATALOG NUMBER: GWS-SA1E-727-U-T3-W-GRSBK

Iso-Footcandle Lines of Horizontal Illumination

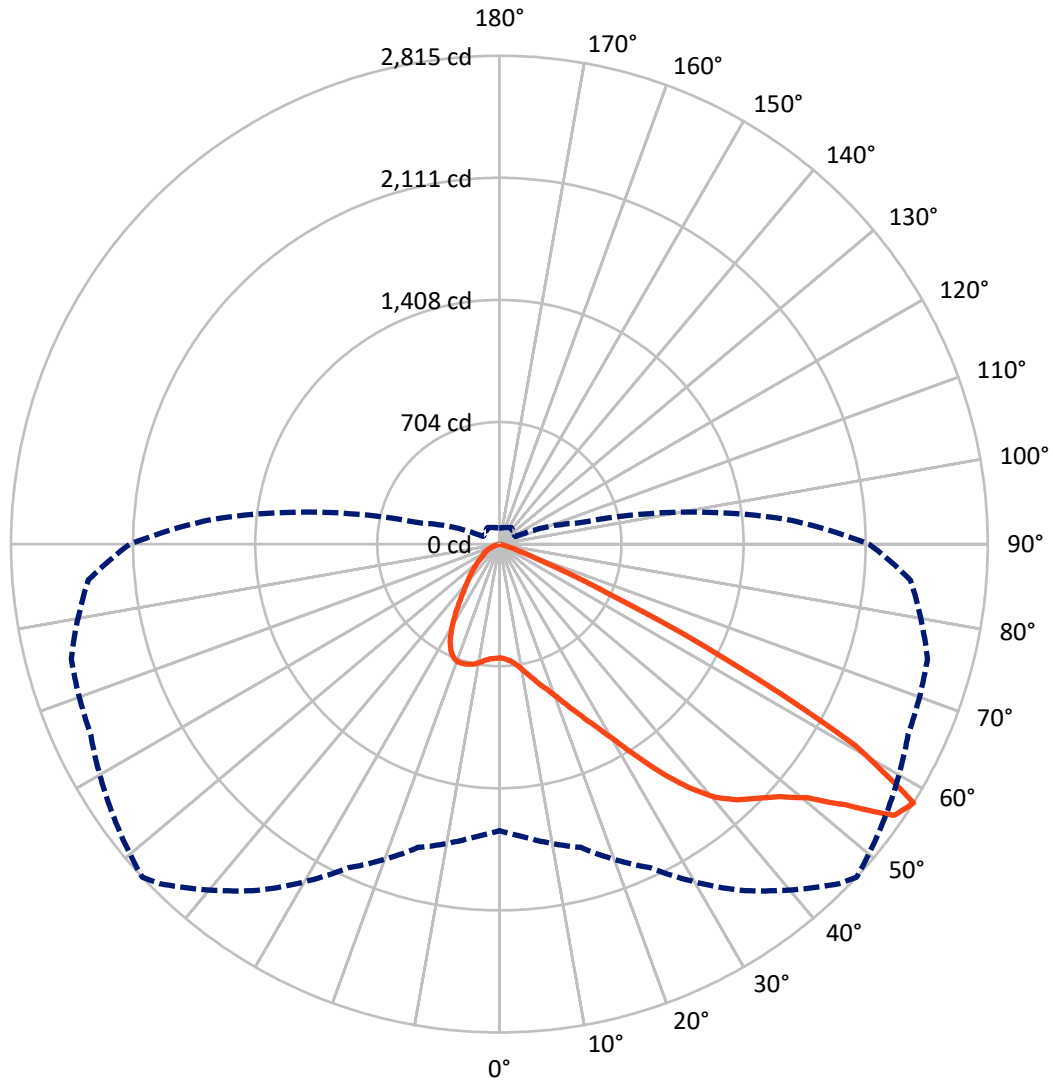
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 9.3 fc
 Type II - Short - N/A

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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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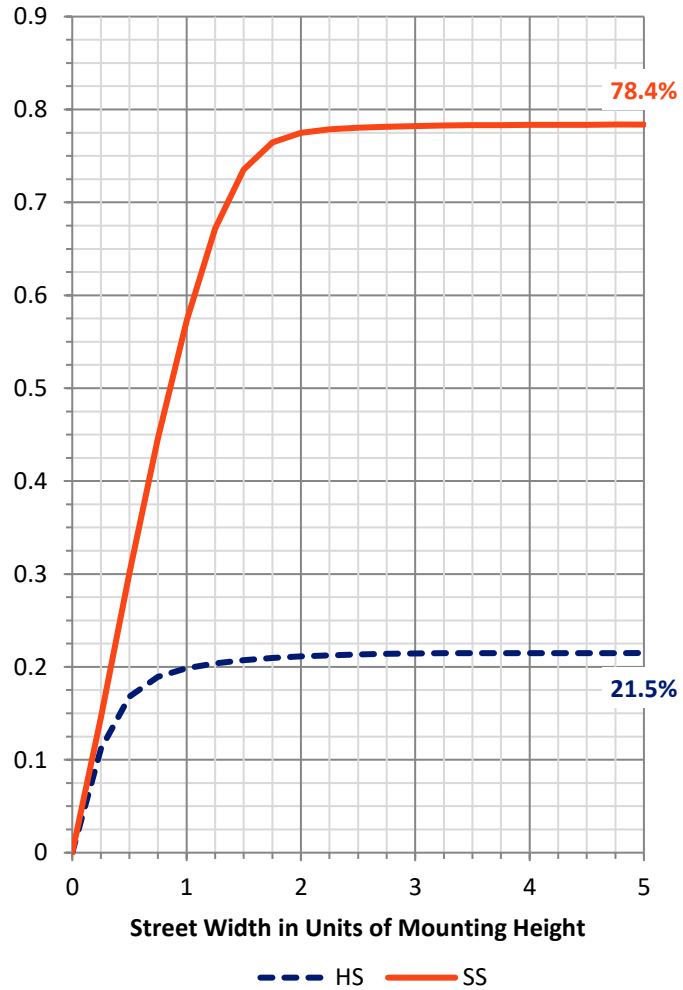
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 849.0 | 0.0 | 849.0 |
| | % Fixture | 21.7 | 0.0 | 21.7 |
| Street Side | Lumens | 3064.3 | 0.0 | 3064.3 |
| | % Fixture | 78.3 | 0.0 | 78.3 |
| Total | Lumens | 3913.3 | 0.0 | 3913.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 65.2 | 1.7 |
| 10°-20° | 219.9 | 5.6 |
| 20°-30° | 408.3 | 10.4 |
| 30°-40° | 653.7 | 16.7 |
| 40°-50° | 955.5 | 24.4 |
| 50°-60° | 1179.2 | 30.1 |
| 60°-70° | 394.0 | 10.1 |
| 70°-80° | 36.7 | 0.9 |
| 80°-90° | 0.8 | 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° | 3913.3 | 100.0 |
| 0°-180° | 3913.3 | 100.0 |

Coefficient of Utilization



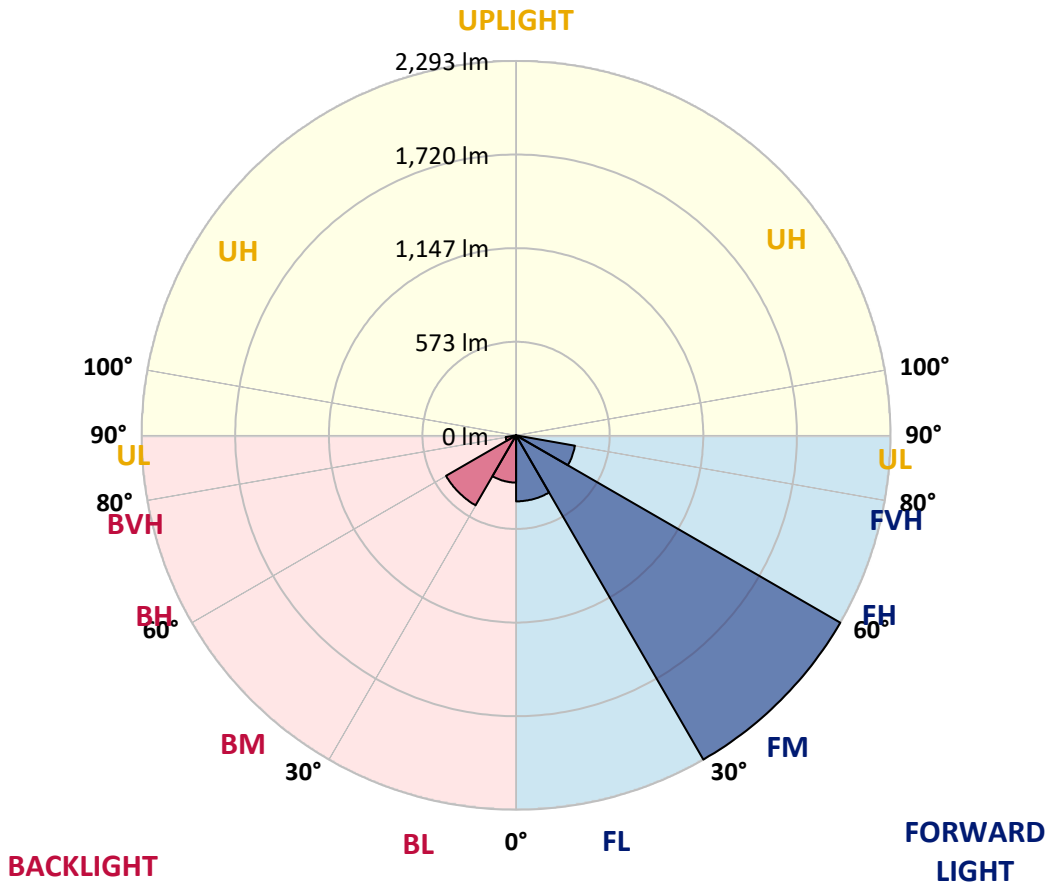
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 404.4 | 10.3 | | | |
| FM (30°-60°) | 2293.2 | 58.6 | | | |
| FH (60°-80°) | 366.2 | 9.4 | | | G0/660 |
| FVH (80°-90°) | 0.5 | 0.0 | | | G0/10 |
| BL (0°-30°) | 289.0 | 7.4 | B1/500 | | |
| BM (30°-60°) | 495.2 | 12.7 | B1/1000 | | |
| BH (60°-80°) | 64.5 | 1.6 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.2 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G0
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 47° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 |
| 2.5° | 661.9 | 661.5 | 661.0 | 663.7 | 662.8 | 662.4 | 663.3 | 663.3 | 663.3 | 660.5 | 655.1 |
| 5° | 677.8 | 677.8 | 677.4 | 680.1 | 677.8 | 676.4 | 676.9 | 676.9 | 675.1 | 670.1 | 663.3 |
| 7.5° | 702.8 | 701.9 | 701.0 | 703.7 | 701.4 | 701.0 | 701.9 | 699.2 | 696.0 | 687.8 | 678.3 |
| 10° | 738.7 | 738.7 | 737.3 | 740.0 | 738.2 | 737.3 | 737.3 | 735.5 | 729.6 | 716.9 | 702.8 |
| 12.5° | 788.2 | 785.9 | 782.7 | 780.5 | 779.6 | 779.1 | 779.6 | 776.8 | 770.5 | 754.1 | 734.6 |
| 15° | 842.3 | 840.4 | 835.4 | 831.8 | 826.8 | 825.9 | 828.6 | 826.4 | 820.0 | 797.7 | 770.0 |
| 17.5° | 910.4 | 912.7 | 900.0 | 892.2 | 877.7 | 876.8 | 877.7 | 881.3 | 876.8 | 848.2 | 807.7 |
| 20° | 968.6 | 970.4 | 960.8 | 955.4 | 942.2 | 936.3 | 938.1 | 944.0 | 939.0 | 905.4 | 849.1 |
| 22.5° | 1030.8 | 1033.1 | 1023.1 | 1011.7 | 1005.8 | 1005.8 | 1012.6 | 1020.8 | 1014.0 | 969.9 | 896.3 |
| 25° | 1105.3 | 1107.1 | 1098.9 | 1083.9 | 1073.5 | 1086.7 | 1096.7 | 1118.5 | 1107.1 | 1047.1 | 952.2 |
| 27.5° | 1190.7 | 1191.2 | 1179.3 | 1163.9 | 1158.4 | 1183.0 | 1193.0 | 1226.6 | 1222.0 | 1133.9 | 1011.3 |
| 30° | 1282.0 | 1282.5 | 1279.7 | 1269.3 | 1264.3 | 1296.6 | 1310.2 | 1358.8 | 1355.6 | 1241.6 | 1091.7 |
| 32.5° | 1377.0 | 1377.0 | 1382.0 | 1381.1 | 1387.0 | 1439.7 | 1461.5 | 1516.9 | 1513.7 | 1373.3 | 1191.6 |
| 35° | 1472.4 | 1472.8 | 1481.4 | 1503.3 | 1527.8 | 1597.7 | 1626.4 | 1693.6 | 1686.3 | 1531.0 | 1319.3 |
| 37.5° | 1580.9 | 1576.4 | 1588.2 | 1620.9 | 1675.4 | 1756.3 | 1783.6 | 1847.6 | 1839.4 | 1692.2 | 1486.0 |
| 40° | 1711.8 | 1703.6 | 1703.6 | 1741.8 | 1803.5 | 1896.7 | 1919.8 | 1951.6 | 1923.9 | 1822.6 | 1649.5 |
| 42.5° | 1856.2 | 1848.5 | 1838.5 | 1872.1 | 1923.9 | 1996.6 | 2015.7 | 2007.1 | 1984.4 | 1945.7 | 1835.8 |
| 45° | 2002.5 | 1990.7 | 1997.5 | 2018.0 | 2048.0 | 2082.5 | 2089.7 | 2049.8 | 2039.3 | 2050.2 | 1989.8 |
| 47.5° | 2113.8 | 2105.6 | 2122.5 | 2151.1 | 2175.6 | 2180.6 | 2175.6 | 2120.2 | 2119.3 | 2157.9 | 2096.6 |
| 50° | 2151.1 | 2152.0 | 2198.3 | 2261.0 | 2300.5 | 2304.6 | 2297.8 | 2234.2 | 2225.6 | 2236.9 | 2154.3 |
| 52.5° | 2154.7 | 2158.3 | 2226.0 | 2345.5 | 2453.2 | 2502.2 | 2496.8 | 2428.2 | 2343.7 | 2331.4 | 2241.5 |
| 55° | 2067.0 | 2088.4 | 2182.9 | 2357.3 | 2586.3 | 2743.0 | 2761.2 | 2629.9 | 2504.5 | 2494.1 | 2429.1 |
| 57.5° | 1652.3 | 1695.9 | 1809.9 | 2058.4 | 2437.7 | 2768.0 | 2815.3 | 2720.8 | 2599.5 | 2554.9 | 2378.7 |
| 60° | 987.6 | 1041.7 | 1151.2 | 1456.0 | 1855.3 | 2275.1 | 2356.4 | 2369.6 | 2313.7 | 2185.1 | 1824.9 |
| 62.5° | 423.9 | 419.3 | 554.2 | 787.7 | 1103.5 | 1446.0 | 1482.8 | 1540.1 | 1588.7 | 1454.2 | 1107.6 |
| 65° | 145.4 | 158.1 | 219.9 | 355.3 | 552.4 | 671.4 | 704.2 | 755.5 | 824.5 | 680.5 | 405.7 |
| 67.5° | 90.0 | 95.4 | 126.7 | 209.9 | 298.0 | 293.5 | 278.9 | 270.8 | 263.5 | 180.4 | 111.3 |
| 70° | 65.4 | 70.0 | 89.0 | 144.5 | 200.3 | 140.8 | 122.2 | 99.0 | 109.9 | 101.3 | 79.0 |
| 72.5° | 44.1 | 47.7 | 61.3 | 87.7 | 102.7 | 68.6 | 63.6 | 72.2 | 87.2 | 83.1 | 64.5 |
| 75° | 26.3 | 28.6 | 35.0 | 42.7 | 41.8 | 35.4 | 35.9 | 50.9 | 66.8 | 62.2 | 45.9 |
| 77.5° | 18.2 | 19.1 | 23.2 | 27.7 | 20.4 | 10.9 | 10.0 | 14.1 | 22.7 | 22.7 | 15.4 |
| 80° | 4.5 | 5.9 | 5.9 | 3.6 | 3.2 | 2.7 | 2.7 | 4.1 | 6.4 | 4.5 | 2.3 |
| 82.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.9 | 0.9 | 0.9 | 0.9 |
| 85° | 0.0 | 0.0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.9 | 0.9 | 0.9 |
| 87.5° | 0.0 | 0.0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.9 | 0.9 |
| 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: P630686

CATALOG NUMBER: GWS-SA1E-727-U-T3-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 | 655.1 |
| 2.5° | 658.3 | 652.8 | 656.5 | 655.5 | 658.3 | 659.2 | 655.1 | 654.2 | 654.6 | 649.2 | 647.4 |
| 5° | 664.6 | 658.3 | 660.1 | 658.3 | 661.5 | 664.2 | 662.8 | 664.6 | 666.9 | 662.8 | 661.0 |
| 7.5° | 678.3 | 671.9 | 671.4 | 668.7 | 673.3 | 675.1 | 674.6 | 679.6 | 684.2 | 681.4 | 678.7 |
| 10° | 701.9 | 693.3 | 692.3 | 690.1 | 691.4 | 692.8 | 687.8 | 688.7 | 692.8 | 689.6 | 688.3 |
| 12.5° | 731.0 | 720.5 | 718.2 | 712.8 | 712.8 | 706.0 | 695.1 | 692.8 | 696.0 | 693.7 | 691.4 |
| 15° | 762.3 | 748.2 | 744.6 | 735.0 | 726.0 | 713.2 | 701.9 | 699.2 | 701.4 | 698.7 | 696.9 |
| 17.5° | 797.3 | 781.4 | 769.6 | 752.8 | 732.8 | 717.8 | 705.1 | 699.2 | 695.5 | 690.1 | 689.6 |
| 20° | 831.8 | 810.9 | 790.9 | 764.1 | 737.8 | 715.1 | 694.2 | 678.7 | 665.5 | 657.4 | 654.2 |
| 22.5° | 871.8 | 840.9 | 808.6 | 770.9 | 733.2 | 698.7 | 661.9 | 635.6 | 612.8 | 605.1 | 601.5 |
| 25° | 914.5 | 874.5 | 826.4 | 777.3 | 717.8 | 662.4 | 612.4 | 573.3 | 543.3 | 533.3 | 529.3 |
| 27.5° | 961.7 | 906.8 | 844.5 | 775.9 | 686.0 | 610.6 | 544.2 | 495.6 | 466.1 | 457.0 | 460.2 |
| 30° | 1021.7 | 948.6 | 867.2 | 761.8 | 638.3 | 537.9 | 460.2 | 419.3 | 397.1 | 388.4 | 388.9 |
| 32.5° | 1101.7 | 1008.5 | 900.4 | 731.9 | 577.0 | 455.2 | 387.1 | 357.1 | 342.1 | 330.7 | 329.8 |
| 35° | 1216.1 | 1099.8 | 931.3 | 683.7 | 502.4 | 381.6 | 332.1 | 308.5 | 287.6 | 274.4 | 276.7 |
| 37.5° | 1353.3 | 1214.8 | 948.1 | 618.7 | 418.9 | 324.4 | 290.7 | 266.7 | 243.0 | 223.5 | 225.8 |
| 40° | 1516.0 | 1365.2 | 946.7 | 533.3 | 342.5 | 285.3 | 256.2 | 228.1 | 198.5 | 180.8 | 182.6 |
| 42.5° | 1697.2 | 1507.3 | 917.2 | 442.9 | 283.9 | 253.5 | 223.1 | 187.6 | 159.0 | 148.1 | 148.6 |
| 45° | 1854.4 | 1622.7 | 865.4 | 349.4 | 239.0 | 222.6 | 188.5 | 152.2 | 139.5 | 131.7 | 131.3 |
| 47.5° | 1970.7 | 1707.2 | 791.4 | 274.8 | 202.6 | 194.4 | 154.9 | 136.3 | 126.3 | 119.9 | 119.0 |
| 50° | 2035.7 | 1736.8 | 709.6 | 215.3 | 171.3 | 164.9 | 138.6 | 123.6 | 116.8 | 112.7 | 111.8 |
| 52.5° | 2122.9 | 1772.2 | 651.0 | 169.9 | 143.6 | 134.9 | 127.7 | 114.9 | 110.4 | 107.2 | 105.9 |
| 55° | 2261.0 | 1840.8 | 600.1 | 134.9 | 119.5 | 117.7 | 120.4 | 109.9 | 107.2 | 102.2 | 100.4 |
| 57.5° | 2131.1 | 1653.6 | 466.1 | 104.5 | 100.9 | 107.7 | 116.3 | 104.9 | 98.1 | 93.6 | 91.8 |
| 60° | 1499.6 | 1099.4 | 234.4 | 84.0 | 90.0 | 100.9 | 109.5 | 94.9 | 88.1 | 89.0 | 88.1 |
| 62.5° | 826.8 | 550.1 | 105.4 | 70.4 | 78.1 | 89.0 | 93.6 | 82.2 | 77.7 | 85.4 | 86.8 |
| 65° | 270.3 | 187.2 | 60.9 | 54.5 | 61.8 | 72.7 | 80.9 | 78.1 | 77.2 | 86.3 | 89.0 |
| 67.5° | 83.1 | 61.8 | 41.3 | 39.1 | 42.7 | 53.6 | 68.1 | 84.5 | 90.9 | 93.6 | 94.9 |
| 70° | 62.2 | 48.6 | 35.4 | 33.2 | 35.0 | 40.9 | 57.7 | 70.4 | 66.3 | 66.8 | 65.9 |
| 72.5° | 50.0 | 38.6 | 30.4 | 29.1 | 29.1 | 28.2 | 30.4 | 38.2 | 43.2 | 45.4 | 45.4 |
| 75° | 35.0 | 27.3 | 23.2 | 21.4 | 16.8 | 13.6 | 12.3 | 12.3 | 10.9 | 10.4 | 10.0 |
| 77.5° | 11.8 | 10.0 | 9.1 | 7.3 | 5.0 | 4.1 | 3.6 | 3.2 | 2.3 | 1.4 | 0.9 |
| 80° | 1.8 | 1.4 | 0.9 | 0.9 | 0.9 | 0.5 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.9 | 0.9 | 0.9 | 0.9 | 0.5 | 0.5 | 0.5 | 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: SP1-1908-441-1-R4

Test Date: 08/20/2019

Luminaire Tested: SA1C-727-U-5WQ

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-1-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-727-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-1-R3. TO UPDATE THE CATALOG NUMBER.TESTED IN
 SITU. (1) 70 CRI, 2700K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2741
 CIE u': 0.2605
 CIE v': 0.5272
 Duv: 0.0005
 CIE x: 0.4573
 CIE y: 0.4113
 CIE z: 0.1313
 Peak Wavelength (nm): 602
 Dominant Wavelength (nm): 583
 Purity: 61.2

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.5 | | |
| R1: | 69.2 | R9: | -16.1 |
| R2: | 79.4 | R10: | 51.4 |
| R3: | 87.8 | R11: | 63.1 |
| R4: | 69.4 | R12: | 42.0 |
| R5: | 66.4 | R13: | 70.2 |
| R6: | 69.8 | R14: | 92.4 |
| R7: | 79.8 | | |
| R8: | 50.1 | | |

Rf: 69.9
 Rg: 98.3



Test Conditions

Stabilization Time: 56M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.3./42%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-1-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 2700K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-1-R4

Photopic Flux vs. Wavelength



Photopic Lumens: 6211.7

| 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 | 2044 | 0.0 | 490 | 7179 | 1.0 | 620 | 118034 | 30.7 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 1.9 | 625 | 111884 | 24.7 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 3.4 | 630 | 106119 | 19.2 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 6.3 | 635 | 99706 | 15.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 10.4 | 640 | 92142 | 11.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 16.3 | 645 | 84987 | 8.2 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 22.9 | 650 | 78016 | 5.7 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 29.7 | 655 | 71541 | 4.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 36.7 | 660 | 64863 | 2.7 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 42.5 | 665 | 58485 | 1.9 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.0 | 540 | 73435 | 47.8 | 670 | 51641 | 1.1 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.0 | 545 | 78677 | 52.4 | 675 | 46030 | 0.8 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 0.0 | 550 | 83331 | 56.6 | 680 | 40590 | 0.5 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 0.1 | 555 | 89120 | 60.9 | 685 | 35691 | 0.3 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 0.3 | 560 | 94613 | 64.3 | 690 | 31631 | 0.2 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 0.6 | 565 | 99818 | 66.4 | 695 | 27437 | 0.1 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 0.9 | 570 | 106526 | 69.3 | 700 | 24589 | 0.1 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 1.1 | 575 | 111610 | 69.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 1.0 | 580 | 117163 | 69.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 0.8 | 585 | 122201 | 67.9 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 0.6 | 590 | 125662 | 65.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 0.5 | 595 | 127415 | 60.4 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 0.4 | 600 | 129155 | 55.7 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 0.4 | 605 | 128057 | 49.6 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 0.5 | 610 | 126031 | 43.3 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 0.7 | 615 | 123059 | 37.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 6474.3

S/P: 1.04

| 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 | 2044 | 0.0 | 490 | 7179 | 6.0 | 620 | 118034 | 0.1 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 8.6 | 625 | 111884 | 0.1 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 12.5 | 630 | 106119 | 0.0 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 17.3 | 635 | 99706 | 0.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 21.8 | 640 | 92142 | 0.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 25.7 | 645 | 84987 | 0.0 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 27.5 | 650 | 78016 | 0.0 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 28.1 | 655 | 71541 | 0.0 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 27.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 24.7 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.1 | 540 | 73435 | 21.5 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.5 | 545 | 78677 | 18.3 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 1.6 | 550 | 83331 | 15.0 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 3.9 | 555 | 89120 | 12.0 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 8.1 | 560 | 94613 | 9.3 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 13.3 | 565 | 99818 | 7.0 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 19.1 | 570 | 106526 | 5.2 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 21.6 | 575 | 111610 | 3.7 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 18.1 | 580 | 117163 | 2.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 11.8 | 585 | 122201 | 1.8 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 8.1 | 590 | 125662 | 1.2 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 6.2 | 595 | 127415 | 0.8 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 4.8 | 600 | 129155 | 0.5 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 4.1 | 605 | 128057 | 0.4 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 4.1 | 610 | 126031 | 0.2 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 4.6 | 615 | 123059 | 0.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 2145.7 M/P: 0.35

| 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 | 2044 | 0.0 | 490 | 7179 | 11.1 | 620 | 118034 | 1.5 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 16.9 | 625 | 111884 | 0.9 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 26.0 | 630 | 106119 | 0.6 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 38.2 | 635 | 99706 | 0.4 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 51.6 | 640 | 92142 | 0.2 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 65.1 | 645 | 84987 | 0.1 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 75.2 | 650 | 78016 | 0.1 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 82.9 | 655 | 71541 | 0.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 86.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.1 | 535 | 68520 | 85.4 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.2 | 540 | 73435 | 81.1 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.7 | 545 | 78677 | 75.4 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 2.3 | 550 | 83331 | 68.1 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 6.2 | 555 | 89120 | 60.9 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 13.0 | 560 | 94613 | 52.9 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 22.2 | 565 | 99818 | 44.8 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 32.0 | 570 | 106526 | 37.6 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 36.7 | 575 | 111610 | 30.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 30.4 | 580 | 117163 | 24.1 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 19.7 | 585 | 122201 | 18.7 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 13.2 | 590 | 125662 | 14.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 10.0 | 595 | 127415 | 10.2 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 7.7 | 600 | 129155 | 7.3 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 6.7 | 605 | 128057 | 5.0 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 6.9 | 610 | 126031 | 3.4 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 8.1 | 615 | 123059 | 2.3 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

TM-30-18

Summary

$R_f = 69.9$
 $R_g = 98.3$
 $CIE R_a = 71.5$
 $R_9 = -16.1$



Color Vector Graphics



REPORT NUMBER: SP1-1908-441-1-R4

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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 54 | CES51 = 77 | CES76 = 48 |
| CES02 = 63 | CES27 = 74 | CES52 = 80 | CES77 = 75 |
| CES03 = 31 | CES28 = 80 | CES53 = 66 | CES78 = 56 |
| CES04 = 71 | CES29 = 44 | CES54 = 77 | CES79 = 81 |
| CES05 = 50 | CES30 = 46 | CES55 = 74 | CES80 = 80 |
| CES06 = 52 | CES31 = 50 | CES56 = 63 | CES81 = 73 |
| CES07 = 42 | CES32 = 49 | CES57 = 60 | CES82 = 91 |
| CES08 = 41 | CES33 = 53 | CES58 = 63 | CES83 = 84 |
| CES09 = 29 | CES34 = 66 | CES59 = 85 | CES84 = 90 |
| CES10 = 77 | CES35 = 82 | CES60 = 89 | CES85 = 87 |
| CES11 = 60 | CES36 = 78 | CES61 = 85 | CES86 = 65 |
| CES12 = 66 | CES37 = 75 | CES62 = 69 | CES87 = 78 |
| CES13 = 43 | CES38 = 53 | CES63 = 68 | CES88 = 73 |
| CES14 = 74 | CES39 = 91 | CES64 = 68 | CES89 = 68 |
| CES15 = 71 | CES40 = 85 | CES65 = 65 | CES90 = 68 |
| CES16 = 48 | CES41 = 76 | CES66 = 62 | CES91 = 91 |
| CES17 = 50 | CES42 = 76 | CES67 = 60 | CES92 = 71 |
| CES18 = 57 | CES43 = 65 | CES68 = 68 | CES93 = 82 |
| CES19 = 73 | CES44 = 98 | CES69 = 77 | CES94 = 57 |
| CES20 = 67 | CES45 = 75 | CES70 = 60 | CES95 = 78 |
| CES21 = 88 | CES46 = 70 | CES71 = 57 | CES96 = 80 |
| CES22 = 80 | CES47 = 63 | CES72 = 86 | CES97 = 79 |
| CES23 = 92 | CES48 = 51 | CES73 = 52 | CES98 = 71 |
| CES24 = 91 | CES49 = 68 | CES74 = 90 | CES99 = 64 |
| CES25 = 73 | CES50 = 77 | CES75 = 58 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)