

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: P359515

Luminaire Tested: NVN-SA3C-730-U-SL4

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P359515
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-24)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: STREETWORKS
Catalog Number: NVN-SA3C-730-U-SL4
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 70 CRI, 3000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV
SPILL LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18700 lumens
Efficiency: N/A
Efficacy: 112.7 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B2 - U0 - G4

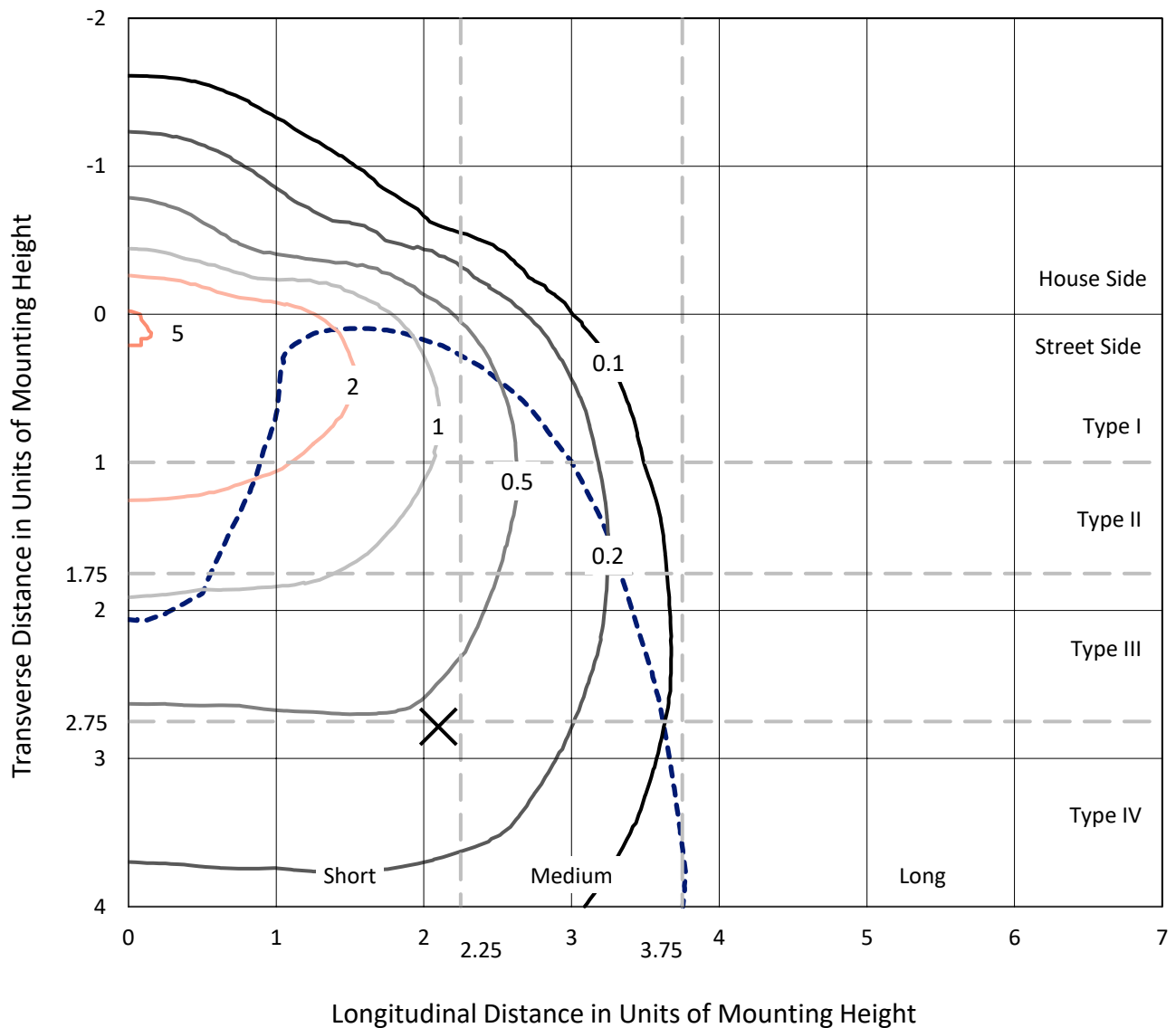
Input Watts (W): 166
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

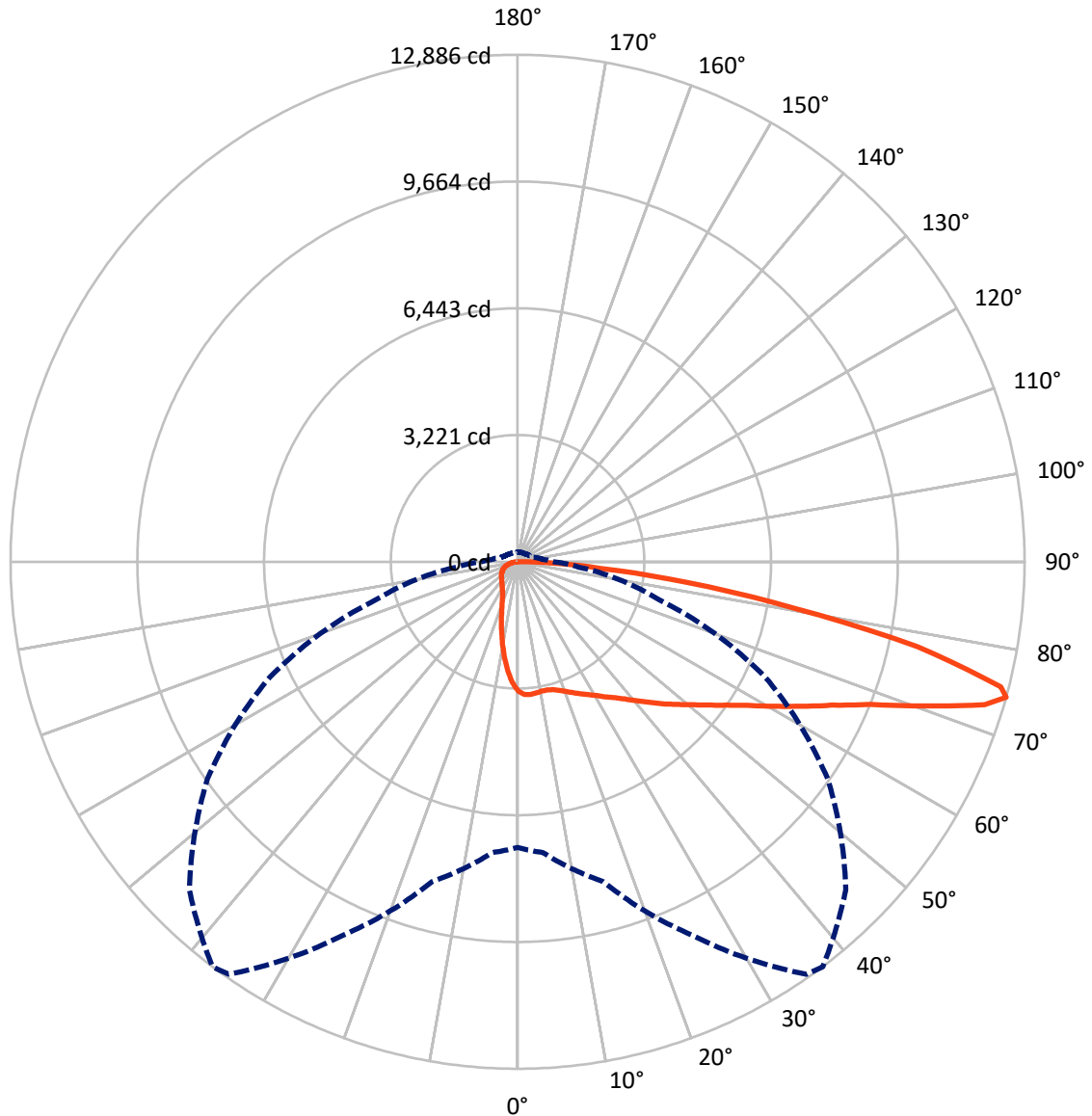
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.4 fc
 Type IV - Short - N/A

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CATALOG NUMBER: NVN-SA3C-730-U-SL4

Luminous Intensity Polar Plot



— Vertical Plane Through 37-Deg Lateral - - - Horizontal Cone Through 74-Deg Vertical

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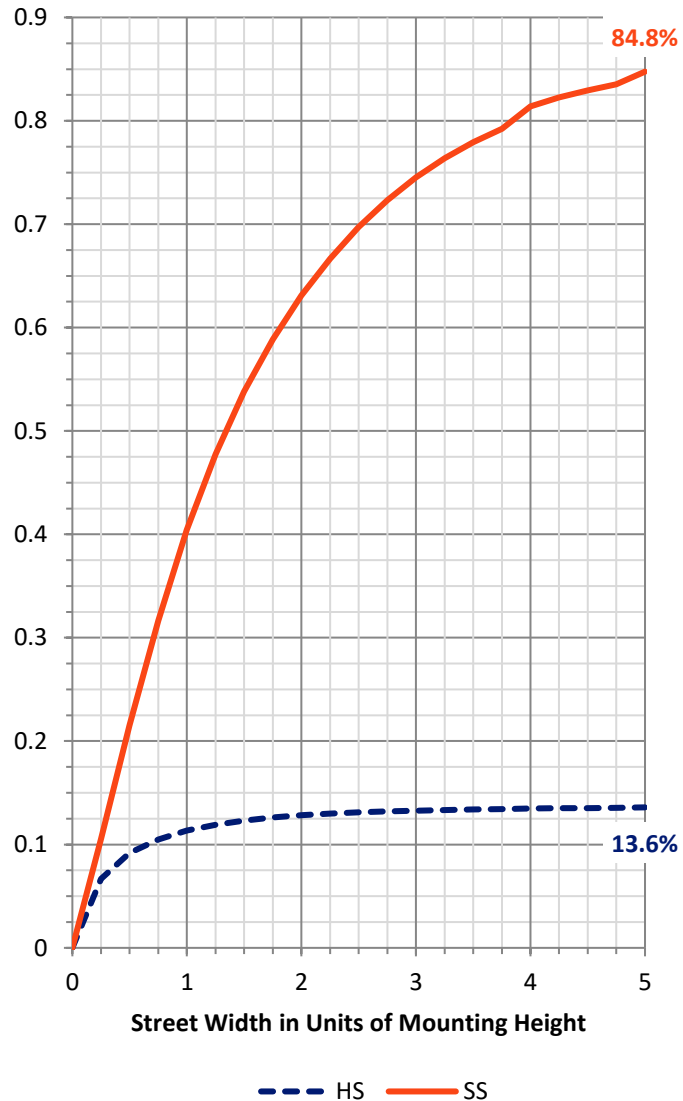
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2573.0 | 0.0 | 2573.0 |
| | % Fixture | 13.8 | 0.0 | 13.8 |
| Street Side | Lumens | 16127.0 | 0.0 | 16127.0 |
| | % Fixture | 86.2 | 0.0 | 86.2 |
| Total | Lumens | 18700.0 | 0.0 | 18700.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 290.2 | 1.6 |
| 10°-20° | 743.7 | 4.0 |
| 20°-30° | 1145.9 | 6.1 |
| 30°-40° | 1666.4 | 8.9 |
| 40°-50° | 2452.6 | 13.1 |
| 50°-60° | 3444.3 | 18.4 |
| 60°-70° | 4359.4 | 23.3 |
| 70°-80° | 3838.6 | 20.5 |
| 80°-90° | 759.0 | 4.1 |
| 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° | 18700.0 | 100.0 |
| 0°-180° | 18700.0 | 100.0 |

Coefficient of Utilization

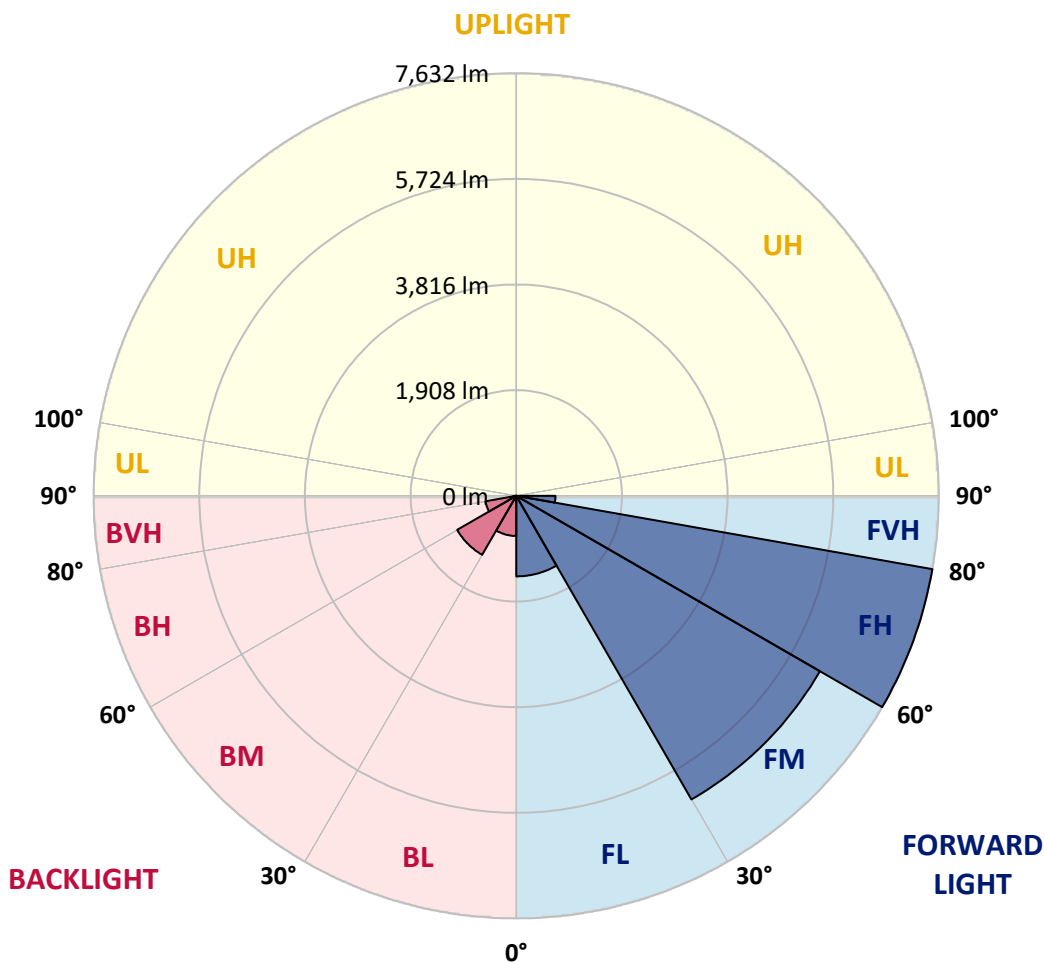


REPORT NUMBER: P359515
 CATALOG NUMBER: NVN-SA3C-730-U-SL4

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 1455.1 | 7.8 | | | |
| FM (30°-60°) | 6332.0 | 33.9 | | | |
| FH (60°-80°) | 7632.4 | 40.8 | | | G4/12000 |
| FVH (80°-90°) | 707.6 | 3.8 | | | G4/750 |
| BL (0°-30°) | 724.7 | 3.9 | B2/1000 | | |
| BM (30°-60°) | 1231.3 | 6.6 | B2/2500 | | |
| BH (60°-80°) | 565.6 | 3.0 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 51.4 | 0.3 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G4
 Type IV Short





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CATALOG NUMBER: NVN-SA3C-730-U-SL4

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 37° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|---------|---------|---------|---------|---------|--------|--------|--------|
| 0° | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 |
| 2.5° | 3407.5 | 3408.2 | 3407.5 | 3402.2 | 3389.7 | 3379.2 | 3370.6 | 3358.1 | 3330.4 | 3309.4 | 3277.7 |
| 5° | 3439.8 | 3435.8 | 3433.2 | 3423.3 | 3403.6 | 3391.7 | 3375.2 | 3351.5 | 3306.1 | 3263.9 | 3212.5 |
| 7.5° | 3424.6 | 3420.0 | 3414.1 | 3402.2 | 3379.8 | 3370.0 | 3346.9 | 3315.9 | 3261.3 | 3205.9 | 3132.2 |
| 10° | 3377.9 | 3376.5 | 3373.9 | 3371.3 | 3352.2 | 3344.3 | 3323.2 | 3290.3 | 3236.2 | 3169.1 | 3082.8 |
| 12.5° | 3325.8 | 3329.1 | 3339.7 | 3353.5 | 3344.9 | 3341.0 | 3327.8 | 3305.4 | 3250.1 | 3177.6 | 3073.5 |
| 15° | 3292.9 | 3302.1 | 3330.4 | 3366.7 | 3373.9 | 3372.6 | 3369.3 | 3354.8 | 3296.2 | 3215.8 | 3094.6 |
| 17.5° | 3281.7 | 3296.8 | 3350.9 | 3410.8 | 3431.9 | 3436.5 | 3437.8 | 3412.8 | 3347.6 | 3262.6 | 3116.4 |
| 20° | 3302.1 | 3321.2 | 3400.3 | 3482.6 | 3516.2 | 3518.8 | 3512.9 | 3469.4 | 3396.3 | 3302.8 | 3128.2 |
| 22.5° | 3364.0 | 3381.2 | 3480.0 | 3572.8 | 3611.0 | 3615.0 | 3597.2 | 3531.3 | 3447.7 | 3350.2 | 3144.7 |
| 25° | 3483.3 | 3504.3 | 3603.1 | 3696.0 | 3715.8 | 3716.4 | 3690.8 | 3609.1 | 3514.9 | 3416.7 | 3180.3 |
| 27.5° | 3638.7 | 3659.8 | 3748.7 | 3839.6 | 3829.1 | 3823.2 | 3788.2 | 3706.6 | 3602.5 | 3508.3 | 3243.5 |
| 30° | 3812.0 | 3835.0 | 3919.3 | 3983.9 | 3958.8 | 3947.0 | 3918.7 | 3813.3 | 3724.3 | 3633.4 | 3340.3 |
| 32.5° | 3991.1 | 4012.2 | 4086.0 | 4130.1 | 4098.5 | 4093.2 | 4050.4 | 3954.2 | 3883.1 | 3824.5 | 3497.1 |
| 35° | 4174.9 | 4190.1 | 4262.5 | 4287.5 | 4245.4 | 4244.1 | 4232.2 | 4143.9 | 4099.2 | 4126.8 | 3725.0 |
| 37.5° | 4362.6 | 4366.6 | 4428.5 | 4429.8 | 4417.3 | 4422.6 | 4435.1 | 4379.8 | 4392.3 | 4478.6 | 4021.4 |
| 40° | 4529.9 | 4540.5 | 4585.3 | 4599.1 | 4620.9 | 4639.3 | 4701.9 | 4665.6 | 4762.5 | 4915.3 | 4390.3 |
| 42.5° | 4653.8 | 4674.2 | 4746.0 | 4781.6 | 4852.1 | 4881.0 | 4969.3 | 5002.9 | 5197.9 | 5427.1 | 4829.0 |
| 45° | 4758.5 | 4790.1 | 4905.4 | 4978.5 | 5097.8 | 5148.5 | 5274.9 | 5387.6 | 5689.9 | 5982.4 | 5290.8 |
| 47.5° | 4871.8 | 4912.0 | 5056.3 | 5195.9 | 5357.9 | 5415.3 | 5645.1 | 5813.8 | 6214.9 | 6541.0 | 5726.2 |
| 50° | 5038.5 | 5069.4 | 5210.4 | 5429.7 | 5632.0 | 5705.7 | 6023.9 | 6265.6 | 6748.5 | 7073.2 | 6103.6 |
| 52.5° | 5271.0 | 5259.1 | 5378.4 | 5686.0 | 5957.4 | 6048.3 | 6428.4 | 6746.5 | 7289.3 | 7554.7 | 6422.4 |
| 55° | 5504.8 | 5485.1 | 5568.7 | 5954.1 | 6336.8 | 6432.3 | 6873.6 | 7229.3 | 7803.7 | 7988.2 | 6666.8 |
| 57.5° | 5765.0 | 5727.5 | 5798.0 | 6256.4 | 6768.9 | 6882.9 | 7372.3 | 7742.5 | 8309.6 | 8338.6 | 6822.3 |
| 60° | 6033.1 | 5982.4 | 6061.4 | 6631.2 | 7317.6 | 7452.0 | 7955.9 | 8243.1 | 8786.5 | 8619.2 | 6872.3 |
| 62.5° | 6267.6 | 6232.1 | 6353.9 | 7049.5 | 7936.1 | 8083.7 | 8529.0 | 8775.3 | 9256.9 | 8735.8 | 6691.8 |
| 65° | 6472.5 | 6478.4 | 6689.2 | 7519.8 | 8625.8 | 8783.2 | 9186.4 | 9431.4 | 9627.0 | 8666.6 | 6269.6 |
| 67.5° | 6716.9 | 6750.5 | 7110.1 | 8139.0 | 9494.0 | 9666.6 | 10142.8 | 10146.8 | 9833.9 | 8260.9 | 5438.3 |
| 70° | 7073.2 | 7142.4 | 7689.1 | 8998.0 | 10728.4 | 10965.5 | 11333.1 | 10567.0 | 9543.4 | 7160.8 | 4279.0 |
| 72.5° | 7389.4 | 7518.5 | 8305.0 | 9980.8 | 12232.9 | 12412.7 | 12029.4 | 10324.6 | 8329.4 | 5366.5 | 2665.8 |
| 74° | 7261.0 | 7421.0 | 8417.0 | 10464.9 | 12799.4 | 12885.7 | 11794.2 | 9617.2 | 6944.8 | 3716.4 | 1549.3 |
| 75° | 6984.3 | 7158.2 | 8253.6 | 10460.3 | 12727.6 | 12679.5 | 11226.4 | 8808.9 | 5719.6 | 2534.7 | 1030.9 |
| 77.5° | 5636.6 | 5820.4 | 6954.7 | 8965.0 | 10435.9 | 10390.5 | 8623.8 | 5909.3 | 2505.1 | 831.3 | 523.7 |
| 80° | 3277.1 | 3417.4 | 4317.2 | 5693.2 | 7037.0 | 7119.3 | 5671.5 | 2924.0 | 985.4 | 467.0 | 355.0 |
| 82.5° | 1455.7 | 1552.6 | 2085.5 | 2906.2 | 4246.7 | 4352.8 | 2970.1 | 1532.2 | 608.6 | 283.9 | 213.4 |
| 85° | 955.1 | 1026.9 | 1266.0 | 1383.9 | 2022.2 | 2094.7 | 1453.8 | 1192.9 | 401.8 | 156.1 | 156.8 |
| 87.5° | 687.0 | 756.2 | 940.6 | 821.4 | 928.1 | 878.7 | 791.1 | 1104.0 | 161.4 | 88.9 | 52.7 |
| 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: P359515
 CATALOG NUMBER: NVN-SA3C-730-U-SL4

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 | 3294.9 |
| 2.5° | 3263.9 | 3253.4 | 3229.7 | 3184.9 | 3159.8 | 3138.8 | 3103.8 | 3083.4 | 3074.2 | 3073.5 | 3077.5 |
| 5° | 3182.9 | 3158.5 | 3097.3 | 3022.2 | 2962.2 | 2907.5 | 2839.7 | 2798.9 | 2769.9 | 2752.7 | 2757.4 |
| 7.5° | 3088.7 | 3050.5 | 2954.3 | 2834.4 | 2738.3 | 2632.2 | 2527.5 | 2464.9 | 2416.1 | 2379.9 | 2386.5 |
| 10° | 3024.1 | 2971.4 | 2831.1 | 2658.6 | 2498.5 | 2344.3 | 2200.1 | 2113.8 | 2045.3 | 1992.6 | 1996.6 |
| 12.5° | 3002.4 | 2931.3 | 2736.9 | 2506.4 | 2281.8 | 2071.0 | 1882.6 | 1750.2 | 1679.7 | 1619.8 | 1624.4 |
| 15° | 3005.7 | 2910.2 | 2657.9 | 2369.4 | 2086.8 | 1821.3 | 1592.8 | 1438.0 | 1342.5 | 1301.0 | 1301.6 |
| 17.5° | 3008.3 | 2885.8 | 2574.9 | 2222.5 | 1893.8 | 1588.1 | 1339.8 | 1183.0 | 1092.8 | 1054.6 | 1055.3 |
| 20° | 2999.8 | 2846.3 | 2472.1 | 2053.9 | 1692.2 | 1374.1 | 1133.6 | 1000.6 | 932.1 | 902.4 | 902.4 |
| 22.5° | 2988.6 | 2799.5 | 2356.2 | 1884.6 | 1493.3 | 1188.3 | 986.1 | 884.6 | 845.1 | 825.4 | 824.7 |
| 25° | 2993.8 | 2764.6 | 2237.6 | 1710.7 | 1310.2 | 1040.1 | 887.9 | 820.8 | 794.4 | 781.9 | 781.2 |
| 27.5° | 3022.2 | 2748.1 | 2128.3 | 1537.4 | 1150.1 | 928.8 | 822.1 | 774.6 | 757.5 | 749.6 | 749.6 |
| 30° | 3073.5 | 2748.1 | 2014.3 | 1389.9 | 1017.0 | 846.4 | 771.3 | 739.1 | 727.2 | 721.9 | 721.9 |
| 32.5° | 3163.1 | 2763.3 | 1904.3 | 1243.6 | 911.0 | 781.9 | 729.2 | 707.5 | 698.2 | 695.6 | 695.6 |
| 35° | 3317.3 | 2814.7 | 1797.0 | 1105.3 | 825.4 | 729.2 | 689.0 | 676.5 | 669.9 | 669.2 | 671.2 |
| 37.5° | 3534.0 | 2919.4 | 1696.2 | 1003.2 | 764.8 | 686.4 | 655.4 | 645.5 | 641.6 | 644.9 | 647.5 |
| 40° | 3806.7 | 3061.7 | 1604.6 | 911.0 | 718.7 | 652.1 | 624.5 | 617.9 | 615.9 | 620.5 | 624.5 |
| 42.5° | 4136.0 | 3254.0 | 1529.5 | 844.5 | 683.1 | 623.1 | 598.1 | 590.2 | 588.2 | 593.5 | 598.8 |
| 45° | 4492.4 | 3460.9 | 1476.8 | 795.1 | 655.4 | 601.4 | 575.1 | 566.5 | 562.5 | 565.2 | 571.1 |
| 47.5° | 4816.5 | 3656.5 | 1455.7 | 760.2 | 629.1 | 583.0 | 554.6 | 544.1 | 537.5 | 536.2 | 540.8 |
| 50° | 5089.9 | 3802.1 | 1465.6 | 739.1 | 608.0 | 562.5 | 534.9 | 523.0 | 513.1 | 507.2 | 510.5 |
| 52.5° | 5288.8 | 3893.6 | 1474.9 | 729.9 | 591.5 | 540.1 | 513.1 | 501.9 | 488.8 | 478.9 | 478.9 |
| 55° | 5433.0 | 3914.7 | 1454.4 | 722.6 | 579.0 | 515.8 | 488.8 | 478.2 | 465.0 | 453.9 | 452.5 |
| 57.5° | 5489.7 | 3855.4 | 1378.7 | 712.1 | 570.4 | 492.7 | 463.1 | 455.2 | 444.0 | 430.8 | 430.1 |
| 60° | 5413.3 | 3672.3 | 1232.4 | 689.7 | 559.2 | 473.6 | 437.4 | 432.1 | 426.8 | 414.3 | 413.7 |
| 62.5° | 5106.3 | 3270.5 | 1043.4 | 644.2 | 536.8 | 453.2 | 413.7 | 416.3 | 417.0 | 408.4 | 407.1 |
| 65° | 4549.7 | 2718.5 | 859.0 | 584.9 | 503.3 | 428.8 | 389.3 | 401.8 | 409.1 | 407.7 | 405.8 |
| 67.5° | 3740.8 | 2115.8 | 727.9 | 522.4 | 459.1 | 395.2 | 362.9 | 377.4 | 383.4 | 388.0 | 386.7 |
| 70° | 2776.5 | 1492.0 | 602.1 | 456.5 | 405.8 | 355.7 | 328.7 | 335.9 | 332.0 | 337.3 | 339.2 |
| 72.5° | 1548.0 | 895.2 | 490.7 | 390.6 | 350.4 | 309.6 | 290.5 | 289.2 | 280.6 | 280.6 | 280.6 |
| 74° | 928.8 | 656.7 | 431.5 | 349.8 | 316.8 | 279.3 | 262.8 | 256.9 | 249.0 | 249.7 | 249.0 |
| 75° | 747.0 | 564.5 | 395.9 | 322.8 | 293.1 | 261.5 | 245.0 | 237.1 | 231.2 | 231.2 | 230.5 |
| 77.5° | 471.6 | 428.8 | 318.8 | 256.9 | 234.5 | 215.4 | 204.2 | 193.7 | 193.7 | 193.0 | 192.3 |
| 80° | 356.4 | 341.2 | 248.3 | 194.3 | 179.8 | 165.3 | 158.1 | 153.5 | 153.5 | 155.5 | 154.8 |
| 82.5° | 244.4 | 256.9 | 174.6 | 135.7 | 128.4 | 117.9 | 116.6 | 117.3 | 115.3 | 112.6 | 112.0 |
| 85° | 178.5 | 193.0 | 117.9 | 85.6 | 78.4 | 71.8 | 77.1 | 79.7 | 76.4 | 70.5 | 67.8 |
| 87.5° | 68.5 | 126.5 | 63.2 | 35.6 | 32.9 | 28.3 | 32.9 | 34.3 | 36.9 | 29.0 | 29.6 |
| 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: SP1-1908-441-2-R4

Test Date: 10/03/2019

Luminaire Tested: SA1C-730-U-5WQ

Data in this report applies to families of products SA1C-730-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-2-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-730-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2993
 CIE u': 0.2508
 CIE v': 0.5215
 Duv: 0.0000
 CIE x: 0.4374
 CIE y: 0.4043
 CIE z: 0.1583
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 53

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.8 | | |
| R1: | 67.5 | R9: | -38.3 |
| R2: | 82.9 | R10: | 62.5 |
| R3: | 94.7 | R11: | 63.7 |
| R4: | 67.7 | R12: | 57.8 |
| R5: | 67.9 | R13: | 70.4 |
| R6: | 77.6 | R14: | 97.3 |
| R7: | 76.0 | | |
| R8: | 40.5 | | |

Rf: 75.7
 Rg: 93.9



Test Conditions

Stabilization Time: 53M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

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| 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 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8

S/P: 1.23

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 M/P: 0.45

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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Summary

$R_f = 75.7$
 $R_g = 93.9$
 CIE $R_a = 71.8$
 $R_9 = -38.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)