

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: P363850

Luminaire Tested: NVN-SA6A-722-U-SL4-HSS

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P363850
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-25)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: STREETWORKS
Catalog Number: NVN-SA6A-722-U-SL4-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(6) 70 CRI, 2200K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV SPILL
LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16889 lumens
Efficiency: N/A
Efficacy: 87.5 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B2 - U0 - G3

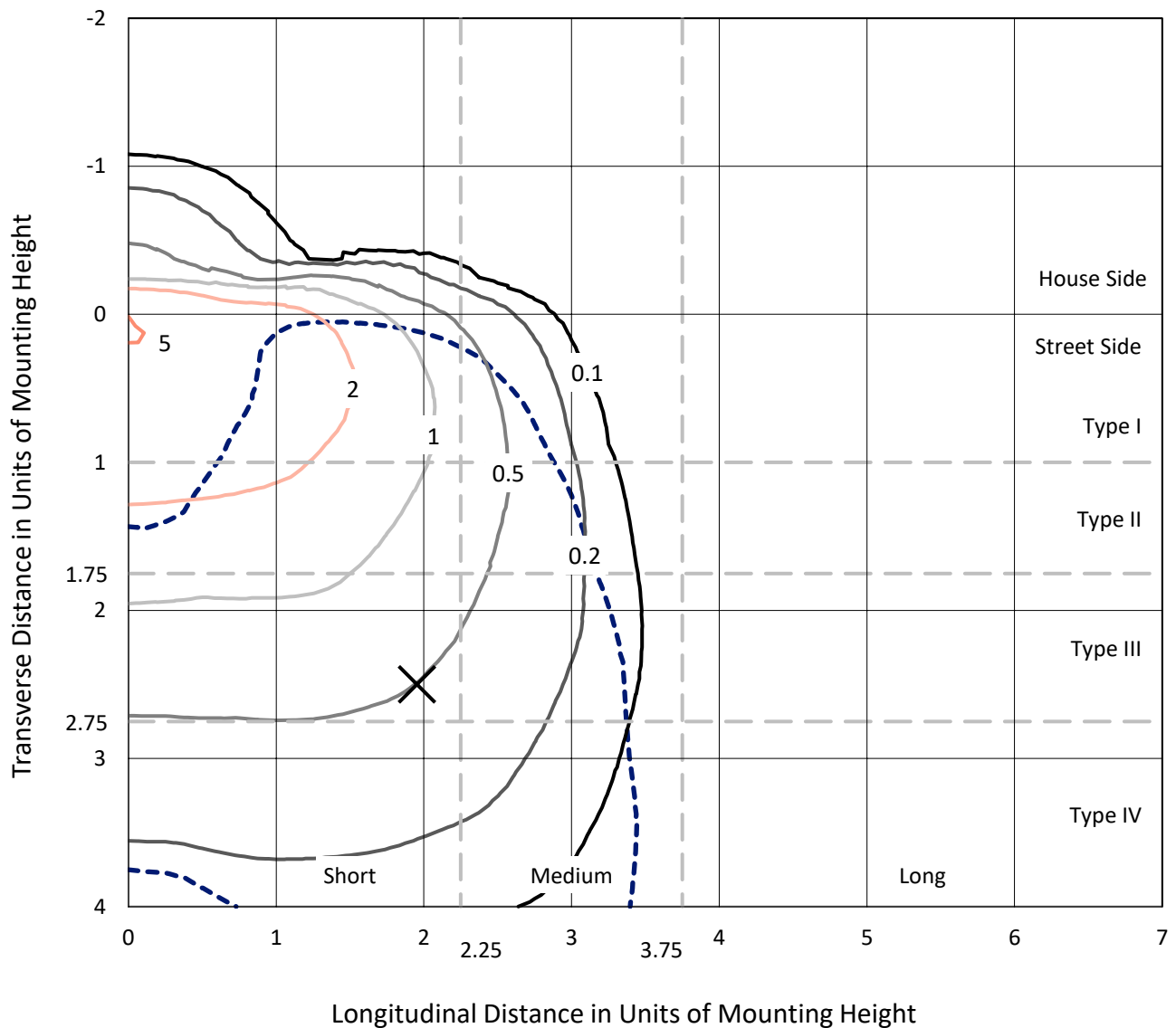
Input Watts (W): 193
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

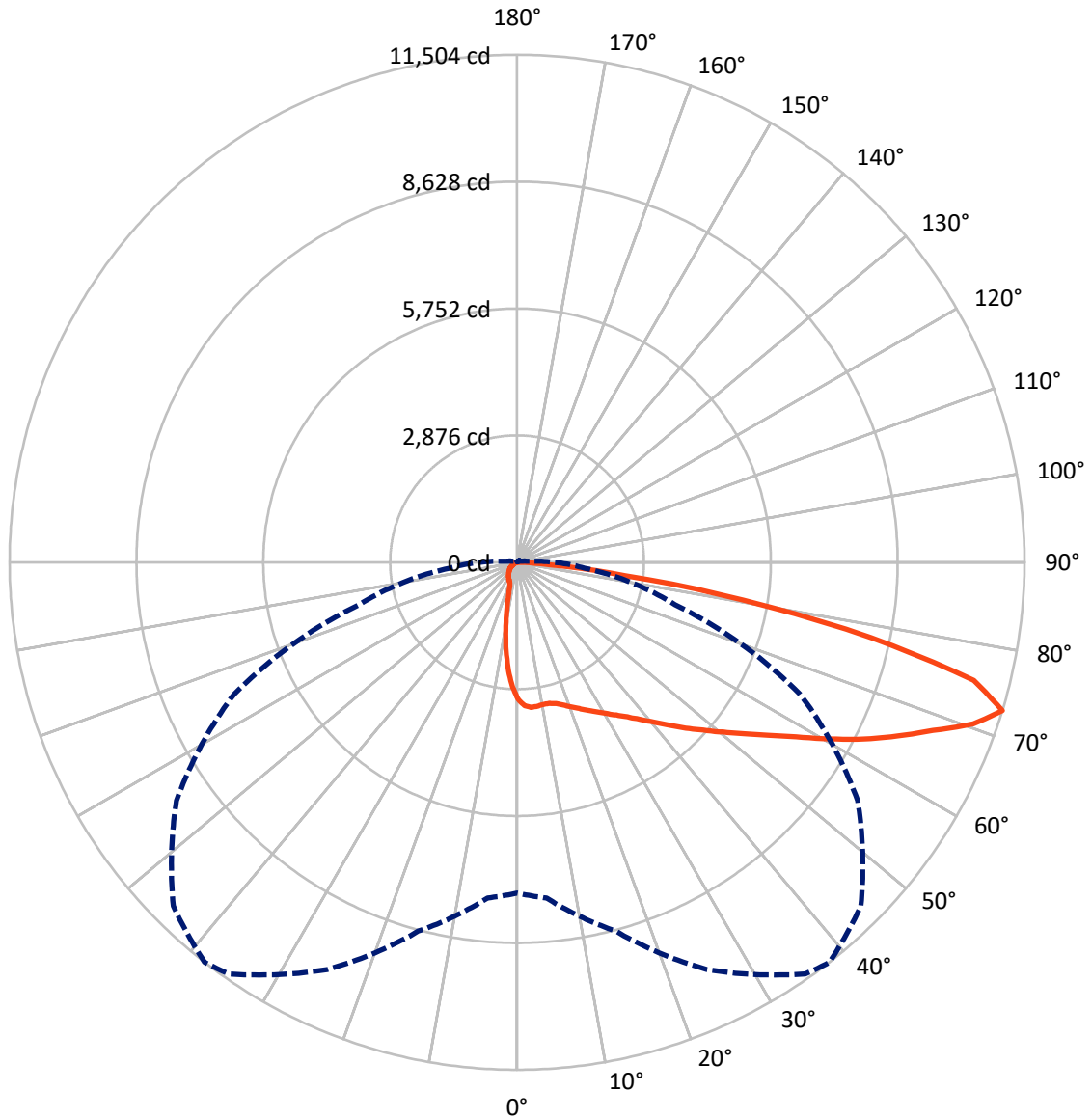
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.2 fc
 Type IV - Short - N/A

REPORT NUMBER: P363850
CATALOG NUMBER: NVN-SA6A-722-U-SL4-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 38-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

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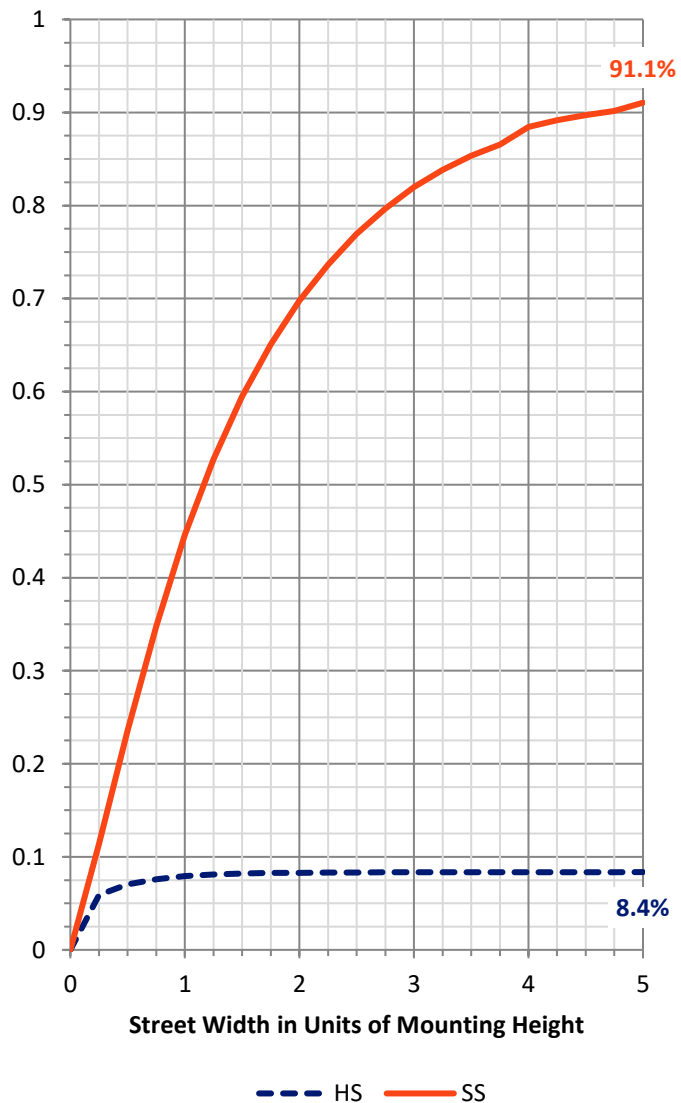
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1421.3 | 0.0 | 1421.3 |
| | % Fixture | 8.4 | 0.0 | 8.4 |
| Street Side | Lumens | 15467.7 | 0.0 | 15467.7 |
| | % Fixture | 91.6 | 0.0 | 91.6 |
| Total | Lumens | 16889.0 | 0.0 | 16889.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 264.7 | 1.6 |
| 10°-20° | 647.2 | 3.8 |
| 20°-30° | 1029.3 | 6.1 |
| 30°-40° | 1547.5 | 9.2 |
| 40°-50° | 2360.8 | 14.0 |
| 50°-60° | 3336.7 | 19.8 |
| 60°-70° | 4185.3 | 24.8 |
| 70°-80° | 3129.4 | 18.5 |
| 80°-90° | 388.0 | 2.3 |
| 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° | 16889.0 | 100.0 |
| 0°-180° | 16889.0 | 100.0 |

Coefficient of Utilization

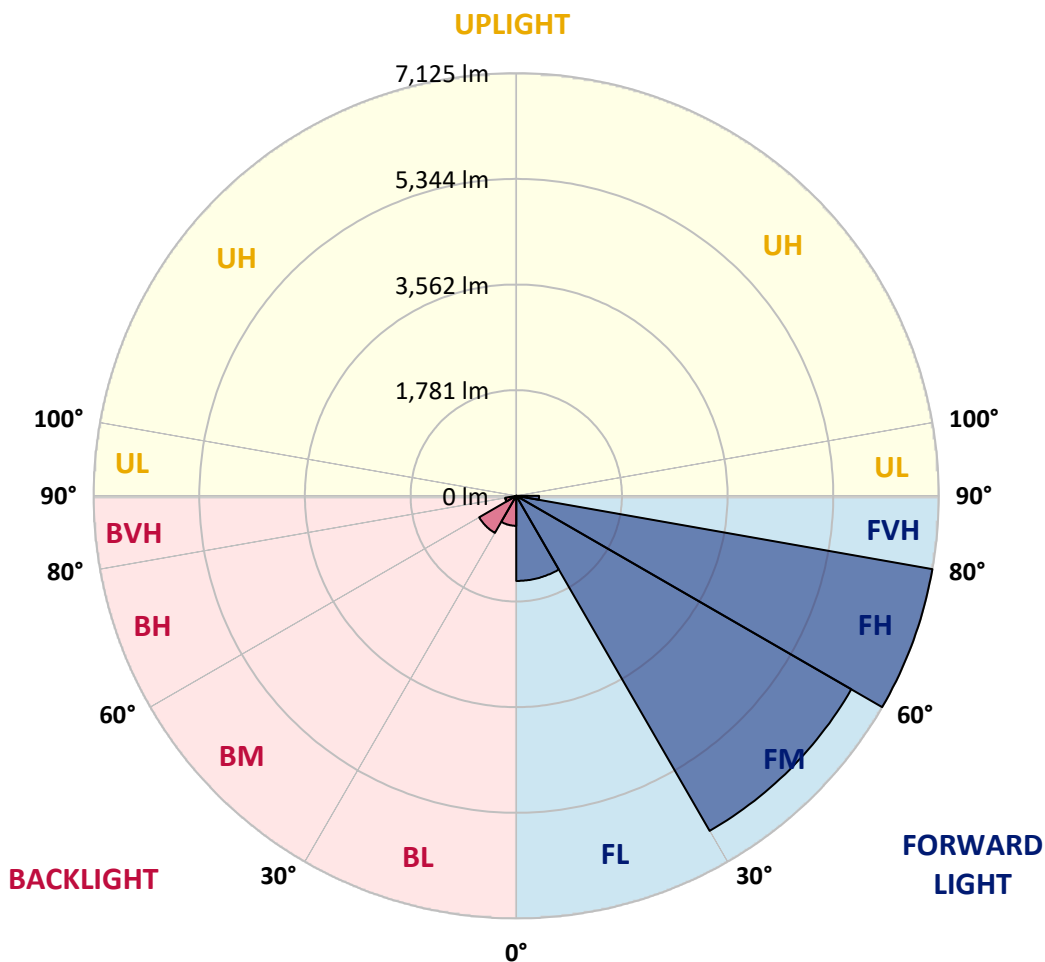


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1435.2 | 8.5 | | | |
| FM (30°-60°) | 6523.3 | 38.6 | | | |
| FH (60°-80°) | 7124.9 | 42.2 | | | G3/7500 |
| FVH (80°-90°) | 384.4 | 2.3 | | | G3/500 |
| BL (0°-30°) | 506.1 | 3.0 | B2/1000 | | |
| BM (30°-60°) | 721.7 | 4.3 | B1/1000 | | |
| BH (60°-80°) | 189.8 | 1.1 | B1/500 | | G1/500 |
| BVH (80°-90°) | 3.6 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G3
 Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 38° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|---------|---------|---------|---------|---------|--------|--------|--------|
| 0° | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 |
| 2.5° | 3296.6 | 3297.3 | 3289.6 | 3277.0 | 3260.8 | 3252.4 | 3238.4 | 3216.0 | 3192.1 | 3149.3 | 3103.0 |
| 5° | 3363.9 | 3363.9 | 3354.1 | 3337.3 | 3311.3 | 3303.6 | 3277.0 | 3241.2 | 3192.1 | 3122.7 | 3044.8 |
| 7.5° | 3356.9 | 3358.3 | 3345.0 | 3327.5 | 3301.5 | 3294.5 | 3262.2 | 3222.3 | 3161.2 | 3077.1 | 2977.5 |
| 10° | 3320.5 | 3324.0 | 3313.4 | 3305.0 | 3281.2 | 3273.5 | 3243.3 | 3203.3 | 3142.3 | 3052.5 | 2938.2 |
| 12.5° | 3283.3 | 3286.8 | 3290.3 | 3298.0 | 3283.3 | 3280.5 | 3256.6 | 3223.0 | 3164.7 | 3071.5 | 2942.4 |
| 15° | 3259.4 | 3266.5 | 3291.7 | 3321.9 | 3325.4 | 3322.6 | 3307.1 | 3275.6 | 3216.7 | 3119.9 | 2972.6 |
| 17.5° | 3259.4 | 3270.7 | 3323.3 | 3380.8 | 3401.1 | 3403.2 | 3389.9 | 3345.7 | 3275.6 | 3171.8 | 3000.6 |
| 20° | 3286.8 | 3302.2 | 3384.3 | 3465.7 | 3499.3 | 3499.3 | 3473.4 | 3411.6 | 3329.6 | 3218.8 | 3019.6 |
| 22.5° | 3356.9 | 3377.3 | 3480.4 | 3574.4 | 3610.1 | 3602.4 | 3567.4 | 3477.6 | 3385.7 | 3272.1 | 3043.4 |
| 25° | 3495.1 | 3510.5 | 3617.9 | 3712.5 | 3734.3 | 3716.8 | 3672.6 | 3557.5 | 3457.2 | 3344.3 | 3086.9 |
| 27.5° | 3673.3 | 3675.4 | 3786.2 | 3866.2 | 3852.8 | 3840.9 | 3785.5 | 3657.8 | 3560.3 | 3447.4 | 3161.9 |
| 30° | 3869.0 | 3869.0 | 3966.5 | 4027.5 | 3986.8 | 3977.0 | 3921.6 | 3779.2 | 3692.2 | 3587.7 | 3268.6 |
| 32.5° | 4058.3 | 4066.8 | 4146.0 | 4184.6 | 4139.0 | 4129.2 | 4075.2 | 3932.8 | 3867.6 | 3801.6 | 3434.8 |
| 35° | 4241.4 | 4247.7 | 4322.8 | 4343.8 | 4300.3 | 4303.1 | 4264.6 | 4143.9 | 4119.4 | 4110.9 | 3685.2 |
| 37.5° | 4418.9 | 4420.3 | 4496.7 | 4510.0 | 4488.3 | 4512.2 | 4515.7 | 4409.0 | 4454.6 | 4522.7 | 4038.0 |
| 40° | 4580.9 | 4582.3 | 4658.0 | 4692.4 | 4729.6 | 4760.5 | 4787.8 | 4731.0 | 4881.8 | 5039.6 | 4458.1 |
| 42.5° | 4710.7 | 4725.4 | 4821.5 | 4886.7 | 4984.9 | 5043.8 | 5118.2 | 5115.4 | 5390.3 | 5627.4 | 4966.0 |
| 45° | 4825.0 | 4850.2 | 4984.2 | 5098.5 | 5266.9 | 5360.9 | 5477.3 | 5568.5 | 5962.7 | 6281.8 | 5480.1 |
| 47.5° | 4975.8 | 4999.6 | 5152.5 | 5339.8 | 5564.3 | 5687.7 | 5880.6 | 6077.7 | 6591.8 | 6924.3 | 5982.3 |
| 50° | 5188.3 | 5177.8 | 5328.6 | 5597.2 | 5885.5 | 6047.5 | 6322.5 | 6617.8 | 7216.1 | 7484.0 | 6277.6 |
| 52.5° | 5414.9 | 5410.7 | 5522.2 | 5877.1 | 6264.3 | 6453.6 | 6817.0 | 7176.1 | 7813.0 | 7869.8 | 6413.0 |
| 55° | 5695.4 | 5665.3 | 5759.3 | 6196.2 | 6713.9 | 6917.3 | 7345.1 | 7728.8 | 8288.5 | 8087.2 | 6481.0 |
| 57.5° | 5989.3 | 5939.5 | 6029.3 | 6551.8 | 7221.0 | 7461.6 | 7930.1 | 8267.5 | 8604.9 | 8235.9 | 6480.3 |
| 60° | 6293.0 | 6234.1 | 6340.7 | 6996.5 | 7850.9 | 8129.3 | 8564.2 | 8631.5 | 8900.2 | 8311.0 | 6432.6 |
| 62.5° | 6546.9 | 6511.9 | 6670.4 | 7472.1 | 8554.4 | 8827.9 | 9043.2 | 8962.6 | 9149.2 | 8369.2 | 6321.1 |
| 65° | 6815.6 | 6817.7 | 7073.7 | 8026.9 | 9302.1 | 9486.5 | 9504.8 | 9391.8 | 9357.5 | 8357.3 | 5943.7 |
| 67.5° | 7178.9 | 7212.6 | 7639.7 | 8780.2 | 10029.4 | 10171.8 | 10170.4 | 9856.9 | 9509.7 | 7883.1 | 5106.9 |
| 70° | 7563.3 | 7642.5 | 8292.0 | 9642.2 | 10823.4 | 10967.9 | 10893.6 | 10152.9 | 8954.2 | 6374.4 | 3614.4 |
| 72.5° | 7498.7 | 7636.2 | 8654.7 | 10185.8 | 11393.7 | 11503.8 | 11020.5 | 9425.5 | 7077.2 | 3704.8 | 1538.9 |
| 75° | 5785.2 | 5944.4 | 7935.7 | 9647.2 | 10795.4 | 10696.5 | 9469.0 | 7334.6 | 3867.6 | 1033.9 | 346.5 |
| 77.5° | 3056.0 | 3140.9 | 5242.3 | 7349.3 | 8417.6 | 8210.7 | 6670.4 | 4068.9 | 1179.1 | 256.0 | 155.7 |
| 80° | 1600.6 | 1620.3 | 2284.5 | 4169.9 | 5195.3 | 5196.7 | 3953.1 | 1787.2 | 486.1 | 131.2 | 104.5 |
| 82.5° | 857.1 | 874.0 | 1207.1 | 1926.8 | 2722.2 | 2467.6 | 1513.6 | 983.4 | 282.7 | 74.3 | 100.3 |
| 85° | 206.2 | 209.7 | 684.6 | 880.3 | 1070.3 | 764.5 | 449.6 | 825.6 | 76.5 | 43.5 | 81.4 |
| 87.5° | 79.3 | 80.7 | 253.9 | 380.9 | 272.8 | 176.8 | 210.4 | 307.9 | 9.8 | 16.8 | 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: P363850

CATALOG NUMBER: NVN-SA6A-722-U-SL4-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 | 3105.8 |
| 2.5° | 3075.0 | 3056.7 | 3011.8 | 2955.0 | 2904.5 | 2868.1 | 2813.3 | 2777.6 | 2753.7 | 2753.0 | 2743.9 |
| 5° | 2997.1 | 2959.9 | 2863.1 | 2748.1 | 2643.6 | 2549.6 | 2438.8 | 2351.1 | 2285.9 | 2275.4 | 2252.9 |
| 7.5° | 2913.6 | 2852.6 | 2703.9 | 2524.4 | 2349.0 | 2170.9 | 1963.9 | 1835.6 | 1725.5 | 1672.9 | 1667.2 |
| 10° | 2862.4 | 2776.9 | 2565.7 | 2306.2 | 2031.3 | 1741.6 | 1470.9 | 1283.6 | 1148.2 | 1109.6 | 1080.9 |
| 12.5° | 2851.9 | 2739.0 | 2459.1 | 2101.4 | 1708.6 | 1325.7 | 1026.2 | 827.0 | 718.9 | 684.6 | 675.5 |
| 15° | 2862.4 | 2721.5 | 2369.4 | 1898.7 | 1381.8 | 940.6 | 688.8 | 573.0 | 532.4 | 522.5 | 521.8 |
| 17.5° | 2868.8 | 2700.4 | 2267.6 | 1673.6 | 1064.7 | 671.9 | 527.5 | 493.8 | 487.5 | 486.8 | 488.2 |
| 20° | 2868.1 | 2668.2 | 2146.3 | 1422.5 | 791.9 | 528.2 | 477.0 | 469.9 | 468.5 | 469.2 | 468.5 |
| 22.5° | 2863.1 | 2630.3 | 2013.0 | 1163.6 | 598.3 | 472.0 | 455.2 | 451.0 | 450.3 | 450.3 | 450.3 |
| 25° | 2872.3 | 2600.1 | 1866.4 | 916.0 | 493.1 | 446.1 | 435.6 | 432.1 | 431.4 | 431.4 | 430.0 |
| 27.5° | 2905.2 | 2583.3 | 1705.8 | 704.9 | 445.4 | 422.9 | 414.5 | 413.8 | 411.7 | 411.0 | 412.4 |
| 30° | 2958.5 | 2583.3 | 1529.8 | 548.5 | 416.6 | 399.1 | 392.8 | 391.4 | 390.7 | 390.0 | 390.7 |
| 32.5° | 3052.5 | 2602.9 | 1337.6 | 455.9 | 389.3 | 372.4 | 368.2 | 370.3 | 368.2 | 368.2 | 368.2 |
| 35° | 3222.3 | 2661.8 | 1136.3 | 397.7 | 360.5 | 346.5 | 342.3 | 345.1 | 343.7 | 343.7 | 343.0 |
| 37.5° | 3469.9 | 2771.3 | 933.6 | 362.6 | 335.3 | 320.5 | 314.9 | 319.1 | 317.7 | 317.7 | 317.0 |
| 40° | 3771.5 | 2930.5 | 740.7 | 336.0 | 310.7 | 295.3 | 290.4 | 292.5 | 289.0 | 289.0 | 290.4 |
| 42.5° | 4143.9 | 3132.5 | 572.3 | 310.0 | 286.2 | 271.4 | 268.6 | 266.5 | 260.2 | 256.7 | 257.4 |
| 45° | 4557.7 | 3342.9 | 446.1 | 284.8 | 263.0 | 251.1 | 246.9 | 241.3 | 230.8 | 223.7 | 224.5 |
| 47.5° | 4927.4 | 3504.9 | 362.6 | 260.2 | 242.0 | 232.9 | 226.6 | 216.0 | 200.6 | 192.2 | 192.9 |
| 50° | 5121.7 | 3529.5 | 308.6 | 235.7 | 222.3 | 213.2 | 204.1 | 188.0 | 169.7 | 160.6 | 159.9 |
| 52.5° | 5171.5 | 3414.5 | 268.6 | 213.2 | 202.7 | 192.2 | 180.3 | 158.5 | 138.2 | 128.4 | 127.0 |
| 55° | 5189.7 | 3239.1 | 232.9 | 192.2 | 181.7 | 169.7 | 154.3 | 129.8 | 110.8 | 101.0 | 100.3 |
| 57.5° | 5129.4 | 2977.5 | 204.8 | 173.2 | 160.6 | 145.9 | 127.0 | 103.8 | 85.6 | 77.9 | 77.9 |
| 60° | 4995.4 | 2623.3 | 183.1 | 152.9 | 138.9 | 122.0 | 102.4 | 80.7 | 63.8 | 57.5 | 57.5 |
| 62.5° | 4728.2 | 2164.5 | 162.7 | 131.9 | 118.5 | 101.0 | 82.8 | 61.0 | 44.9 | 41.4 | 42.1 |
| 65° | 4223.9 | 1642.0 | 142.4 | 112.9 | 101.0 | 83.5 | 64.5 | 43.5 | 30.2 | 30.2 | 31.6 |
| 67.5° | 3444.6 | 1140.5 | 121.3 | 96.1 | 87.0 | 68.0 | 49.1 | 30.2 | 21.0 | 23.8 | 26.7 |
| 70° | 2280.3 | 639.7 | 103.8 | 79.3 | 74.3 | 54.0 | 36.5 | 20.3 | 16.8 | 22.4 | 27.4 |
| 72.5° | 860.6 | 249.0 | 87.0 | 63.8 | 64.5 | 41.4 | 26.0 | 15.4 | 15.4 | 24.5 | 32.3 |
| 75° | 239.9 | 122.0 | 62.4 | 47.0 | 50.5 | 30.2 | 18.9 | 13.3 | 14.7 | 28.1 | 37.9 |
| 77.5° | 141.0 | 89.8 | 40.7 | 27.4 | 34.4 | 21.0 | 12.6 | 10.5 | 12.6 | 23.8 | 36.5 |
| 80° | 113.6 | 47.7 | 23.8 | 14.0 | 18.9 | 11.9 | 8.4 | 6.3 | 3.5 | 9.1 | 18.9 |
| 82.5° | 113.6 | 28.8 | 11.2 | 9.8 | 9.8 | 6.3 | 4.2 | 2.8 | 0.7 | 0.0 | 4.9 |
| 85° | 76.5 | 11.9 | 7.0 | 6.3 | 4.9 | 2.1 | 1.4 | 0.7 | 0.0 | 0.0 | 0.0 |
| 87.5° | 12.6 | 4.9 | 2.8 | 1.4 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 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 |

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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 2200K 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 | 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 | | | |

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Summary

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



Color Vector Graphics



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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 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)