

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: P362471

Luminaire Tested: NVN-SA1D-750-U-AFL

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P362471
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-SA1D-750-U-AFL
Description: NAVION ROADWAY AND AREA LUMINAIRE
(1) 70 CRI, 5000K, 1200mA LIGHTSQUARE WITH 16 LEDS AND AUTOMOTIVE FRONTLINE OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8159 lumens
Efficiency: N/A
Efficacy: 121.8 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G1

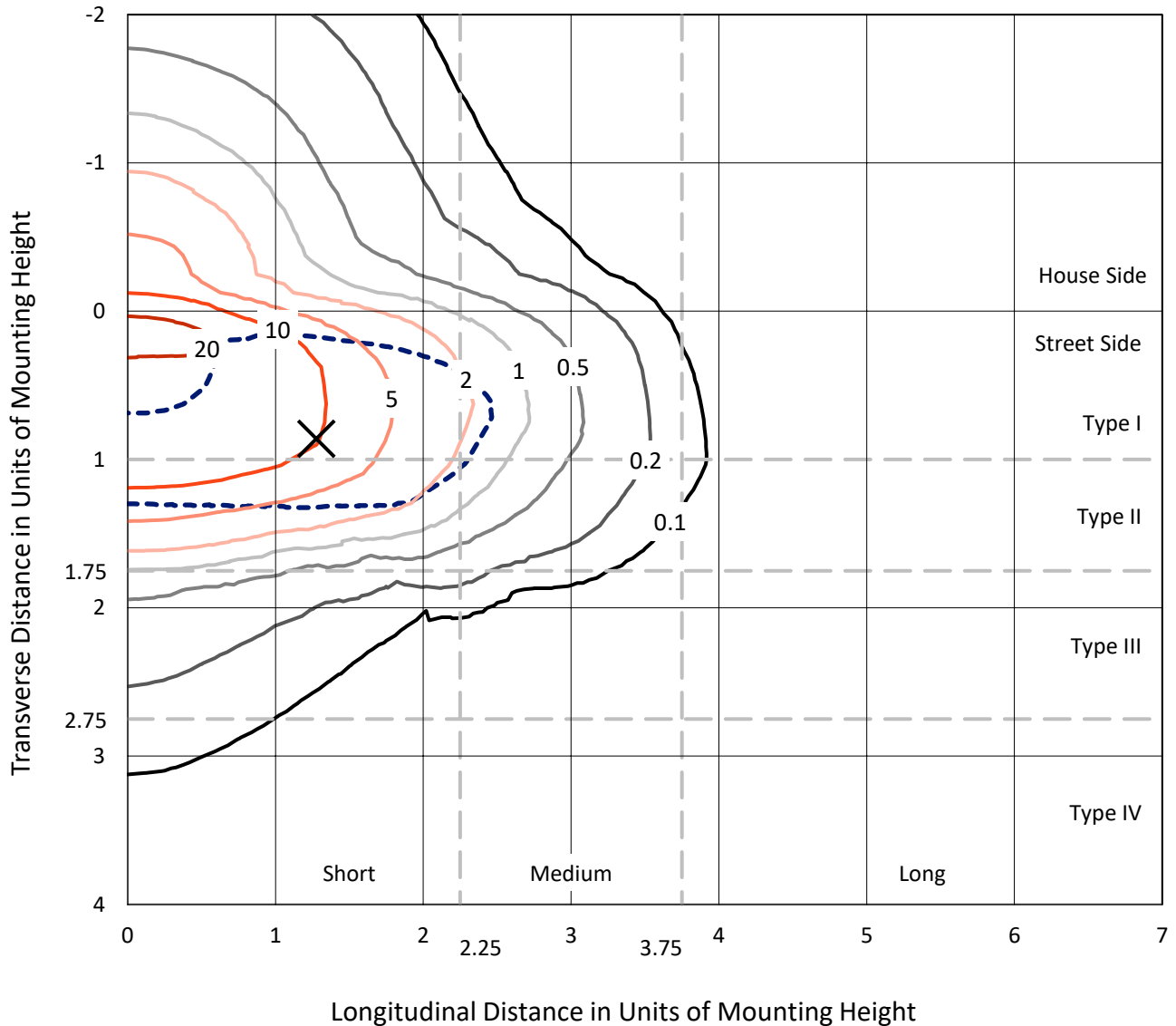
Input Watts (W): 67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P362471
 CATALOG NUMBER: NVN-SA1D-750-U-AFL

Iso-Footcandle Lines of Horizontal Illumination

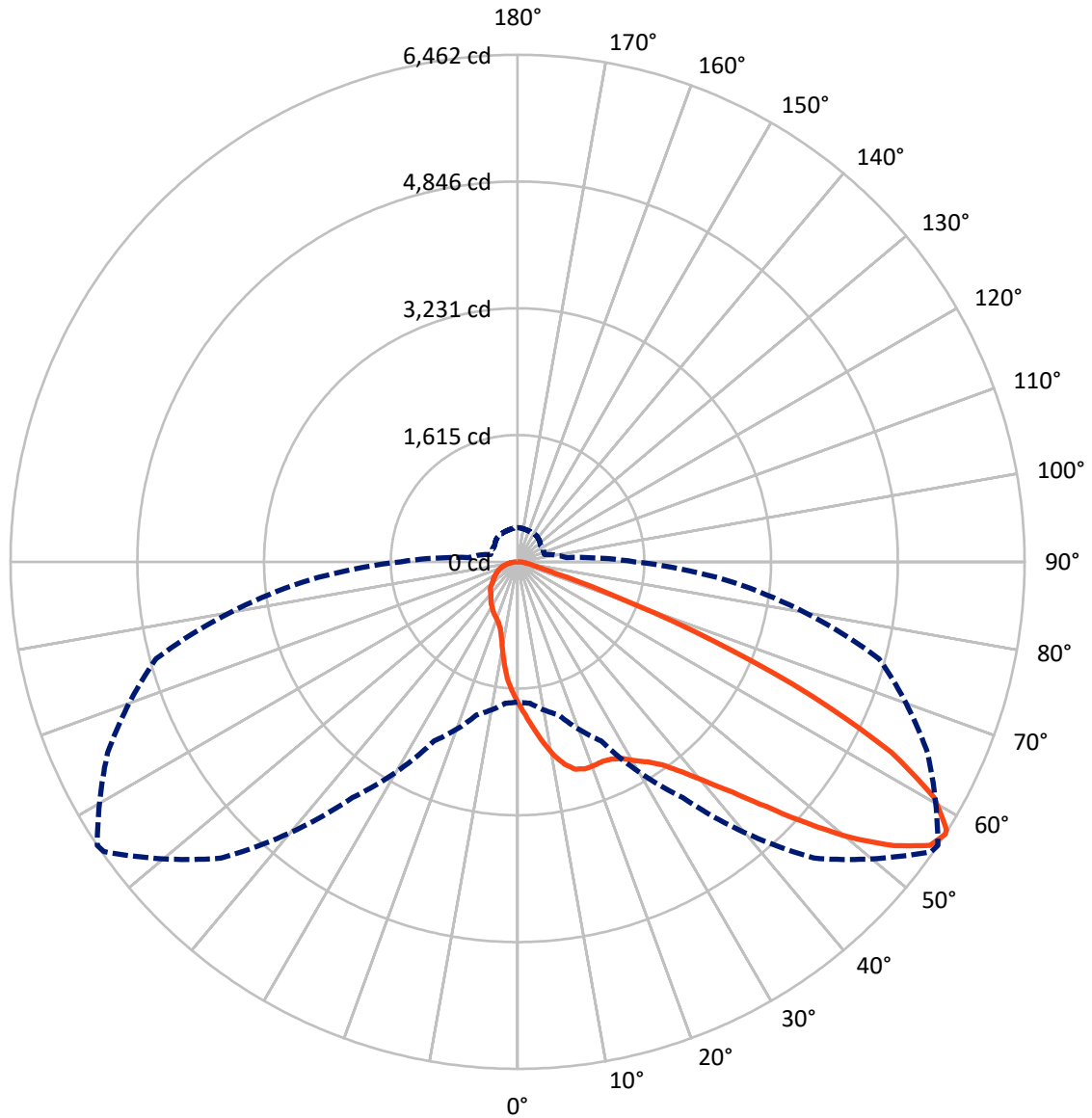
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 25.1 fc
 Type II - Short - N/A

REPORT NUMBER: P362471
CATALOG NUMBER: NVN-SA1D-750-U-AFL

Luminous Intensity Polar Plot



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

REPORT NUMBER: P362471
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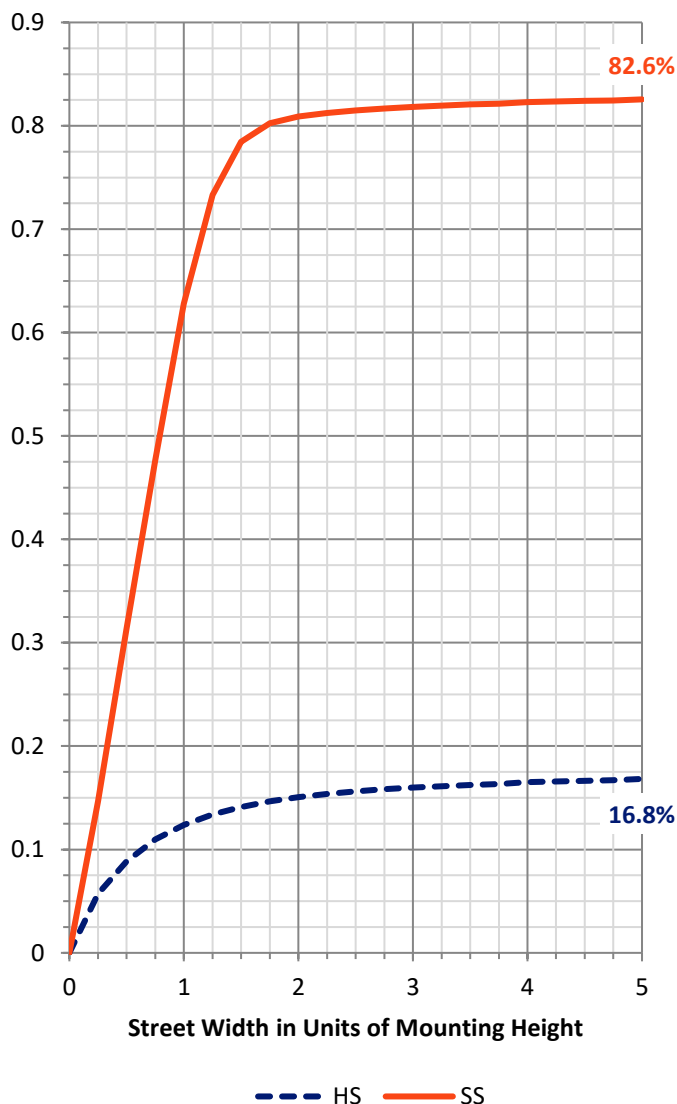
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1406.4 | 0.0 | 1406.4 |
| | % Fixture | 17.2 | 0.0 | 17.2 |
| Street Side | Lumens | 6752.6 | 0.0 | 6752.6 |
| | % Fixture | 82.8 | 0.0 | 82.8 |
| Total | Lumens | 8159.0 | 0.0 | 8159.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 172.9 | 2.1 |
| 10°-20° | 488.7 | 6.0 |
| 20°-30° | 796.1 | 9.8 |
| 30°-40° | 1190.0 | 14.6 |
| 40°-50° | 1805.0 | 22.1 |
| 50°-60° | 2023.1 | 24.8 |
| 60°-70° | 1194.9 | 14.6 |
| 70°-80° | 391.5 | 4.8 |
| 80°-90° | 96.7 | 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° | 8159.0 | 100.0 |
| 0°-180° | 8159.0 | 100.0 |

Coefficient of Utilization

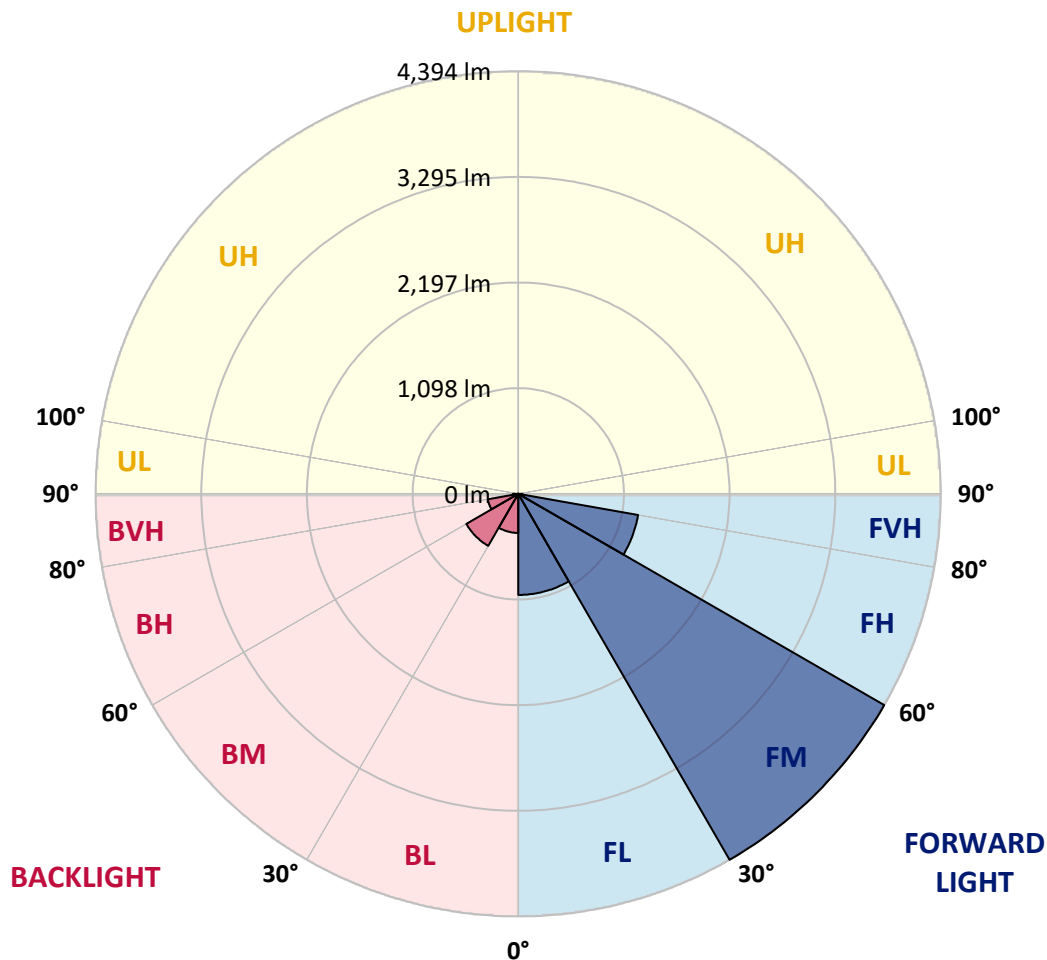


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 CATALOG NUMBER: NVN-SA1D-750-U-AFL

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1051.0 | 12.9 | | | |
| FM (30°-60°) | 4393.9 | 53.9 | | | |
| FH (60°-80°) | 1265.1 | 15.5 | | | G1/1800 |
| FVH (80°-90°) | 42.6 | 0.5 | | | G1/100 |
| BL (0°-30°) | 406.7 | 5.0 | B1/500 | | |
| BM (30°-60°) | 624.3 | 7.7 | B1/1000 | | |
| BH (60°-80°) | 321.4 | 3.9 | B1/500 | | G1/500 |
| BVH (80°-90°) | 54.1 | 0.7 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 56° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 |
| 2.5° | 2078.0 | 2097.1 | 2088.7 | 2059.5 | 2037.1 | 2005.4 | 1970.1 | 1959.4 | 1922.1 | 1880.3 | 1830.1 |
| 5° | 2406.9 | 2397.4 | 2383.6 | 2338.2 | 2290.3 | 2234.5 | 2145.9 | 2131.8 | 2048.9 | 1954.4 | 1854.5 |
| 7.5° | 2594.2 | 2593.4 | 2585.2 | 2558.6 | 2514.9 | 2442.0 | 2335.1 | 2318.6 | 2193.3 | 2041.3 | 1886.5 |
| 10° | 2567.0 | 2565.1 | 2578.5 | 2606.3 | 2619.5 | 2604.3 | 2514.3 | 2497.8 | 2343.8 | 2137.5 | 1923.5 |
| 12.5° | 2412.5 | 2413.6 | 2435.2 | 2493.6 | 2572.9 | 2668.2 | 2653.7 | 2645.5 | 2500.0 | 2246.2 | 1968.4 |
| 15° | 2292.2 | 2294.8 | 2311.9 | 2362.6 | 2456.3 | 2629.3 | 2738.3 | 2741.1 | 2651.1 | 2366.3 | 2020.8 |
| 17.5° | 2239.5 | 2244.8 | 2252.7 | 2288.3 | 2374.1 | 2551.6 | 2758.5 | 2773.7 | 2783.5 | 2490.8 | 2071.3 |
| 20° | 2256.3 | 2261.4 | 2263.6 | 2286.3 | 2356.7 | 2504.5 | 2744.5 | 2771.7 | 2885.0 | 2608.0 | 2121.8 |
| 22.5° | 2331.8 | 2334.9 | 2336.3 | 2342.1 | 2396.8 | 2518.0 | 2735.3 | 2763.9 | 2958.5 | 2713.1 | 2159.9 |
| 25° | 2456.8 | 2454.6 | 2445.6 | 2438.0 | 2474.8 | 2571.2 | 2756.6 | 2783.8 | 3018.2 | 2808.4 | 2184.8 |
| 27.5° | 2606.6 | 2603.8 | 2586.4 | 2565.6 | 2586.7 | 2654.2 | 2818.0 | 2839.6 | 3071.7 | 2897.6 | 2197.5 |
| 30° | 2786.3 | 2779.0 | 2746.2 | 2721.5 | 2729.7 | 2778.7 | 2919.2 | 2938.8 | 3154.5 | 2998.8 | 2209.8 |
| 32.5° | 2994.1 | 2986.2 | 2938.8 | 2897.9 | 2897.9 | 2938.8 | 3023.5 | 3039.8 | 3224.6 | 3113.2 | 2229.7 |
| 35° | 3254.3 | 3244.5 | 3182.8 | 3114.1 | 3094.7 | 3115.5 | 3165.7 | 3177.2 | 3350.7 | 3257.4 | 2265.9 |
| 37.5° | 3561.0 | 3547.8 | 3467.9 | 3376.0 | 3333.6 | 3332.5 | 3368.7 | 3392.2 | 3552.3 | 3446.6 | 2327.3 |
| 40° | 3868.6 | 3859.4 | 3789.5 | 3717.2 | 3634.2 | 3607.6 | 3663.4 | 3670.7 | 3815.9 | 3681.6 | 2405.8 |
| 42.5° | 4106.4 | 4104.7 | 4091.8 | 4101.3 | 4016.4 | 3962.6 | 4006.3 | 4012.2 | 4137.8 | 3935.9 | 2489.4 |
| 45° | 4232.0 | 4234.8 | 4297.3 | 4435.9 | 4467.3 | 4428.0 | 4449.6 | 4451.3 | 4505.7 | 4192.5 | 2565.9 |
| 47.5° | 4131.3 | 4145.9 | 4304.1 | 4613.9 | 4871.0 | 5001.4 | 4965.5 | 4986.3 | 4862.3 | 4412.9 | 2625.9 |
| 50° | 3739.1 | 3757.0 | 4026.2 | 4534.6 | 5059.5 | 5556.3 | 5537.5 | 5532.8 | 5150.0 | 4574.4 | 2658.4 |
| 52.5° | 3253.2 | 3267.2 | 3489.2 | 4122.1 | 4921.2 | 5863.1 | 6035.5 | 6010.8 | 5405.7 | 4695.2 | 2664.6 |
| 55° | 2513.2 | 2535.1 | 2747.9 | 3298.9 | 4362.1 | 5745.9 | 6401.7 | 6379.6 | 5638.8 | 4758.6 | 2657.3 |
| 57° | 1786.7 | 1809.7 | 2021.1 | 2517.7 | 3669.5 | 5340.1 | 6438.2 | 6461.7 | 5764.7 | 4769.2 | 2665.4 |
| 57.5° | 1594.3 | 1617.9 | 1827.3 | 2309.6 | 3453.6 | 5193.5 | 6406.8 | 6446.0 | 5787.4 | 4767.6 | 2669.9 |
| 60° | 802.8 | 811.7 | 945.2 | 1289.3 | 2183.2 | 4198.6 | 5997.1 | 6098.3 | 5807.8 | 4685.1 | 2689.3 |
| 62.5° | 499.1 | 492.7 | 488.4 | 593.9 | 1062.1 | 2784.3 | 5151.7 | 5346.6 | 5416.1 | 4485.5 | 2642.4 |
| 65° | 438.8 | 426.8 | 380.5 | 372.1 | 469.1 | 1352.3 | 3879.6 | 4122.1 | 4579.1 | 4170.9 | 2530.9 |
| 67.5° | 412.2 | 400.4 | 348.3 | 316.8 | 317.1 | 536.1 | 2408.6 | 2681.7 | 3567.2 | 3639.0 | 2267.6 |
| 70° | 384.7 | 374.0 | 325.3 | 288.2 | 270.0 | 296.9 | 1108.1 | 1315.3 | 2325.3 | 2860.3 | 1895.2 |
| 72.5° | 349.4 | 342.1 | 295.8 | 257.7 | 238.3 | 222.4 | 424.2 | 501.1 | 1346.2 | 1921.0 | 1316.2 |
| 75° | 312.4 | 305.6 | 266.1 | 229.6 | 206.1 | 175.0 | 238.9 | 257.4 | 683.9 | 982.8 | 648.0 |
| 77.5° | 271.7 | 267.8 | 236.7 | 203.0 | 184.2 | 145.0 | 169.1 | 178.1 | 293.3 | 421.4 | 325.0 |
| 80° | 216.2 | 223.8 | 206.9 | 180.9 | 163.5 | 116.1 | 119.7 | 125.6 | 170.8 | 205.8 | 184.5 |
| 82.5° | 140.8 | 153.9 | 162.1 | 146.9 | 134.6 | 91.4 | 86.1 | 88.6 | 111.3 | 125.6 | 80.2 |
| 85° | 58.6 | 65.9 | 106.6 | 96.2 | 89.4 | 66.7 | 57.8 | 58.9 | 69.0 | 71.5 | 32.8 |
| 87.5° | 26.1 | 27.8 | 46.8 | 44.0 | 37.9 | 23.0 | 24.7 | 26.9 | 36.7 | 34.8 | 12.6 |
| 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: P362471
 CATALOG NUMBER: NVN-SA1D-750-U-AFL

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 | 1809.7 |
| 2.5° | 1811.4 | 1787.8 | 1747.4 | 1702.8 | 1666.4 | 1637.2 | 1607.8 | 1587.6 | 1564.0 | 1551.4 | 1545.0 |
| 5° | 1812.8 | 1766.5 | 1681.5 | 1594.3 | 1516.4 | 1445.2 | 1377.3 | 1325.1 | 1276.4 | 1250.0 | 1242.7 |
| 7.5° | 1818.6 | 1749.1 | 1611.7 | 1468.2 | 1329.6 | 1203.2 | 1105.6 | 1044.5 | 1000.5 | 980.8 | 975.2 |
| 10° | 1823.4 | 1728.6 | 1525.4 | 1312.8 | 1124.4 | 996.2 | 920.5 | 886.3 | 871.2 | 868.7 | 866.1 |
| 12.5° | 1834.6 | 1707.6 | 1434.5 | 1150.7 | 964.8 | 876.2 | 849.9 | 847.6 | 851.8 | 858.0 | 858.0 |
| 15° | 1852.3 | 1686.9 | 1330.8 | 1011.7 | 863.3 | 832.2 | 837.5 | 849.9 | 861.4 | 870.9 | 872.3 |
| 17.5° | 1865.2 | 1661.3 | 1219.2 | 900.4 | 809.2 | 817.6 | 836.7 | 854.1 | 865.9 | 875.1 | 876.0 |
| 20° | 1874.4 | 1621.8 | 1100.0 | 815.4 | 778.1 | 804.2 | 828.0 | 843.4 | 851.6 | 860.8 | 862.2 |
| 22.5° | 1869.7 | 1568.8 | 994.3 | 754.5 | 752.9 | 784.5 | 807.3 | 825.8 | 819.6 | 810.6 | 816.5 |
| 25° | 1846.7 | 1495.9 | 885.5 | 709.1 | 726.2 | 758.2 | 786.2 | 773.9 | 753.1 | 749.2 | 751.5 |
| 27.5° | 1805.7 | 1402.8 | 784.8 | 667.1 | 695.4 | 733.8 | 732.1 | 719.8 | 712.5 | 707.4 | 710.5 |
| 30° | 1761.7 | 1301.9 | 696.8 | 630.3 | 661.2 | 692.9 | 686.4 | 686.1 | 678.8 | 670.7 | 674.6 |
| 32.5° | 1718.3 | 1200.4 | 627.0 | 600.0 | 635.4 | 639.6 | 653.6 | 657.8 | 643.5 | 626.4 | 625.3 |
| 35° | 1680.4 | 1104.5 | 574.0 | 572.6 | 604.3 | 604.8 | 625.3 | 619.4 | 583.8 | 566.1 | 566.1 |
| 37.5° | 1652.1 | 1008.9 | 533.6 | 547.9 | 563.3 | 577.9 | 588.3 | 563.9 | 558.0 | 548.2 | 547.9 |
| 40° | 1639.8 | 924.7 | 508.4 | 529.1 | 534.4 | 552.9 | 526.3 | 535.8 | 538.6 | 533.6 | 533.6 |
| 42.5° | 1626.9 | 851.6 | 486.5 | 514.8 | 514.0 | 511.4 | 498.0 | 510.3 | 521.5 | 521.8 | 521.0 |
| 45° | 1614.0 | 788.5 | 467.1 | 484.2 | 496.0 | 468.8 | 471.3 | 484.5 | 500.2 | 505.8 | 505.8 |
| 47.5° | 1599.7 | 738.6 | 449.5 | 452.0 | 470.2 | 452.0 | 450.0 | 460.1 | 478.6 | 487.6 | 489.6 |
| 50° | 1568.3 | 693.7 | 429.3 | 423.7 | 428.7 | 434.9 | 436.6 | 441.3 | 461.8 | 476.1 | 479.5 |
| 52.5° | 1524.8 | 653.6 | 403.5 | 397.6 | 397.6 | 420.9 | 428.7 | 430.1 | 447.5 | 464.6 | 468.0 |
| 55° | 1488.6 | 628.1 | 376.9 | 375.7 | 374.6 | 406.0 | 419.5 | 421.7 | 433.8 | 447.2 | 448.9 |
| 57° | 1491.1 | 626.1 | 356.4 | 357.5 | 357.2 | 390.9 | 410.8 | 415.5 | 421.7 | 433.2 | 435.2 |
| 57.5° | 1492.5 | 627.5 | 351.9 | 352.5 | 352.2 | 386.7 | 408.3 | 413.6 | 418.4 | 430.4 | 432.4 |
| 60° | 1513.6 | 631.2 | 333.7 | 327.5 | 328.9 | 364.2 | 394.0 | 400.7 | 403.8 | 419.8 | 422.3 |
| 62.5° | 1482.5 | 614.9 | 319.1 | 304.2 | 304.2 | 340.7 | 374.0 | 384.7 | 389.5 | 411.1 | 415.3 |
| 65° | 1392.2 | 569.2 | 302.0 | 277.9 | 280.7 | 317.1 | 350.2 | 367.6 | 374.9 | 401.8 | 406.3 |
| 67.5° | 1252.8 | 516.2 | 283.8 | 254.3 | 257.1 | 292.5 | 325.5 | 344.3 | 355.8 | 391.7 | 395.4 |
| 70° | 1071.4 | 451.4 | 259.1 | 229.4 | 232.7 | 265.5 | 296.4 | 317.7 | 334.8 | 382.2 | 383.3 |
| 72.5° | 789.9 | 370.1 | 224.6 | 201.9 | 205.5 | 234.1 | 266.9 | 291.6 | 314.6 | 358.3 | 357.8 |
| 75° | 469.7 | 289.4 | 186.5 | 174.1 | 176.6 | 203.3 | 240.3 | 270.3 | 304.8 | 349.1 | 354.4 |
| 77.5° | 284.9 | 217.9 | 152.0 | 145.8 | 148.9 | 176.1 | 221.2 | 253.2 | 300.6 | 329.2 | 327.5 |
| 80° | 172.2 | 155.6 | 121.4 | 117.5 | 120.6 | 150.6 | 204.7 | 240.3 | 262.7 | 281.2 | 281.2 |
| 82.5° | 90.0 | 95.1 | 89.2 | 86.1 | 90.3 | 122.3 | 186.2 | 209.7 | 232.2 | 199.4 | 186.2 |
| 85° | 36.7 | 49.6 | 54.1 | 53.8 | 56.4 | 84.7 | 160.7 | 179.5 | 149.7 | 142.2 | 145.5 |
| 87.5° | 12.3 | 21.0 | 26.4 | 22.7 | 23.8 | 53.3 | 111.3 | 86.6 | 102.9 | 71.8 | 68.1 |
| 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 |

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 (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



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)