

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: P362698

Luminaire Tested: NVN-SA6A-722-U-T2R-HSS

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P362698
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-9)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: STREETWORKS
Catalog Number: NVN-SA6A-722-U-T2R-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(6) 70 CRI, 2200K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II
ROADWAY OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16833 lumens
Efficiency: N/A
Efficacy: 87.2 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')
IES Classification: Type II - Medium
BUG Rating: B1 - U0 - G2

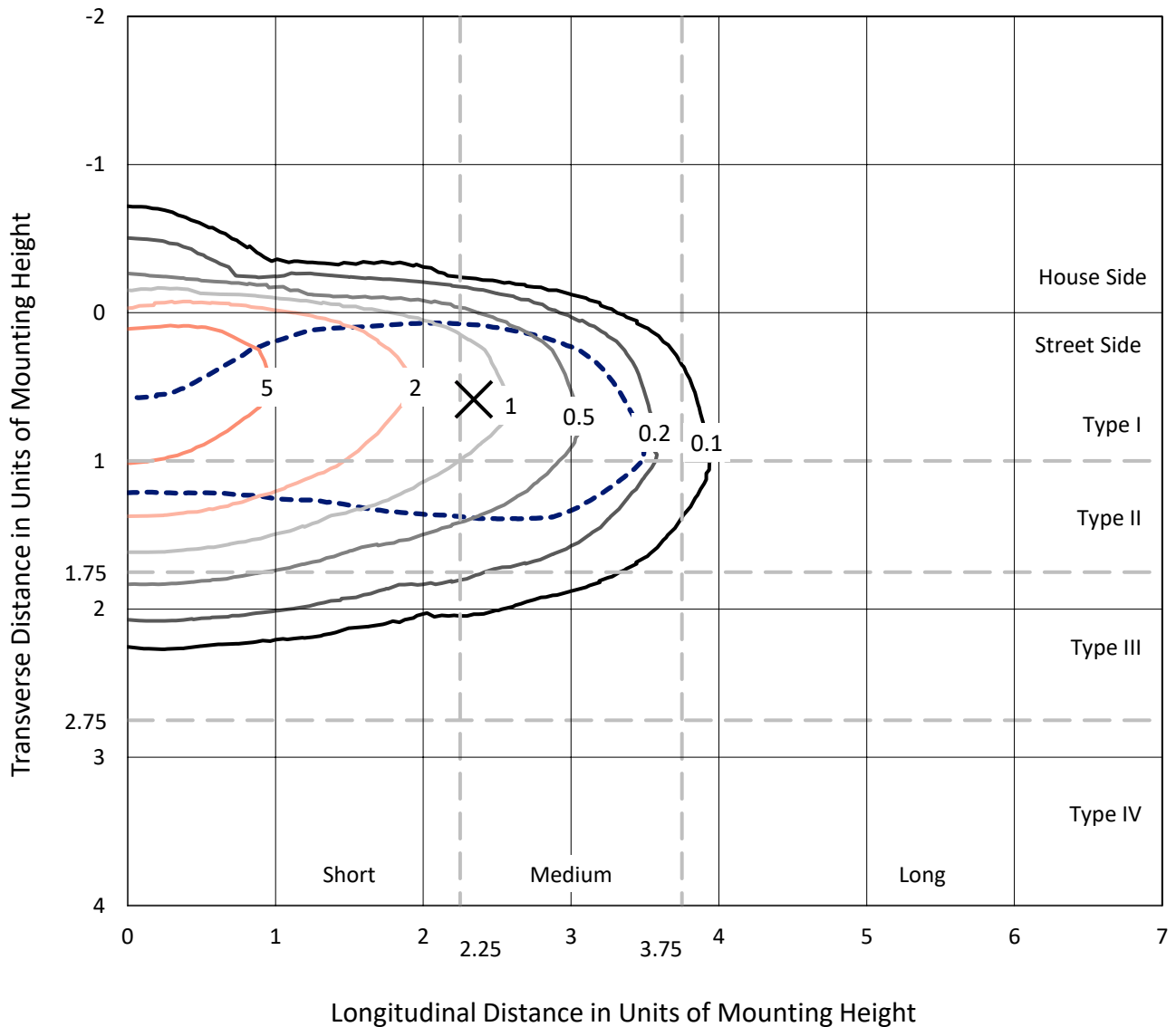
Input Watts (W): 193
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P362698
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Iso-Footcandle Lines of Horizontal Illumination

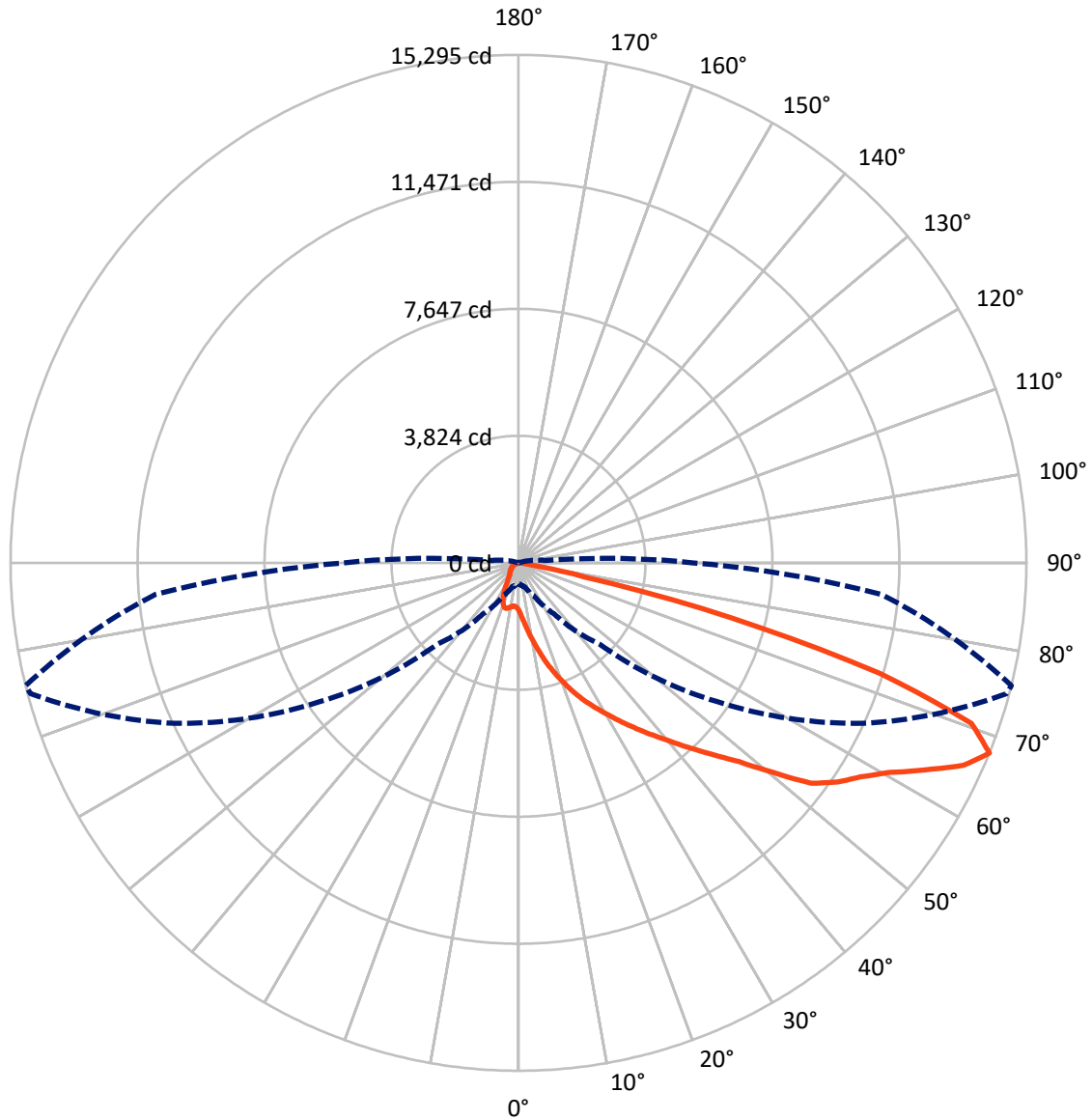
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8 fc
 Type II - Medium - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 76-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 835.9 | 0.0 | 835.9 |
| | % Fixture | 5.0 | 0.0 | 5.0 |
| Street Side | Lumens | 15997.1 | 0.0 | 15997.1 |
| | % Fixture | 95.0 | 0.0 | 95.0 |
| Total | Lumens | 16833.0 | 0.0 | 16833.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 177.6 | 1.1 |
| 10°-20° | 703.9 | 4.2 |
| 20°-30° | 1432.2 | 8.5 |
| 30°-40° | 2485.8 | 14.8 |
| 40°-50° | 3512.1 | 20.9 |
| 50°-60° | 3982.8 | 23.7 |
| 60°-70° | 3303.4 | 19.6 |
| 70°-80° | 1196.6 | 7.1 |
| 80°-90° | 38.8 | 0.2 |
| 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° | 16833.0 | 100.0 |
| 0°-180° | 16833.0 | 100.0 |

Coefficient of Utilization

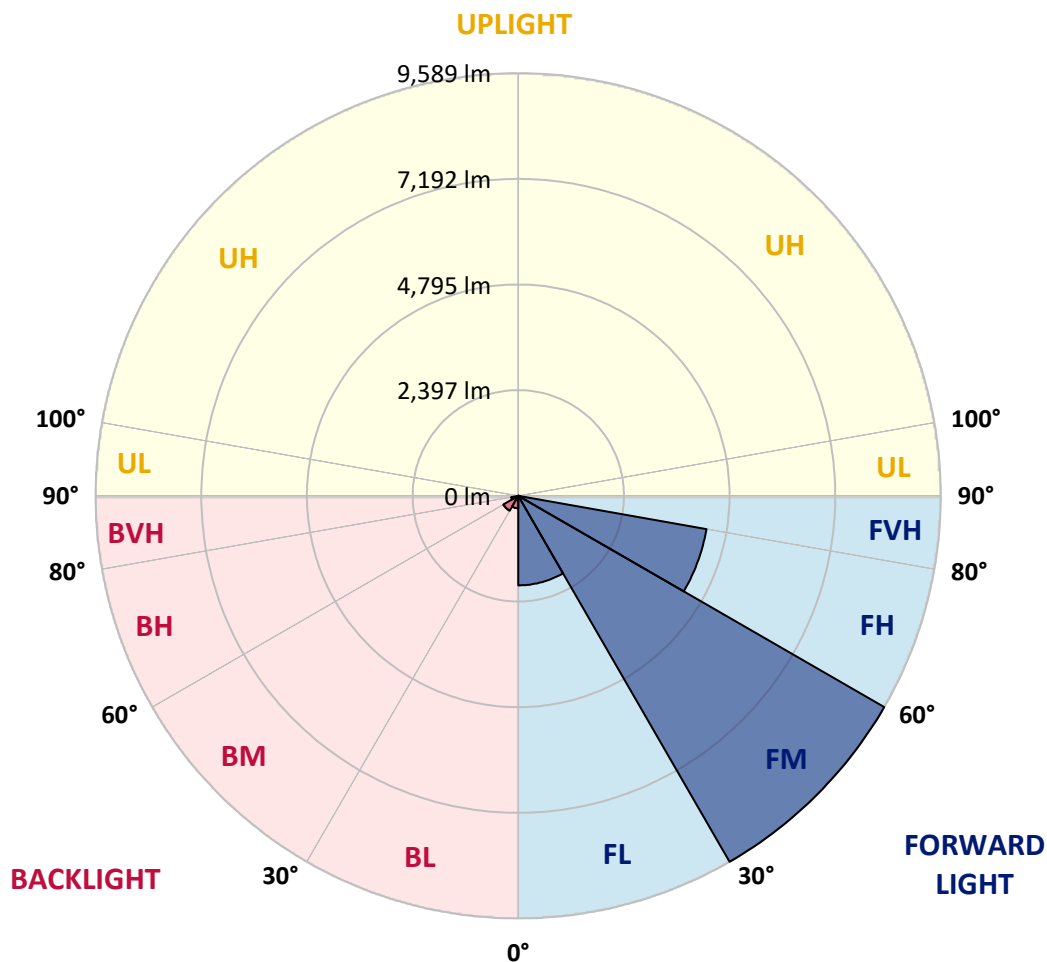


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 2031.7 | 12.1 | | | |
| FM (30°-60°) | 9589.4 | 57.0 | | | |
| FH (60°-80°) | 4338.4 | 25.8 | | | G2/5000 |
| FVH (80°-90°) | 37.6 | 0.2 | | | G1/100 |
| BL (0°-30°) | 281.9 | 1.7 | B1/500 | | |
| BM (30°-60°) | 391.2 | 2.3 | B1/1000 | | |
| BH (60°-80°) | 161.5 | 1.0 | B1/500 | | G1/500 |
| BVH (80°-90°) | 1.2 | 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-G2
 Type II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| 0° | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 |
| 2.5° | 2131.6 | 2083.6 | 2094.7 | 2063.7 | 2007.7 | 1892.6 | 1794.5 | 1701.6 | 1593.1 | 1589.5 | 1500.2 |
| 5° | 2874.3 | 2833.7 | 2828.6 | 2765.9 | 2664.1 | 2468.6 | 2278.3 | 2061.5 | 1819.6 | 1801.9 | 1612.3 |
| 7.5° | 3548.4 | 3516.0 | 3504.2 | 3429.7 | 3240.1 | 3049.8 | 2802.0 | 2483.4 | 2105.0 | 2072.6 | 1763.5 |
| 10° | 4066.2 | 4050.7 | 4053.7 | 4000.6 | 3838.3 | 3661.3 | 3336.0 | 2929.6 | 2428.8 | 2378.6 | 1945.0 |
| 12.5° | 4458.6 | 4462.3 | 4488.8 | 4456.4 | 4365.6 | 4234.4 | 3887.0 | 3405.3 | 2787.3 | 2718.7 | 2152.2 |
| 15° | 4747.0 | 4765.4 | 4814.1 | 4854.7 | 4848.0 | 4734.4 | 4415.8 | 3888.4 | 3167.8 | 3091.9 | 2383.1 |
| 17.5° | 4933.6 | 4954.2 | 5025.0 | 5115.0 | 5197.6 | 5171.1 | 4926.2 | 4354.6 | 3552.9 | 3465.1 | 2630.2 |
| 20° | 5097.3 | 5121.7 | 5197.6 | 5316.4 | 5470.5 | 5503.7 | 5342.9 | 4806.7 | 3937.1 | 3830.2 | 2885.4 |
| 22.5° | 5452.1 | 5451.3 | 5497.8 | 5567.1 | 5713.9 | 5799.5 | 5697.7 | 5226.4 | 4317.0 | 4205.6 | 3145.7 |
| 25° | 6093.8 | 6069.4 | 6053.2 | 5998.6 | 6031.1 | 6084.2 | 6027.4 | 5618.8 | 4699.0 | 4586.2 | 3409.8 |
| 27.5° | 6856.4 | 6871.2 | 6739.9 | 6593.1 | 6479.5 | 6424.9 | 6332.0 | 5982.4 | 5066.3 | 4942.4 | 3667.9 |
| 30° | 7661.1 | 7665.5 | 7510.6 | 7323.3 | 7073.2 | 6866.0 | 6705.2 | 6329.8 | 5444.0 | 5309.0 | 3918.7 |
| 32.5° | 8386.9 | 8358.1 | 8204.7 | 7949.5 | 7633.8 | 7400.7 | 7066.6 | 6717.7 | 5843.7 | 5713.2 | 4197.5 |
| 35° | 8962.2 | 8928.2 | 8741.6 | 8509.3 | 8181.8 | 7947.3 | 7545.3 | 7105.0 | 6264.1 | 6136.5 | 4477.0 |
| 37.5° | 9382.6 | 9342.7 | 9151.0 | 8912.0 | 8629.5 | 8493.1 | 8100.7 | 7526.1 | 6722.9 | 6585.7 | 4771.3 |
| 40° | 9528.6 | 9493.9 | 9373.7 | 9198.9 | 8971.7 | 8940.8 | 8690.0 | 8010.7 | 7222.2 | 7076.2 | 5104.7 |
| 42.5° | 9441.6 | 9407.6 | 9364.9 | 9305.9 | 9211.4 | 9241.0 | 9246.1 | 8563.1 | 7776.9 | 7633.1 | 5472.7 |
| 45° | 9096.4 | 9066.1 | 9110.4 | 9196.7 | 9314.0 | 9460.0 | 9753.6 | 9156.9 | 8396.4 | 8243.0 | 5898.3 |
| 47.5° | 8588.2 | 8566.1 | 8688.5 | 8903.9 | 9246.9 | 9649.6 | 10217.5 | 9780.9 | 9092.0 | 8949.6 | 6429.4 |
| 50° | 7865.4 | 7861.7 | 8106.6 | 8499.7 | 9027.1 | 9741.0 | 10696.9 | 10490.4 | 10058.2 | 9908.4 | 7167.7 |
| 52.5° | 6739.9 | 6747.2 | 7228.9 | 7858.0 | 8641.3 | 9679.1 | 11005.2 | 11402.0 | 11182.2 | 11026.6 | 7807.1 |
| 55° | 5668.2 | 5712.4 | 6053.9 | 6961.1 | 8049.8 | 9448.9 | 11111.4 | 11827.6 | 11802.5 | 11655.0 | 8162.6 |
| 57.5° | 4618.6 | 4699.0 | 5028.0 | 5875.4 | 7186.1 | 8918.6 | 11053.1 | 12012.0 | 12264.2 | 12151.4 | 8631.7 |
| 60° | 3481.3 | 3518.2 | 3897.3 | 4689.4 | 6077.5 | 7951.0 | 10630.5 | 12112.3 | 12895.6 | 12817.4 | 9312.5 |
| 62.5° | 2214.9 | 2307.1 | 2643.4 | 3407.6 | 4732.2 | 6607.1 | 9918.0 | 12110.8 | 13685.5 | 13728.3 | 10190.9 |
| 65° | 1166.8 | 1274.5 | 1453.0 | 2111.6 | 3251.9 | 5106.2 | 8846.4 | 11997.2 | 14654.7 | 14714.4 | 10877.6 |
| 67.5° | 629.1 | 660.1 | 754.5 | 1096.0 | 1886.0 | 3459.2 | 7271.7 | 11436.7 | 15216.0 | 15294.9 | 10973.5 |
| 70° | 460.2 | 477.2 | 512.6 | 606.3 | 949.2 | 2009.1 | 5306.0 | 10165.9 | 14492.4 | 14462.9 | 9749.9 |
| 72.5° | 353.3 | 379.8 | 406.4 | 444.0 | 545.8 | 1072.4 | 3303.6 | 7960.5 | 11563.5 | 11368.8 | 7287.9 |
| 75° | 278.8 | 283.2 | 320.8 | 354.8 | 409.3 | 610.7 | 1467.0 | 4636.3 | 7057.8 | 6596.8 | 3779.3 |
| 77.5° | 222.7 | 225.7 | 247.8 | 277.3 | 329.0 | 401.2 | 454.3 | 1824.0 | 2253.3 | 2010.6 | 820.2 |
| 80° | 132.0 | 139.4 | 184.4 | 213.9 | 272.9 | 253.0 | 166.0 | 396.1 | 351.8 | 318.6 | 137.9 |
| 82.5° | 73.8 | 79.7 | 104.0 | 168.9 | 190.3 | 121.0 | 82.6 | 106.9 | 82.6 | 80.4 | 39.1 |
| 85° | 0.0 | 3.7 | 67.1 | 104.7 | 77.4 | 26.6 | 34.7 | 35.4 | 24.3 | 22.9 | 15.5 |
| 87.5° | 0.0 | 0.0 | 20.7 | 19.9 | 3.0 | 4.4 | 8.1 | 11.8 | 9.6 | 9.6 | 8.1 |
| 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: P362698

CATALOG NUMBER: NVN-SA6A-722-U-T2R-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 | 1427.9 |
| 2.5° | 1456.0 | 1416.1 | 1340.9 | 1267.1 | 1205.2 | 1154.3 | 1108.6 | 1090.1 | 1075.4 | 1073.2 | 1061.4 |
| 5° | 1520.9 | 1440.5 | 1296.6 | 1178.6 | 1099.7 | 1043.7 | 995.7 | 966.2 | 943.3 | 934.5 | 926.4 |
| 7.5° | 1619.0 | 1497.3 | 1290.7 | 1155.0 | 1060.6 | 966.2 | 877.7 | 781.8 | 722.1 | 699.2 | 685.9 |
| 10° | 1738.4 | 1572.5 | 1312.9 | 1148.4 | 983.2 | 784.0 | 637.3 | 515.6 | 466.1 | 449.9 | 445.5 |
| 12.5° | 1877.8 | 1666.2 | 1351.2 | 1107.1 | 818.0 | 556.9 | 439.6 | 398.3 | 387.2 | 382.1 | 382.1 |
| 15° | 2037.9 | 1768.7 | 1378.5 | 987.6 | 604.8 | 421.1 | 380.6 | 361.4 | 349.6 | 343.0 | 343.7 |
| 17.5° | 2201.6 | 1869.0 | 1365.2 | 814.3 | 446.2 | 374.7 | 344.4 | 323.8 | 307.6 | 300.9 | 299.5 |
| 20° | 2366.8 | 1961.9 | 1291.5 | 606.3 | 377.6 | 340.0 | 306.1 | 283.2 | 267.0 | 260.4 | 258.9 |
| 22.5° | 2538.0 | 2040.8 | 1161.7 | 444.8 | 339.3 | 301.7 | 268.5 | 245.6 | 230.1 | 224.2 | 221.3 |
| 25° | 2704.7 | 2105.0 | 980.2 | 359.9 | 303.1 | 265.5 | 233.8 | 212.4 | 198.4 | 192.5 | 191.8 |
| 27.5° | 2860.3 | 2145.6 | 770.0 | 317.9 | 271.4 | 233.1 | 204.3 | 185.1 | 173.3 | 168.9 | 168.2 |
| 30° | 3000.4 | 2149.3 | 569.4 | 286.9 | 243.4 | 205.0 | 178.5 | 161.5 | 151.2 | 146.8 | 145.3 |
| 32.5° | 3142.0 | 2118.3 | 414.5 | 258.9 | 217.6 | 180.7 | 154.9 | 141.6 | 134.2 | 130.5 | 130.5 |
| 35° | 3275.5 | 2046.7 | 323.1 | 234.5 | 192.5 | 157.1 | 136.4 | 126.9 | 122.4 | 118.7 | 118.7 |
| 37.5° | 3406.1 | 1944.2 | 274.4 | 213.2 | 168.9 | 137.2 | 120.2 | 114.3 | 110.6 | 106.9 | 106.9 |
| 40° | 3538.8 | 1815.1 | 249.3 | 193.2 | 149.7 | 121.7 | 106.9 | 101.8 | 98.1 | 95.1 | 94.4 |
| 42.5° | 3701.8 | 1666.2 | 233.1 | 174.8 | 132.8 | 107.7 | 94.4 | 88.5 | 85.6 | 82.6 | 81.1 |
| 45° | 3890.7 | 1537.8 | 219.8 | 156.4 | 118.7 | 95.9 | 81.9 | 76.0 | 71.5 | 67.9 | 67.1 |
| 47.5° | 4162.8 | 1444.9 | 202.1 | 136.4 | 105.5 | 83.3 | 70.8 | 64.2 | 57.5 | 53.8 | 53.1 |
| 50° | 4510.2 | 1368.2 | 179.2 | 118.7 | 92.2 | 70.8 | 59.0 | 50.9 | 45.0 | 41.3 | 41.3 |
| 52.5° | 4682.8 | 1267.9 | 158.6 | 103.3 | 77.4 | 59.7 | 47.9 | 38.4 | 35.4 | 31.7 | 31.7 |
| 55° | 4752.1 | 1191.2 | 137.9 | 87.8 | 64.2 | 49.4 | 37.6 | 29.5 | 27.3 | 25.1 | 24.3 |
| 57.5° | 4946.8 | 1169.0 | 120.2 | 74.5 | 53.1 | 39.1 | 28.8 | 22.1 | 20.7 | 17.7 | 17.7 |
| 60° | 5260.3 | 1180.1 | 104.0 | 63.4 | 42.8 | 30.2 | 21.4 | 17.0 | 15.5 | 12.5 | 12.5 |
| 62.5° | 5598.9 | 1166.1 | 87.8 | 54.6 | 33.2 | 22.1 | 14.8 | 12.5 | 12.5 | 7.4 | 6.6 |
| 65° | 5663.8 | 1038.5 | 75.2 | 45.0 | 25.8 | 16.2 | 9.6 | 8.1 | 11.1 | 1.5 | 0.0 |
| 67.5° | 5256.6 | 805.4 | 64.9 | 34.7 | 19.2 | 12.5 | 7.4 | 3.7 | 9.6 | 0.0 | 0.0 |
| 70° | 4203.4 | 511.9 | 52.4 | 25.1 | 14.8 | 10.3 | 5.9 | 1.5 | 7.4 | 0.0 | 0.0 |
| 72.5° | 2972.4 | 297.2 | 41.3 | 17.7 | 12.5 | 8.1 | 4.4 | 0.0 | 4.4 | 0.0 | 0.0 |
| 75° | 1503.2 | 158.6 | 25.8 | 13.3 | 9.6 | 5.9 | 3.0 | 0.0 | 0.7 | 0.0 | 0.0 |
| 77.5° | 325.3 | 73.8 | 16.2 | 9.6 | 6.6 | 3.7 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 70.8 | 32.5 | 10.3 | 5.9 | 3.7 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 25.8 | 17.0 | 5.2 | 3.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 14.0 | 8.9 | 3.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 7.4 | 3.0 | 0.7 | 0.7 | 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

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



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)