

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: P364285

Luminaire Tested: NVN-SA3B-722-U-AFL-HSS

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P364285
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-30)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: STREETWORKS
Catalog Number: NVN-SA3B-722-U-AFL-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 70 CRI, 2200K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE
FRONTLINE OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10731 lumens
Efficiency: N/A
Efficacy: 86.5 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G1

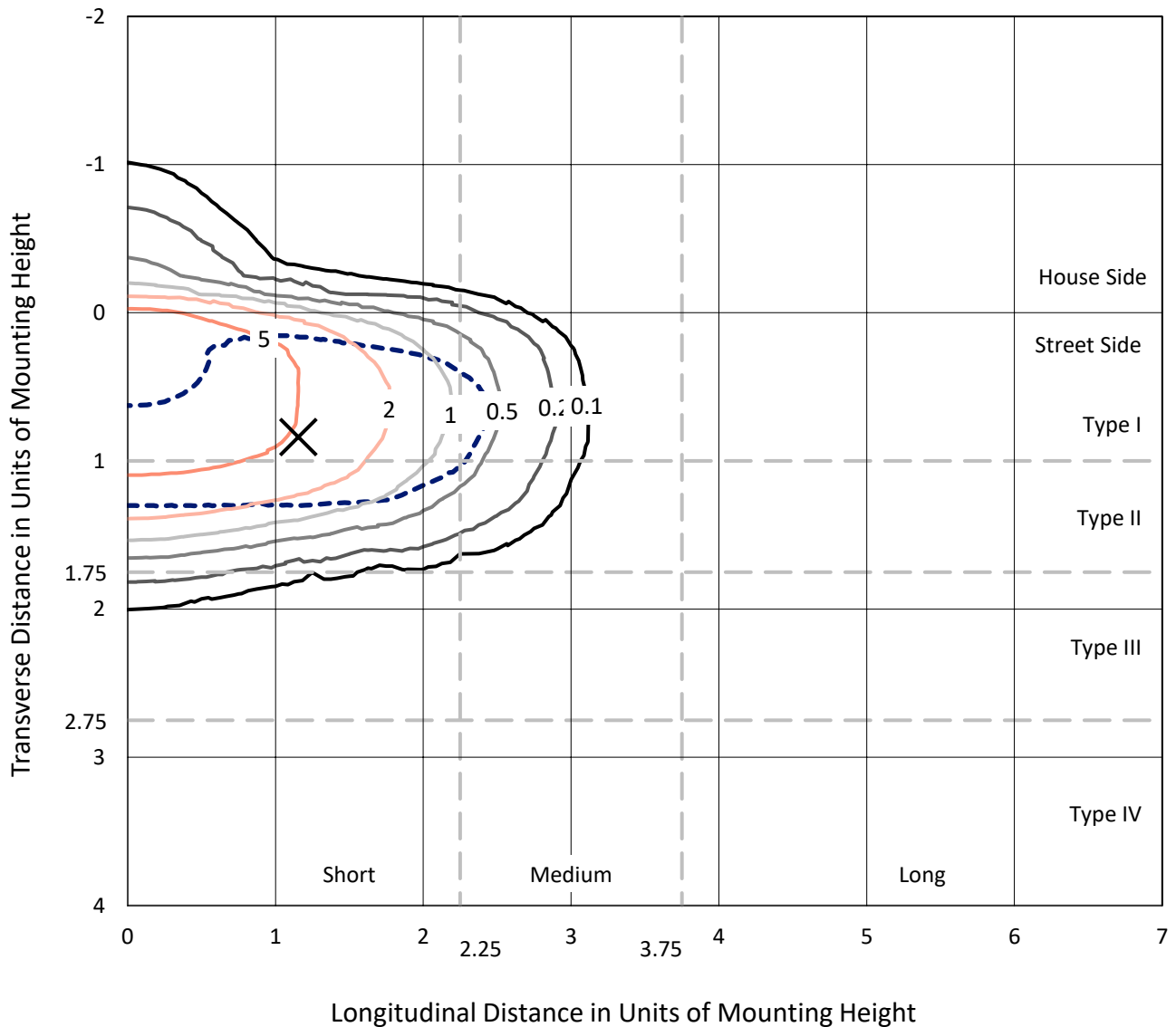
Input Watts (W): 124
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

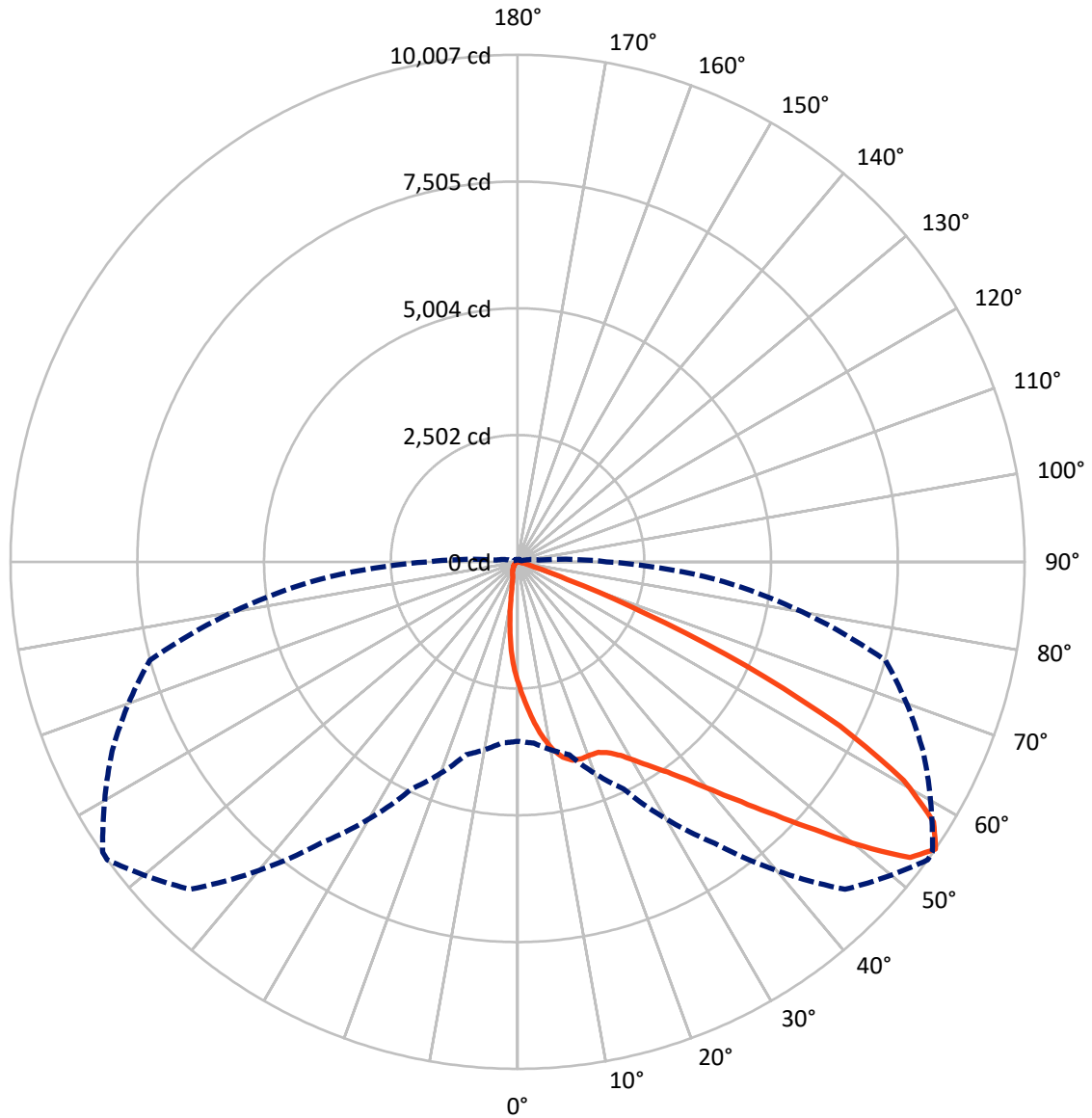
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 9.2 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 54-Deg Lateral - - - Horizontal Cone Through 55-Deg Vertical

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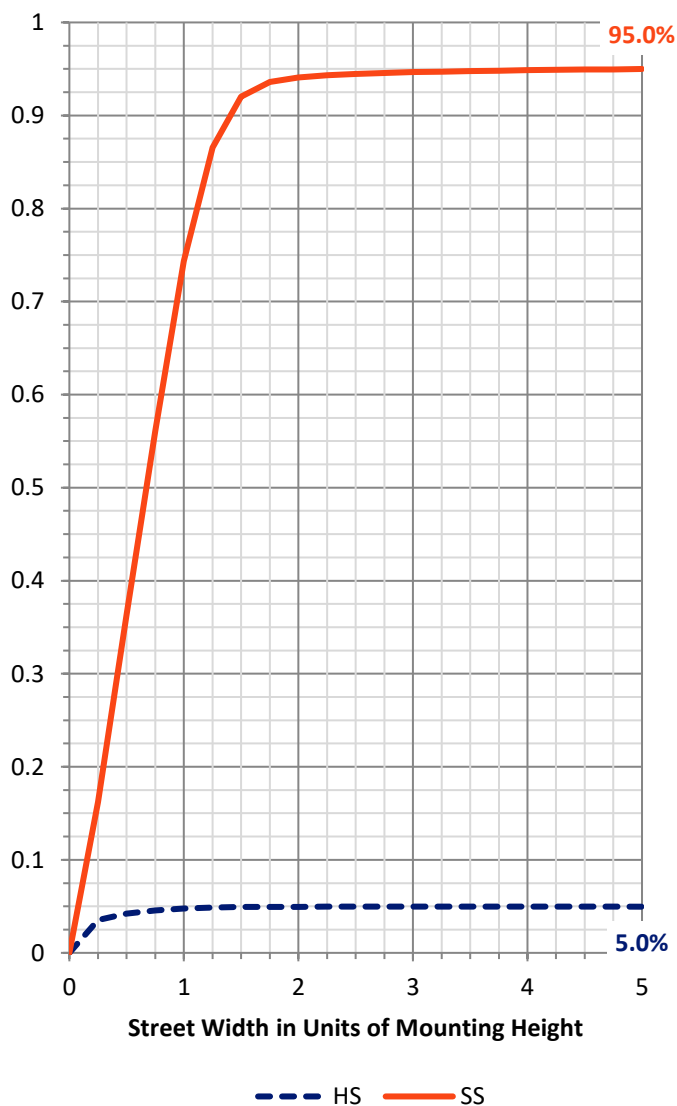
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 535.4 | 0.0 | 535.4 |
| | % Fixture | 5.0 | 0.0 | 5.0 |
| Street Side | Lumens | 10195.6 | 0.0 | 10195.6 |
| | % Fixture | 95.0 | 0.0 | 95.0 |
| Total | Lumens | 10731.0 | 0.0 | 10731.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 221.3 | 2.1 |
| 10°-20° | 607.0 | 5.7 |
| 20°-30° | 1036.3 | 9.7 |
| 30°-40° | 1663.1 | 15.5 |
| 40°-50° | 2657.6 | 24.8 |
| 50°-60° | 2847.7 | 26.5 |
| 60°-70° | 1462.1 | 13.6 |
| 70°-80° | 221.5 | 2.1 |
| 80°-90° | 14.4 | 0.1 |
| 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° | 10731.0 | 100.0 |
| 0°-180° | 10731.0 | 100.0 |

Coefficient of Utilization

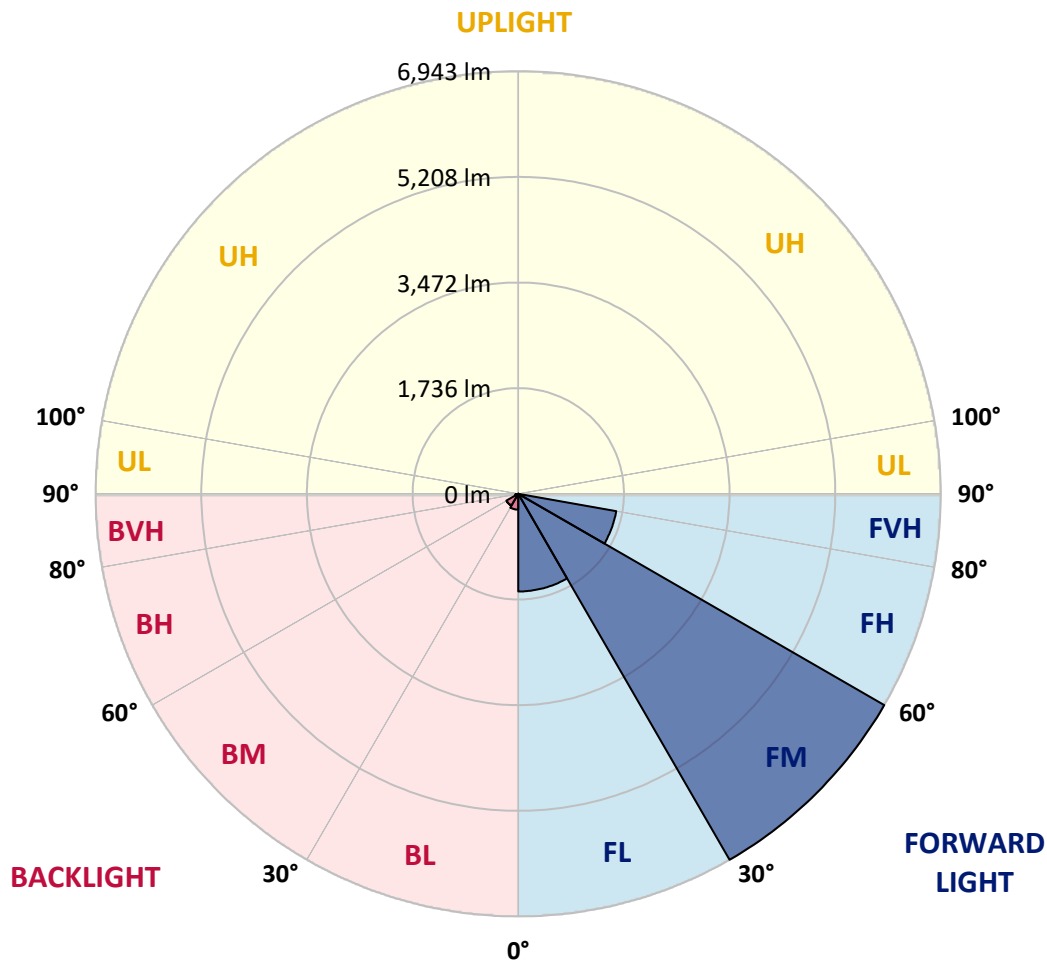


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1604.1 | 14.9 | | | |
| FM (30°-60°) | 6943.4 | 64.7 | | | |
| FH (60°-80°) | 1634.2 | 15.2 | | | G1/1800 |
| FVH (80°-90°) | 13.8 | 0.1 | | | G1/100 |
| BL (0°-30°) | 260.5 | 2.4 | B1/500 | | |
| BM (30°-60°) | 225.0 | 2.1 | B1/1000 | | |
| BH (60°-80°) | 49.3 | 0.5 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.6 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 54° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|
| 0° | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 |
| 2.5° | 3016.0 | 2971.0 | 2972.4 | 2952.0 | 2877.4 | 2819.0 | 2758.3 | 2743.9 | 2649.4 | 2550.2 | 2454.8 |
| 5° | 3537.3 | 3504.4 | 3496.5 | 3457.1 | 3353.3 | 3243.5 | 3125.8 | 3098.4 | 2913.5 | 2710.6 | 2510.8 |
| 7.5° | 3805.2 | 3805.6 | 3799.1 | 3784.8 | 3719.9 | 3613.3 | 3469.7 | 3440.9 | 3189.3 | 2884.8 | 2569.2 |
| 10° | 3727.3 | 3744.9 | 3781.1 | 3828.8 | 3878.4 | 3865.0 | 3757.0 | 3731.0 | 3457.6 | 3069.3 | 2634.1 |
| 12.5° | 3545.7 | 3548.0 | 3588.3 | 3666.6 | 3809.3 | 3955.8 | 3957.6 | 3948.8 | 3713.9 | 3262.0 | 2705.5 |
| 15° | 3455.3 | 3464.1 | 3478.9 | 3529.4 | 3664.8 | 3899.2 | 4067.0 | 4079.5 | 3948.8 | 3466.9 | 2781.5 |
| 17.5° | 3514.6 | 3527.1 | 3514.6 | 3520.6 | 3598.9 | 3809.8 | 4086.0 | 4118.0 | 4154.1 | 3669.4 | 2853.3 |
| 20° | 3675.4 | 3687.0 | 3664.8 | 3640.2 | 3655.5 | 3783.9 | 4072.6 | 4115.7 | 4314.9 | 3849.2 | 2913.5 |
| 22.5° | 3892.3 | 3896.9 | 3863.1 | 3822.8 | 3811.7 | 3871.9 | 4083.7 | 4128.2 | 4443.8 | 4011.9 | 2951.5 |
| 25° | 4131.0 | 4135.1 | 4093.0 | 4046.6 | 4020.2 | 4044.8 | 4175.0 | 4208.3 | 4557.3 | 4167.1 | 2973.3 |
| 27.5° | 4390.9 | 4394.6 | 4341.8 | 4284.8 | 4254.2 | 4255.2 | 4325.6 | 4361.3 | 4678.3 | 4344.1 | 2990.9 |
| 30° | 4665.7 | 4663.9 | 4615.2 | 4536.0 | 4497.1 | 4496.1 | 4542.5 | 4578.6 | 4853.4 | 4571.2 | 3015.0 |
| 32.5° | 4974.4 | 4970.7 | 4901.6 | 4803.4 | 4759.4 | 4765.8 | 4807.1 | 4827.9 | 5070.8 | 4813.1 | 3058.1 |
| 35° | 5380.8 | 5370.1 | 5265.9 | 5144.0 | 5062.9 | 5060.6 | 5095.3 | 5112.0 | 5347.9 | 5106.0 | 3130.0 |
| 37.5° | 5908.2 | 5898.5 | 5757.1 | 5580.1 | 5466.1 | 5423.4 | 5464.7 | 5486.0 | 5743.2 | 5481.8 | 3245.4 |
| 40° | 6428.1 | 6418.4 | 6334.5 | 6172.3 | 5996.7 | 5894.3 | 5926.7 | 5949.4 | 6236.8 | 5937.8 | 3390.9 |
| 42.5° | 6786.8 | 6795.2 | 6824.4 | 6837.8 | 6673.3 | 6458.3 | 6473.1 | 6496.7 | 6755.3 | 6425.4 | 3557.2 |
| 45° | 6881.4 | 6899.4 | 7064.4 | 7388.4 | 7450.0 | 7282.2 | 7127.0 | 7140.0 | 7282.2 | 6912.9 | 3723.6 |
| 47.5° | 6597.3 | 6630.7 | 6949.0 | 7551.5 | 8073.3 | 8191.9 | 7898.1 | 7881.0 | 7787.8 | 7307.3 | 3841.8 |
| 50° | 5951.7 | 5982.3 | 6394.8 | 7285.9 | 8262.4 | 9060.4 | 8822.2 | 8771.7 | 8231.3 | 7543.1 | 3883.5 |
| 52.5° | 5017.5 | 5054.6 | 5389.6 | 6449.9 | 7906.0 | 9447.8 | 9697.1 | 9655.0 | 8556.6 | 7561.7 | 3890.4 |
| 55° | 3543.3 | 3588.3 | 3942.8 | 4943.3 | 6776.6 | 9139.6 | 10007.2 | 9994.7 | 8826.8 | 7512.6 | 3905.3 |
| 57.5° | 1991.3 | 2023.8 | 2406.1 | 3168.9 | 4963.3 | 7960.7 | 9683.2 | 9766.2 | 8989.9 | 7427.3 | 3927.5 |
| 60° | 884.2 | 893.0 | 1090.9 | 1577.5 | 2905.7 | 6083.8 | 8755.9 | 8895.9 | 8850.0 | 7313.3 | 3965.0 |
| 62.5° | 490.3 | 482.9 | 482.9 | 655.7 | 1262.8 | 3766.2 | 7140.0 | 7371.2 | 8252.6 | 7178.4 | 3966.9 |
| 65° | 384.2 | 377.2 | 357.3 | 360.1 | 481.0 | 1671.6 | 4944.3 | 5355.3 | 7118.2 | 6783.1 | 3833.4 |
| 67.5° | 325.8 | 319.8 | 299.8 | 292.0 | 298.9 | 551.5 | 2716.6 | 3143.4 | 5401.2 | 5755.7 | 3320.4 |
| 70° | 275.3 | 271.1 | 260.9 | 251.2 | 233.6 | 272.5 | 1039.5 | 1329.6 | 3328.3 | 3828.8 | 2266.6 |
| 72.5° | 221.5 | 219.7 | 223.4 | 215.0 | 193.7 | 181.7 | 355.4 | 430.5 | 1495.0 | 1708.6 | 933.8 |
| 75° | 190.9 | 190.0 | 191.9 | 183.5 | 159.4 | 126.5 | 180.7 | 197.4 | 421.7 | 418.0 | 189.1 |
| 77.5° | 124.2 | 125.6 | 159.0 | 155.2 | 137.2 | 84.3 | 93.6 | 101.0 | 127.9 | 95.9 | 57.5 |
| 80° | 79.2 | 78.3 | 80.6 | 128.8 | 123.3 | 64.4 | 46.8 | 49.1 | 61.6 | 47.3 | 27.8 |
| 82.5° | 48.2 | 47.3 | 52.8 | 60.2 | 62.1 | 45.0 | 28.7 | 29.2 | 38.5 | 30.6 | 14.8 |
| 85° | 4.2 | 5.6 | 32.0 | 29.7 | 21.3 | 13.9 | 13.9 | 14.8 | 20.4 | 18.1 | 8.3 |
| 87.5° | 0.0 | 0.0 | 5.6 | 8.3 | 4.6 | 5.1 | 5.1 | 5.6 | 7.9 | 7.9 | 4.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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 CATALOG NUMBER: NVN-SA3B-722-U-AFL-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 | 2403.3 |
| 2.5° | 2405.2 | 2357.0 | 2259.7 | 2166.0 | 2086.8 | 2010.3 | 1923.2 | 1837.0 | 1796.7 | 1780.5 | 1763.8 |
| 5° | 2409.3 | 2310.2 | 2109.5 | 1907.5 | 1698.0 | 1509.4 | 1348.6 | 1183.6 | 1101.1 | 1064.9 | 1048.3 |
| 7.5° | 2414.9 | 2263.8 | 1939.4 | 1600.2 | 1262.8 | 1007.0 | 783.6 | 640.0 | 577.9 | 568.2 | 544.1 |
| 10° | 2415.8 | 2207.7 | 1742.0 | 1261.0 | 846.7 | 607.1 | 467.1 | 393.0 | 365.6 | 361.0 | 353.1 |
| 12.5° | 2417.7 | 2141.5 | 1522.8 | 933.8 | 564.4 | 406.0 | 337.8 | 313.3 | 305.9 | 305.4 | 305.4 |
| 15° | 2423.2 | 2072.0 | 1295.3 | 672.9 | 405.5 | 321.6 | 296.6 | 286.9 | 284.1 | 285.5 | 285.0 |
| 17.5° | 2423.2 | 1989.9 | 1071.9 | 501.4 | 327.6 | 289.2 | 275.3 | 268.8 | 267.9 | 269.2 | 269.7 |
| 20° | 2405.6 | 1890.3 | 867.1 | 390.2 | 290.6 | 268.3 | 255.8 | 249.8 | 247.5 | 248.4 | 248.9 |
| 22.5° | 2363.5 | 1768.0 | 700.2 | 323.0 | 266.0 | 249.3 | 235.9 | 226.6 | 222.9 | 223.4 | 223.4 |
| 25° | 2297.7 | 1622.9 | 547.8 | 279.4 | 246.1 | 228.9 | 213.2 | 202.5 | 200.2 | 199.7 | 200.7 |
| 27.5° | 2213.3 | 1462.6 | 436.1 | 246.1 | 222.4 | 206.2 | 190.5 | 181.7 | 179.8 | 180.3 | 180.7 |
| 30° | 2130.4 | 1296.2 | 343.9 | 217.8 | 196.0 | 180.7 | 168.7 | 164.5 | 164.5 | 165.9 | 166.4 |
| 32.5° | 2054.4 | 1136.3 | 272.0 | 193.2 | 172.4 | 158.5 | 151.5 | 151.1 | 153.4 | 154.3 | 154.8 |
| 35° | 1989.0 | 988.5 | 225.2 | 174.2 | 153.9 | 141.8 | 139.5 | 141.3 | 144.1 | 146.0 | 146.4 |
| 37.5° | 1942.7 | 856.4 | 197.0 | 158.5 | 139.5 | 129.8 | 129.3 | 133.0 | 136.7 | 140.9 | 141.8 |
| 40° | 1923.2 | 744.7 | 177.5 | 144.6 | 127.9 | 120.5 | 119.1 | 124.2 | 131.1 | 137.2 | 138.1 |
| 42.5° | 1907.0 | 653.4 | 160.8 | 131.1 | 118.6 | 108.0 | 107.5 | 114.0 | 122.3 | 128.4 | 129.8 |
| 45° | 1893.1 | 580.2 | 145.5 | 116.8 | 106.6 | 92.7 | 94.1 | 102.4 | 108.9 | 115.4 | 116.8 |
| 47.5° | 1864.4 | 520.0 | 128.8 | 101.5 | 88.1 | 79.2 | 82.0 | 89.4 | 94.5 | 104.3 | 105.7 |
| 50° | 1812.9 | 470.8 | 111.7 | 83.0 | 71.8 | 68.6 | 72.8 | 77.9 | 84.3 | 92.7 | 93.6 |
| 52.5° | 1778.2 | 433.8 | 96.9 | 69.5 | 59.3 | 60.2 | 64.4 | 66.3 | 70.0 | 73.2 | 72.3 |
| 55° | 1758.2 | 413.4 | 84.8 | 60.2 | 50.5 | 53.3 | 54.2 | 51.9 | 50.0 | 46.8 | 45.4 |
| 57.5° | 1755.9 | 394.8 | 75.5 | 52.4 | 44.5 | 45.9 | 42.6 | 34.8 | 28.3 | 24.6 | 23.6 |
| 60° | 1752.2 | 372.1 | 68.1 | 44.0 | 39.4 | 37.5 | 30.6 | 19.0 | 13.4 | 12.5 | 12.5 |
| 62.5° | 1711.9 | 336.9 | 62.6 | 37.1 | 33.4 | 28.3 | 17.6 | 8.8 | 7.4 | 7.9 | 7.9 |
| 65° | 1583.5 | 287.8 | 57.0 | 30.1 | 26.4 | 20.4 | 8.8 | 5.1 | 2.8 | 3.2 | 3.2 |
| 67.5° | 1346.2 | 229.4 | 51.0 | 23.2 | 19.9 | 13.0 | 5.1 | 2.3 | 0.0 | 0.0 | 0.0 |
| 70° | 901.4 | 142.3 | 43.1 | 16.2 | 13.0 | 7.9 | 3.7 | 0.5 | 0.0 | 0.0 | 0.0 |
| 72.5° | 345.7 | 76.9 | 34.8 | 9.7 | 8.3 | 5.6 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 77.9 | 50.5 | 24.1 | 7.0 | 6.0 | 3.7 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 29.7 | 36.6 | 13.9 | 4.6 | 4.2 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 14.4 | 21.8 | 6.5 | 2.8 | 2.3 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 7.4 | 8.3 | 2.8 | 1.4 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 4.2 | 4.2 | 1.4 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 2.3 | 1.4 | 0.5 | 0.5 | 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
 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 (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

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)