

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: STREETWORKS

Report Number: P362466

Luminaire Tested: NVN-SA2C-750-U-AFL

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P362466
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-29)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: STREETWORKS
Catalog Number: NVN-SA2C-750-U-AFL
Description: NAVION ROADWAY AND AREA LUMINAIRE
(2) 70 CRI, 5000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14829 lumens
Efficiency: N/A
Efficacy: 131.2 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G2

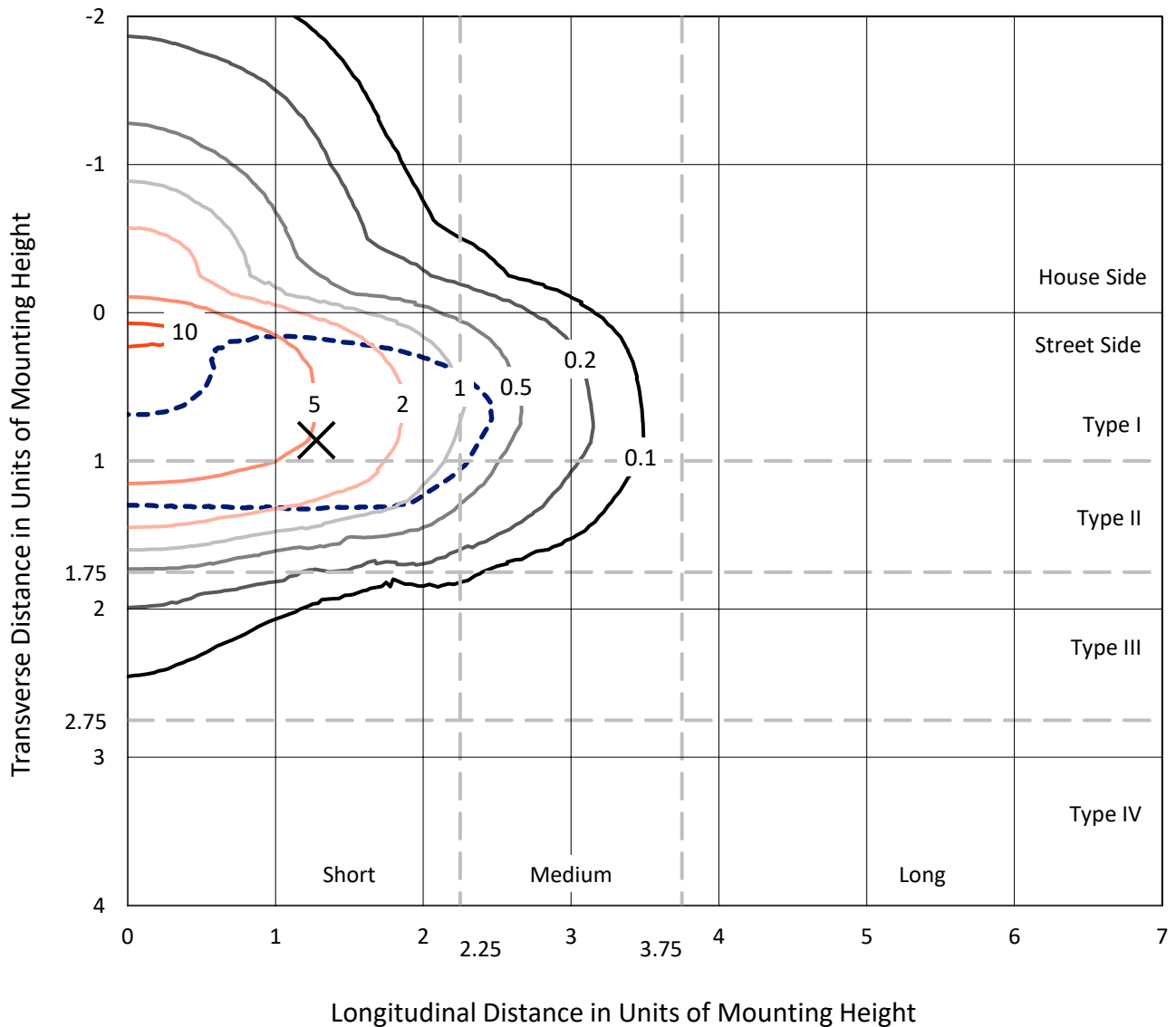
Input Watts (W): 113
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P362466
 CATALOG NUMBER: NVN-SA2C-750-U-AFL

Iso-Footcandle Lines of Horizontal Illumination

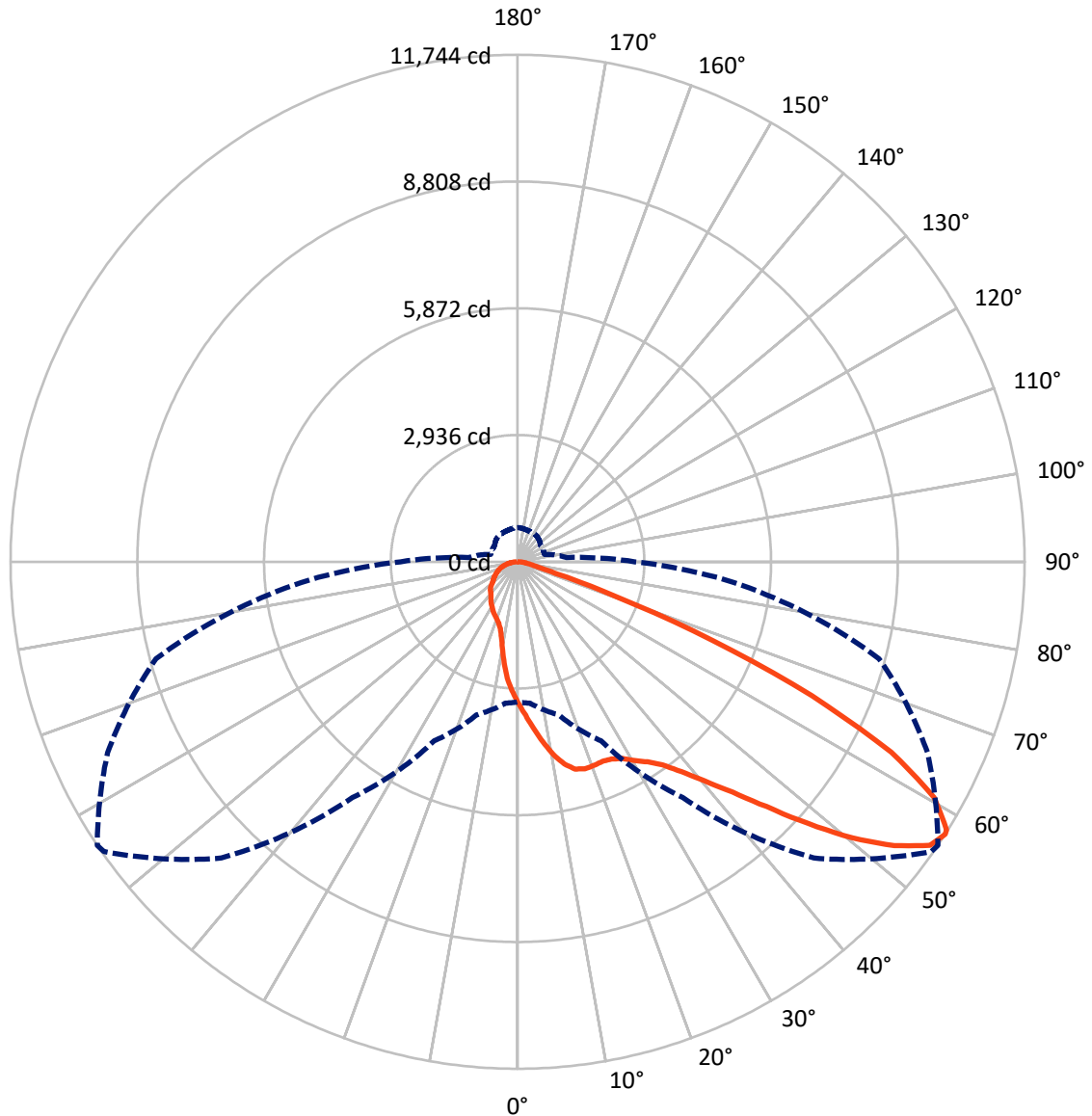
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 11.4 fc
 Type II - Short - N/A

REPORT NUMBER: P362466
CATALOG NUMBER: NVN-SA2C-750-U-AFL

Luminous Intensity Polar Plot



— Vertical Plane Through 56-Deg Lateral - - - Horizontal Cone Through 57-Deg Vertical

REPORT NUMBER: P362466
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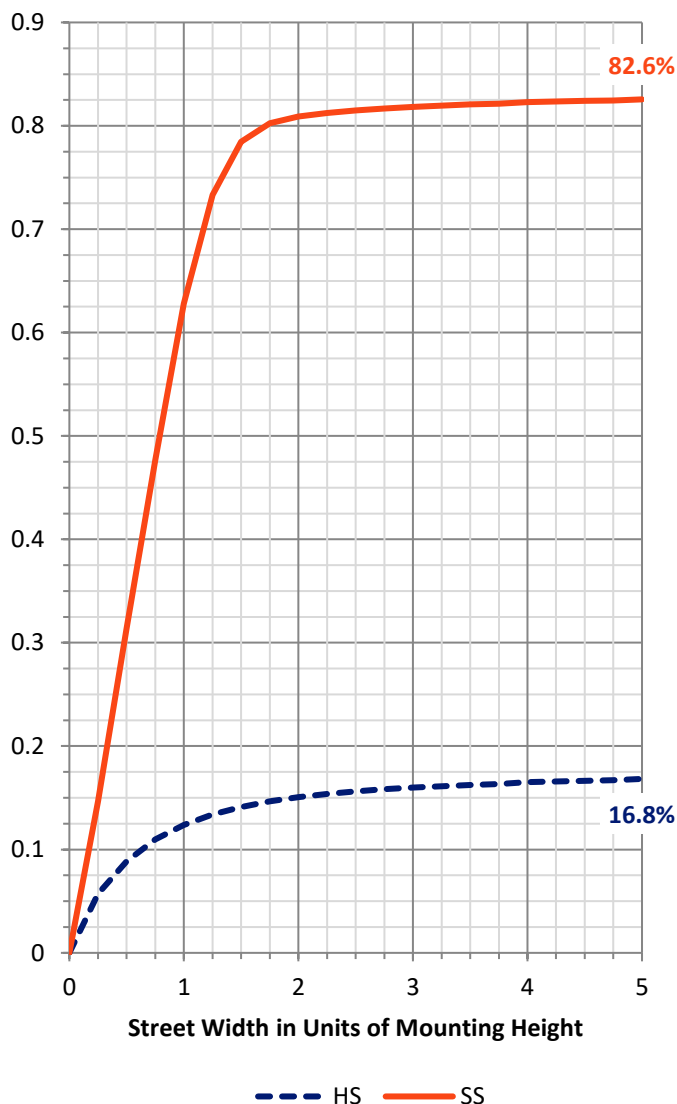
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2556.2 | 0.0 | 2556.2 |
| | % Fixture | 17.2 | 0.0 | 17.2 |
| Street Side | Lumens | 12272.8 | 0.0 | 12272.8 |
| | % Fixture | 82.8 | 0.0 | 82.8 |
| Total | Lumens | 14829.0 | 0.0 | 14829.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 314.2 | 2.1 |
| 10°-20° | 888.3 | 6.0 |
| 20°-30° | 1446.9 | 9.8 |
| 30°-40° | 2162.9 | 14.6 |
| 40°-50° | 3280.6 | 22.1 |
| 50°-60° | 3677.0 | 24.8 |
| 60°-70° | 2171.8 | 14.6 |
| 70°-80° | 711.6 | 4.8 |
| 80°-90° | 175.8 | 1.2 |
| 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° | 14829.0 | 100.0 |
| 0°-180° | 14829.0 | 100.0 |

Coefficient of Utilization

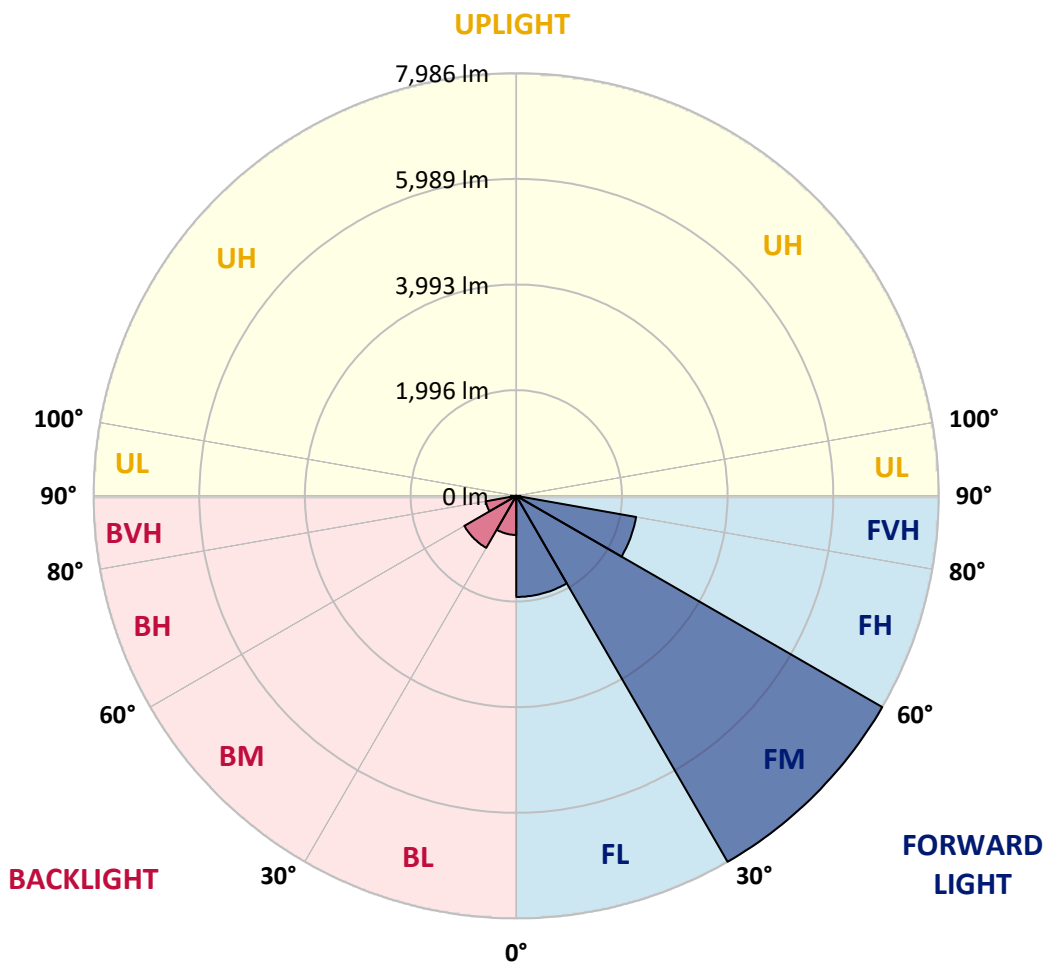


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1910.2 | 12.9 | | | |
| FM (30°-60°) | 7985.9 | 53.9 | | | |
| FH (60°-80°) | 2299.3 | 15.5 | | | G2/5000 |
| FVH (80°-90°) | 77.4 | 0.5 | | | G1/100 |
| BL (0°-30°) | 739.1 | 5.0 | B2/1000 | | |
| BM (30°-60°) | 1134.6 | 7.7 | B2/2500 | | |
| BH (60°-80°) | 584.1 | 3.9 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 98.4 | 0.7 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G2
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 56° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|--------|--------|
| 0° | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 |
| 2.5° | 3776.8 | 3811.4 | 3796.2 | 3743.2 | 3702.4 | 3644.8 | 3580.6 | 3561.2 | 3493.4 | 3417.5 | 3326.3 |
| 5° | 4374.6 | 4357.2 | 4332.3 | 4249.7 | 4162.6 | 4061.2 | 3900.1 | 3874.6 | 3723.8 | 3552.0 | 3370.6 |
| 7.5° | 4715.0 | 4713.5 | 4698.7 | 4650.3 | 4570.8 | 4438.3 | 4244.1 | 4214.0 | 3986.2 | 3710.0 | 3428.7 |
| 10° | 4665.6 | 4662.0 | 4686.5 | 4736.9 | 4760.9 | 4733.3 | 4569.8 | 4539.7 | 4259.9 | 3884.8 | 3496.0 |
| 12.5° | 4384.8 | 4386.8 | 4426.0 | 4532.0 | 4676.3 | 4849.5 | 4823.0 | 4808.3 | 4543.8 | 4082.6 | 3577.5 |
| 15° | 4166.1 | 4170.7 | 4201.8 | 4294.1 | 4464.3 | 4778.7 | 4976.9 | 4982.0 | 4818.5 | 4300.7 | 3672.8 |
| 17.5° | 4070.3 | 4080.0 | 4094.3 | 4159.0 | 4315.0 | 4637.5 | 5013.6 | 5041.2 | 5059.0 | 4527.0 | 3764.6 |
| 20° | 4100.9 | 4110.1 | 4114.2 | 4155.4 | 4283.4 | 4551.9 | 4988.2 | 5037.6 | 5243.5 | 4740.0 | 3856.3 |
| 22.5° | 4238.0 | 4243.6 | 4246.2 | 4256.9 | 4356.2 | 4576.4 | 4971.3 | 5023.3 | 5377.0 | 4931.1 | 3925.6 |
| 25° | 4465.3 | 4461.2 | 4444.9 | 4431.1 | 4497.9 | 4673.2 | 5010.1 | 5059.5 | 5485.5 | 5104.4 | 3971.0 |
| 27.5° | 4737.4 | 4732.3 | 4700.7 | 4663.0 | 4701.2 | 4824.1 | 5121.7 | 5160.9 | 5582.9 | 5266.4 | 3993.9 |
| 30° | 5064.1 | 5050.8 | 4991.2 | 4946.4 | 4961.1 | 5050.3 | 5305.7 | 5341.3 | 5733.2 | 5450.4 | 4016.3 |
| 32.5° | 5441.7 | 5427.5 | 5341.3 | 5266.9 | 5266.9 | 5341.3 | 5495.2 | 5524.8 | 5860.6 | 5658.3 | 4052.5 |
| 35° | 5914.6 | 5896.8 | 5784.7 | 5659.8 | 5624.7 | 5662.4 | 5753.6 | 5774.5 | 6090.0 | 5920.3 | 4118.2 |
| 37.5° | 6472.2 | 6448.2 | 6303.0 | 6135.8 | 6058.9 | 6056.8 | 6122.6 | 6165.4 | 6456.4 | 6264.2 | 4229.8 |
| 40° | 7031.2 | 7014.4 | 6887.5 | 6756.0 | 6605.2 | 6556.8 | 6658.2 | 6671.4 | 6935.4 | 6691.3 | 4372.5 |
| 42.5° | 7463.4 | 7460.3 | 7436.9 | 7454.2 | 7299.8 | 7201.9 | 7281.4 | 7292.1 | 7520.5 | 7153.5 | 4524.4 |
| 45° | 7691.7 | 7696.8 | 7810.4 | 8062.2 | 8119.3 | 8047.9 | 8087.2 | 8090.2 | 8189.1 | 7619.8 | 4663.5 |
| 47.5° | 7508.7 | 7535.2 | 7822.7 | 8385.8 | 8853.1 | 9090.1 | 9024.9 | 9062.6 | 8837.3 | 8020.4 | 4772.6 |
| 50° | 6795.8 | 6828.4 | 7317.6 | 8241.6 | 9195.6 | 10098.6 | 10064.5 | 10055.8 | 9360.2 | 8313.9 | 4831.7 |
| 52.5° | 5912.6 | 5938.1 | 6341.7 | 7491.9 | 8944.3 | 10656.1 | 10969.6 | 10924.7 | 9825.0 | 8533.6 | 4842.9 |
| 55° | 4567.7 | 4607.5 | 4994.3 | 5995.7 | 7928.2 | 10443.1 | 11635.1 | 11594.9 | 10248.5 | 8648.8 | 4829.7 |
| 57° | 3247.3 | 3289.1 | 3673.3 | 4575.9 | 6669.4 | 9705.7 | 11701.4 | 11744.2 | 10477.3 | 8668.1 | 4844.4 |
| 57.5° | 2897.7 | 2940.5 | 3321.2 | 4197.7 | 6277.0 | 9439.2 | 11644.3 | 11715.6 | 10518.6 | 8665.1 | 4852.6 |
| 60° | 1459.0 | 1475.3 | 1717.9 | 2343.2 | 3967.9 | 7631.0 | 10899.7 | 11083.7 | 10555.8 | 8515.2 | 4887.8 |
| 62.5° | 907.1 | 895.4 | 887.8 | 1079.4 | 1930.4 | 5060.5 | 9363.2 | 9717.4 | 9843.8 | 8152.4 | 4802.7 |
| 65° | 797.6 | 775.6 | 691.6 | 676.3 | 852.6 | 2457.9 | 7051.1 | 7491.9 | 8322.6 | 7580.6 | 4599.8 |
| 67.5° | 749.1 | 727.7 | 632.9 | 575.9 | 576.4 | 974.4 | 4377.6 | 4874.0 | 6483.4 | 6613.8 | 4121.3 |
| 70° | 699.2 | 679.8 | 591.2 | 523.9 | 490.8 | 539.7 | 2014.0 | 2390.6 | 4226.3 | 5198.6 | 3444.5 |
| 72.5° | 635.0 | 621.7 | 537.6 | 468.3 | 433.2 | 404.1 | 771.1 | 910.7 | 2446.7 | 3491.4 | 2392.2 |
| 75° | 567.7 | 555.5 | 483.6 | 417.4 | 374.6 | 318.0 | 434.2 | 467.8 | 1243.0 | 1786.2 | 1177.7 |
| 77.5° | 493.8 | 486.7 | 430.1 | 369.0 | 334.8 | 263.5 | 307.3 | 323.6 | 533.1 | 766.0 | 590.6 |
| 80° | 392.9 | 406.7 | 376.1 | 328.7 | 297.1 | 211.0 | 217.6 | 228.3 | 310.4 | 374.1 | 335.3 |
| 82.5° | 255.8 | 279.8 | 294.6 | 267.0 | 244.6 | 166.1 | 156.5 | 161.0 | 202.3 | 228.3 | 145.8 |
| 85° | 106.5 | 119.8 | 193.7 | 174.8 | 162.6 | 121.3 | 105.0 | 107.0 | 125.4 | 130.0 | 59.6 |
| 87.5° | 47.4 | 50.5 | 85.1 | 80.0 | 68.8 | 41.8 | 44.8 | 48.9 | 66.8 | 63.2 | 22.9 |
| 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: P362466
 CATALOG NUMBER: NVN-SA2C-750-U-AFL

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 | 3289.1 |
| 2.5° | 3292.1 | 3249.3 | 3176.0 | 3094.9 | 3028.7 | 2975.7 | 2922.2 | 2885.5 | 2842.7 | 2819.7 | 2808.0 |
| 5° | 3294.7 | 3210.6 | 3056.2 | 2897.7 | 2756.0 | 2626.6 | 2503.3 | 2408.5 | 2319.8 | 2271.9 | 2258.6 |
| 7.5° | 3305.4 | 3179.0 | 2929.3 | 2668.4 | 2416.6 | 2186.8 | 2009.4 | 1898.3 | 1818.3 | 1782.6 | 1772.5 |
| 10° | 3314.1 | 3141.8 | 2772.3 | 2386.0 | 2043.6 | 1810.7 | 1673.1 | 1610.9 | 1583.4 | 1578.8 | 1574.2 |
| 12.5° | 3334.4 | 3103.6 | 2607.2 | 2091.5 | 1753.6 | 1592.6 | 1544.7 | 1540.6 | 1548.2 | 1559.4 | 1559.4 |
| 15° | 3366.5 | 3065.9 | 2418.7 | 1838.7 | 1569.1 | 1512.6 | 1522.2 | 1544.7 | 1565.6 | 1582.9 | 1585.4 |
| 17.5° | 3390.0 | 3019.5 | 2215.8 | 1636.4 | 1470.8 | 1486.1 | 1520.7 | 1552.3 | 1573.7 | 1590.5 | 1592.1 |
| 20° | 3406.8 | 2947.6 | 1999.2 | 1482.0 | 1414.2 | 1461.6 | 1504.9 | 1532.9 | 1547.7 | 1564.5 | 1567.1 |
| 22.5° | 3398.1 | 2851.3 | 1807.1 | 1371.4 | 1368.3 | 1425.9 | 1467.2 | 1500.8 | 1489.6 | 1473.3 | 1484.0 |
| 25° | 3356.4 | 2718.8 | 1609.4 | 1288.8 | 1319.9 | 1378.0 | 1429.0 | 1406.6 | 1368.8 | 1361.7 | 1365.8 |
| 27.5° | 3282.0 | 2549.6 | 1426.4 | 1212.4 | 1263.9 | 1333.7 | 1330.6 | 1308.2 | 1294.9 | 1285.8 | 1291.4 |
| 30° | 3201.9 | 2366.2 | 1266.4 | 1145.6 | 1201.7 | 1259.3 | 1247.5 | 1247.0 | 1233.8 | 1219.0 | 1226.1 |
| 32.5° | 3122.9 | 2181.7 | 1139.5 | 1090.6 | 1154.8 | 1162.4 | 1187.9 | 1195.6 | 1169.6 | 1138.5 | 1136.5 |
| 35° | 3054.2 | 2007.4 | 1043.2 | 1040.6 | 1098.2 | 1099.2 | 1136.5 | 1125.7 | 1061.0 | 1028.9 | 1028.9 |
| 37.5° | 3002.7 | 1833.6 | 969.8 | 995.8 | 1023.8 | 1050.3 | 1069.2 | 1024.8 | 1014.1 | 996.3 | 995.8 |
| 40° | 2980.3 | 1680.7 | 923.9 | 961.7 | 971.3 | 1005.0 | 956.6 | 973.9 | 979.0 | 969.8 | 969.8 |
| 42.5° | 2956.8 | 1547.7 | 884.2 | 935.7 | 934.1 | 929.5 | 905.1 | 927.5 | 947.9 | 948.4 | 946.9 |
| 45° | 2933.4 | 1433.1 | 849.0 | 880.1 | 901.5 | 852.1 | 856.7 | 880.6 | 909.2 | 919.4 | 919.4 |
| 47.5° | 2907.4 | 1342.3 | 816.9 | 821.5 | 854.6 | 821.5 | 817.9 | 836.3 | 869.9 | 886.2 | 889.8 |
| 50° | 2850.3 | 1260.8 | 780.2 | 770.0 | 779.2 | 790.4 | 793.5 | 802.1 | 839.3 | 865.3 | 871.4 |
| 52.5° | 2771.3 | 1187.9 | 733.3 | 722.6 | 722.6 | 764.9 | 779.2 | 781.8 | 813.4 | 844.4 | 850.6 |
| 55° | 2705.6 | 1141.5 | 684.9 | 682.9 | 680.9 | 737.9 | 762.4 | 766.5 | 788.4 | 812.8 | 815.9 |
| 57° | 2710.2 | 1138.0 | 647.7 | 649.8 | 649.3 | 710.4 | 746.6 | 755.3 | 766.5 | 787.4 | 790.9 |
| 57.5° | 2712.7 | 1140.5 | 639.6 | 640.6 | 640.1 | 702.8 | 742.0 | 751.7 | 760.4 | 782.3 | 785.8 |
| 60° | 2750.9 | 1147.2 | 606.4 | 595.2 | 597.8 | 662.0 | 716.0 | 728.2 | 733.9 | 762.9 | 767.5 |
| 62.5° | 2694.4 | 1117.6 | 579.9 | 552.9 | 552.9 | 619.2 | 679.8 | 699.2 | 707.9 | 747.1 | 754.7 |
| 65° | 2530.3 | 1034.5 | 548.9 | 505.0 | 510.1 | 576.4 | 636.5 | 668.1 | 681.4 | 730.3 | 738.4 |
| 67.5° | 2277.0 | 938.2 | 515.7 | 462.2 | 467.3 | 531.5 | 591.7 | 625.8 | 646.7 | 711.9 | 718.6 |
| 70° | 1947.3 | 820.5 | 470.9 | 416.9 | 423.0 | 482.6 | 538.7 | 577.4 | 608.5 | 694.6 | 696.7 |
| 72.5° | 1435.6 | 672.7 | 408.2 | 366.9 | 373.6 | 425.5 | 485.2 | 530.0 | 571.8 | 651.3 | 650.3 |
| 75° | 853.6 | 525.9 | 338.9 | 316.5 | 321.1 | 369.5 | 436.7 | 491.3 | 554.0 | 634.5 | 644.2 |
| 77.5° | 517.8 | 396.0 | 276.2 | 265.0 | 270.6 | 320.0 | 402.1 | 460.2 | 546.3 | 598.3 | 595.2 |
| 80° | 312.9 | 282.8 | 220.7 | 213.5 | 219.1 | 273.7 | 372.0 | 436.7 | 477.5 | 511.1 | 511.1 |
| 82.5° | 163.6 | 172.8 | 162.1 | 156.5 | 164.1 | 222.2 | 338.4 | 381.2 | 422.0 | 362.3 | 338.4 |
| 85° | 66.8 | 90.2 | 98.4 | 97.8 | 102.4 | 153.9 | 292.0 | 326.2 | 272.1 | 258.4 | 264.5 |
| 87.5° | 22.4 | 38.2 | 47.9 | 41.3 | 43.3 | 96.8 | 202.3 | 157.5 | 187.0 | 130.5 | 123.8 |
| 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

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 |

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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

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

Photopic Flux vs. Wavelength



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 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



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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)