

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: P363715

Luminaire Tested: NVN-SA3C-722-U-SL3-HSS

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P363715
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-23)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: STREETWORKS
Catalog Number: NVN-SA3C-722-U-SL3-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 70 CRI, 2200K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III
SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13432 lumens
Efficiency: N/A
Efficacy: 80.9 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G3

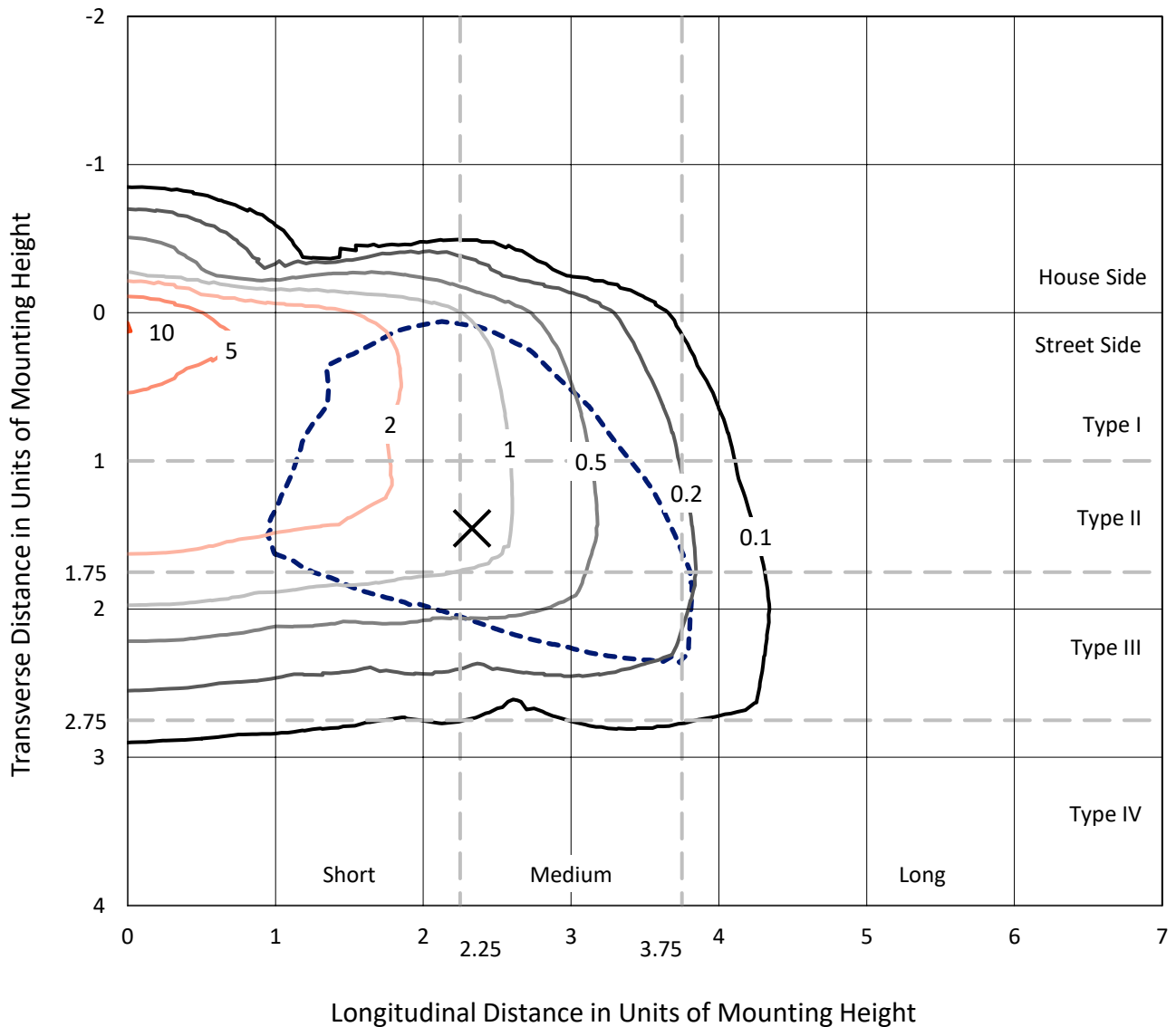
Input Watts (W): 166
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

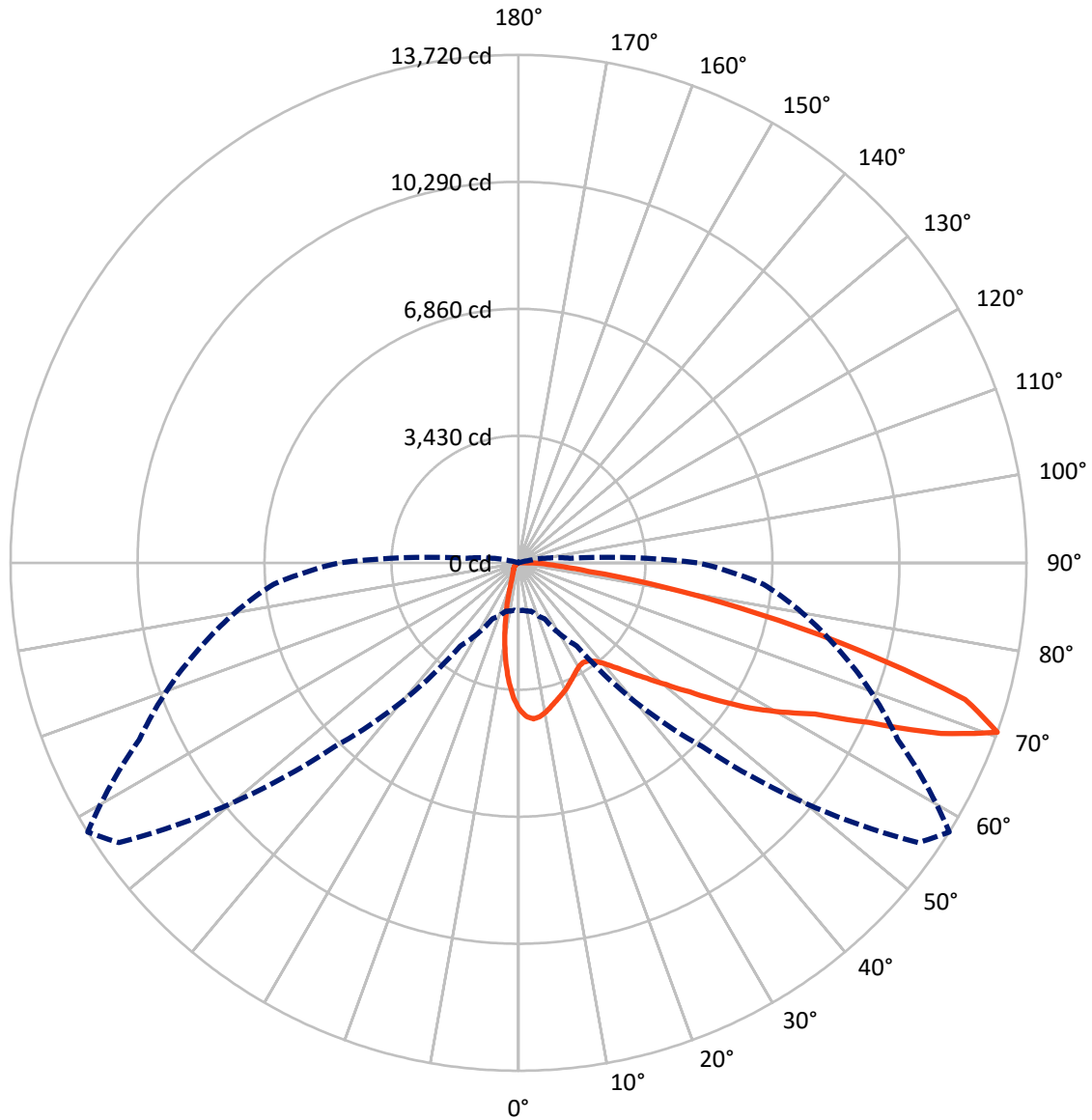
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 10.1 fc
 Type III - Medium - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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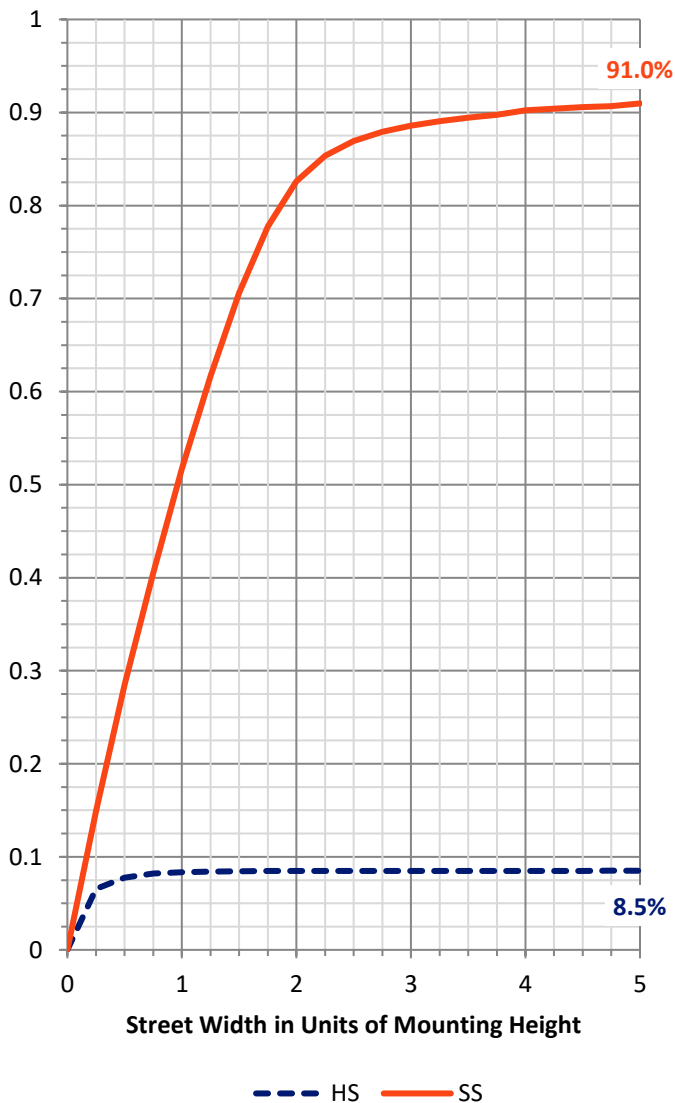
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1149.5 | 0.0 | 1149.5 |
| | % Fixture | 8.6 | 0.0 | 8.6 |
| Street Side | Lumens | 12282.5 | 0.0 | 12282.5 |
| | % Fixture | 91.4 | 0.0 | 91.4 |
| Total | Lumens | 13432.0 | 0.0 | 13432.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 324.5 | 2.4 |
| 10°-20° | 681.0 | 5.1 |
| 20°-30° | 895.2 | 6.7 |
| 30°-40° | 1185.6 | 8.8 |
| 40°-50° | 1772.2 | 13.2 |
| 50°-60° | 2838.9 | 21.1 |
| 60°-70° | 3578.5 | 26.6 |
| 70°-80° | 1930.2 | 14.4 |
| 80°-90° | 225.9 | 1.7 |
| 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° | 13432.0 | 100.0 |
| 0°-180° | 13432.0 | 100.0 |

Coefficient of Utilization

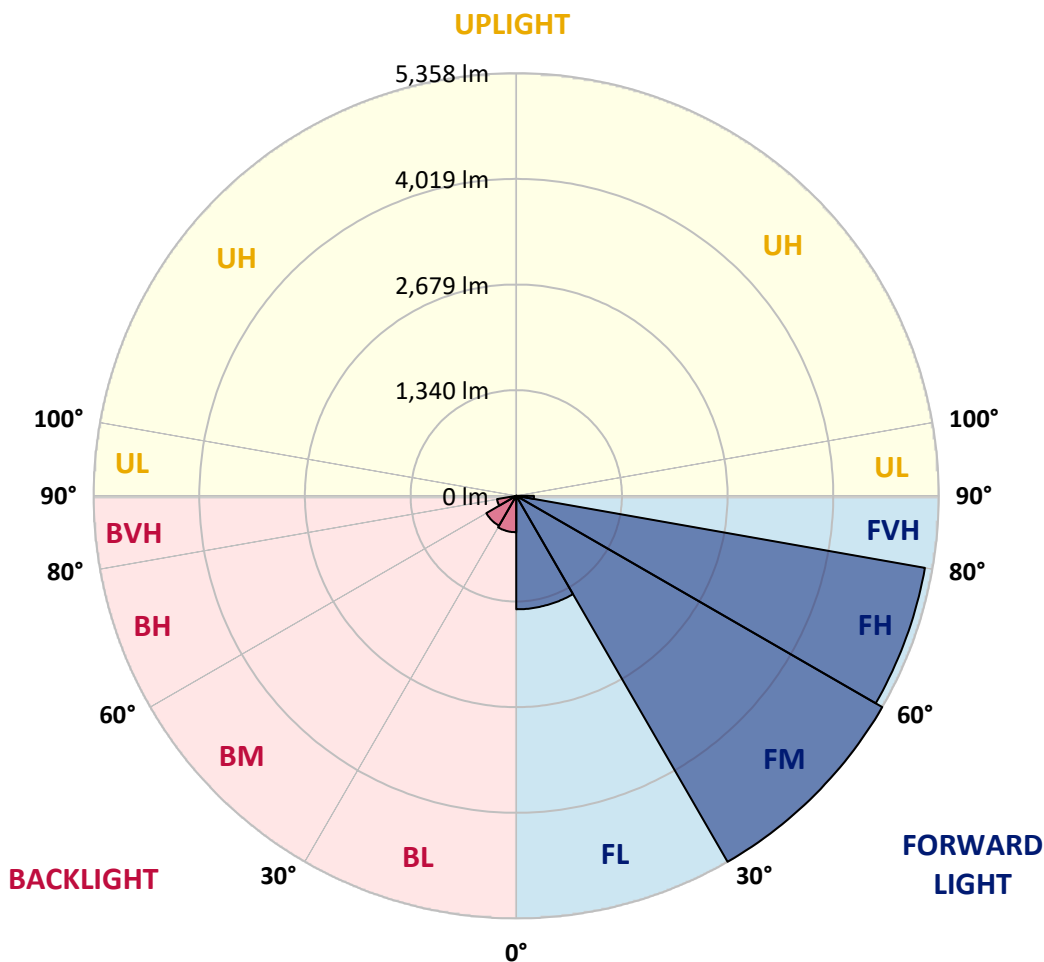


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1438.8 | 10.7 | | | |
| FM (30°-60°) | 5358.2 | 39.9 | | | |
| FH (60°-80°) | 5261.5 | 39.2 | | | G3/7500 |
| FVH (80°-90°) | 224.0 | 1.7 | | | G2/225 |
| BL (0°-30°) | 461.8 | 3.4 | B1/500 | | |
| BM (30°-60°) | 438.5 | 3.3 | B1/1000 | | |
| BH (60°-80°) | 247.2 | 1.8 | B1/500 | | G1/500 |
| BVH (80°-90°) | 2.0 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G3
 Type III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|---------|--------|--------|
| 0° | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 |
| 2.5° | 4296.7 | 4286.1 | 4282.2 | 4275.5 | 4249.8 | 4224.7 | 4175.0 | 4161.0 | 4129.7 | 4055.4 | 3976.7 |
| 5° | 4300.1 | 4299.5 | 4311.2 | 4308.4 | 4299.5 | 4287.8 | 4252.0 | 4233.6 | 4180.5 | 4074.4 | 3930.3 |
| 7.5° | 4092.9 | 4103.5 | 4129.7 | 4150.9 | 4175.5 | 4207.4 | 4211.8 | 4194.0 | 4150.4 | 4035.9 | 3844.9 |
| 10° | 3814.7 | 3831.5 | 3868.3 | 3910.2 | 3974.5 | 4038.1 | 4095.1 | 4092.9 | 4077.8 | 3965.0 | 3742.1 |
| 12.5° | 3536.0 | 3555.6 | 3598.0 | 3660.0 | 3751.0 | 3854.9 | 3956.6 | 3970.5 | 3995.7 | 3901.3 | 3647.2 |
| 15° | 3291.9 | 3308.7 | 3350.6 | 3426.5 | 3539.4 | 3679.0 | 3828.1 | 3853.8 | 3918.6 | 3851.6 | 3567.8 |
| 17.5° | 3084.7 | 3095.3 | 3126.1 | 3210.4 | 3341.1 | 3510.3 | 3704.1 | 3754.4 | 3851.0 | 3812.5 | 3499.1 |
| 20° | 2940.1 | 2941.7 | 2961.8 | 3021.1 | 3151.7 | 3341.1 | 3575.7 | 3647.7 | 3779.5 | 3779.0 | 3428.2 |
| 22.5° | 2868.6 | 2863.0 | 2866.9 | 2901.0 | 2997.0 | 3179.7 | 3447.2 | 3532.7 | 3715.3 | 3750.5 | 3356.2 |
| 25° | 2855.2 | 2850.7 | 2839.5 | 2844.0 | 2902.1 | 3038.4 | 3317.6 | 3416.5 | 3658.9 | 3733.2 | 3293.6 |
| 27.5° | 2897.1 | 2901.5 | 2882.5 | 2862.4 | 2866.9 | 2946.8 | 3202.6 | 3317.1 | 3613.1 | 3733.2 | 3249.5 |
| 30° | 2981.4 | 2983.6 | 2969.7 | 2943.4 | 2908.2 | 2921.1 | 3122.7 | 3237.2 | 3590.2 | 3758.9 | 3221.6 |
| 32.5° | 3074.7 | 3087.0 | 3085.3 | 3064.1 | 3013.8 | 2961.8 | 3103.7 | 3208.2 | 3588.5 | 3815.8 | 3218.8 |
| 35° | 3190.3 | 3204.2 | 3227.7 | 3223.2 | 3170.7 | 3085.3 | 3168.5 | 3250.6 | 3621.5 | 3909.7 | 3248.9 |
| 37.5° | 3313.2 | 3334.4 | 3384.7 | 3408.7 | 3374.6 | 3278.0 | 3313.7 | 3372.4 | 3709.7 | 4061.6 | 3325.4 |
| 40° | 3432.1 | 3456.1 | 3547.7 | 3642.1 | 3616.4 | 3517.0 | 3533.8 | 3580.7 | 3866.7 | 4280.0 | 3470.7 |
| 42.5° | 3548.9 | 3584.6 | 3719.2 | 3874.5 | 3905.2 | 3825.9 | 3834.8 | 3872.2 | 4099.6 | 4580.4 | 3708.0 |
| 45° | 3688.5 | 3728.7 | 3928.1 | 4119.7 | 4201.8 | 4167.1 | 4205.1 | 4229.7 | 4404.0 | 4977.6 | 4028.1 |
| 47.5° | 3893.5 | 3939.8 | 4184.5 | 4402.8 | 4546.9 | 4569.3 | 4645.8 | 4662.0 | 4788.8 | 5440.0 | 4445.3 |
| 50° | 4293.4 | 4306.2 | 4527.4 | 4725.7 | 4933.4 | 5067.5 | 5154.6 | 5166.9 | 5254.6 | 5945.5 | 4966.4 |
| 52.5° | 4796.6 | 4805.0 | 4930.1 | 5063.0 | 5299.3 | 5572.9 | 5776.8 | 5794.1 | 5812.6 | 6438.1 | 5480.8 |
| 55° | 5296.5 | 5295.4 | 5378.0 | 5456.2 | 5726.5 | 6124.2 | 6566.6 | 6577.2 | 6444.8 | 6905.6 | 5874.0 |
| 57.5° | 5608.7 | 5638.9 | 5764.5 | 5865.1 | 6242.6 | 6752.5 | 7366.4 | 7405.5 | 7108.9 | 7251.9 | 6262.7 |
| 60° | 5509.3 | 5523.8 | 5802.5 | 6174.5 | 6885.5 | 7645.6 | 8175.7 | 8185.7 | 7608.2 | 7597.6 | 6754.2 |
| 62.5° | 4693.8 | 4701.6 | 5139.5 | 5906.4 | 7211.1 | 8804.0 | 9152.0 | 8988.3 | 8182.4 | 8077.4 | 7342.3 |
| 65° | 3217.1 | 3267.9 | 3633.8 | 4581.6 | 6612.9 | 9530.6 | 10663.3 | 10392.4 | 9057.6 | 8768.8 | 7874.1 |
| 67.5° | 1894.5 | 1883.9 | 2064.9 | 2763.0 | 4856.9 | 9048.1 | 12575.2 | 12305.9 | 10251.1 | 9231.8 | 7718.2 |
| 70° | 1294.1 | 1286.8 | 1356.1 | 1672.8 | 2741.8 | 7019.0 | 13176.7 | 13720.1 | 11305.1 | 8920.2 | 6642.5 |
| 72.5° | 923.8 | 927.7 | 1029.9 | 1299.7 | 1721.4 | 4089.5 | 11331.3 | 12617.6 | 10975.0 | 7776.3 | 5049.1 |
| 75° | 627.2 | 637.8 | 784.2 | 1066.2 | 1509.1 | 2080.5 | 8041.1 | 9591.5 | 8936.9 | 5651.7 | 2902.1 |
| 77.5° | 337.3 | 349.1 | 521.7 | 859.0 | 1364.5 | 1445.5 | 5172.5 | 6601.2 | 5613.7 | 2540.7 | 841.1 |
| 80° | 140.7 | 147.5 | 244.1 | 624.4 | 1179.0 | 1269.5 | 3043.4 | 4002.9 | 2392.2 | 501.0 | 187.7 |
| 82.5° | 60.9 | 64.2 | 101.7 | 372.5 | 881.3 | 1071.8 | 1611.3 | 1925.8 | 725.0 | 110.0 | 94.4 |
| 85° | 11.7 | 12.3 | 41.9 | 197.2 | 562.4 | 604.9 | 1044.4 | 1023.8 | 325.6 | 47.5 | 68.7 |
| 87.5° | 0.0 | 0.0 | 10.1 | 62.0 | 165.3 | 329.5 | 637.3 | 629.5 | 110.6 | 22.9 | 25.7 |
| 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: P363715

CATALOG NUMBER: NVN-SA3C-722-U-SL3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 | 3967.7 |
| 2.5° | 3936.5 | 3897.9 | 3816.9 | 3717.0 | 3640.5 | 3556.1 | 3489.1 | 3404.2 | 3367.3 | 3369.0 | 3348.9 |
| 5° | 3848.2 | 3768.9 | 3589.6 | 3363.4 | 3189.2 | 3009.3 | 2854.6 | 2700.5 | 2609.4 | 2579.8 | 2551.9 |
| 7.5° | 3722.0 | 3596.3 | 3310.4 | 2961.8 | 2666.9 | 2378.8 | 2128.0 | 1907.4 | 1767.7 | 1699.6 | 1674.5 |
| 10° | 3579.6 | 3403.1 | 2989.2 | 2530.1 | 2109.0 | 1719.1 | 1394.1 | 1111.5 | 998.6 | 922.1 | 902.6 |
| 12.5° | 3454.5 | 3215.4 | 2675.3 | 2087.2 | 1587.3 | 1117.0 | 807.1 | 631.1 | 554.6 | 524.5 | 519.4 |
| 15° | 3336.6 | 3040.0 | 2373.2 | 1686.2 | 1099.2 | 687.5 | 513.3 | 453.5 | 435.6 | 430.6 | 430.6 |
| 17.5° | 3225.5 | 2873.0 | 2077.7 | 1291.3 | 727.2 | 482.0 | 425.0 | 411.6 | 406.0 | 405.5 | 406.0 |
| 20° | 3109.3 | 2706.0 | 1787.3 | 946.1 | 507.7 | 408.3 | 392.6 | 385.4 | 383.7 | 383.7 | 383.7 |
| 22.5° | 2998.2 | 2539.0 | 1504.7 | 675.8 | 407.2 | 372.5 | 364.7 | 359.7 | 358.0 | 357.5 | 356.3 |
| 25° | 2891.5 | 2380.4 | 1228.8 | 477.5 | 357.5 | 341.3 | 334.6 | 327.9 | 322.8 | 320.0 | 318.4 |
| 27.5° | 2803.8 | 2239.1 | 971.8 | 383.1 | 322.8 | 308.9 | 300.5 | 290.4 | 278.1 | 272.6 | 270.3 |
| 30° | 2734.0 | 2110.1 | 749.0 | 323.4 | 290.4 | 276.5 | 263.6 | 246.3 | 228.4 | 218.9 | 218.4 |
| 32.5° | 2679.2 | 1983.3 | 568.6 | 286.0 | 261.4 | 244.1 | 225.6 | 203.9 | 183.2 | 172.6 | 172.0 |
| 35° | 2652.4 | 1871.6 | 434.5 | 258.6 | 235.7 | 213.9 | 191.0 | 167.0 | 146.9 | 136.8 | 135.7 |
| 37.5° | 2670.3 | 1777.2 | 339.0 | 235.7 | 213.9 | 188.8 | 162.0 | 136.8 | 119.0 | 110.0 | 109.5 |
| 40° | 2735.6 | 1716.9 | 275.4 | 216.1 | 195.5 | 164.8 | 135.7 | 112.3 | 97.2 | 89.9 | 89.4 |
| 42.5° | 2874.7 | 1694.6 | 235.1 | 200.0 | 177.6 | 142.4 | 112.8 | 92.7 | 78.8 | 73.7 | 72.6 |
| 45° | 3107.1 | 1727.5 | 207.8 | 184.3 | 159.2 | 121.2 | 93.3 | 76.0 | 63.7 | 59.8 | 59.2 |
| 47.5° | 3416.5 | 1814.1 | 188.2 | 169.2 | 142.4 | 102.2 | 77.6 | 61.4 | 51.9 | 48.0 | 47.5 |
| 50° | 3815.3 | 1951.5 | 172.0 | 154.2 | 126.8 | 86.6 | 64.2 | 48.6 | 40.2 | 37.4 | 37.4 |
| 52.5° | 4249.2 | 2115.1 | 157.5 | 140.2 | 111.1 | 72.0 | 51.9 | 37.4 | 31.8 | 28.5 | 28.5 |
| 55° | 4607.8 | 2258.1 | 141.9 | 129.6 | 92.2 | 59.8 | 39.7 | 28.5 | 23.5 | 21.8 | 21.8 |
| 57.5° | 4965.8 | 2410.6 | 124.0 | 111.1 | 73.7 | 48.6 | 30.2 | 21.2 | 17.3 | 16.2 | 16.2 |
| 60° | 5430.0 | 2597.1 | 106.7 | 90.5 | 58.1 | 36.9 | 22.3 | 15.1 | 12.8 | 12.3 | 12.3 |
| 62.5° | 5940.5 | 2706.6 | 91.0 | 72.6 | 45.2 | 27.4 | 16.2 | 10.1 | 9.5 | 9.5 | 8.9 |
| 65° | 6252.7 | 2551.9 | 76.5 | 58.1 | 35.2 | 20.7 | 10.6 | 7.3 | 8.4 | 7.8 | 6.7 |
| 67.5° | 5854.4 | 1997.8 | 62.6 | 45.2 | 27.4 | 15.6 | 6.7 | 5.0 | 8.9 | 7.3 | 5.6 |
| 70° | 4847.4 | 1398.5 | 48.6 | 31.8 | 21.8 | 13.4 | 4.5 | 3.4 | 9.5 | 7.3 | 4.5 |
| 72.5° | 3627.6 | 936.1 | 38.5 | 21.2 | 16.2 | 11.7 | 3.9 | 1.7 | 8.4 | 6.1 | 3.9 |
| 75° | 1982.2 | 377.0 | 30.7 | 13.4 | 10.1 | 8.4 | 2.8 | 1.1 | 5.6 | 4.5 | 2.8 |
| 77.5° | 521.7 | 99.4 | 22.3 | 8.9 | 5.6 | 3.4 | 1.7 | 0.6 | 2.8 | 2.2 | 1.1 |
| 80° | 132.9 | 38.5 | 14.5 | 6.1 | 3.9 | 1.7 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 |
| 82.5° | 70.9 | 16.2 | 8.9 | 4.5 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 53.6 | 10.6 | 5.0 | 2.8 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 20.7 | 3.4 | 1.7 | 0.0 | 0.0 | 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

| | | | |
|-----------|------|------|-------|
| 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 | | |

Rf: 69.8
 Rg: 99.2



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 (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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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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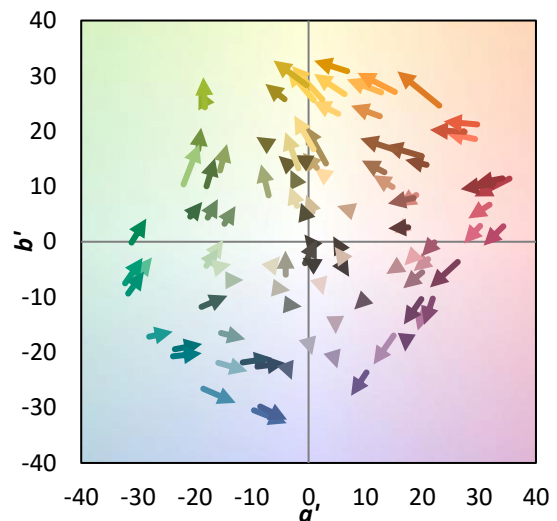
TM-30-18

Summary

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



Color Vector Graphics

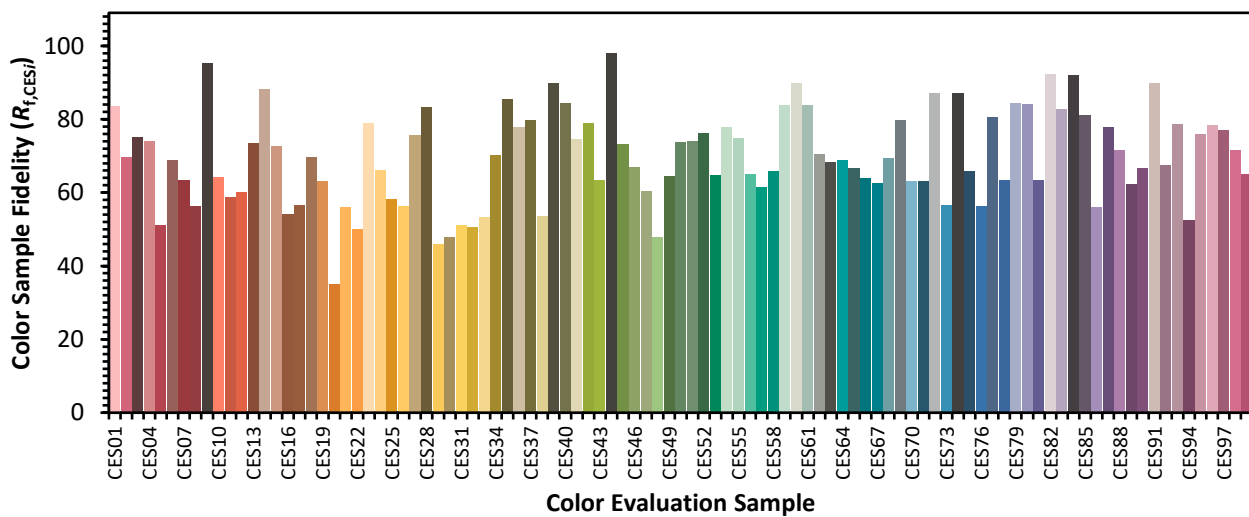


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Individual Sample Fidelity Index ($R_{f,i}$)

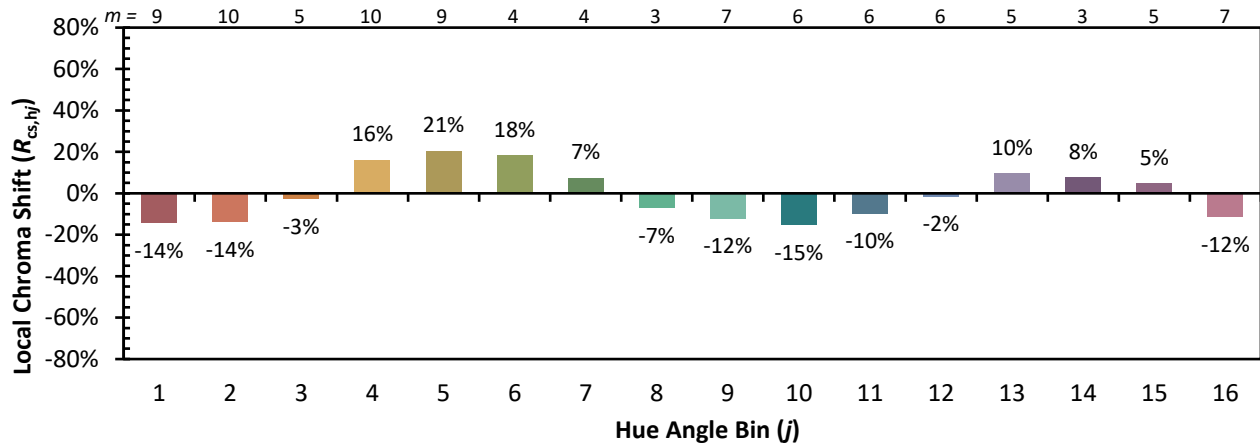
| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 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)