

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



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P438222

Luminaire Tested: **ISW-SA1B-750-U-SL4**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438222
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-18)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISW-SA1B-750-U-SL4
Description: IMPACT ELITE LED WEDGE LUMINAIRE
(1) 70 CRI, 5000K, 450mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV SPILL LIGHT
ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3342 lumens
Efficiency: N/A
Efficacy: 131.6 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

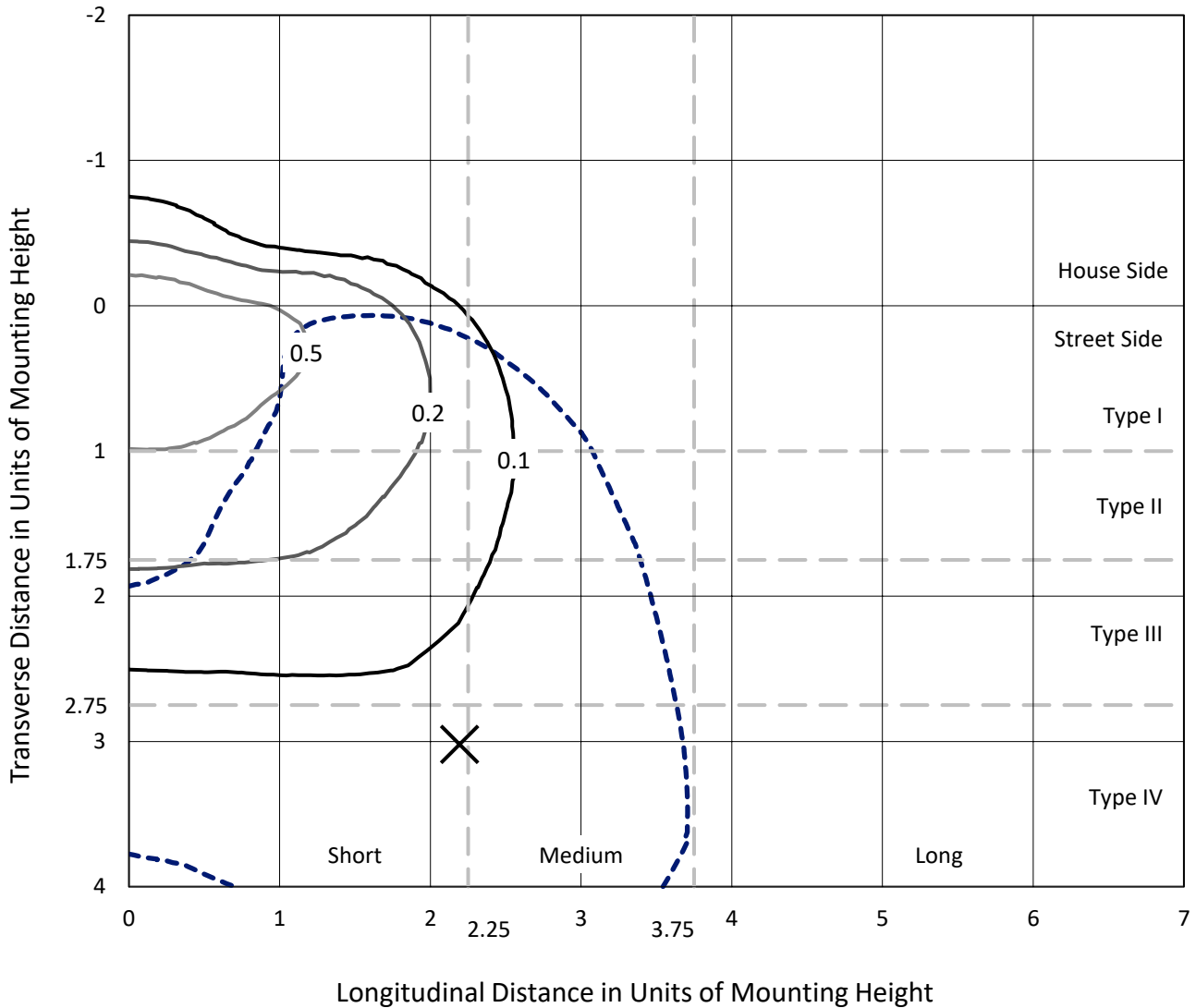
Input Watts (W): 25.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P438222
 CATALOG NUMBER: ISW-SA1B-750-U-SL4

Iso-Footcandle Lines of Horizontal Illumination

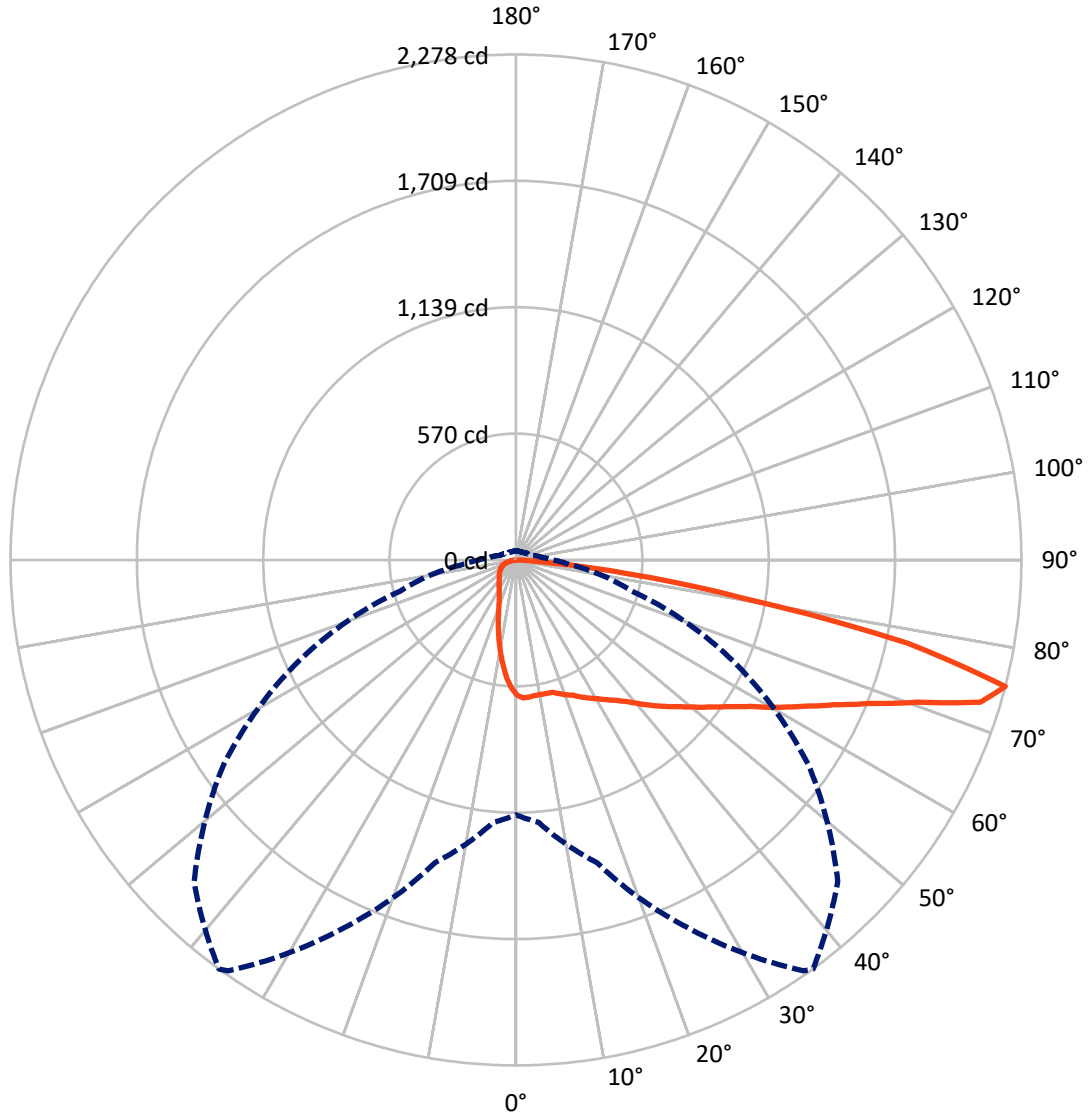
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1 fc
 Type IV - Short - N/A

REPORT NUMBER: P438222
CATALOG NUMBER: ISW-SA1B-750-U-SL4

Luminous Intensity Polar Plot



— Vertical Plane Through 36-Deg Lateral - - - Horizontal Cone Through 75-Deg Vertical

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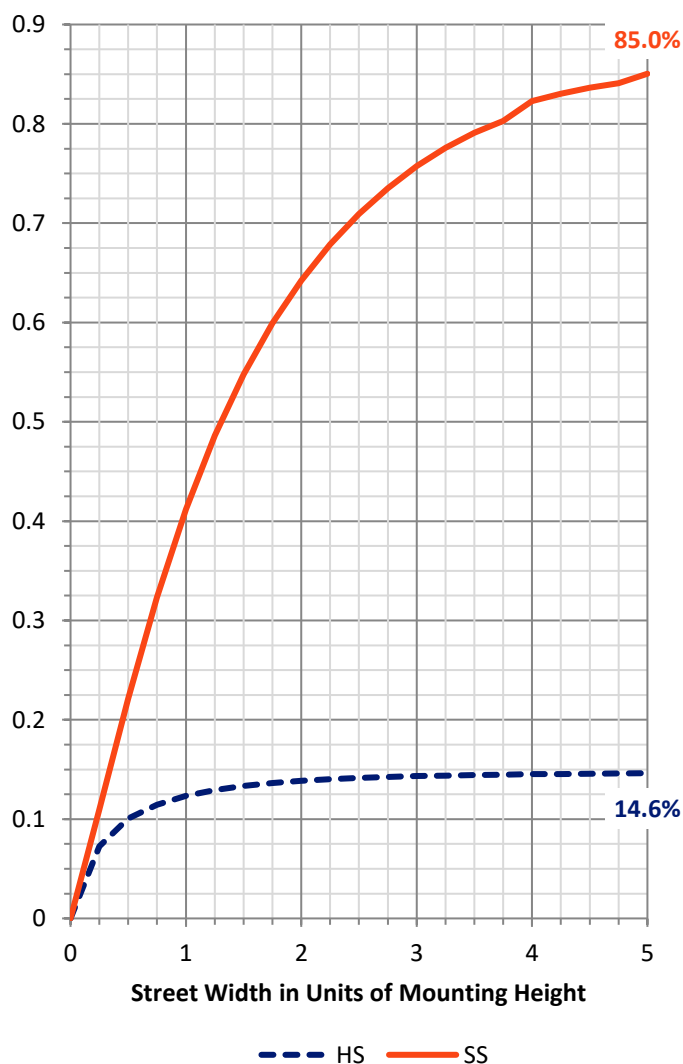
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 493.2 | 0.0 | 493.2 |
| | % Fixture | 14.8 | 0.0 | 14.8 |
| Street Side | Lumens | 2848.8 | 0.0 | 2848.8 |
| | % Fixture | 85.2 | 0.0 | 85.2 |
| Total | Lumens | 3342.0 | 0.0 | 3342.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 53.8 | 1.6 |
| 10°-20° | 139.1 | 4.2 |
| 20°-30° | 215.0 | 6.4 |
| 30°-40° | 311.5 | 9.3 |
| 40°-50° | 450.5 | 13.5 |
| 50°-60° | 624.8 | 18.7 |
| 60°-70° | 789.0 | 23.6 |
| 70°-80° | 677.7 | 20.3 |
| 80°-90° | 80.7 | 2.4 |
| 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° | 3342.0 | 100.0 |
| 0°-180° | 3342.0 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P438222

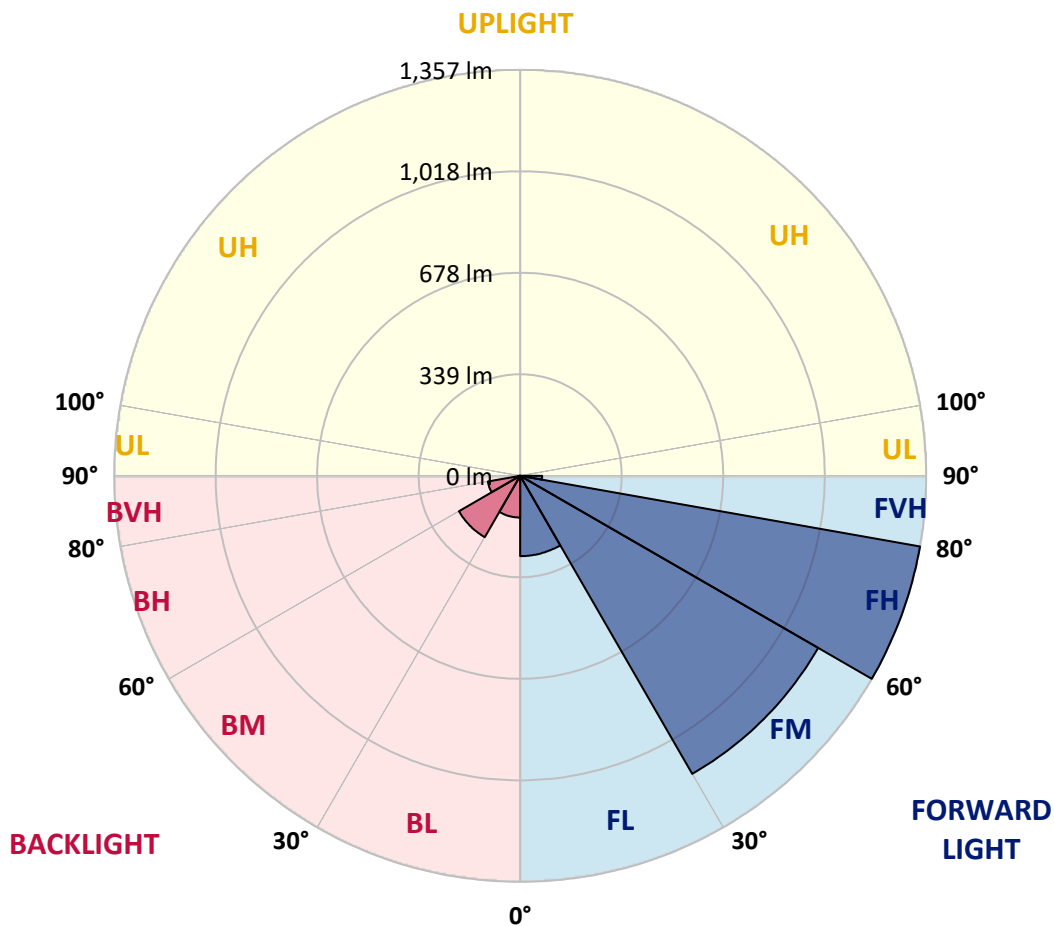
CATALOG NUMBER: ISW-SA1B-750-U-SL4

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 268.4 | 8.0 | | | |
| FM (30°-60°) | 1150.3 | 34.4 | | | |
| FH (60°-80°) | 1356.8 | 40.6 | | | G1/1800 |
| FVH (80°-90°) | 73.3 | 2.2 | | | G1/100 |
| BL (0°-30°) | 139.5 | 4.2 | B1/500 | | |
| BM (30°-60°) | 236.5 | 7.1 | B1/1000 | | |
| BH (60°-80°) | 109.8 | 3.3 | B0/110 | | G0/110 |
| BVH (80°-90°) | 7.5 | 0.2 | | | 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





REPORT NUMBER: P438222

CATALOG NUMBER: ISW-SA1B-750-U-SL4

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 36° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 |
| 2.5° | 627.2 | 627.2 | 627.2 | 625.9 | 623.4 | 622.2 | 619.7 | 617.2 | 616.0 | 611.0 | 609.7 |
| 5° | 627.2 | 628.4 | 627.2 | 625.9 | 623.4 | 621.0 | 618.5 | 613.5 | 609.7 | 603.5 | 597.3 |
| 7.5° | 621.0 | 622.2 | 622.2 | 621.0 | 618.5 | 617.2 | 614.7 | 608.5 | 603.5 | 594.8 | 584.8 |
| 10° | 611.0 | 613.5 | 613.5 | 614.7 | 616.0 | 616.0 | 613.5 | 608.5 | 601.0 | 591.0 | 574.8 |
| 12.5° | 598.5 | 604.7 | 608.5 | 612.2 | 617.2 | 617.2 | 618.5 | 611.0 | 604.7 | 591.0 | 574.8 |
| 15° | 594.8 | 598.5 | 606.0 | 617.2 | 622.2 | 618.5 | 623.4 | 619.7 | 612.2 | 598.5 | 578.6 |
| 17.5° | 593.5 | 597.3 | 609.7 | 623.4 | 630.9 | 633.4 | 633.4 | 628.4 | 619.7 | 606.0 | 581.1 |
| 20° | 598.5 | 603.5 | 619.7 | 637.2 | 648.4 | 648.4 | 647.1 | 640.9 | 629.7 | 613.5 | 586.0 |
| 22.5° | 614.7 | 616.0 | 634.7 | 655.9 | 664.6 | 662.1 | 664.6 | 653.4 | 640.9 | 624.7 | 592.3 |
| 25° | 635.9 | 638.4 | 653.4 | 678.3 | 683.3 | 684.5 | 680.8 | 668.3 | 654.6 | 638.4 | 599.8 |
| 27.5° | 664.6 | 668.3 | 679.6 | 703.2 | 707.0 | 704.5 | 699.5 | 684.5 | 670.8 | 655.9 | 614.7 |
| 30° | 698.3 | 700.8 | 714.5 | 724.4 | 728.2 | 725.7 | 722.0 | 705.7 | 694.5 | 680.8 | 637.2 |
| 32.5° | 730.7 | 731.9 | 746.9 | 756.9 | 750.6 | 750.6 | 745.6 | 729.4 | 720.7 | 718.2 | 665.8 |
| 35° | 764.3 | 766.8 | 780.6 | 785.5 | 775.6 | 776.8 | 775.6 | 761.9 | 764.3 | 769.3 | 709.5 |
| 37.5° | 795.5 | 799.3 | 815.5 | 816.7 | 813.0 | 809.2 | 813.0 | 805.5 | 810.5 | 830.4 | 760.6 |
| 40° | 822.9 | 827.9 | 847.9 | 851.6 | 850.4 | 850.4 | 852.9 | 851.6 | 870.3 | 902.8 | 822.9 |
| 42.5° | 845.4 | 851.6 | 875.3 | 885.3 | 892.8 | 896.5 | 905.2 | 907.7 | 935.2 | 987.5 | 895.3 |
| 45° | 867.8 | 874.1 | 906.5 | 922.7 | 940.2 | 941.4 | 958.9 | 967.6 | 1018.7 | 1066.1 | 973.8 |
| 47.5° | 894.0 | 901.5 | 931.4 | 963.8 | 983.8 | 987.5 | 1020.0 | 1037.4 | 1099.8 | 1160.9 | 1047.4 |
| 50° | 930.2 | 932.7 | 956.4 | 1011.2 | 1036.2 | 1042.4 | 1078.6 | 1114.7 | 1183.3 | 1244.4 | 1112.2 |
| 52.5° | 975.1 | 972.6 | 983.8 | 1053.6 | 1092.3 | 1101.0 | 1159.6 | 1195.8 | 1278.1 | 1334.2 | 1163.4 |
| 55° | 1012.5 | 1010.0 | 1026.2 | 1102.3 | 1163.4 | 1165.8 | 1235.7 | 1270.6 | 1365.3 | 1400.3 | 1207.0 |
| 57.5° | 1056.1 | 1051.1 | 1067.3 | 1160.9 | 1244.4 | 1245.6 | 1326.7 | 1366.6 | 1443.9 | 1458.9 | 1235.7 |
| 60° | 1092.3 | 1092.3 | 1113.5 | 1218.2 | 1334.2 | 1347.9 | 1421.5 | 1452.6 | 1520.0 | 1501.3 | 1249.4 |
| 62.5° | 1125.9 | 1132.2 | 1162.1 | 1294.3 | 1440.2 | 1451.4 | 1526.2 | 1538.7 | 1598.5 | 1533.7 | 1234.4 |
| 65° | 1165.8 | 1175.8 | 1233.2 | 1385.3 | 1566.1 | 1573.6 | 1635.9 | 1653.4 | 1677.1 | 1532.4 | 1169.6 |
| 67.5° | 1208.2 | 1224.4 | 1300.5 | 1487.5 | 1704.5 | 1724.5 | 1791.8 | 1774.3 | 1729.4 | 1483.8 | 1033.7 |
| 70° | 1265.6 | 1285.5 | 1394.0 | 1623.5 | 1894.0 | 1919.0 | 2007.5 | 1900.3 | 1702.0 | 1310.5 | 837.9 |
| 72.5° | 1309.2 | 1335.4 | 1483.8 | 1799.3 | 2150.9 | 2189.5 | 2168.3 | 1902.8 | 1526.2 | 1044.9 | 561.1 |
| 75° | 1148.4 | 1188.3 | 1412.7 | 1827.9 | 2260.6 | 2278.1 | 2051.1 | 1608.5 | 1081.1 | 539.9 | 241.9 |
| 77.5° | 839.2 | 836.7 | 1032.4 | 1420.2 | 1852.9 | 1806.7 | 1556.1 | 1046.1 | 513.7 | 195.8 | 122.2 |
| 80° | 421.5 | 405.2 | 558.6 | 756.9 | 1000.0 | 1031.2 | 920.2 | 543.6 | 203.2 | 104.7 | 73.6 |
| 82.5° | 155.9 | 159.6 | 204.5 | 309.2 | 502.5 | 510.0 | 371.6 | 230.7 | 111.0 | 54.9 | 38.7 |
| 85° | 59.9 | 62.3 | 67.3 | 67.3 | 93.5 | 103.5 | 96.0 | 92.3 | 37.4 | 18.7 | 21.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| 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: P438222
 CATALOG NUMBER: ISW-SA1B-750-U-SL4

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 | 609.7 |
| 2.5° | 606.0 | 603.5 | 598.5 | 589.8 | 584.8 | 581.1 | 576.1 | 571.1 | 569.8 | 568.6 | 574.8 |
| 5° | 591.0 | 587.3 | 574.8 | 563.6 | 551.1 | 541.2 | 531.2 | 522.4 | 517.5 | 516.2 | 518.7 |
| 7.5° | 576.1 | 571.1 | 552.4 | 529.9 | 508.7 | 491.3 | 473.8 | 465.1 | 451.4 | 451.4 | 452.6 |
| 10° | 567.3 | 558.6 | 532.4 | 498.8 | 471.3 | 440.2 | 419.0 | 397.8 | 389.0 | 382.8 | 380.3 |
| 12.5° | 562.3 | 548.6 | 513.7 | 476.3 | 433.9 | 392.8 | 364.1 | 337.9 | 324.2 | 314.2 | 314.2 |
| 15° | 563.6 | 548.6 | 501.3 | 452.6 | 397.8 | 347.9 | 311.7 | 283.0 | 265.6 | 255.6 | 253.1 |
| 17.5° | 562.3 | 543.6 | 486.3 | 422.7 | 361.6 | 309.2 | 265.6 | 235.7 | 218.2 | 212.0 | 210.7 |
| 20° | 564.8 | 539.9 | 468.8 | 395.3 | 326.7 | 270.6 | 225.7 | 198.3 | 188.3 | 183.3 | 182.0 |
| 22.5° | 566.1 | 532.4 | 451.4 | 365.3 | 289.3 | 234.4 | 197.0 | 178.3 | 170.8 | 167.1 | 165.8 |
| 25° | 568.6 | 531.2 | 431.4 | 337.9 | 258.1 | 207.0 | 178.3 | 162.1 | 158.4 | 155.9 | 155.9 |
| 27.5° | 578.6 | 531.2 | 414.0 | 303.0 | 225.7 | 184.5 | 162.1 | 152.1 | 149.6 | 148.4 | 148.4 |
| 30° | 591.0 | 533.7 | 397.8 | 274.3 | 200.7 | 167.1 | 150.9 | 143.4 | 142.1 | 140.9 | 140.9 |
| 32.5° | 612.2 | 542.4 | 379.1 | 246.9 | 179.6 | 154.6 | 142.1 | 135.9 | 133.4 | 133.4 | 133.4 |
| 35° | 640.9 | 557.4 | 360.4 | 221.9 | 162.1 | 142.1 | 133.4 | 127.2 | 125.9 | 127.2 | 127.2 |
| 37.5° | 682.1 | 574.8 | 344.1 | 199.5 | 148.4 | 132.2 | 124.7 | 120.9 | 119.7 | 119.7 | 120.9 |
| 40° | 733.2 | 606.0 | 327.9 | 182.0 | 138.4 | 123.4 | 118.5 | 114.7 | 113.5 | 114.7 | 114.7 |
| 42.5° | 789.3 | 639.7 | 314.2 | 164.6 | 128.4 | 117.2 | 111.0 | 108.5 | 107.2 | 108.5 | 109.7 |
| 45° | 851.6 | 674.6 | 303.0 | 152.1 | 120.9 | 111.0 | 106.0 | 104.7 | 103.5 | 103.5 | 104.7 |
| 47.5° | 904.0 | 712.0 | 294.3 | 143.4 | 114.7 | 106.0 | 102.2 | 99.8 | 98.5 | 97.3 | 98.5 |
| 50° | 952.6 | 740.7 | 291.8 | 138.4 | 111.0 | 101.0 | 97.3 | 94.8 | 93.5 | 92.3 | 93.5 |
| 52.5° | 988.8 | 755.6 | 291.8 | 134.7 | 107.2 | 97.3 | 93.5 | 91.0 | 89.8 | 87.3 | 88.5 |
| 55° | 1013.7 | 763.1 | 288.0 | 132.2 | 103.5 | 93.5 | 88.5 | 87.3 | 86.0 | 83.5 | 83.5 |
| 57.5° | 1028.7 | 761.9 | 274.3 | 130.9 | 102.2 | 88.5 | 84.8 | 83.5 | 82.3 | 79.8 | 79.8 |
| 60° | 1026.2 | 738.2 | 249.4 | 125.9 | 99.8 | 84.8 | 79.8 | 79.8 | 79.8 | 77.3 | 77.3 |
| 62.5° | 990.0 | 672.1 | 208.2 | 118.5 | 97.3 | 81.0 | 74.8 | 77.3 | 78.6 | 76.1 | 76.1 |
| 65° | 892.8 | 571.1 | 172.1 | 108.5 | 91.0 | 77.3 | 71.1 | 74.8 | 77.3 | 76.1 | 74.8 |
| 67.5° | 751.9 | 452.6 | 142.1 | 98.5 | 84.8 | 72.3 | 66.1 | 71.1 | 72.3 | 72.3 | 72.3 |
| 70° | 581.1 | 325.4 | 117.2 | 86.0 | 76.1 | 64.8 | 59.9 | 62.3 | 63.6 | 63.6 | 64.8 |
| 72.5° | 344.1 | 194.5 | 96.0 | 73.6 | 64.8 | 56.1 | 52.4 | 53.6 | 52.4 | 52.4 | 52.4 |
| 75° | 169.6 | 120.9 | 77.3 | 62.3 | 54.9 | 47.4 | 43.6 | 41.1 | 41.1 | 41.1 | 39.9 |
| 77.5° | 103.5 | 89.8 | 63.6 | 49.9 | 43.6 | 36.2 | 33.7 | 31.2 | 31.2 | 31.2 | 31.2 |
| 80° | 73.6 | 69.8 | 48.6 | 37.4 | 29.9 | 26.2 | 24.9 | 23.7 | 23.7 | 22.4 | 22.4 |
| 82.5° | 46.1 | 52.4 | 36.2 | 24.9 | 20.0 | 18.7 | 17.5 | 16.2 | 15.0 | 13.7 | 13.7 |
| 85° | 26.2 | 33.7 | 21.2 | 13.7 | 11.2 | 8.7 | 7.5 | 7.5 | 6.2 | 6.2 | 5.0 |
| 87.5° | 1.2 | 2.5 | 2.5 | 2.5 | 2.5 | 1.2 | 1.2 | 1.2 | 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 |

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

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

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

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

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

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

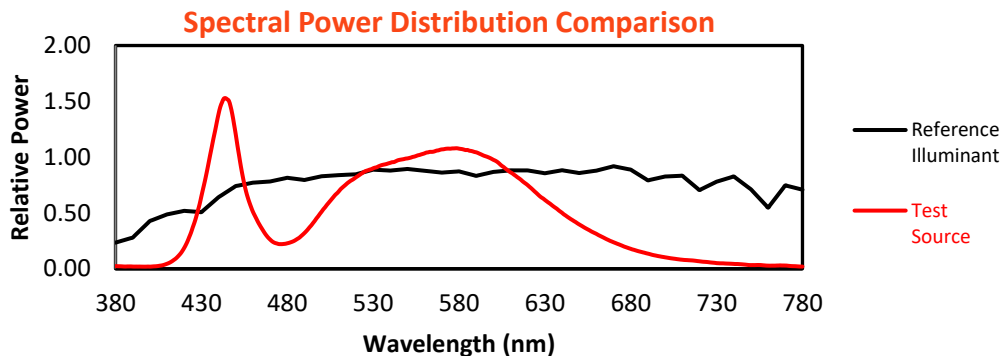
| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 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 | | | |

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

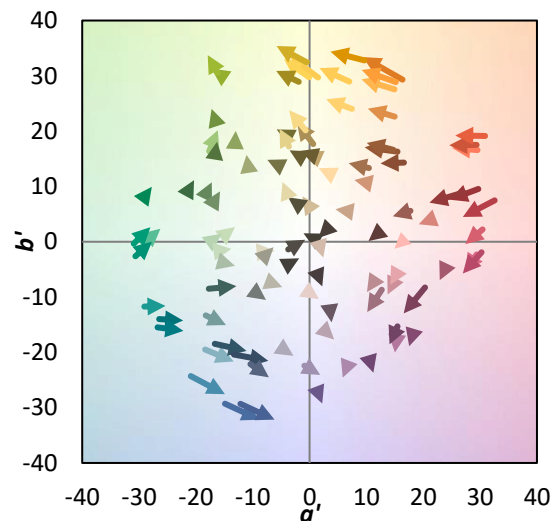
TM-30-18

Summary

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



Color Vector Graphics



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

TM-30-18

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 | |



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

TM-30-18

Color Rendition by Hue-Angle Bin



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

TM-30-18

Measure Comparisons



(END OF REPORT)