

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: P361742

Luminaire Tested: NVN-SA4B-750-U-SL2

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P361742
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: STREETWORKS
Catalog Number: NVN-SA4B-750-U-SL2
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 5000K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL
LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 22962 lumens
Efficiency: N/A
Efficacy: 134.3 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B3 - U0 - G4

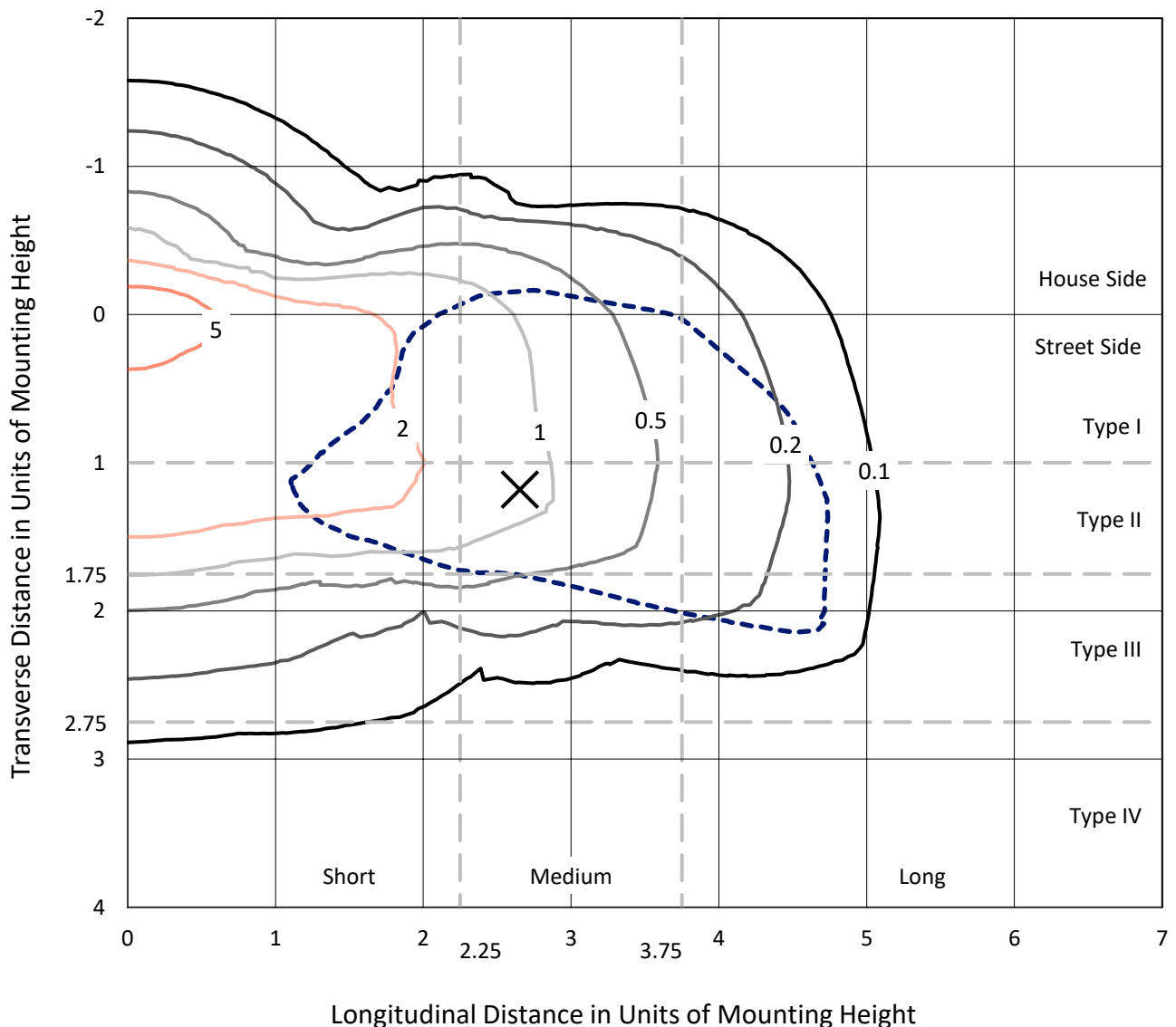
Input Watts (W): 171
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P361742
 CATALOG NUMBER: NVN-SA4B-750-U-SL2

Iso-Footcandle Lines of Horizontal Illumination

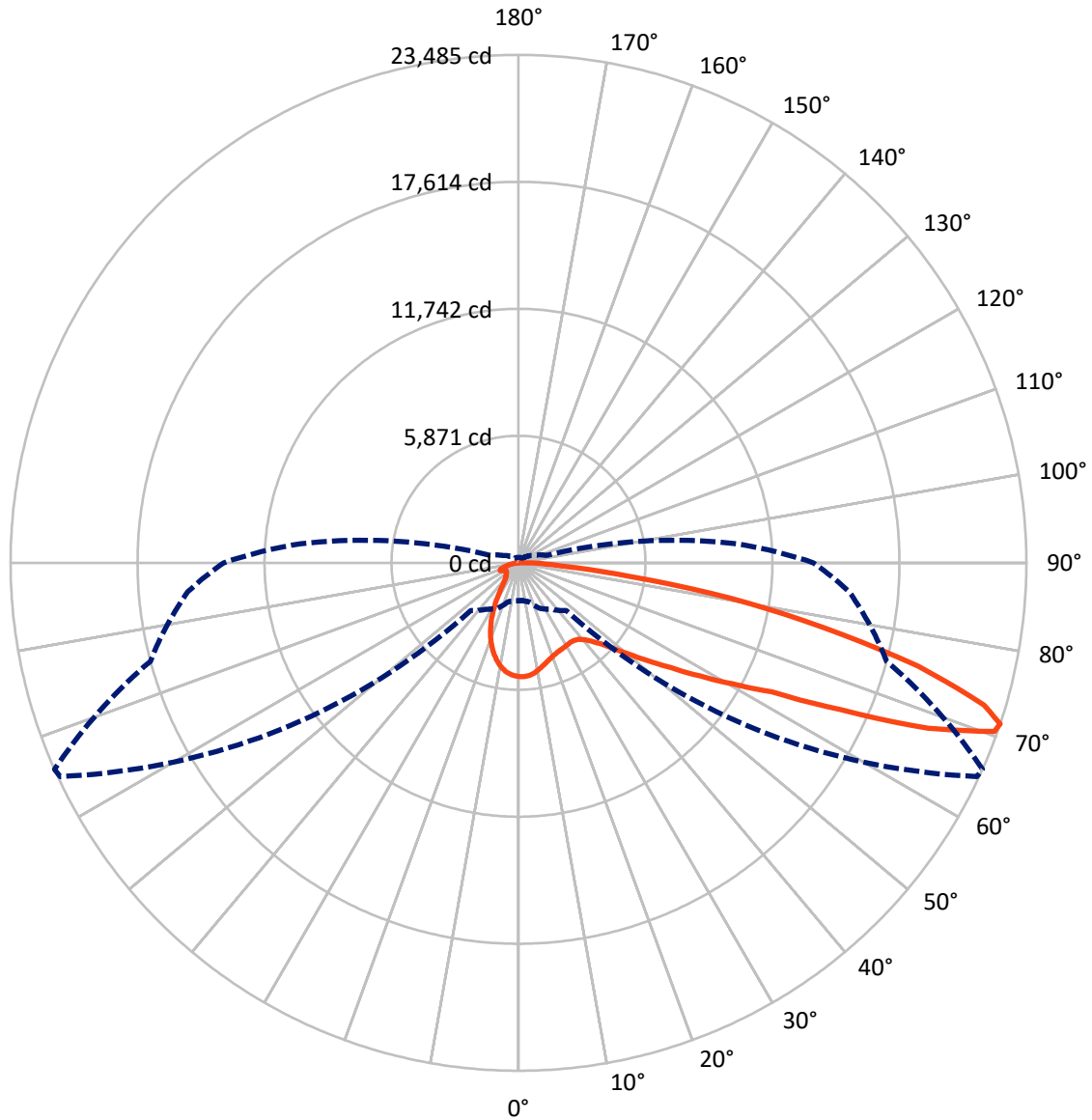
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8.4 fc
 Type III - Medium - N/A

REPORT NUMBER: P361742
CATALOG NUMBER: NVN-SA4B-750-U-SL2

Luminous Intensity Polar Plot



— Vertical Plane Through 66-Deg Lateral - - - Horizontal Cone Through 71-Deg Vertical

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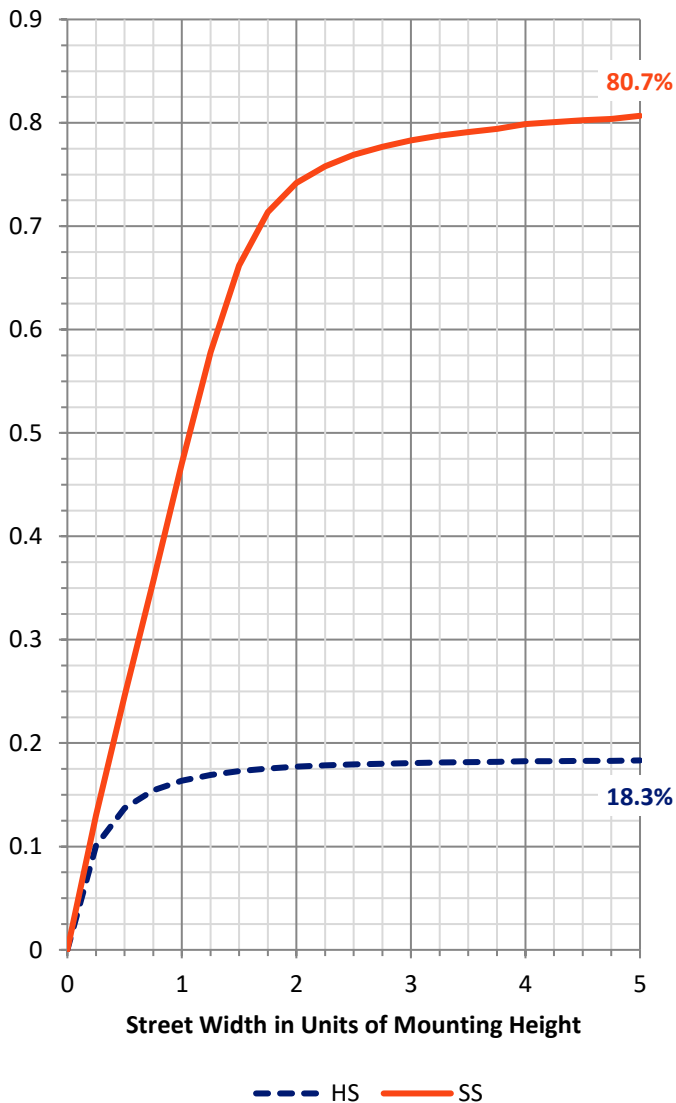
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4255.5 | 0.0 | 4255.5 |
| | % Fixture | 18.5 | 0.0 | 18.5 |
| Street Side | Lumens | 18706.5 | 0.0 | 18706.5 |
| | % Fixture | 81.5 | 0.0 | 81.5 |
| Total | Lumens | 22962.0 | 0.0 | 22962.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 463.0 | 2.0 |
| 10°-20° | 1110.5 | 4.8 |
| 20°-30° | 1491.7 | 6.5 |
| 30°-40° | 1962.3 | 8.5 |
| 40°-50° | 2854.6 | 12.4 |
| 50°-60° | 4459.3 | 19.4 |
| 60°-70° | 5586.0 | 24.3 |
| 70°-80° | 4260.8 | 18.6 |
| 80°-90° | 773.7 | 3.4 |
| 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° | 22962.0 | 100.0 |
| 0°-180° | 22962.0 | 100.0 |

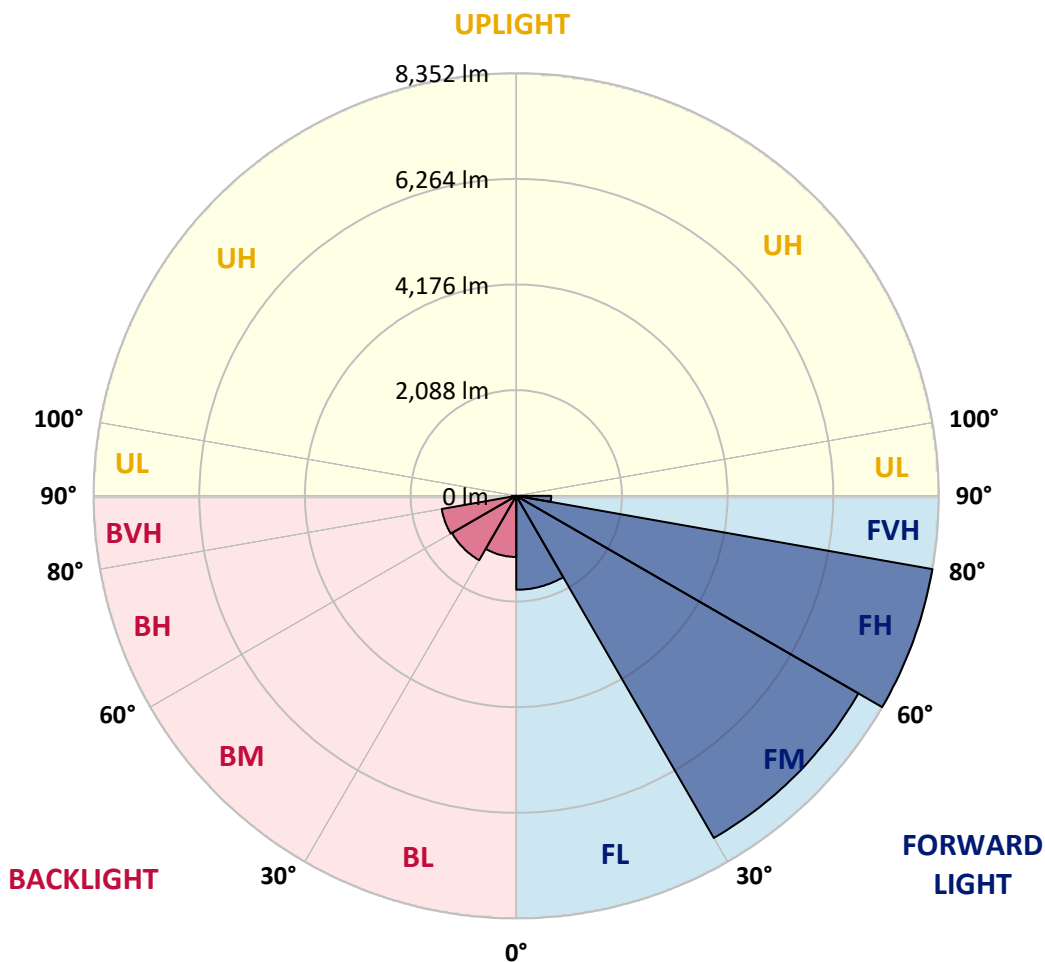


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 CATALOG NUMBER: NVN-SA4B-750-U-SL2

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 1856.8 | 8.1 | | | |
| FM (30°-60°) | 7808.2 | 34.0 | | | |
| FH (60°-80°) | 8351.5 | 36.4 | | | G4/12000 |
| FVH (80°-90°) | 690.0 | 3.0 | | | G4/750 |
| BL (0°-30°) | 1208.4 | 5.3 | B3/2500 | | |
| BM (30°-60°) | 1468.0 | 6.4 | B2/2500 | | |
| BH (60°-80°) | 1495.3 | 6.5 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 83.8 | 0.4 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4
 Type III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 66° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|
| 0° | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 |
| 2.5° | 5162.6 | 5154.7 | 5178.5 | 5203.1 | 5212.6 | 5228.4 | 5252.2 | 5265.7 | 5264.9 | 5267.3 | 5259.4 |
| 5° | 4820.2 | 4809.8 | 4857.4 | 4896.3 | 4970.8 | 5054.8 | 5157.1 | 5230.0 | 5231.6 | 5272.8 | 5283.9 |
| 7.5° | 4495.9 | 4488.8 | 4543.5 | 4606.1 | 4692.5 | 4820.9 | 4986.6 | 5143.6 | 5153.1 | 5264.9 | 5303.8 |
| 10° | 4235.9 | 4234.3 | 4287.4 | 4355.6 | 4456.3 | 4599.8 | 4790.0 | 5019.9 | 5034.2 | 5226.9 | 5306.9 |
| 12.5° | 4032.9 | 4036.1 | 4082.1 | 4159.8 | 4266.0 | 4415.8 | 4622.0 | 4881.2 | 4904.2 | 5166.6 | 5288.7 |
| 15° | 3883.1 | 3895.8 | 3933.0 | 4011.5 | 4116.2 | 4268.4 | 4480.0 | 4752.8 | 4787.6 | 5099.2 | 5278.4 |
| 17.5° | 3797.5 | 3811.7 | 3837.9 | 3902.9 | 4001.2 | 4147.9 | 4348.4 | 4647.3 | 4679.0 | 5047.7 | 5279.2 |
| 20° | 3772.1 | 3784.0 | 3799.0 | 3838.7 | 3921.9 | 4055.1 | 4244.6 | 4552.2 | 4586.3 | 5006.5 | 5287.1 |
| 22.5° | 3822.0 | 3830.8 | 3832.3 | 3829.2 | 3879.9 | 3988.5 | 4169.3 | 4482.4 | 4518.9 | 4979.5 | 5292.7 |
| 25° | 3929.1 | 3941.0 | 3932.2 | 3902.9 | 3886.2 | 3952.8 | 4130.4 | 4436.4 | 4472.9 | 4959.7 | 5281.6 |
| 27.5° | 4090.0 | 4091.6 | 4084.4 | 4046.4 | 3967.9 | 3956.8 | 4118.5 | 4409.5 | 4444.4 | 4936.7 | 5258.6 |
| 30° | 4308.8 | 4319.1 | 4306.4 | 4254.9 | 4126.5 | 4020.2 | 4132.8 | 4383.3 | 4415.0 | 4907.4 | 5221.3 |
| 32.5° | 4564.9 | 4590.2 | 4589.5 | 4535.5 | 4351.6 | 4162.1 | 4191.5 | 4367.5 | 4392.0 | 4876.4 | 5176.1 |
| 35° | 4830.5 | 4865.3 | 4930.3 | 4907.4 | 4679.8 | 4386.5 | 4304.0 | 4392.8 | 4409.5 | 4872.5 | 5144.4 |
| 37.5° | 5106.3 | 5141.2 | 5275.2 | 5337.1 | 5070.7 | 4707.6 | 4481.6 | 4482.4 | 4490.4 | 4920.8 | 5142.0 |
| 40° | 5394.9 | 5432.2 | 5633.6 | 5794.5 | 5577.3 | 5114.3 | 4767.8 | 4669.5 | 4660.8 | 5039.8 | 5188.8 |
| 42.5° | 5799.2 | 5832.5 | 6074.3 | 6279.7 | 6139.4 | 5635.1 | 5163.4 | 4958.1 | 4939.9 | 5272.8 | 5338.6 |
| 45° | 6310.6 | 6339.1 | 6596.0 | 6815.6 | 6743.5 | 6229.7 | 5660.5 | 5355.3 | 5352.1 | 5661.3 | 5642.3 |
| 47.5° | 6918.7 | 6940.9 | 7171.6 | 7384.0 | 7410.2 | 6913.9 | 6285.2 | 5968.1 | 5916.6 | 6194.1 | 6112.4 |
| 50° | 7552.1 | 7576.7 | 7733.6 | 7962.0 | 8156.2 | 7829.6 | 7089.1 | 6718.9 | 6649.9 | 6897.3 | 6778.3 |
| 52.5° | 7971.5 | 8004.0 | 8140.3 | 8429.7 | 8995.0 | 8833.2 | 8039.7 | 7629.0 | 7524.4 | 7749.5 | 7658.3 |
| 55° | 7784.4 | 7857.3 | 8065.8 | 8529.6 | 9665.7 | 10366.5 | 9212.2 | 8690.5 | 8572.4 | 8759.5 | 8705.6 |
| 57.5° | 6933.7 | 7033.6 | 7318.2 | 8034.1 | 9760.0 | 11717.4 | 10984.9 | 9940.8 | 9857.5 | 9803.6 | 9828.2 |
| 60° | 5379.1 | 5475.0 | 5827.8 | 6760.9 | 9102.8 | 12703.6 | 13652.6 | 11482.0 | 11361.4 | 10851.7 | 10873.9 |
| 62.5° | 3807.0 | 3758.6 | 4000.4 | 4683.0 | 7396.7 | 12819.4 | 16688.2 | 13543.2 | 13146.8 | 11958.4 | 11860.9 |
| 65° | 2903.2 | 2892.1 | 3000.7 | 3217.9 | 4480.0 | 11434.4 | 18496.5 | 17007.7 | 16388.5 | 13260.2 | 13030.3 |
| 67.5° | 2385.5 | 2365.7 | 2472.7 | 2789.0 | 2885.0 | 7376.9 | 18536.2 | 21027.1 | 20419.1 | 14880.6 | 14382.8 |
| 70° | 1961.4 | 1939.2 | 2039.1 | 2447.3 | 2666.1 | 3741.2 | 15600.5 | 23380.9 | 23348.4 | 16932.4 | 15403.9 |
| 71° | 1758.4 | 1742.5 | 1862.3 | 2315.7 | 2619.4 | 3118.0 | 13469.5 | 23387.3 | 23484.8 | 17626.9 | 15343.6 |
| 72.5° | 1431.8 | 1437.3 | 1564.2 | 2061.2 | 2584.5 | 2753.4 | 9899.5 | 22297.2 | 22503.3 | 18288.8 | 14795.8 |
| 75° | 951.3 | 956.1 | 1122.6 | 1585.6 | 2506.0 | 2693.9 | 5440.9 | 18709.8 | 19088.8 | 17892.4 | 13501.2 |
| 77.5° | 639.0 | 637.4 | 750.8 | 1087.7 | 2183.3 | 2693.9 | 3190.2 | 13993.5 | 14409.7 | 14236.9 | 10408.5 |
| 80° | 440.0 | 436.8 | 516.9 | 750.8 | 1653.0 | 2726.4 | 2466.4 | 9806.8 | 9932.8 | 7688.5 | 4230.3 |
| 82.5° | 269.5 | 271.9 | 337.7 | 530.4 | 1125.0 | 2453.7 | 2328.4 | 5347.4 | 5210.2 | 2156.4 | 1056.8 |
| 85° | 154.6 | 153.8 | 215.6 | 359.1 | 722.2 | 2070.8 | 2270.5 | 2301.5 | 2111.2 | 649.3 | 382.1 |
| 87.5° | 55.5 | 59.5 | 115.7 | 199.0 | 413.8 | 1442.1 | 1926.5 | 1197.1 | 1079.0 | 293.3 | 172.8 |
| 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: P361742
 CATALOG NUMBER: NVN-SA4B-750-U-SL2

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 | 5260.1 |
| 2.5° | 5253.8 | 5258.6 | 5253.0 | 5221.3 | 5194.3 | 5150.7 | 5126.2 | 5092.1 | 5081.8 | 5077.0 | 5089.7 |
| 5° | 5273.6 | 5275.2 | 5228.4 | 5145.2 | 5051.6 | 4941.4 | 4862.2 | 4764.7 | 4718.7 | 4698.9 | 4711.5 |
| 7.5° | 5291.9 | 5284.7 | 5182.5 | 5023.1 | 4850.3 | 4658.4 | 4488.0 | 4331.8 | 4240.6 | 4203.4 | 4206.5 |
| 10° | 5294.2 | 5264.1 | 5100.0 | 4853.4 | 4585.5 | 4304.0 | 4042.4 | 3801.4 | 3649.2 | 3550.1 | 3580.2 |
| 12.5° | 5269.7 | 5218.9 | 4978.7 | 4633.8 | 4262.0 | 3878.3 | 3524.7 | 3163.2 | 2946.0 | 2845.3 | 2848.5 |
| 15° | 5250.6 | 5158.7 | 4829.7 | 4375.4 | 3875.9 | 3367.8 | 2885.0 | 2460.0 | 2228.5 | 2125.5 | 2077.1 |
| 17.5° | 5234.8 | 5093.7 | 4656.8 | 4084.4 | 3420.1 | 2775.6 | 2195.2 | 1816.3 | 1689.4 | 1659.3 | 1646.6 |
| 20° | 5212.6 | 5024.7 | 4464.2 | 3747.5 | 2900.8 | 2112.8 | 1603.0 | 1415.9 | 1416.7 | 1451.6 | 1456.4 |
| 22.5° | 5181.7 | 4946.2 | 4258.9 | 3369.3 | 2343.5 | 1538.8 | 1256.6 | 1202.7 | 1257.4 | 1324.0 | 1335.8 |
| 25° | 5135.7 | 4853.4 | 4030.5 | 2951.6 | 1786.9 | 1182.8 | 1073.4 | 1071.1 | 1137.7 | 1207.4 | 1217.7 |
| 27.5° | 5070.7 | 4732.2 | 3776.8 | 2502.8 | 1316.8 | 1005.3 | 961.7 | 978.3 | 1027.5 | 1078.2 | 1082.2 |
| 30° | 4983.5 | 4591.0 | 3497.0 | 2029.5 | 1032.2 | 895.1 | 890.3 | 905.4 | 935.5 | 971.2 | 974.3 |
| 32.5° | 4887.5 | 4447.5 | 3198.1 | 1571.3 | 884.0 | 835.6 | 840.4 | 847.5 | 861.8 | 876.0 | 879.2 |
| 35° | 4800.3 | 4300.9 | 2892.1 | 1193.9 | 813.4 | 796.8 | 793.6 | 792.0 | 793.6 | 788.8 | 789.6 |
| 37.5° | 4744.0 | 4179.6 | 2573.4 | 950.6 | 773.0 | 762.7 | 753.1 | 741.3 | 727.8 | 719.9 | 721.4 |
| 40° | 4723.4 | 4089.2 | 2250.7 | 821.3 | 739.7 | 732.5 | 714.3 | 688.9 | 673.1 | 668.3 | 668.3 |
| 42.5° | 4778.9 | 4042.4 | 1939.2 | 756.3 | 711.9 | 700.0 | 669.9 | 640.6 | 628.7 | 627.9 | 627.1 |
| 45° | 4948.6 | 4061.5 | 1642.7 | 720.6 | 686.6 | 663.6 | 623.9 | 599.3 | 591.4 | 593.0 | 592.2 |
| 47.5° | 5253.0 | 4181.2 | 1389.0 | 696.9 | 661.2 | 631.1 | 586.7 | 566.8 | 557.3 | 557.3 | 558.1 |
| 50° | 5770.7 | 4461.0 | 1186.8 | 677.0 | 639.8 | 600.9 | 559.7 | 535.1 | 522.4 | 521.7 | 521.7 |
| 52.5° | 6524.6 | 4962.1 | 1060.8 | 660.4 | 616.0 | 574.0 | 532.8 | 501.8 | 486.8 | 483.6 | 482.0 |
| 55° | 7469.7 | 5680.3 | 1025.9 | 649.3 | 584.3 | 544.6 | 500.2 | 469.3 | 452.7 | 445.5 | 444.8 |
| 57.5° | 8526.4 | 6554.0 | 1094.8 | 635.8 | 551.8 | 509.8 | 464.6 | 435.2 | 417.8 | 409.1 | 408.3 |
| 60° | 9595.9 | 7507.7 | 1376.3 | 616.8 | 524.8 | 471.7 | 428.1 | 401.2 | 383.7 | 374.2 | 372.6 |
| 62.5° | 10667.0 | 8513.0 | 1951.1 | 615.2 | 505.8 | 435.2 | 390.8 | 367.9 | 351.2 | 340.9 | 338.5 |
| 65° | 11875.2 | 9613.3 | 2604.3 | 657.2 | 499.5 | 401.9 | 352.8 | 334.6 | 320.3 | 310.8 | 310.0 |
| 67.5° | 13262.6 | 10855.6 | 2541.7 | 743.6 | 520.9 | 371.8 | 317.1 | 302.8 | 292.5 | 284.6 | 283.8 |
| 70° | 13913.4 | 10661.4 | 1580.0 | 804.7 | 551.0 | 342.5 | 283.0 | 272.7 | 264.8 | 259.2 | 256.9 |
| 71° | 13640.7 | 10123.1 | 1324.7 | 797.5 | 547.8 | 329.8 | 269.5 | 261.6 | 253.7 | 248.9 | 246.6 |
| 72.5° | 12897.1 | 9232.0 | 1105.1 | 742.0 | 512.1 | 306.8 | 252.1 | 244.2 | 237.0 | 231.5 | 229.9 |
| 75° | 11573.1 | 8245.0 | 884.8 | 593.0 | 408.3 | 259.2 | 221.2 | 212.5 | 206.9 | 203.7 | 200.6 |
| 77.5° | 8507.4 | 5884.1 | 684.2 | 468.5 | 300.5 | 211.7 | 188.7 | 182.3 | 176.8 | 172.0 | 169.7 |
| 80° | 3259.2 | 2279.3 | 460.6 | 349.6 | 220.4 | 167.3 | 152.2 | 149.0 | 143.5 | 140.3 | 140.3 |
| 82.5° | 877.6 | 681.0 | 245.8 | 211.7 | 147.5 | 122.1 | 116.5 | 115.0 | 110.2 | 103.9 | 104.6 |
| 85° | 355.2 | 300.5 | 137.9 | 116.5 | 90.4 | 72.1 | 78.5 | 79.3 | 73.7 | 65.8 | 66.6 |
| 87.5° | 156.2 | 127.6 | 76.9 | 51.5 | 39.6 | 27.7 | 35.7 | 35.7 | 32.5 | 27.0 | 24.6 |
| 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
 CIE u': 0.2101
 CIE v': 0.4904
 Duv: 0.0037
 CIE x: 0.3493
 CIE y: 0.3624
 CIE z: 0.2884
 Peak Wavelength (nm): 444
 Dominant Wavelength (nm): 571
 Purity: 13.7
 Rf: 74.9
 Rg: 96.3

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 73.5 | | |
| R1: | 70.5 | R9: | -28.4 |
| R2: | 77.7 | R10: | 48.6 |
| R3: | 84.6 | R11: | 73.2 |
| R4: | 74.7 | R12: | 50.7 |
| R5: | 71.9 | R13: | 71.2 |
| R6: | 70.7 | R14: | 91.4 |
| R7: | 81.2 | | |
| R8: | 56.9 | | |



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)