

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: P628688

Luminaire Tested: GWS-SA1A-727-U-SL3-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P628688
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-31)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1A-727-U-SL3-W
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR OPTICS
Light Source: (16) 2700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2330.2 lumens
Efficiency: N/A
Efficacy: 118.3 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G1

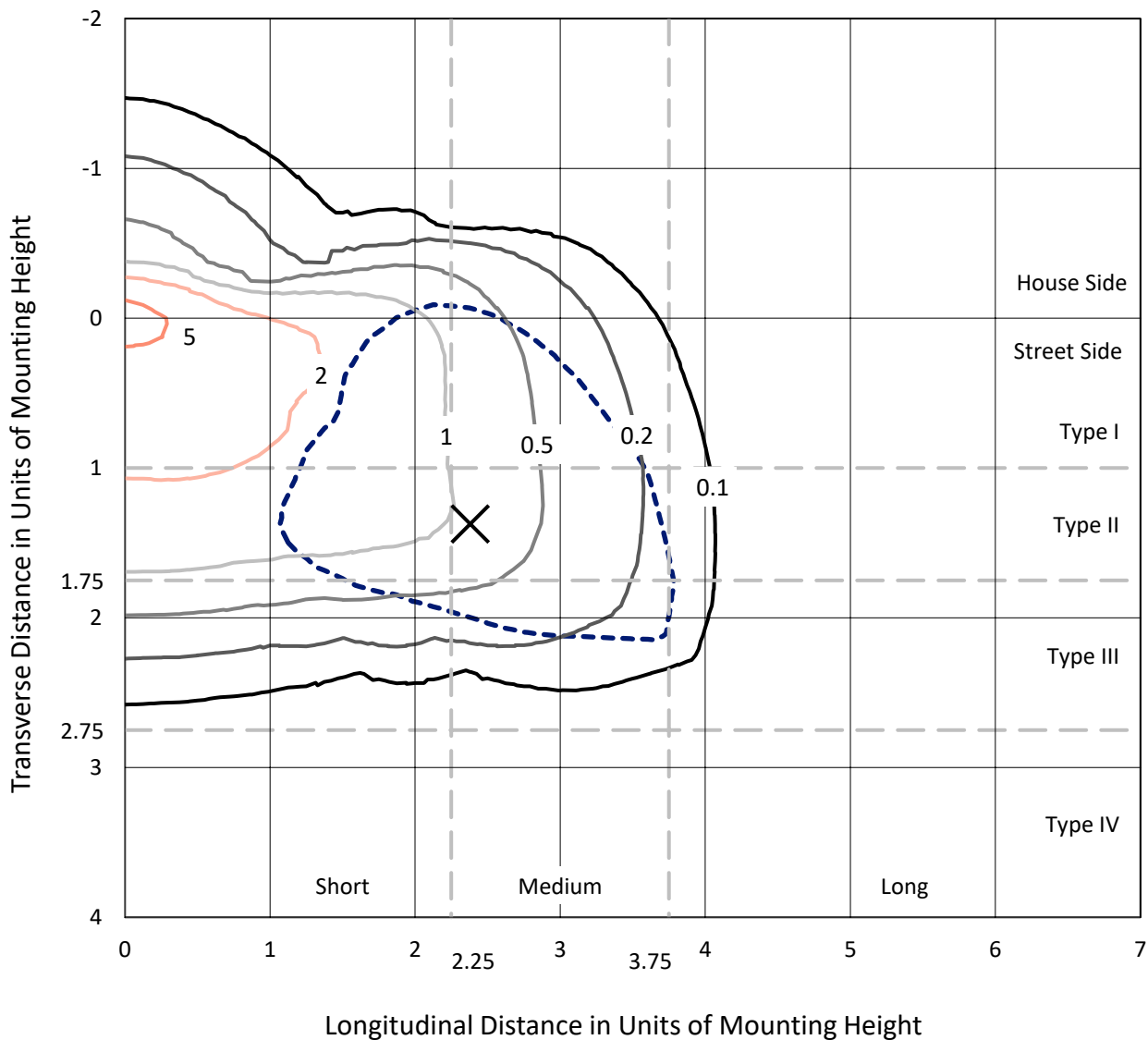
Input Watts (W): 19.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P628688
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Iso-Footcandle Lines of Horizontal Illumination

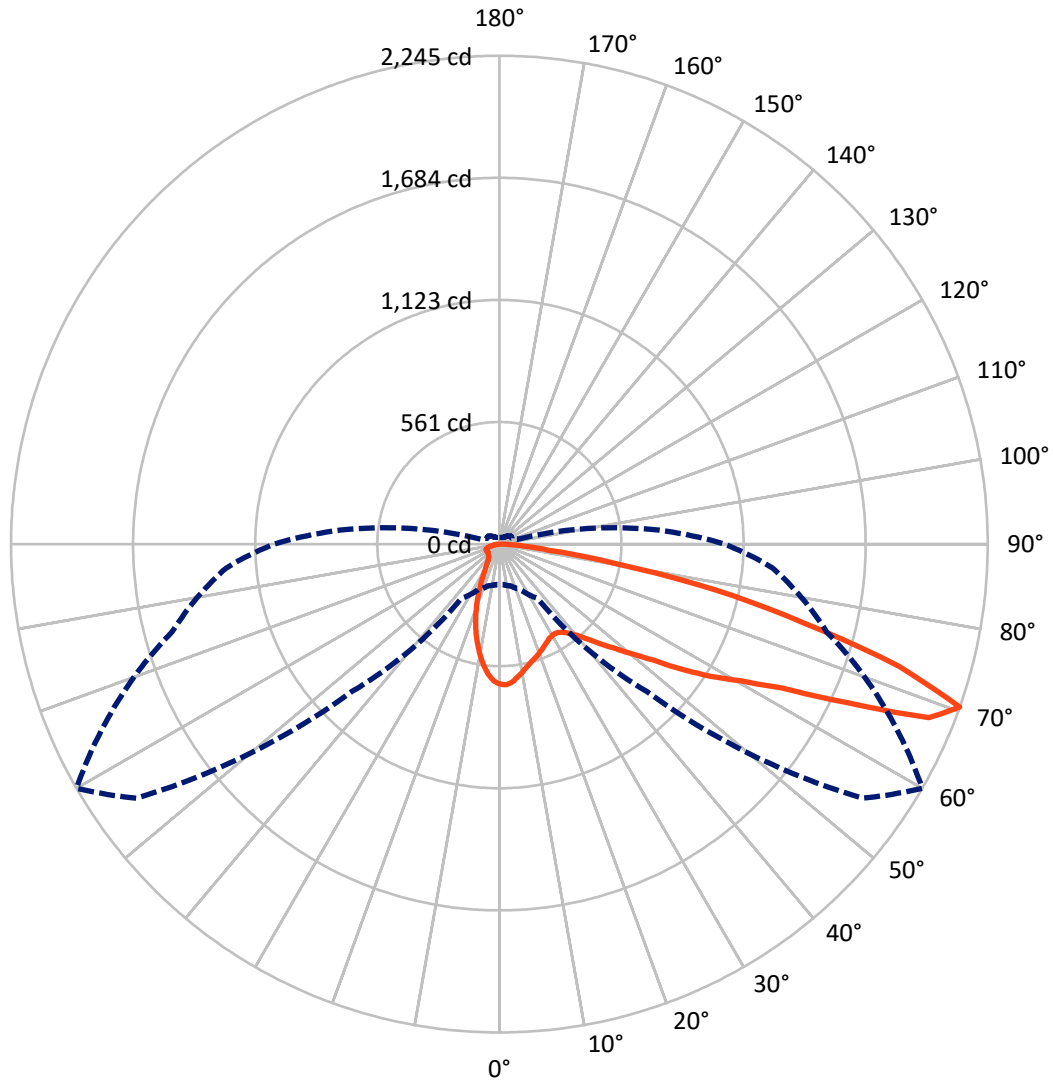
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 6.4 fc
 Type III - Medium - N/A

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CATALOG NUMBER: GWS-SA1A-727-U-SL3-W

Luminous Intensity Polar Plot



— Vertical Plane Through 60-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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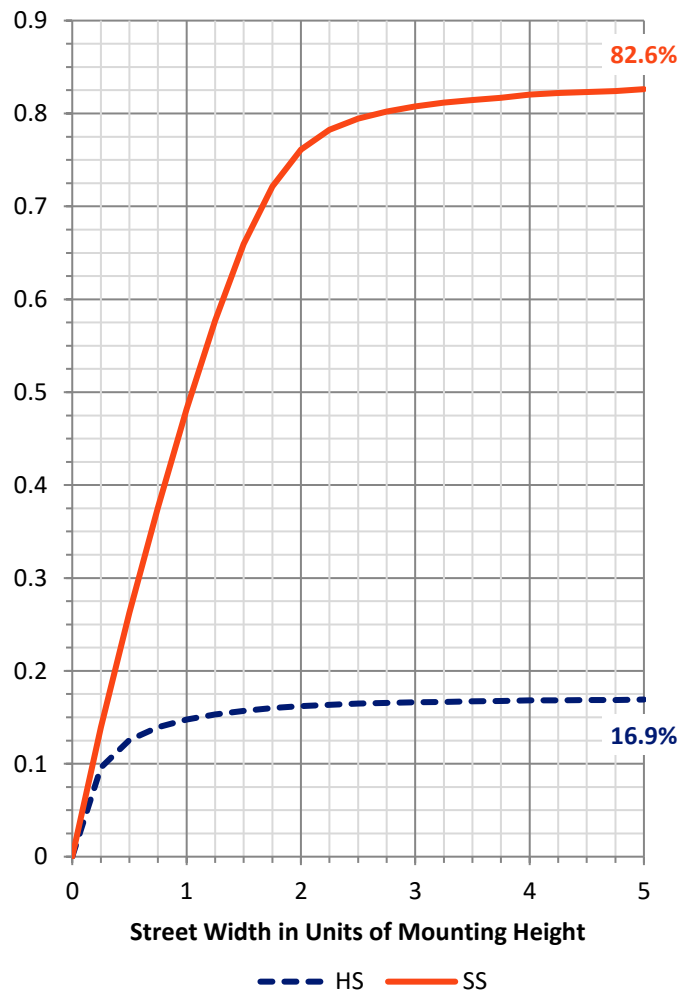
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 398.5 | 0.0 | 398.5 |
| | % Fixture | 17.1 | 0.0 | 17.1 |
| Street Side | Lumens | 1931.7 | 0.0 | 1931.7 |
| | % Fixture | 82.9 | 0.0 | 82.9 |
| Total | Lumens | 2330.2 | 0.0 | 2330.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 55.6 | 2.4 |
| 10°-20° | 124.5 | 5.3 |
| 20°-30° | 159.5 | 6.8 |
| 30°-40° | 209.6 | 9.0 |
| 40°-50° | 304.1 | 13.0 |
| 50°-60° | 474.4 | 20.4 |
| 60°-70° | 621.1 | 26.7 |
| 70°-80° | 343.4 | 14.7 |
| 80°-90° | 38.1 | 1.6 |
| 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° | 2330.2 | 100.0 |
| 0°-180° | 2330.2 | 100.0 |

Coefficient of Utilization



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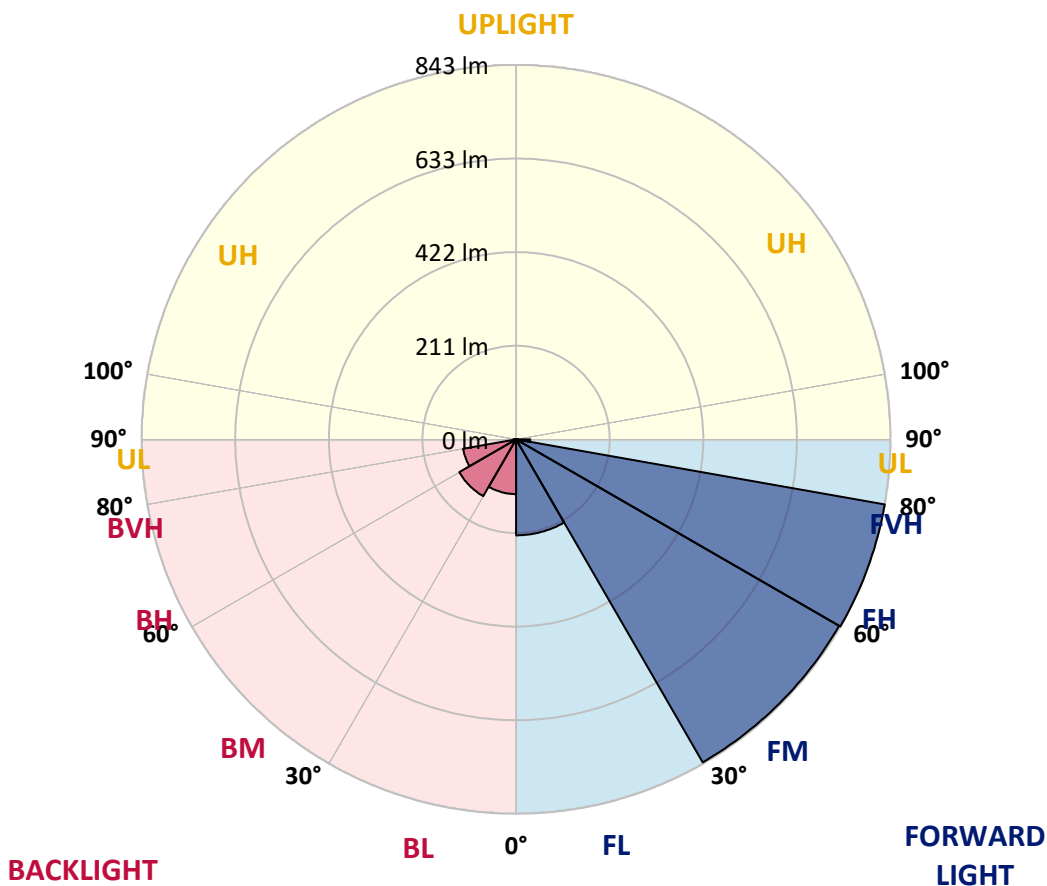
CATALOG NUMBER: GWS-SA1A-727-U-SL3-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 216.3 | 9.3 | | | |
| FM (30°-60°) | 840.3 | 36.1 | | | |
| FH (60°-80°) | 843.4 | 36.2 | | | G1/1800 |
| FVH (80°-90°) | 31.8 | 1.4 | | | G1/100 |
| BL (0°-30°) | 123.3 | 5.3 | B1/500 | | |
| BM (30°-60°) | 147.8 | 6.3 | B0/220 | | |
| BH (60°-80°) | 121.1 | 5.2 | B1/500 | | G1/500 |
| BVH (80°-90°) | 6.4 | 0.3 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1

Type III Medium





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 CATALOG NUMBER: GWS-SA1A-727-U-SL3-W

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 60° | 65° | 75° | 85° |
|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 |
| 2.5° | 635.8 | 636.4 | 638.3 | 641.0 | 643.8 | 645.1 | 648.5 | 647.5 | 646.8 | 645.5 | 643.8 |
| 5° | 607.6 | 609.0 | 610.7 | 616.0 | 622.0 | 626.7 | 634.4 | 635.2 | 635.6 | 636.3 | 633.5 |
| 7.5° | 571.8 | 572.2 | 576.3 | 583.2 | 591.1 | 599.3 | 612.1 | 615.6 | 618.7 | 622.1 | 619.9 |
| 10° | 532.3 | 533.1 | 536.2 | 546.3 | 559.7 | 571.8 | 589.0 | 595.0 | 601.5 | 609.0 | 605.9 |
| 12.5° | 499.9 | 500.0 | 505.0 | 515.7 | 530.4 | 546.8 | 568.2 | 575.4 | 583.9 | 595.7 | 593.0 |
| 15° | 474.1 | 474.1 | 478.7 | 487.9 | 504.8 | 524.1 | 549.7 | 558.9 | 570.5 | 586.3 | 581.5 |
| 17.5° | 453.7 | 453.8 | 456.7 | 466.5 | 481.5 | 502.8 | 533.1 | 545.6 | 558.4 | 579.3 | 572.2 |
| 20° | 442.9 | 442.1 | 442.6 | 448.6 | 461.3 | 482.0 | 516.6 | 531.1 | 548.3 | 574.6 | 563.6 |
| 22.5° | 442.4 | 440.9 | 438.7 | 439.2 | 446.7 | 463.7 | 498.9 | 516.4 | 538.1 | 570.6 | 554.9 |
| 25° | 451.1 | 449.4 | 445.5 | 441.1 | 440.4 | 450.6 | 482.1 | 502.1 | 527.5 | 568.9 | 546.6 |
| 27.5° | 465.8 | 464.6 | 459.5 | 452.8 | 445.8 | 445.5 | 469.5 | 490.3 | 519.8 | 570.6 | 540.6 |
| 30° | 485.2 | 483.2 | 479.9 | 471.4 | 460.8 | 449.9 | 464.6 | 484.0 | 514.7 | 576.1 | 538.1 |
| 32.5° | 507.2 | 506.0 | 502.9 | 494.4 | 483.2 | 465.8 | 468.5 | 485.4 | 514.7 | 585.6 | 538.6 |
| 35° | 530.6 | 530.4 | 530.4 | 524.8 | 512.3 | 490.7 | 484.0 | 497.0 | 522.6 | 601.0 | 544.0 |
| 37.5° | 553.2 | 553.1 | 558.5 | 560.6 | 546.4 | 523.1 | 510.4 | 520.2 | 539.8 | 623.7 | 557.5 |
| 40° | 571.7 | 572.3 | 584.3 | 594.5 | 586.7 | 565.0 | 547.3 | 552.2 | 567.7 | 655.9 | 581.0 |
| 42.5° | 590.2 | 592.1 | 610.0 | 628.1 | 631.2 | 612.4 | 594.5 | 597.4 | 607.8 | 698.5 | 616.2 |
| 45° | 610.5 | 611.4 | 636.4 | 661.7 | 676.5 | 665.4 | 650.8 | 654.7 | 657.1 | 751.2 | 668.5 |
| 47.5° | 630.1 | 632.4 | 664.7 | 699.4 | 727.5 | 726.5 | 718.3 | 717.1 | 717.6 | 815.3 | 730.4 |
| 50° | 656.9 | 660.1 | 698.2 | 739.9 | 781.2 | 800.1 | 802.5 | 793.5 | 789.7 | 886.6 | 807.4 |
| 52.5° | 707.7 | 707.7 | 741.8 | 782.9 | 838.3 | 885.2 | 901.2 | 886.4 | 874.4 | 961.9 | 889.3 |
| 55° | 771.3 | 774.0 | 801.1 | 834.4 | 904.6 | 974.7 | 1028.9 | 1012.5 | 978.8 | 1043.9 | 975.0 |
| 57.5° | 799.6 | 803.0 | 846.0 | 897.6 | 991.4 | 1076.5 | 1151.7 | 1145.9 | 1096.6 | 1129.2 | 1064.0 |
| 60° | 748.5 | 755.6 | 814.8 | 901.4 | 1070.0 | 1240.7 | 1293.7 | 1276.8 | 1206.4 | 1218.7 | 1160.5 |
| 62.5° | 624.3 | 632.2 | 697.8 | 818.7 | 1059.1 | 1418.1 | 1517.5 | 1455.3 | 1343.5 | 1331.7 | 1289.1 |
| 65° | 372.5 | 372.2 | 451.1 | 611.4 | 924.6 | 1467.4 | 1871.8 | 1755.7 | 1555.2 | 1486.9 | 1421.4 |
| 67.5° | 236.8 | 236.3 | 252.8 | 323.9 | 615.3 | 1346.7 | 2099.6 | 2129.8 | 1842.8 | 1600.9 | 1432.3 |
| 70° | 186.9 | 186.7 | 198.6 | 231.0 | 304.3 | 958.3 | 2036.2 | 2245.0 | 2016.6 | 1557.4 | 1261.1 |
| 72.5° | 136.2 | 136.6 | 155.0 | 193.5 | 234.8 | 481.1 | 1648.8 | 1920.9 | 1854.8 | 1374.8 | 1023.8 |
| 75° | 97.9 | 98.4 | 109.5 | 148.2 | 216.5 | 263.1 | 1096.4 | 1444.4 | 1411.2 | 1102.1 | 704.3 |
| 77.5° | 62.2 | 62.9 | 72.6 | 103.8 | 174.9 | 212.4 | 664.7 | 1019.7 | 938.9 | 620.9 | 250.5 |
| 80° | 38.0 | 40.2 | 48.4 | 77.4 | 139.8 | 159.4 | 332.3 | 537.2 | 470.2 | 170.3 | 84.2 |
| 82.5° | 19.6 | 21.3 | 29.2 | 47.9 | 96.3 | 140.0 | 188.1 | 225.7 | 145.6 | 71.3 | 44.8 |
| 85° | 6.1 | 7.2 | 10.2 | 19.4 | 45.9 | 86.8 | 124.5 | 112.2 | 66.8 | 33.6 | 20.8 |
| 87.5° | 1.5 | 1.5 | 1.7 | 1.7 | 1.9 | 3.9 | 24.0 | 25.4 | 17.7 | 10.6 | 8.5 |
| 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: P628688
 CATALOG NUMBER: GWS-SA1A-727-U-SL3-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 | 644.8 |
| 2.5° | 640.4 | 636.3 | 634.6 | 634.4 | 630.1 | 624.0 | 619.9 | 617.0 | 615.3 | 615.0 | 615.0 |
| 5° | 628.9 | 623.7 | 616.7 | 611.4 | 600.0 | 588.4 | 578.6 | 573.2 | 566.9 | 566.0 | 565.9 |
| 7.5° | 613.8 | 606.1 | 592.8 | 578.0 | 558.0 | 538.8 | 522.4 | 511.3 | 500.2 | 498.2 | 497.5 |
| 10° | 597.4 | 587.0 | 564.3 | 538.2 | 508.4 | 479.6 | 454.5 | 434.9 | 422.0 | 412.8 | 411.1 |
| 12.5° | 581.2 | 567.4 | 534.1 | 495.3 | 454.4 | 415.0 | 377.3 | 345.2 | 322.1 | 308.6 | 306.2 |
| 15° | 566.0 | 546.8 | 501.2 | 451.6 | 398.4 | 344.6 | 291.2 | 249.6 | 217.0 | 205.4 | 202.7 |
| 17.5° | 552.2 | 528.2 | 469.4 | 406.5 | 340.1 | 269.7 | 209.0 | 172.0 | 152.9 | 147.1 | 145.8 |
| 20° | 538.4 | 509.1 | 437.0 | 358.9 | 278.2 | 199.3 | 152.8 | 135.4 | 128.2 | 126.0 | 125.3 |
| 22.5° | 523.6 | 488.1 | 401.7 | 312.0 | 215.7 | 149.2 | 125.0 | 117.3 | 115.1 | 115.3 | 115.1 |
| 25° | 508.7 | 466.8 | 364.7 | 261.0 | 160.6 | 121.0 | 109.1 | 106.2 | 106.7 | 108.3 | 108.6 |
| 27.5° | 496.5 | 447.9 | 328.4 | 205.1 | 125.5 | 104.2 | 98.5 | 98.4 | 100.2 | 102.3 | 102.6 |
| 30° | 487.6 | 431.0 | 292.6 | 157.7 | 103.3 | 92.6 | 90.4 | 91.4 | 93.6 | 95.1 | 95.6 |
| 32.5° | 481.3 | 416.5 | 254.4 | 123.9 | 90.5 | 84.4 | 83.4 | 84.4 | 85.8 | 87.3 | 87.6 |
| 35° | 479.1 | 405.9 | 216.9 | 101.1 | 81.8 | 78.4 | 77.7 | 78.3 | 78.9 | 79.8 | 80.1 |
| 37.5° | 484.0 | 400.7 | 177.7 | 88.0 | 76.6 | 74.5 | 73.5 | 73.1 | 73.3 | 73.7 | 73.8 |
| 40° | 498.7 | 403.0 | 145.6 | 80.3 | 73.1 | 71.3 | 69.6 | 68.9 | 68.7 | 69.0 | 68.9 |
| 42.5° | 523.9 | 413.1 | 122.4 | 75.9 | 70.4 | 67.7 | 65.8 | 65.1 | 65.1 | 66.0 | 66.0 |
| 45° | 560.9 | 432.9 | 105.7 | 72.6 | 68.0 | 64.6 | 62.6 | 62.2 | 62.9 | 64.3 | 64.4 |
| 47.5° | 615.1 | 461.9 | 95.6 | 70.2 | 65.8 | 61.9 | 59.8 | 59.7 | 61.0 | 63.3 | 63.4 |
| 50° | 679.4 | 503.6 | 90.2 | 68.5 | 64.3 | 59.7 | 57.6 | 57.8 | 59.3 | 61.7 | 62.2 |
| 52.5° | 756.8 | 560.6 | 90.5 | 67.9 | 63.4 | 58.3 | 56.3 | 55.9 | 57.5 | 59.8 | 60.4 |
| 55° | 836.8 | 629.8 | 97.2 | 68.0 | 62.2 | 57.6 | 54.9 | 53.7 | 55.1 | 56.8 | 56.9 |
| 57.5° | 924.7 | 707.9 | 113.7 | 67.7 | 60.7 | 56.9 | 53.7 | 51.0 | 51.8 | 52.9 | 53.4 |
| 60° | 1024.0 | 799.8 | 149.4 | 68.4 | 60.0 | 55.4 | 51.3 | 47.7 | 47.6 | 48.2 | 48.4 |
| 62.5° | 1156.6 | 924.7 | 189.4 | 69.6 | 61.5 | 53.5 | 47.7 | 44.0 | 43.3 | 43.6 | 43.8 |
| 65° | 1258.1 | 984.4 | 176.8 | 68.5 | 64.8 | 52.2 | 44.3 | 40.4 | 39.0 | 38.7 | 38.7 |
| 67.5° | 1216.8 | 905.5 | 123.1 | 65.8 | 66.3 | 52.3 | 41.6 | 36.7 | 35.0 | 34.1 | 33.9 |
| 70° | 1035.4 | 735.5 | 85.6 | 63.1 | 64.6 | 52.0 | 38.7 | 33.6 | 31.4 | 30.2 | 30.0 |
| 72.5° | 818.0 | 561.6 | 69.2 | 57.6 | 58.6 | 46.9 | 34.4 | 30.2 | 28.3 | 26.8 | 26.8 |
| 75° | 526.5 | 342.7 | 57.8 | 51.3 | 47.9 | 36.5 | 29.8 | 26.9 | 25.1 | 23.5 | 23.5 |
| 77.5° | 177.1 | 127.2 | 44.8 | 43.5 | 35.8 | 27.4 | 25.1 | 23.2 | 21.7 | 20.3 | 20.1 |
| 80° | 71.9 | 60.4 | 32.9 | 32.9 | 25.1 | 21.0 | 19.6 | 18.8 | 17.7 | 16.0 | 16.0 |
| 82.5° | 41.8 | 36.7 | 23.0 | 19.9 | 16.7 | 14.5 | 13.6 | 12.8 | 12.8 | 11.6 | 11.6 |
| 85° | 20.1 | 20.3 | 13.8 | 12.3 | 9.5 | 8.4 | 8.0 | 7.5 | 7.3 | 6.6 | 6.5 |
| 87.5° | 10.9 | 11.1 | 7.0 | 5.5 | 3.8 | 3.2 | 2.7 | 2.6 | 2.4 | 2.2 | 2.2 |
| 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

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| 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

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