

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: P361117

Luminaire Tested: NVN-SA3B-722-U-T3R

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P361117
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-10)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: STREETWORKS
Catalog Number: NVN-SA3B-722-U-T3R
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 70 CRI, 2200K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III
ROADWAY OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13004 lumens
Efficiency: N/A
Efficacy: 104.9 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type IV - Medium
BUG Rating: B2 - U0 - G2

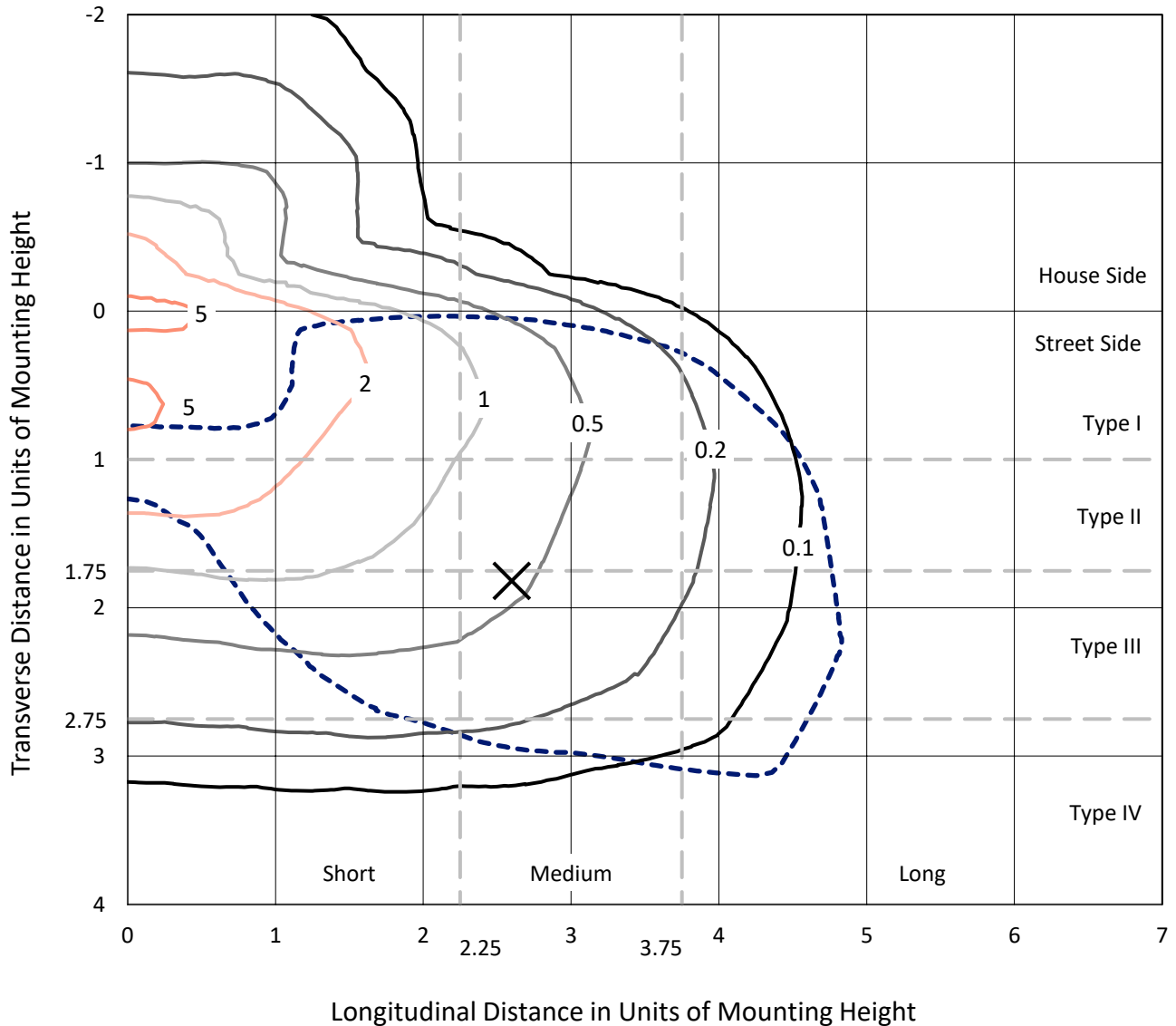
Input Watts (W): 124
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

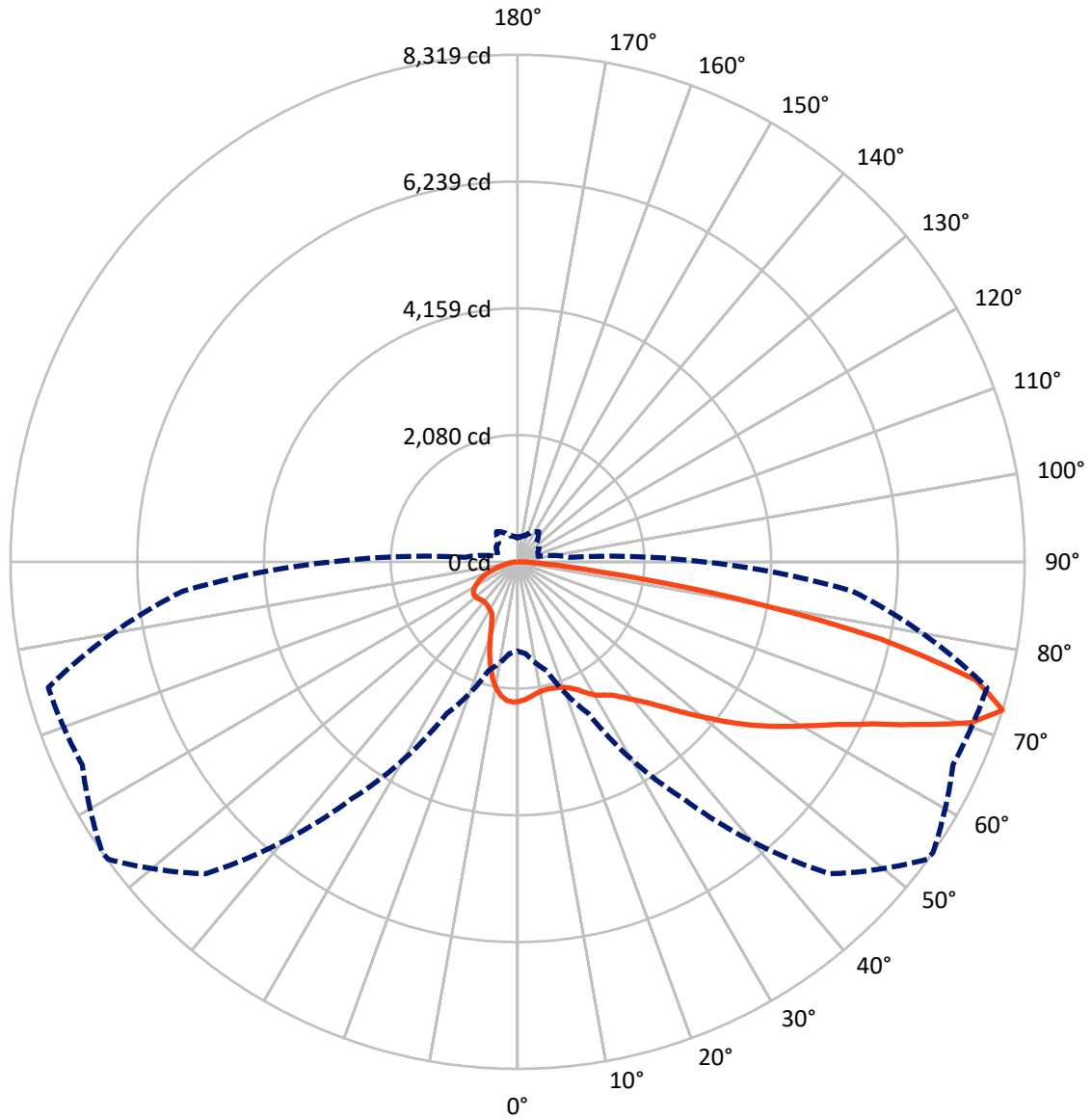
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 5.8 fc
 Type IV - Medium - N/A

REPORT NUMBER: P361117
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Luminous Intensity Polar Plot



— Vertical Plane Through 55-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

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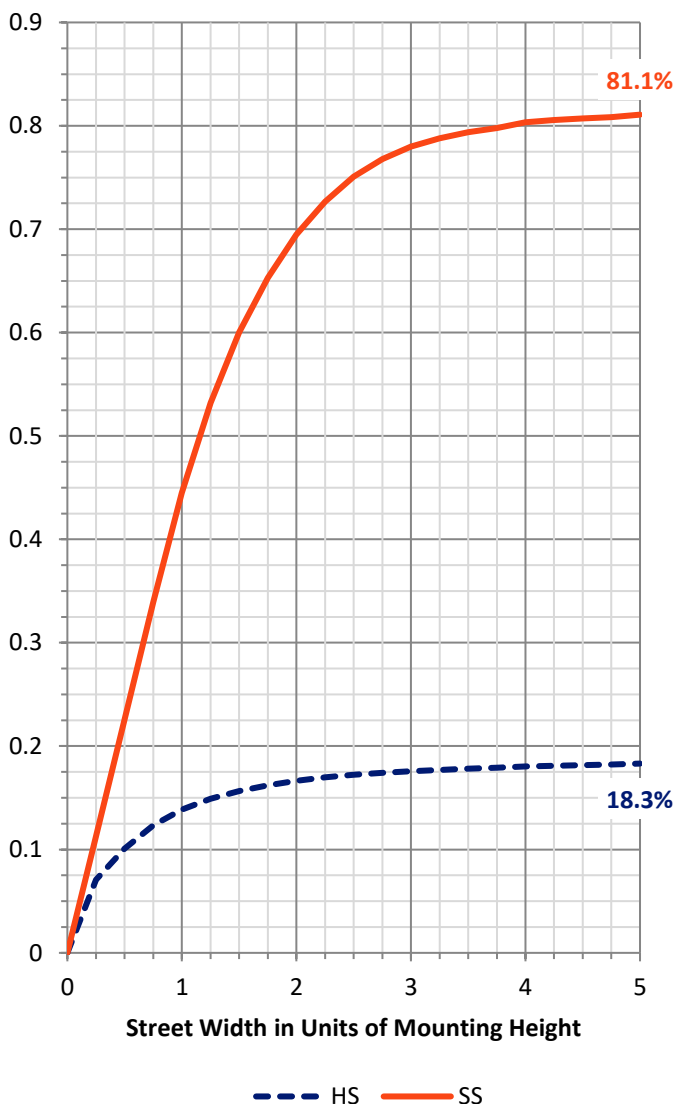
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2417.0 | 0.0 | 2417.0 |
| | % Fixture | 18.6 | 0.0 | 18.6 |
| Street Side | Lumens | 10587.0 | 0.0 | 10587.0 |
| | % Fixture | 81.4 | 0.0 | 81.4 |
| Total | Lumens | 13004.0 | 0.0 | 13004.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 207.5 | 1.6 |
| 10°-20° | 552.6 | 4.2 |
| 20°-30° | 911.0 | 7.0 |
| 30°-40° | 1347.7 | 10.4 |
| 40°-50° | 1881.0 | 14.5 |
| 50°-60° | 2449.2 | 18.8 |
| 60°-70° | 3010.0 | 23.1 |
| 70°-80° | 2359.5 | 18.1 |
| 80°-90° | 285.5 | 2.2 |
| 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° | 13004.0 | 100.0 |
| 0°-180° | 13004.0 | 100.0 |

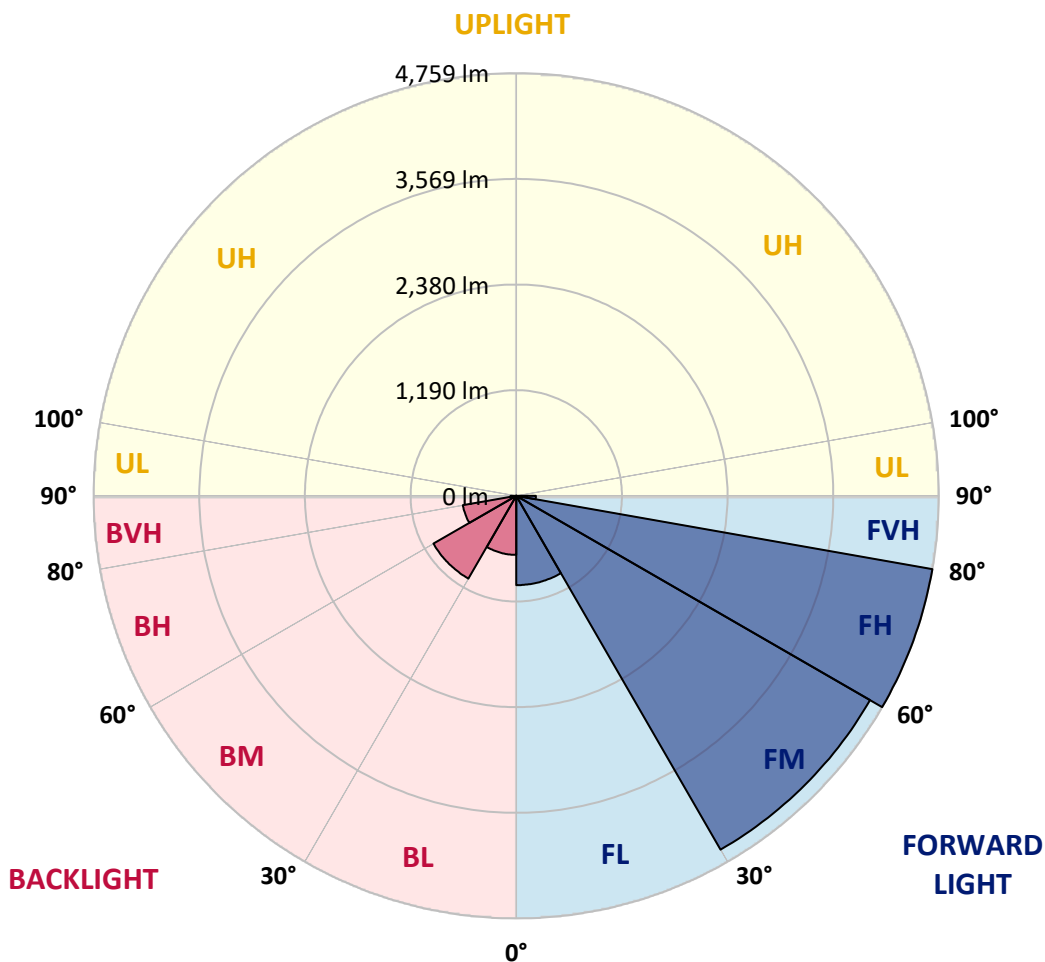


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1006.1 | 7.7 | | | |
| FM (30°-60°) | 4601.1 | 35.4 | | | |
| FH (60°-80°) | 4759.0 | 36.6 | | | G2/5000 |
| FVH (80°-90°) | 220.8 | 1.7 | | | G2/225 |
| BL (0°-30°) | 665.0 | 5.1 | B2/1000 | | |
| BM (30°-60°) | 1076.8 | 8.3 | B2/2500 | | |
| BH (60°-80°) | 610.4 | 4.7 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 64.8 | 0.5 | | | 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 IV Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 54° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 |
| 2.5° | 2219.0 | 2213.7 | 2220.3 | 2229.5 | 2239.6 | 2253.2 | 2261.1 | 2264.6 | 2278.3 | 2283.5 | 2294.9 |
| 5° | 2116.2 | 2113.5 | 2124.5 | 2140.3 | 2162.7 | 2194.4 | 2219.8 | 2224.7 | 2260.7 | 2286.2 | 2309.4 |
| 7.5° | 2041.5 | 2041.5 | 2054.2 | 2073.1 | 2098.2 | 2140.8 | 2176.8 | 2183.4 | 2244.4 | 2299.3 | 2342.4 |
| 10° | 1982.2 | 1984.4 | 1999.3 | 2021.7 | 2051.2 | 2096.4 | 2144.3 | 2151.8 | 2240.0 | 2330.1 | 2398.6 |
| 12.5° | 1942.7 | 1948.0 | 1961.6 | 1981.8 | 2018.2 | 2073.1 | 2133.7 | 2143.9 | 2249.3 | 2374.0 | 2466.2 |
| 15° | 1967.7 | 1976.5 | 1977.8 | 1986.2 | 2006.4 | 2066.1 | 2139.9 | 2150.4 | 2269.0 | 2418.8 | 2543.1 |
| 17.5° | 2077.5 | 2080.6 | 2067.0 | 2049.4 | 2039.8 | 2078.0 | 2158.3 | 2169.3 | 2292.7 | 2463.2 | 2616.9 |
| 20° | 2244.4 | 2242.7 | 2213.2 | 2165.8 | 2116.6 | 2122.8 | 2188.7 | 2200.1 | 2324.8 | 2502.3 | 2690.7 |
| 22.5° | 2455.3 | 2449.1 | 2403.9 | 2316.5 | 2232.6 | 2197.4 | 2241.8 | 2251.5 | 2373.1 | 2558.0 | 2769.7 |
| 25° | 2710.9 | 2697.3 | 2637.5 | 2520.3 | 2396.8 | 2306.4 | 2321.7 | 2331.0 | 2443.4 | 2620.4 | 2842.2 |
| 27.5° | 2980.6 | 2967.0 | 2891.0 | 2749.1 | 2584.8 | 2443.8 | 2432.0 | 2439.9 | 2523.3 | 2666.5 | 2895.8 |
| 30° | 3262.6 | 3248.1 | 3178.7 | 3019.7 | 2784.2 | 2586.1 | 2534.8 | 2537.8 | 2579.6 | 2691.6 | 2939.7 |
| 32.5° | 3545.9 | 3532.2 | 3454.5 | 3270.0 | 3000.8 | 2739.0 | 2609.0 | 2605.0 | 2613.4 | 2717.5 | 2989.4 |
| 35° | 3833.1 | 3838.4 | 3747.5 | 3543.2 | 3240.6 | 2909.0 | 2696.8 | 2688.5 | 2670.0 | 2770.6 | 3059.6 |
| 37.5° | 4140.6 | 4137.0 | 4019.3 | 3805.9 | 3491.4 | 3093.5 | 2822.9 | 2821.6 | 2757.9 | 2871.2 | 3169.9 |
| 40° | 4346.1 | 4348.3 | 4276.7 | 4074.7 | 3744.8 | 3297.7 | 2984.5 | 2981.5 | 2898.0 | 3021.9 | 3314.4 |
| 42.5° | 4426.5 | 4441.0 | 4459.4 | 4331.2 | 4010.1 | 3534.4 | 3177.3 | 3173.0 | 3093.5 | 3238.0 | 3484.4 |
| 45° | 4432.2 | 4461.2 | 4575.4 | 4559.1 | 4278.9 | 3805.4 | 3423.7 | 3411.4 | 3354.4 | 3525.2 | 3687.3 |
| 47.5° | 4383.0 | 4412.9 | 4602.6 | 4694.9 | 4519.2 | 4091.4 | 3711.9 | 3702.2 | 3653.0 | 3884.5 | 3906.9 |
| 50° | 4275.4 | 4304.0 | 4546.4 | 4761.2 | 4716.8 | 4366.3 | 4043.9 | 4018.5 | 3992.1 | 4299.6 | 4158.1 |
| 52.5° | 4073.8 | 4128.7 | 4471.3 | 4777.0 | 4835.0 | 4610.5 | 4393.1 | 4376.4 | 4390.9 | 4737.5 | 4409.8 |
| 55° | 3596.4 | 3657.9 | 4277.6 | 4763.8 | 4922.4 | 4815.6 | 4742.3 | 4741.4 | 4816.5 | 5196.9 | 4679.9 |
| 57.5° | 3328.9 | 3372.4 | 3883.2 | 4741.4 | 5026.0 | 5019.4 | 5088.0 | 5096.3 | 5242.6 | 5697.2 | 4962.8 |
| 60° | 3177.8 | 3223.5 | 3683.3 | 4658.4 | 5186.8 | 5283.0 | 5440.7 | 5457.4 | 5675.6 | 6251.0 | 5303.2 |
| 62.5° | 3040.3 | 3090.4 | 3559.5 | 4489.3 | 5376.1 | 5659.8 | 5863.2 | 5878.1 | 6134.2 | 6820.3 | 5632.2 |
| 65° | 2805.3 | 2862.0 | 3378.1 | 4378.2 | 5548.3 | 6151.3 | 6400.4 | 6410.5 | 6660.8 | 7416.7 | 5883.8 |
| 67.5° | 2473.3 | 2525.1 | 3035.9 | 4132.7 | 5675.6 | 6748.2 | 7114.5 | 7120.3 | 7183.1 | 7837.9 | 6012.5 |
| 70° | 2085.4 | 2105.2 | 2548.4 | 3625.8 | 5525.0 | 7306.5 | 7897.2 | 7898.6 | 7659.2 | 8107.6 | 5991.4 |
| 72.5° | 1465.3 | 1511.8 | 1850.0 | 2744.7 | 4748.0 | 7238.4 | 8303.5 | 8318.5 | 7880.6 | 7971.5 | 5512.7 |
| 75° | 898.7 | 947.8 | 1160.4 | 1663.3 | 3012.2 | 5692.8 | 7671.9 | 7775.6 | 7465.5 | 7107.5 | 4503.4 |
| 77.5° | 600.9 | 619.3 | 757.2 | 969.8 | 1364.7 | 3275.3 | 5898.3 | 6093.3 | 6201.8 | 5183.3 | 2880.0 |
| 80° | 335.1 | 370.3 | 502.0 | 602.6 | 607.0 | 1301.4 | 3536.6 | 3582.3 | 3450.5 | 2063.9 | 888.5 |
| 82.5° | 177.4 | 196.8 | 335.1 | 354.0 | 331.2 | 435.7 | 1318.1 | 1319.4 | 1102.5 | 553.4 | 264.0 |
| 85° | 137.5 | 153.7 | 229.7 | 216.1 | 169.1 | 193.3 | 434.8 | 458.5 | 375.1 | 226.6 | 86.1 |
| 87.5° | 68.5 | 85.2 | 155.9 | 137.0 | 66.3 | 55.3 | 155.5 | 166.0 | 148.0 | 88.7 | 31.2 |
| 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: P361117
 CATALOG NUMBER: NVN-SA3B-722-U-T3R

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 | 2293.6 |
| 2.5° | 2299.3 | 2303.3 | 2308.1 | 2302.8 | 2301.1 | 2294.1 | 2282.2 | 2279.6 | 2273.4 | 2273.9 | 2277.4 |
| 5° | 2319.5 | 2326.1 | 2323.5 | 2303.3 | 2279.1 | 2245.3 | 2210.2 | 2180.3 | 2160.5 | 2159.2 | 2157.9 |
| 7.5° | 2358.2 | 2362.6 | 2341.9 | 2284.4 | 2216.8 | 2138.6 | 2064.8 | 2000.2 | 1961.1 | 1951.5 | 1949.3 |
| 10° | 2418.8 | 2417.9 | 2361.3 | 2245.3 | 2110.5 | 1970.8 | 1852.2 | 1762.6 | 1710.3 | 1695.0 | 1691.0 |
| 12.5° | 2486.4 | 2476.3 | 2367.9 | 2174.2 | 1960.3 | 1766.6 | 1616.3 | 1516.6 | 1462.2 | 1444.6 | 1440.2 |
| 15° | 2556.3 | 2531.2 | 2351.6 | 2067.9 | 1775.8 | 1546.5 | 1388.8 | 1296.6 | 1267.2 | 1257.5 | 1255.7 |
| 17.5° | 2621.3 | 2573.0 | 2305.0 | 1923.8 | 1565.4 | 1327.3 | 1204.4 | 1167.5 | 1174.5 | 1187.2 | 1187.7 |
| 20° | 2685.0 | 2601.1 | 2230.4 | 1742.0 | 1343.6 | 1146.8 | 1105.1 | 1132.3 | 1165.7 | 1191.6 | 1195.1 |
| 22.5° | 2747.8 | 2620.8 | 2134.2 | 1532.0 | 1145.1 | 1045.4 | 1074.8 | 1124.4 | 1162.6 | 1190.7 | 1195.6 |
| 25° | 2800.5 | 2625.7 | 2001.5 | 1308.0 | 1007.1 | 1007.1 | 1060.3 | 1107.3 | 1145.1 | 1172.7 | 1177.6 |
| 27.5° | 2819.8 | 2593.2 | 1814.4 | 1100.7 | 937.7 | 989.6 | 1040.1 | 1079.2 | 1111.2 | 1140.7 | 1145.9 |
| 30° | 2827.3 | 2533.0 | 1598.3 | 934.2 | 909.2 | 970.7 | 1012.8 | 1046.2 | 1076.5 | 1104.2 | 1109.0 |
| 32.5° | 2828.6 | 2460.5 | 1369.1 | 839.8 | 889.4 | 950.9 | 979.0 | 1008.5 | 1041.0 | 1051.9 | 1053.7 |
| 35° | 2836.9 | 2374.9 | 1127.5 | 791.5 | 871.0 | 932.5 | 954.9 | 976.0 | 923.2 | 927.2 | 930.7 |
| 37.5° | 2861.1 | 2290.1 | 925.4 | 764.2 | 859.1 | 922.8 | 949.6 | 873.2 | 831.9 | 822.2 | 820.9 |
| 40° | 2906.3 | 2199.6 | 775.7 | 742.3 | 854.7 | 927.6 | 915.8 | 815.2 | 744.0 | 690.9 | 683.0 |
| 42.5° | 2969.2 | 2102.1 | 679.9 | 727.8 | 857.8 | 950.9 | 868.8 | 759.4 | 641.3 | 607.0 | 602.6 |
| 45° | 3039.9 | 1999.8 | 628.1 | 717.7 | 868.3 | 968.9 | 859.1 | 685.2 | 593.4 | 567.5 | 565.3 |
| 47.5° | 3108.4 | 1874.6 | 601.3 | 713.3 | 882.8 | 954.4 | 818.3 | 662.3 | 570.6 | 556.9 | 558.3 |
| 50° | 3187.0 | 1761.7 | 585.0 | 708.5 | 895.6 | 945.2 | 772.2 | 650.5 | 561.8 | 578.5 | 596.0 |
| 52.5° | 3253.3 | 1644.9 | 570.6 | 698.8 | 900.4 | 929.0 | 760.3 | 652.7 | 561.8 | 593.8 | 610.5 |
| 55° | 3332.0 | 1556.6 | 553.9 | 678.6 | 891.2 | 882.8 | 752.0 | 665.9 | 568.4 | 548.2 | 549.9 |
| 57.5° | 3433.4 | 1527.6 | 535.4 | 647.0 | 860.4 | 815.6 | 748.0 | 678.6 | 564.4 | 551.7 | 556.1 |
| 60° | 3574.0 | 1558.4 | 527.9 | 605.7 | 812.6 | 762.9 | 748.4 | 672.0 | 536.7 | 514.8 | 515.2 |
| 62.5° | 3707.9 | 1592.6 | 527.5 | 579.8 | 753.7 | 715.9 | 738.3 | 650.5 | 522.7 | 509.9 | 514.8 |
| 65° | 3751.8 | 1557.9 | 506.4 | 550.8 | 687.4 | 659.7 | 719.9 | 627.7 | 512.1 | 492.8 | 491.9 |
| 67.5° | 3693.0 | 1450.3 | 463.8 | 503.8 | 611.4 | 594.3 | 695.7 | 600.4 | 495.4 | 479.6 | 477.0 |
| 70° | 3518.2 | 1210.1 | 411.1 | 441.9 | 524.9 | 520.5 | 657.5 | 568.8 | 473.0 | 459.4 | 448.0 |
| 72.5° | 3047.8 | 862.2 | 346.5 | 367.6 | 427.4 | 441.4 | 604.8 | 527.5 | 441.4 | 412.0 | 394.4 |
| 75° | 2503.1 | 638.2 | 284.6 | 289.0 | 324.6 | 362.8 | 532.3 | 479.2 | 404.1 | 354.0 | 340.4 |
| 77.5° | 1532.9 | 390.5 | 226.6 | 228.4 | 232.8 | 289.4 | 438.3 | 425.2 | 356.6 | 295.2 | 285.5 |
| 80° | 496.3 | 213.0 | 163.8 | 172.2 | 159.0 | 212.1 | 339.1 | 361.9 | 306.1 | 246.8 | 236.3 |
| 82.5° | 188.9 | 124.3 | 110.7 | 116.4 | 110.2 | 142.3 | 247.3 | 289.9 | 250.8 | 202.9 | 165.1 |
| 85° | 91.4 | 70.3 | 65.4 | 73.4 | 68.1 | 72.9 | 158.1 | 213.5 | 190.2 | 132.2 | 123.0 |
| 87.5° | 32.5 | 31.2 | 25.0 | 33.8 | 29.0 | 25.9 | 48.3 | 107.6 | 125.6 | 90.9 | 81.3 |
| 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: SP1-1908-441-10-R4

Test Date: 10/25/2019

Luminaire Tested: SA1C-722-U-5WQ

Data in this report applies to families of products SA1C-722-U-5WQ.

Test Information

Test Method: LM-79-2008 Report
 Number: SP1-1908-441-10-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-722-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): 2237
 CIE u': 0.2876
 CIE v': 0.5346
 Duv: -0.0006
 CIE x: 0.5005
 CIE y: 0.4134
 CIE z: 0.0860
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 587
 Purity: 74.5
 Rf: 69.8
 Rg: 99.2

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 72.0 | | |
| R1: | 68.9 | R9: | -17.4 |
| R2: | 83.0 | R10: | 61.3 |
| R3: | 95.2 | R11: | 59.8 |
| R4: | 66.2 | R12: | 50.5 |
| R5: | 65.9 | R13: | 71.1 |
| R6: | 76.3 | R14: | 96.9 |
| R7: | 76.7 | | |
| R8: | 43.8 | | |



Test Conditions
 Stabilization Time: 71M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.7/41%
 Sphere Temperature (°C): 25.6

REPORT NUMBER: SP1-1908-441-10-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: SP1-1908-441-10-R4

CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2200K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-10-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 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

REPORT NUMBER: SP1-1908-441-10-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 4696.9

S/P: 0.85

| 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 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

REPORT NUMBER: SP1-1908-441-10-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 1470.8 M/P: 0.27

| 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 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

REPORT NUMBER: SP1-1908-441-10-R4

TM-30-18

Summary

$R_f = 69.8$
 $R_g = 99.2$
 $CIE R_a = 72.0$
 $R_9 = -17.4$



Color Vector Graphics



REPORT NUMBER: SP1-1908-441-10-R4

TM-30-18

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

| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 48 | CES55 = 75 | CES80 = 84 |
| CES06 = 52 | CES31 = 51 | CES56 = 65 | CES81 = 63 |
| CES07 = 44 | CES32 = 51 | CES57 = 62 | CES82 = 92 |
| CES08 = 42 | CES33 = 53 | CES58 = 66 | CES83 = 83 |
| CES09 = 29 | CES34 = 70 | CES59 = 84 | CES84 = 92 |
| CES10 = 78 | CES35 = 85 | CES60 = 90 | CES85 = 81 |
| CES11 = 61 | CES36 = 78 | CES61 = 84 | CES86 = 56 |
| CES12 = 68 | CES37 = 80 | CES62 = 70 | CES87 = 78 |
| CES13 = 45 | CES38 = 53 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 84 | CES65 = 67 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 90 |
| CES17 = 51 | CES42 = 79 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 64 | CES68 = 69 | CES93 = 79 |
| CES19 = 74 | CES44 = 98 | CES69 = 80 | CES94 = 52 |
| CES20 = 68 | CES45 = 73 | CES70 = 63 | CES95 = 76 |
| CES21 = 89 | CES46 = 67 | CES71 = 63 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 87 | CES97 = 77 |
| CES23 = 92 | CES48 = 48 | CES73 = 56 | CES98 = 71 |
| CES24 = 92 | CES49 = 64 | CES74 = 87 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 | |



REPORT NUMBER: SP1-1908-441-10-R4

TM-30-18

Color Rendition by Hue-Angle Bin



REPORT NUMBER: SP1-1908-441-10-R4

TM-30-18

Measure Comparisons



(END OF REPORT)