

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: P628910

Luminaire Tested: GWS-SA1A-750-U-SL4-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P628910
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-35)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1A-750-U-SL4-W
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV SPILL LIGHT ELIMINATOR OPTICS
Light Source: (16) 5000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2793.7 lumens
Efficiency: N/A
Efficacy: 141.8 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G1

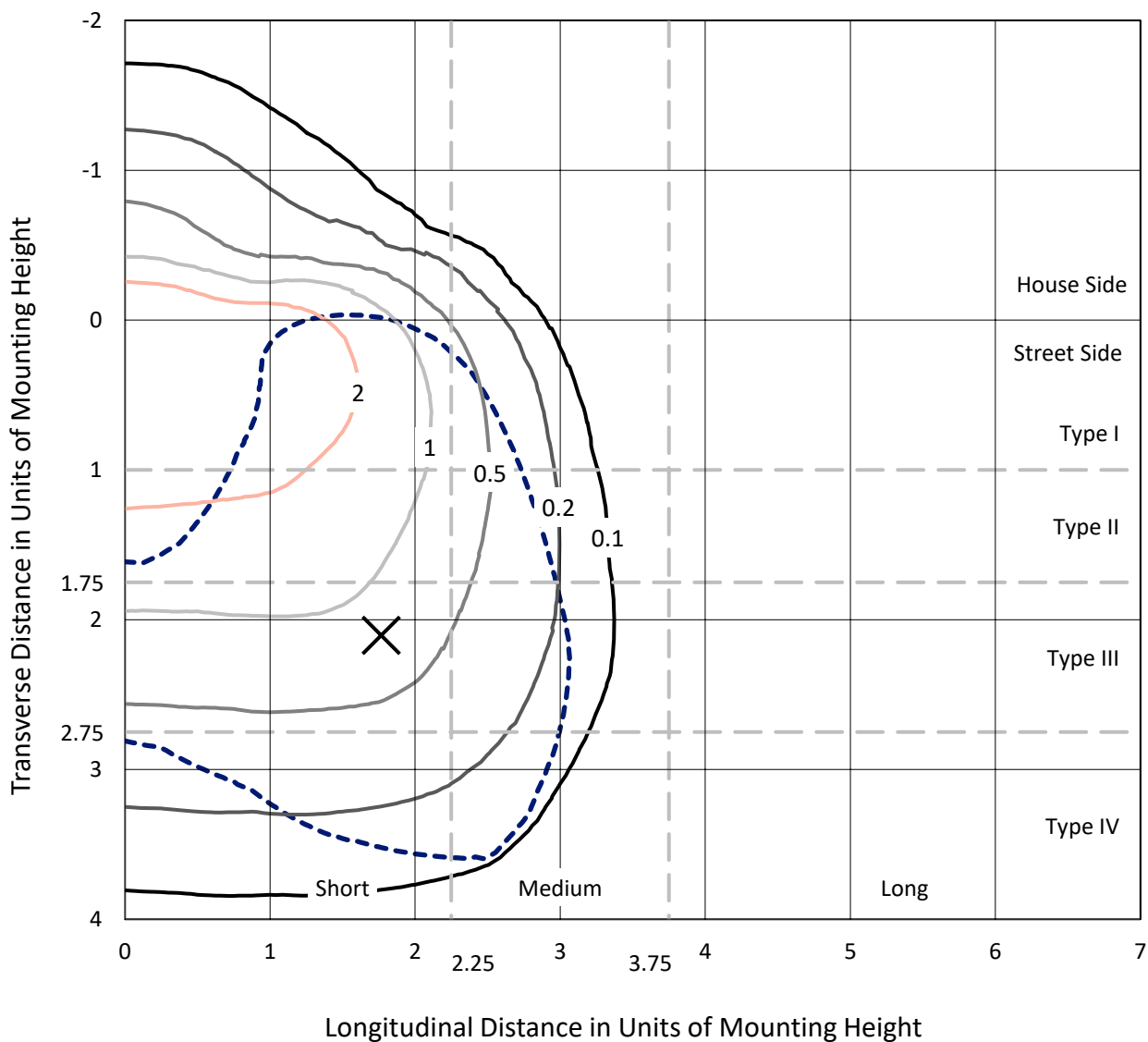
Input Watts (W): 19.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P628910
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Iso-Footcandle Lines of Horizontal Illumination

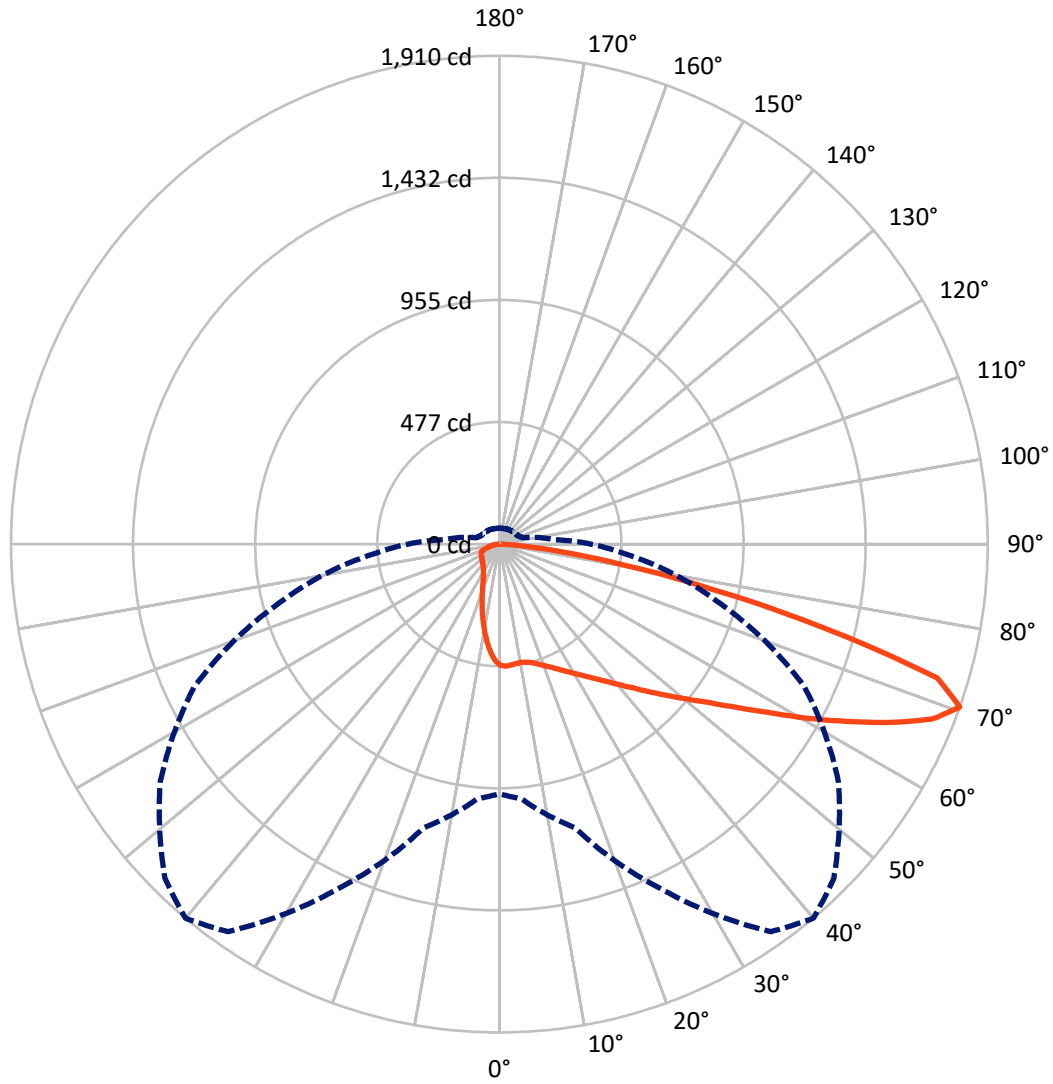
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 4.7 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 40-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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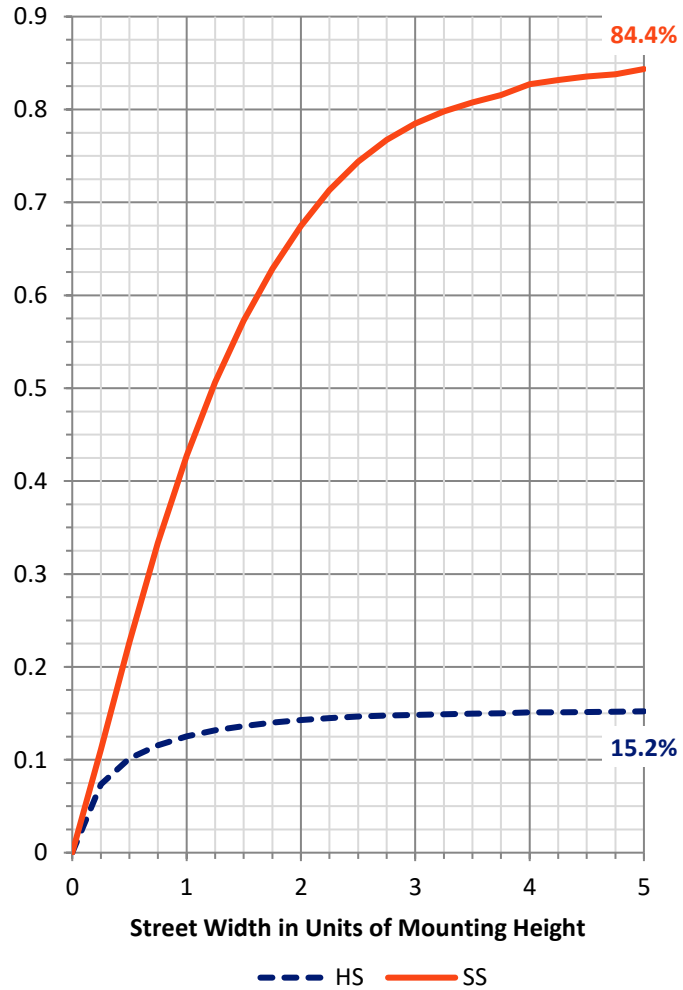
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 430.3 | 0.0 | 430.3 |
| | % Fixture | 15.4 | 0.0 | 15.4 |
| Street Side | Lumens | 2363.4 | 0.0 | 2363.4 |
| | % Fixture | 84.6 | 0.0 | 84.6 |
| Total | Lumens | 2793.7 | 0.0 | 2793.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 41.9 | 1.5 |
| 10°-20° | 109.2 | 3.9 |
| 20°-30° | 171.5 | 6.1 |
| 30°-40° | 257.9 | 9.2 |
| 40°-50° | 398.1 | 14.2 |
| 50°-60° | 591.2 | 21.2 |
| 60°-70° | 745.2 | 26.7 |
| 70°-80° | 430.9 | 15.4 |
| 80°-90° | 47.8 | 1.7 |
| 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° | 2793.7 | 100.0 |
| 0°-180° | 2793.7 | 100.0 |

Coefficient of Utilization



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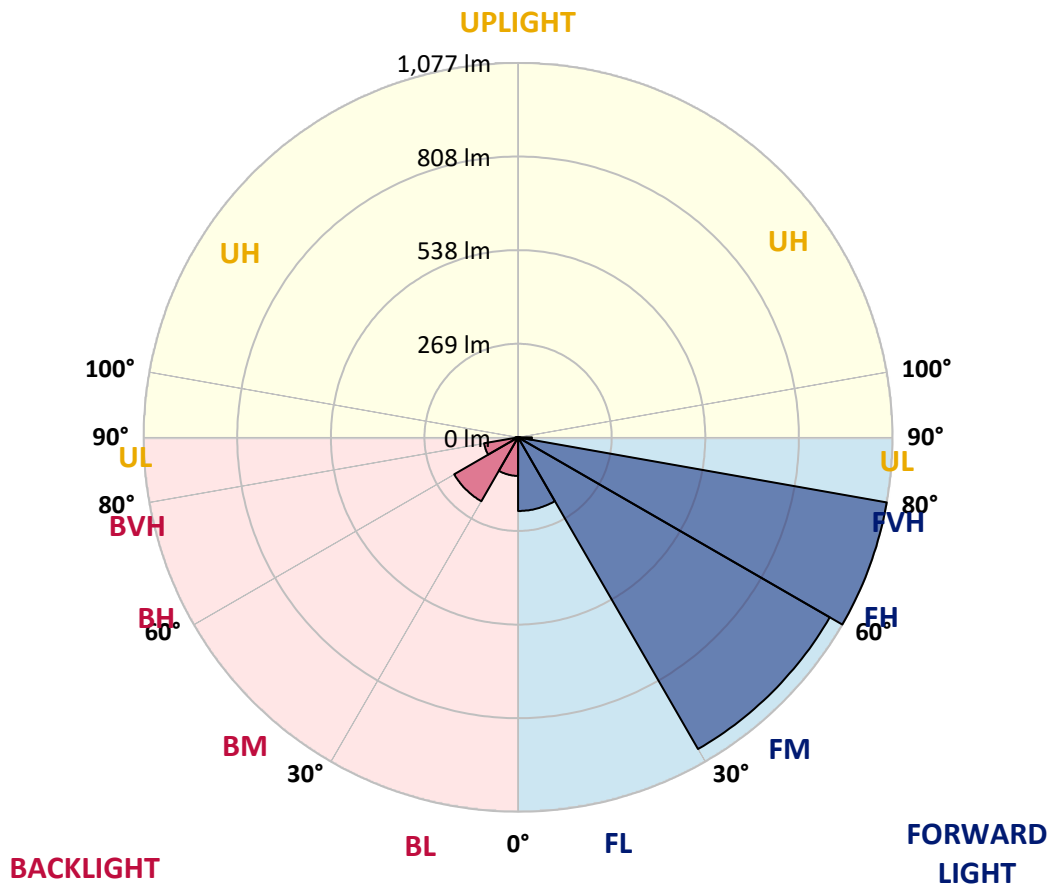
CATALOG NUMBER: GWS-SA1A-750-U-SL4-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 211.8 | 7.6 | | | |
| FM (30°-60°) | 1035.0 | 37.0 | | | |
| FH (60°-80°) | 1076.8 | 38.5 | | | G1/1800 |
| FVH (80°-90°) | 39.8 | 1.4 | | | G1/100 |
| BL (0°-30°) | 110.9 | 4.0 | B1/500 | | |
| BM (30°-60°) | 212.1 | 7.6 | B0/220 | | |
| BH (60°-80°) | 99.3 | 3.6 | B0/110 | | G0/110 |
| BVH (80°-90°) | 8.0 | 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 IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 40° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 |
| 2.5° | 477.3 | 478.2 | 478.8 | 479.6 | 479.2 | 477.9 | 479.0 | 479.0 | 476.7 | 474.2 | 471.9 |
| 5° | 477.9 | 479.0 | 478.8 | 478.6 | 476.9 | 474.8 | 474.8 | 473.6 | 469.6 | 465.6 | 461.9 |
| 7.5° | 476.7 | 476.5 | 476.3 | 475.7 | 473.8 | 471.5 | 471.1 | 468.6 | 463.4 | 457.9 | 452.5 |
| 10° | 471.1 | 470.9 | 471.5 | 472.9 | 472.5 | 470.4 | 470.4 | 468.1 | 462.1 | 455.4 | 448.3 |
| 12.5° | 466.5 | 466.5 | 469.0 | 472.9 | 474.4 | 473.6 | 473.8 | 472.1 | 465.2 | 457.3 | 449.0 |
| 15° | 467.1 | 467.3 | 472.7 | 479.2 | 481.9 | 481.3 | 481.5 | 479.6 | 471.9 | 464.0 | 452.7 |
| 17.5° | 471.3 | 472.3 | 481.7 | 490.7 | 494.2 | 493.4 | 491.9 | 488.8 | 480.0 | 471.1 | 457.3 |
| 20° | 480.0 | 481.7 | 493.8 | 505.1 | 509.2 | 507.3 | 504.8 | 498.6 | 489.0 | 479.2 | 462.3 |
| 22.5° | 497.3 | 498.4 | 511.7 | 522.8 | 526.1 | 523.8 | 518.8 | 509.9 | 498.8 | 488.6 | 468.4 |
| 25° | 521.7 | 523.0 | 535.7 | 545.9 | 545.1 | 542.4 | 535.5 | 524.4 | 511.3 | 500.5 | 477.1 |
| 27.5° | 550.7 | 552.8 | 565.3 | 573.5 | 568.0 | 564.1 | 556.4 | 543.0 | 528.2 | 518.4 | 490.5 |
| 30° | 582.4 | 583.3 | 593.9 | 602.0 | 593.7 | 588.3 | 578.9 | 564.5 | 551.1 | 543.8 | 510.5 |
| 32.5° | 613.1 | 613.9 | 623.1 | 627.7 | 618.9 | 615.0 | 606.8 | 591.6 | 582.2 | 578.2 | 540.3 |
| 35° | 645.4 | 645.2 | 652.7 | 656.7 | 647.7 | 646.0 | 637.7 | 626.0 | 624.3 | 629.5 | 583.9 |
| 37.5° | 677.7 | 675.8 | 679.8 | 685.0 | 680.0 | 681.7 | 676.3 | 672.3 | 678.8 | 692.3 | 641.9 |
| 40° | 703.6 | 703.6 | 707.7 | 714.2 | 715.9 | 723.2 | 720.0 | 725.3 | 746.1 | 778.4 | 713.6 |
| 42.5° | 726.5 | 726.7 | 735.5 | 745.5 | 757.6 | 768.8 | 771.3 | 784.9 | 828.1 | 878.7 | 803.7 |
| 45° | 750.5 | 750.7 | 762.6 | 777.2 | 802.8 | 824.3 | 829.3 | 859.8 | 921.5 | 983.2 | 901.5 |
| 47.5° | 778.2 | 775.9 | 792.4 | 816.8 | 853.3 | 884.2 | 897.1 | 940.3 | 1018.2 | 1094.1 | 993.6 |
| 50° | 809.5 | 804.7 | 823.1 | 865.2 | 910.2 | 952.6 | 974.2 | 1023.7 | 1122.1 | 1196.5 | 1080.4 |
| 52.5° | 844.7 | 842.0 | 861.2 | 912.5 | 981.3 | 1030.1 | 1059.5 | 1124.4 | 1223.0 | 1298.5 | 1149.2 |
| 55° | 888.5 | 882.1 | 909.8 | 975.1 | 1064.7 | 1126.9 | 1161.7 | 1224.1 | 1333.3 | 1391.1 | 1201.7 |
| 57.5° | 936.5 | 929.4 | 966.5 | 1053.3 | 1173.2 | 1241.4 | 1285.0 | 1336.3 | 1437.2 | 1462.0 | 1232.6 |
| 60° | 988.2 | 985.9 | 1029.9 | 1145.0 | 1302.5 | 1381.7 | 1413.2 | 1459.7 | 1527.5 | 1503.1 | 1224.9 |
| 62.5° | 1035.6 | 1034.7 | 1098.7 | 1244.5 | 1439.5 | 1526.6 | 1551.7 | 1564.0 | 1592.5 | 1500.4 | 1163.6 |
| 65° | 1085.4 | 1092.5 | 1179.0 | 1359.8 | 1596.5 | 1682.0 | 1692.4 | 1661.1 | 1614.4 | 1429.3 | 1038.1 |
| 67.5° | 1091.6 | 1105.4 | 1229.5 | 1467.8 | 1745.4 | 1826.1 | 1817.7 | 1698.0 | 1549.8 | 1231.4 | 813.7 |
| 70° | 976.3 | 1000.3 | 1149.0 | 1484.3 | 1850.3 | 1909.7 | 1849.4 | 1618.6 | 1315.2 | 892.1 | 511.7 |
| 72.5° | 815.8 | 836.4 | 967.8 | 1265.8 | 1714.9 | 1790.6 | 1709.1 | 1370.0 | 929.4 | 511.7 | 260.7 |
| 75° | 635.0 | 659.0 | 780.1 | 1006.1 | 1283.9 | 1314.1 | 1273.3 | 955.5 | 510.9 | 211.0 | 118.4 |
| 77.5° | 387.4 | 404.8 | 499.0 | 681.7 | 898.3 | 853.1 | 723.0 | 535.7 | 224.2 | 101.1 | 73.2 |
| 80° | 171.4 | 182.0 | 245.9 | 366.2 | 519.0 | 490.7 | 386.8 | 228.8 | 122.6 | 64.2 | 51.1 |
| 82.5° | 92.0 | 98.8 | 121.2 | 144.9 | 227.9 | 238.3 | 193.3 | 131.8 | 65.9 | 36.7 | 29.2 |
| 85° | 40.5 | 44.4 | 55.1 | 52.5 | 74.9 | 73.6 | 74.2 | 90.5 | 31.5 | 16.9 | 19.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 2.3 | 12.1 | 3.1 | 5.0 | 4.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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 CATALOG NUMBER: GWS-SA1A-750-U-SL4-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 | 474.4 |
| 2.5° | 469.4 | 465.6 | 464.6 | 463.4 | 461.1 | 457.1 | 454.2 | 450.8 | 449.4 | 447.7 | 447.9 |
| 5° | 457.7 | 453.1 | 448.8 | 443.1 | 436.0 | 428.1 | 422.7 | 416.4 | 413.1 | 410.0 | 410.8 |
| 7.5° | 447.7 | 440.6 | 431.7 | 419.8 | 407.0 | 392.9 | 381.4 | 372.4 | 366.4 | 362.2 | 364.3 |
| 10° | 441.5 | 433.1 | 417.5 | 398.1 | 376.6 | 354.9 | 338.4 | 323.0 | 313.4 | 305.9 | 305.5 |
| 12.5° | 440.2 | 429.4 | 406.6 | 378.5 | 347.4 | 318.4 | 294.2 | 273.4 | 260.7 | 251.3 | 254.8 |
| 15° | 441.5 | 427.7 | 397.2 | 360.3 | 321.1 | 281.9 | 251.9 | 227.9 | 212.7 | 204.1 | 203.5 |
| 17.5° | 442.9 | 426.0 | 386.6 | 340.7 | 293.6 | 248.8 | 214.0 | 188.5 | 172.9 | 164.3 | 164.5 |
| 20° | 444.2 | 423.5 | 374.1 | 319.3 | 265.7 | 217.9 | 181.8 | 157.6 | 143.7 | 137.4 | 138.5 |
| 22.5° | 446.3 | 421.0 | 360.8 | 296.3 | 237.1 | 188.1 | 156.4 | 136.8 | 128.5 | 124.3 | 124.5 |
| 25° | 450.2 | 419.6 | 347.0 | 271.3 | 208.9 | 164.3 | 138.9 | 125.7 | 120.5 | 118.0 | 117.8 |
| 27.5° | 458.3 | 420.8 | 332.6 | 247.1 | 183.5 | 146.2 | 127.6 | 119.1 | 115.5 | 113.9 | 113.6 |
| 30° | 471.9 | 425.8 | 320.1 | 222.5 | 161.6 | 132.0 | 119.9 | 114.7 | 112.6 | 111.1 | 110.9 |
| 32.5° | 492.5 | 435.2 | 306.5 | 199.6 | 143.9 | 121.6 | 113.9 | 111.1 | 109.7 | 108.9 | 108.9 |
| 35° | 523.8 | 452.3 | 293.2 | 179.5 | 130.1 | 113.4 | 109.1 | 108.0 | 106.8 | 106.3 | 106.8 |
| 37.5° | 568.9 | 479.6 | 281.1 | 162.0 | 120.3 | 107.2 | 103.8 | 104.3 | 103.2 | 103.8 | 104.5 |
| 40° | 626.0 | 516.1 | 270.9 | 147.6 | 113.0 | 102.6 | 99.3 | 100.7 | 100.1 | 100.7 | 101.8 |
| 42.5° | 698.4 | 561.4 | 263.2 | 136.4 | 107.8 | 98.8 | 95.7 | 97.2 | 96.8 | 97.6 | 98.6 |
| 45° | 779.1 | 621.0 | 259.6 | 128.5 | 104.1 | 96.1 | 92.8 | 93.8 | 93.4 | 94.0 | 95.1 |
| 47.5° | 856.4 | 675.2 | 262.7 | 123.9 | 100.9 | 93.8 | 90.3 | 90.7 | 90.5 | 90.3 | 90.9 |
| 50° | 923.2 | 718.4 | 271.7 | 122.4 | 98.8 | 91.5 | 88.2 | 88.4 | 87.8 | 86.5 | 87.0 |
| 52.5° | 977.6 | 753.0 | 277.1 | 122.4 | 97.8 | 89.0 | 85.9 | 86.1 | 84.9 | 83.2 | 83.4 |
| 55° | 1013.4 | 767.0 | 272.8 | 122.2 | 97.4 | 87.0 | 83.6 | 83.8 | 82.6 | 80.5 | 80.7 |
| 57.5° | 1023.7 | 753.4 | 254.4 | 119.9 | 97.0 | 85.3 | 81.3 | 81.7 | 80.9 | 78.6 | 78.6 |
| 60° | 995.1 | 703.8 | 220.8 | 114.7 | 95.9 | 84.2 | 79.7 | 80.3 | 79.9 | 77.6 | 77.6 |
| 62.5° | 920.2 | 615.6 | 180.8 | 106.8 | 93.0 | 83.0 | 78.2 | 79.4 | 80.5 | 79.2 | 79.0 |
| 65° | 780.1 | 493.2 | 147.0 | 98.0 | 89.3 | 80.9 | 76.1 | 79.2 | 81.5 | 83.2 | 83.2 |
| 67.5° | 585.3 | 353.0 | 119.9 | 88.8 | 83.6 | 76.7 | 73.4 | 76.3 | 78.0 | 79.0 | 79.7 |
| 70° | 356.8 | 207.7 | 94.5 | 78.2 | 75.5 | 70.5 | 68.0 | 65.1 | 62.8 | 62.4 | 62.6 |
| 72.5° | 174.5 | 118.9 | 76.7 | 66.5 | 64.4 | 59.8 | 54.2 | 53.0 | 51.9 | 51.3 | 51.1 |
| 75° | 96.1 | 82.8 | 63.4 | 55.3 | 51.5 | 45.9 | 44.6 | 42.5 | 42.1 | 41.3 | 41.5 |
| 77.5° | 68.0 | 65.3 | 52.3 | 44.8 | 39.2 | 36.3 | 36.9 | 35.4 | 35.4 | 34.8 | 34.6 |
| 80° | 51.1 | 51.3 | 40.2 | 32.7 | 29.0 | 27.9 | 28.6 | 28.6 | 28.2 | 27.9 | 27.7 |
| 82.5° | 32.3 | 36.5 | 27.1 | 21.1 | 20.6 | 20.9 | 20.6 | 20.4 | 20.9 | 20.2 | 20.0 |
| 85° | 22.3 | 26.3 | 16.5 | 12.5 | 12.5 | 12.3 | 12.7 | 12.5 | 12.9 | 12.3 | 12.3 |
| 87.5° | 5.0 | 11.7 | 6.0 | 3.8 | 4.0 | 3.8 | 4.0 | 4.2 | 4.6 | 4.8 | 4.8 |
| 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: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

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

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-4-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-750-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): | 4884 | CRI (Ra): | 73.5 | R9: | -28.4 |
| CIE u': | 0.2101 | R1: | 70.5 | R10: | 48.6 |
| CIE v': | 0.4904 | R2: | 77.7 | R11: | 73.2 |
| Duv: | 0.0037 | R3: | 84.6 | R12: | 50.7 |
| CIE x: | 0.3493 | R4: | 74.7 | R13: | 71.2 |
| CIE y: | 0.3624 | R5: | 71.9 | R14: | 91.4 |
| CIE z: | 0.2884 | R6: | 70.7 | | |
| Peak Wavelength (nm): | 444 | R7: | 81.2 | | |
| Dominant Wavelength (nm): | 571 | R8: | 56.9 | | |
| Purity: | 13.7 | | | | |
| Rf: | 74.9 | | | | |
| Rg: | 96.3 | | | | |



Test Conditions
 Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 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 5000K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9 M/P: 0.71

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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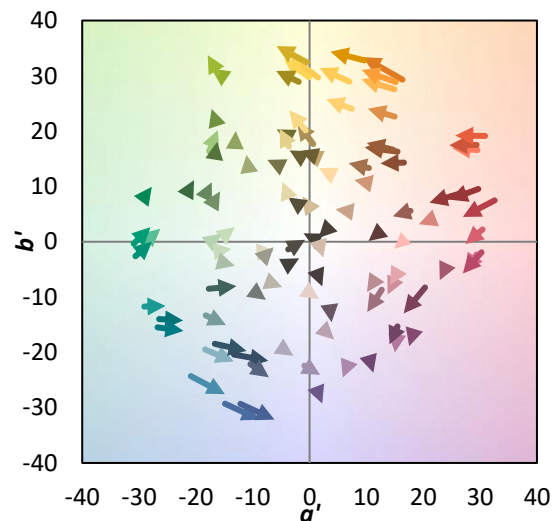
TM-30-18

Summary

$R_f = 74.9$
 $R_g = 96.3$
 CIE $R_a = 73.5$
 $R_g = -28.4$



Color Vector Graphics



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

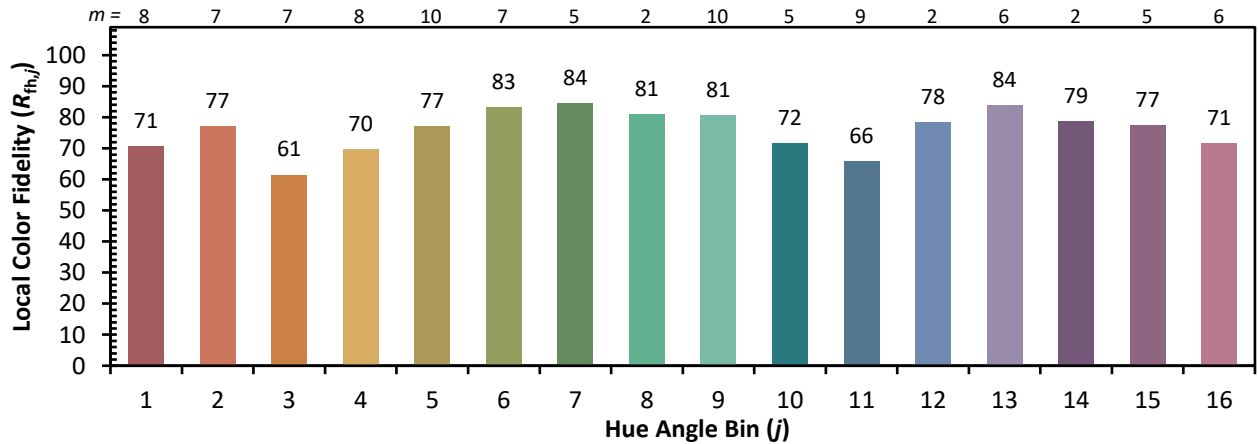
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)