

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: P359265

Luminaire Tested: NVN-SA5A-730-U-T3

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P359265
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-14)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: STREETWORKS
Catalog Number: NVN-SA5A-730-U-T3
Description: NAVION ROADWAY AND AREA LUMINAIRE
(5) 70 CRI, 3000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 21445 lumens
Efficiency: N/A
Efficacy: 132.4 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B3 - U0 - G3

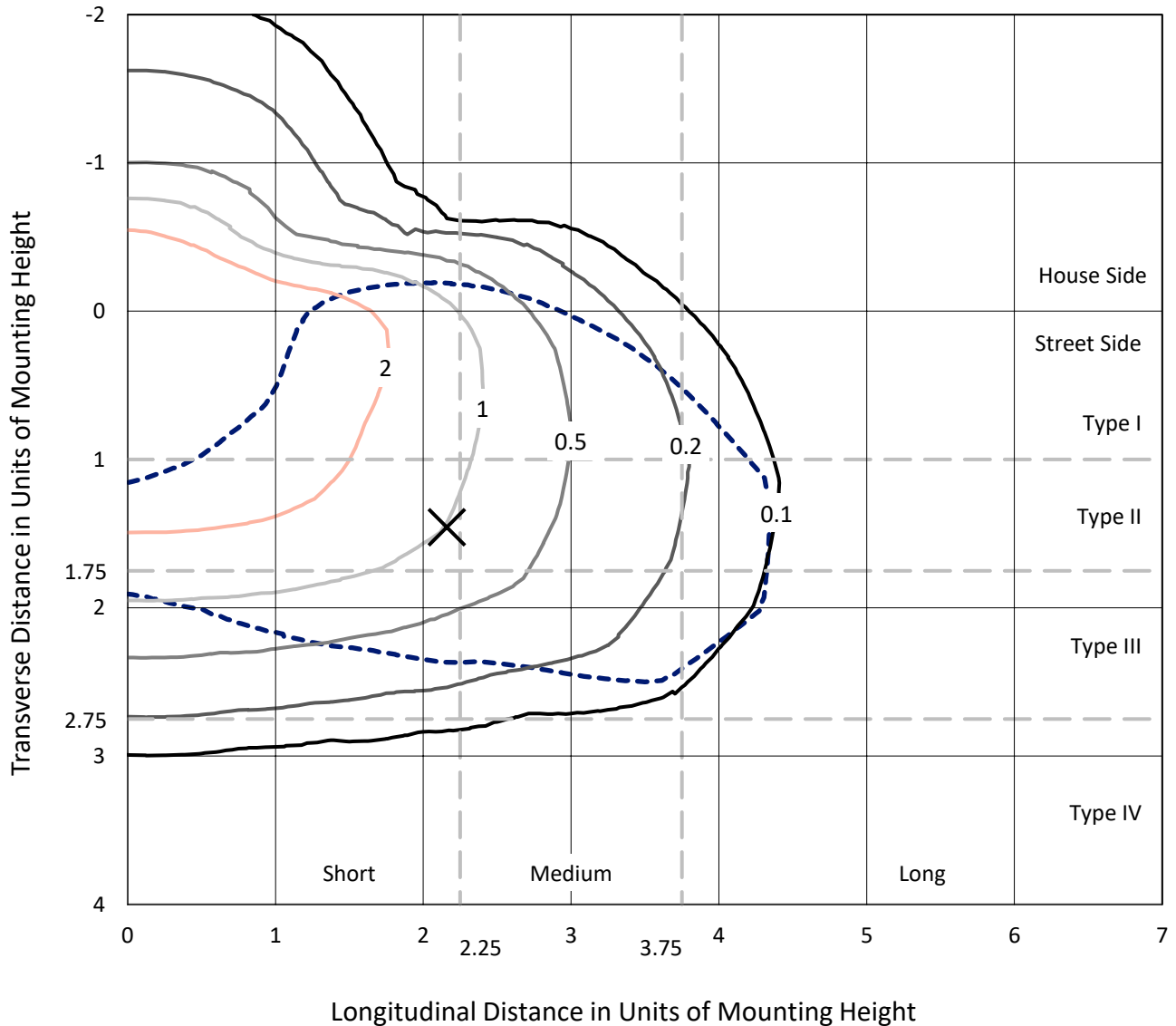
Input Watts (W): 162
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P359265
 CATALOG NUMBER: NVN-SA5A-730-U-T3

Iso-Footcandle Lines of Horizontal Illumination

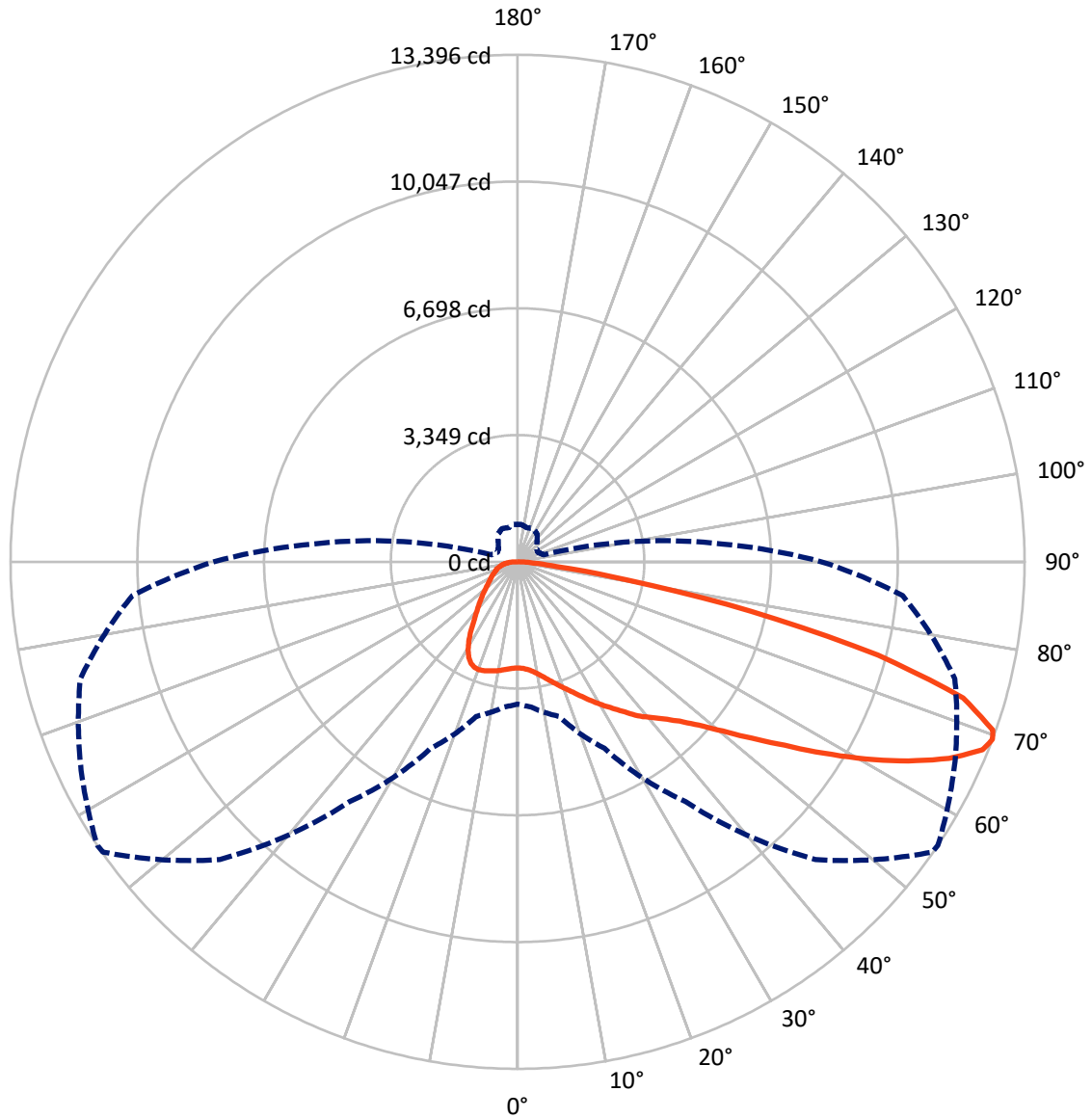
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 4.9 fc
 Type III - Short - N/A

REPORT NUMBER: P359265
CATALOG NUMBER: NVN-SA5A-730-U-T3

Luminous Intensity Polar Plot



— Vertical Plane Through 56-Deg Lateral - - - Horizontal Cone Through 69-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4775.8 | 0.0 | 4775.8 |
| | % Fixture | 22.3 | 0.0 | 22.3 |
| Street Side | Lumens | 16669.2 | 0.0 | 16669.2 |
| | % Fixture | 77.7 | 0.0 | 77.7 |
| Total | Lumens | 21445.0 | 0.0 | 21445.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 275.4 | 1.3 |
| 10°-20° | 885.4 | 4.1 |
| 20°-30° | 1545.6 | 7.2 |
| 30°-40° | 2220.3 | 10.4 |
| 40°-50° | 3072.7 | 14.3 |
| 50°-60° | 4502.0 | 21.0 |
| 60°-70° | 5488.8 | 25.6 |
| 70°-80° | 3034.5 | 14.2 |
| 80°-90° | 420.3 | 2.0 |
| 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° | 21445.0 | 100.0 |
| 0°-180° | 21445.0 | 100.0 |



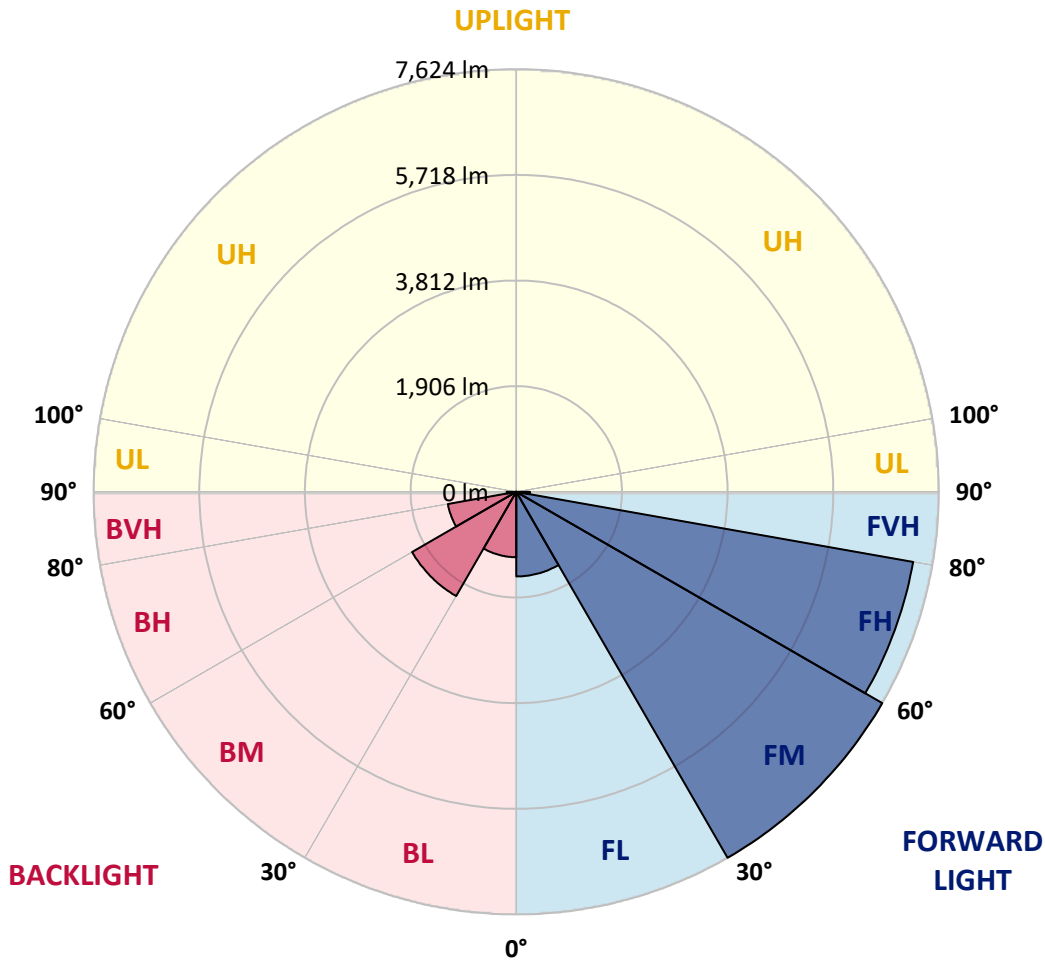
REPORT NUMBER: P359265
 CATALOG NUMBER: NVN-SA5A-730-U-T3

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1526.2 | 7.1 | | | |
| FM (30°-60°) | 7624.5 | 35.6 | | | |
| FH (60°-80°) | 7270.9 | 33.9 | | | G3/7500 |
| FVH (80°-90°) | 247.6 | 1.2 | | | G3/500 |
| BL (0°-30°) | 1180.2 | 5.5 | B3/2500 | | |
| BM (30°-60°) | 2170.5 | 10.1 | B2/2500 | | |
| BH (60°-80°) | 1252.4 | 5.8 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 172.7 | 0.8 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G3

Type III Short





REPORT NUMBER: P359265

CATALOG NUMBER: NVN-SA5A-730-U-T3

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 56° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|
| 0° | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 |
| 2.5° | 2821.3 | 2824.3 | 2822.1 | 2828.0 | 2821.3 | 2825.8 | 2822.1 | 2822.1 | 2819.9 | 2813.2 | 2805.8 |
| 5° | 2865.7 | 2871.6 | 2867.9 | 2873.8 | 2865.7 | 2867.1 | 2860.5 | 2860.5 | 2853.8 | 2839.8 | 2825.0 |
| 7.5° | 2935.1 | 2941.8 | 2938.8 | 2944.7 | 2933.6 | 2933.6 | 2924.8 | 2924.0 | 2910.7 | 2887.8 | 2870.8 |
| 10° | 3017.9 | 3026.7 | 3023.8 | 3032.6 | 3023.8 | 3026.7 | 3017.9 | 3017.9 | 3000.1 | 2967.6 | 2946.2 |
| 12.5° | 3138.3 | 3149.4 | 3141.2 | 3140.5 | 3136.8 | 3142.7 | 3135.3 | 3133.8 | 3117.6 | 3073.3 | 3043.7 |
| 15° | 3299.3 | 3311.1 | 3294.2 | 3292.7 | 3272.0 | 3269.8 | 3269.8 | 3267.6 | 3257.2 | 3204.0 | 3155.3 |
| 17.5° | 3484.8 | 3488.4 | 3473.7 | 3450.0 | 3423.4 | 3406.4 | 3404.2 | 3410.1 | 3410.1 | 3348.1 | 3270.5 |
| 20° | 3666.5 | 3673.1 | 3661.3 | 3634.7 | 3600.7 | 3575.6 | 3557.9 | 3569.7 | 3569.0 | 3495.1 | 3385.0 |
| 22.5° | 3864.5 | 3880.0 | 3862.3 | 3828.3 | 3788.4 | 3760.3 | 3729.3 | 3739.6 | 3740.4 | 3649.5 | 3497.3 |
| 25° | 4120.8 | 4106.8 | 4095.7 | 4047.7 | 3990.8 | 3962.0 | 3933.2 | 3943.5 | 3940.6 | 3815.7 | 3613.3 |
| 27.5° | 4347.6 | 4350.6 | 4335.8 | 4284.8 | 4219.1 | 4155.5 | 4154.1 | 4160.7 | 4149.6 | 3988.6 | 3722.6 |
| 30° | 4611.4 | 4612.8 | 4592.2 | 4546.4 | 4474.7 | 4392.7 | 4373.5 | 4384.6 | 4360.9 | 4152.6 | 3837.9 |
| 32.5° | 4873.6 | 4881.0 | 4858.1 | 4802.7 | 4745.1 | 4645.4 | 4606.9 | 4614.3 | 4555.2 | 4320.3 | 3956.8 |
| 35° | 5103.4 | 5113.7 | 5106.3 | 5069.4 | 5006.6 | 4920.9 | 4875.1 | 4870.7 | 4797.5 | 4525.7 | 4114.2 |
| 37.5° | 5337.6 | 5347.2 | 5339.1 | 5308.0 | 5282.9 | 5192.0 | 5167.7 | 5167.7 | 5040.6 | 4735.5 | 4314.4 |
| 40° | 5578.4 | 5593.2 | 5583.6 | 5540.7 | 5519.3 | 5477.9 | 5419.6 | 5405.5 | 5268.1 | 4987.4 | 4640.9 |
| 42.5° | 5802.3 | 5821.5 | 5859.9 | 5834.8 | 5791.2 | 5797.1 | 5679.6 | 5672.2 | 5571.8 | 5359.7 | 5050.9 |
| 45° | 6119.9 | 6148.0 | 6213.0 | 6193.8 | 6184.9 | 6152.4 | 6012.8 | 6006.2 | 5967.7 | 5860.6 | 5559.9 |
| 47.5° | 6466.4 | 6504.8 | 6622.3 | 6626.0 | 6721.3 | 6660.0 | 6470.1 | 6447.2 | 6456.1 | 6460.5 | 6181.2 |
| 50° | 6785.6 | 6827.7 | 7020.5 | 7111.3 | 7335.9 | 7349.2 | 7045.6 | 7024.9 | 7059.6 | 7161.6 | 6905.2 |
| 52.5° | 7040.4 | 7093.6 | 7334.5 | 7615.2 | 8000.1 | 8109.4 | 7754.1 | 7738.6 | 7764.4 | 7940.2 | 7723.8 |
| 55° | 7227.3 | 7285.0 | 7547.2 | 8058.4 | 8673.1 | 8865.9 | 8569.7 | 8554.9 | 8571.1 | 8795.0 | 8614.0 |
| 57.5° | 7270.9 | 7285.0 | 7665.4 | 8356.9 | 9241.2 | 9704.4 | 9567.7 | 9538.2 | 9458.4 | 9653.4 | 9596.5 |
| 60° | 7066.3 | 7122.4 | 7567.9 | 8461.8 | 9680.8 | 10531.1 | 10610.9 | 10573.9 | 10350.1 | 10509.7 | 10463.9 |
| 62.5° | 6651.1 | 6751.6 | 7203.7 | 8302.2 | 9852.9 | 11206.3 | 11634.1 | 11589.7 | 11204.1 | 11307.5 | 11087.4 |
| 65° | 5972.9 | 6015.8 | 6490.8 | 7751.9 | 9634.2 | 11638.5 | 12546.4 | 12524.3 | 12038.9 | 11877.1 | 11202.6 |
| 67.5° | 4759.9 | 4840.4 | 5243.7 | 6601.6 | 8739.6 | 11587.5 | 13252.0 | 13249.7 | 12584.1 | 12088.4 | 10794.1 |
| 69° | 3760.3 | 3843.8 | 4227.9 | 5438.0 | 7733.4 | 11121.4 | 13370.2 | 13396.0 | 12737.8 | 11959.9 | 10210.5 |
| 70° | 2997.9 | 3094.7 | 3358.4 | 4580.3 | 6840.2 | 10506.7 | 13271.9 | 13318.4 | 12708.2 | 11747.8 | 9671.9 |
| 72.5° | 1275.8 | 1354.2 | 1541.8 | 2361.1 | 4168.8 | 7845.7 | 12134.9 | 12310.8 | 12023.4 | 10752.0 | 7993.4 |
| 75° | 557.0 | 581.4 | 666.4 | 962.6 | 1850.6 | 4270.1 | 9506.4 | 9831.5 | 10280.6 | 9088.3 | 5954.4 |
| 77.5° | 407.8 | 418.1 | 464.7 | 565.2 | 830.4 | 1612.7 | 6113.3 | 6302.4 | 7414.2 | 6613.4 | 3652.5 |
| 80° | 315.5 | 322.8 | 359.0 | 415.2 | 542.3 | 652.3 | 2788.1 | 2950.6 | 4168.8 | 3396.8 | 1521.1 |
| 82.5° | 251.2 | 256.4 | 281.5 | 305.8 | 374.6 | 395.2 | 925.7 | 1026.9 | 1538.8 | 938.2 | 402.6 |
| 85° | 233.4 | 239.4 | 248.2 | 223.1 | 240.1 | 232.0 | 400.4 | 418.9 | 464.7 | 368.6 | 168.4 |
| 87.5° | 105.6 | 124.9 | 246.0 | 173.6 | 127.8 | 101.9 | 164.0 | 171.4 | 192.8 | 193.6 | 74.6 |
| 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: P359265
 CATALOG NUMBER: NVN-SA5A-730-U-T3

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 | 2803.6 |
| 2.5° | 2810.3 | 2808.0 | 2811.7 | 2802.9 | 2814.0 | 2813.2 | 2809.5 | 2811.0 | 2818.4 | 2817.6 | 2818.4 |
| 5° | 2827.3 | 2825.8 | 2830.2 | 2823.6 | 2836.9 | 2841.3 | 2842.0 | 2848.7 | 2856.8 | 2859.0 | 2859.0 |
| 7.5° | 2870.1 | 2870.1 | 2872.3 | 2863.5 | 2872.3 | 2871.6 | 2867.9 | 2874.5 | 2882.7 | 2883.4 | 2882.7 |
| 10° | 2944.0 | 2944.7 | 2941.0 | 2918.1 | 2910.7 | 2890.8 | 2872.3 | 2873.1 | 2883.4 | 2891.5 | 2893.7 |
| 12.5° | 3037.1 | 3034.1 | 3017.9 | 2975.7 | 2944.7 | 2904.1 | 2884.9 | 2884.1 | 2894.5 | 2901.1 | 2903.3 |
| 15° | 3143.4 | 3135.3 | 3093.2 | 3024.5 | 2969.8 | 2929.9 | 2898.9 | 2891.5 | 2885.6 | 2878.2 | 2879.0 |
| 17.5° | 3243.9 | 3225.4 | 3155.3 | 3060.0 | 3002.3 | 2949.1 | 2889.3 | 2841.3 | 2808.0 | 2788.8 | 2782.9 |
| 20° | 3345.9 | 3309.7 | 3208.5 | 3093.2 | 3020.1 | 2923.3 | 2808.0 | 2710.5 | 2649.9 | 2621.9 | 2616.7 |
| 22.5° | 3438.9 | 3380.6 | 3258.0 | 3127.9 | 3006.0 | 2836.1 | 2655.1 | 2513.3 | 2429.1 | 2391.4 | 2394.3 |
| 25° | 3529.8 | 3448.6 | 3309.7 | 3152.3 | 2935.1 | 2682.5 | 2442.4 | 2268.0 | 2170.5 | 2128.4 | 2126.9 |
| 27.5° | 3609.6 | 3517.3 | 3365.8 | 3132.4 | 2802.9 | 2463.8 | 2190.4 | 2020.5 | 1939.3 | 1903.1 | 1897.1 |
| 30° | 3701.2 | 3603.7 | 3440.4 | 3056.3 | 2609.3 | 2211.1 | 1944.4 | 1824.7 | 1767.1 | 1730.9 | 1724.3 |
| 32.5° | 3812.8 | 3721.2 | 3501.7 | 2918.1 | 2361.8 | 1947.4 | 1752.3 | 1668.9 | 1616.4 | 1575.8 | 1568.4 |
| 35° | 3975.3 | 3876.3 | 3517.3 | 2720.1 | 2090.0 | 1739.1 | 1611.2 | 1525.5 | 1454.6 | 1402.2 | 1397.0 |
| 37.5° | 4179.2 | 4070.6 | 3481.8 | 2463.8 | 1826.2 | 1603.9 | 1493.8 | 1388.1 | 1295.8 | 1221.9 | 1210.1 |
| 40° | 4473.2 | 4309.2 | 3383.5 | 2168.3 | 1631.9 | 1499.7 | 1379.3 | 1258.9 | 1144.3 | 1057.9 | 1040.9 |
| 42.5° | 4826.3 | 4589.2 | 3232.8 | 1874.2 | 1489.3 | 1394.0 | 1265.5 | 1116.3 | 1006.9 | 945.6 | 936.8 |
| 45° | 5275.5 | 4880.3 | 3023.8 | 1617.2 | 1349.0 | 1288.4 | 1142.9 | 1005.5 | 937.5 | 892.4 | 885.0 |
| 47.5° | 5788.2 | 5206.8 | 2804.3 | 1408.1 | 1230.0 | 1189.4 | 1044.6 | 956.0 | 902.0 | 866.6 | 859.9 |
| 50° | 6418.4 | 5575.5 | 2571.6 | 1236.7 | 1110.4 | 1070.5 | 998.1 | 928.6 | 885.8 | 858.4 | 851.8 |
| 52.5° | 7129.1 | 5991.4 | 2403.9 | 1101.5 | 1011.4 | 982.6 | 973.7 | 913.9 | 879.1 | 858.4 | 851.8 |
| 55° | 7894.4 | 6414.7 | 2222.9 | 987.7 | 925.7 | 933.8 | 957.4 | 915.3 | 891.7 | 866.6 | 857.0 |
| 57.5° | 8660.5 | 6852.0 | 2021.3 | 891.7 | 857.7 | 897.6 | 946.4 | 918.3 | 898.3 | 874.0 | 865.1 |
| 60° | 9266.3 | 7129.1 | 1708.8 | 811.2 | 803.8 | 857.7 | 919.8 | 896.1 | 870.3 | 871.0 | 869.5 |
| 62.5° | 9549.3 | 7114.3 | 1363.8 | 739.5 | 749.8 | 803.8 | 876.9 | 861.4 | 840.0 | 868.8 | 871.0 |
| 65° | 9390.4 | 6759.7 | 1061.6 | 674.5 | 692.2 | 747.6 | 832.6 | 844.4 | 851.8 | 907.2 | 914.6 |
| 67.5° | 8724.1 | 6069.7 | 822.2 | 617.6 | 639.8 | 709.2 | 837.0 | 919.8 | 929.4 | 987.7 | 987.0 |
| 69° | 8034.8 | 5422.5 | 714.4 | 588.1 | 613.9 | 718.8 | 894.6 | 967.8 | 931.6 | 993.6 | 984.8 |
| 70° | 7457.1 | 4910.6 | 656.8 | 568.1 | 602.1 | 735.8 | 933.1 | 967.0 | 920.5 | 973.7 | 958.9 |
| 72.5° | 5743.2 | 3532.8 | 557.0 | 531.2 | 562.2 | 704.0 | 944.1 | 945.6 | 894.6 | 905.0 | 879.9 |
| 75° | 3939.1 | 2232.5 | 486.1 | 480.9 | 501.6 | 634.6 | 908.7 | 903.5 | 827.4 | 812.6 | 792.0 |
| 77.5° | 2172.0 | 1134.0 | 413.0 | 432.9 | 447.0 | 562.2 | 825.9 | 818.6 | 755.8 | 724.7 | 717.3 |
| 80° | 837.8 | 496.4 | 348.7 | 384.9 | 393.8 | 486.8 | 724.0 | 717.3 | 664.9 | 625.0 | 613.9 |
| 82.5° | 316.2 | 260.0 | 288.1 | 333.2 | 330.2 | 401.9 | 613.2 | 609.5 | 558.5 | 500.1 | 482.4 |
| 85° | 146.3 | 155.9 | 228.3 | 274.8 | 253.4 | 297.7 | 490.5 | 497.2 | 435.1 | 365.7 | 365.7 |
| 87.5° | 62.1 | 87.2 | 161.8 | 207.6 | 170.7 | 200.9 | 359.8 | 343.5 | 315.5 | 218.7 | 205.4 |
| 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 (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

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 ($R_{f,i}$)

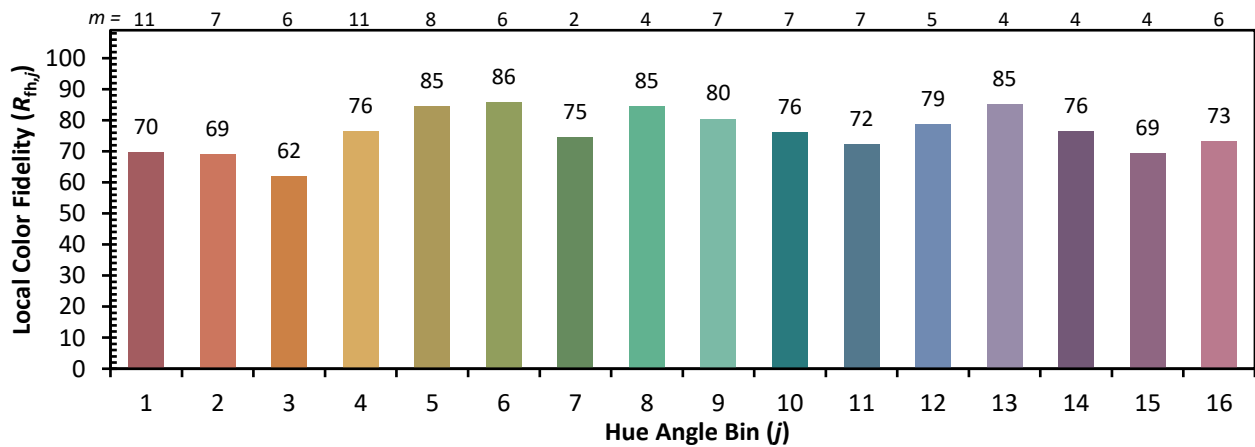
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 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)