

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: P359783

Luminaire Tested: NVN-SA1D-740-U-T3R-HSS

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P359783
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-11)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: STREETWORKS
Catalog Number: NVN-SA1D-740-U-T3R-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(1) 70 CRI, 4000K, 1200mA LIGHTSQUARE WITH 16 LEDS AND TYPE III ROADWAY OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6094 lumens
Efficiency: N/A
Efficacy: 91.0 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G2

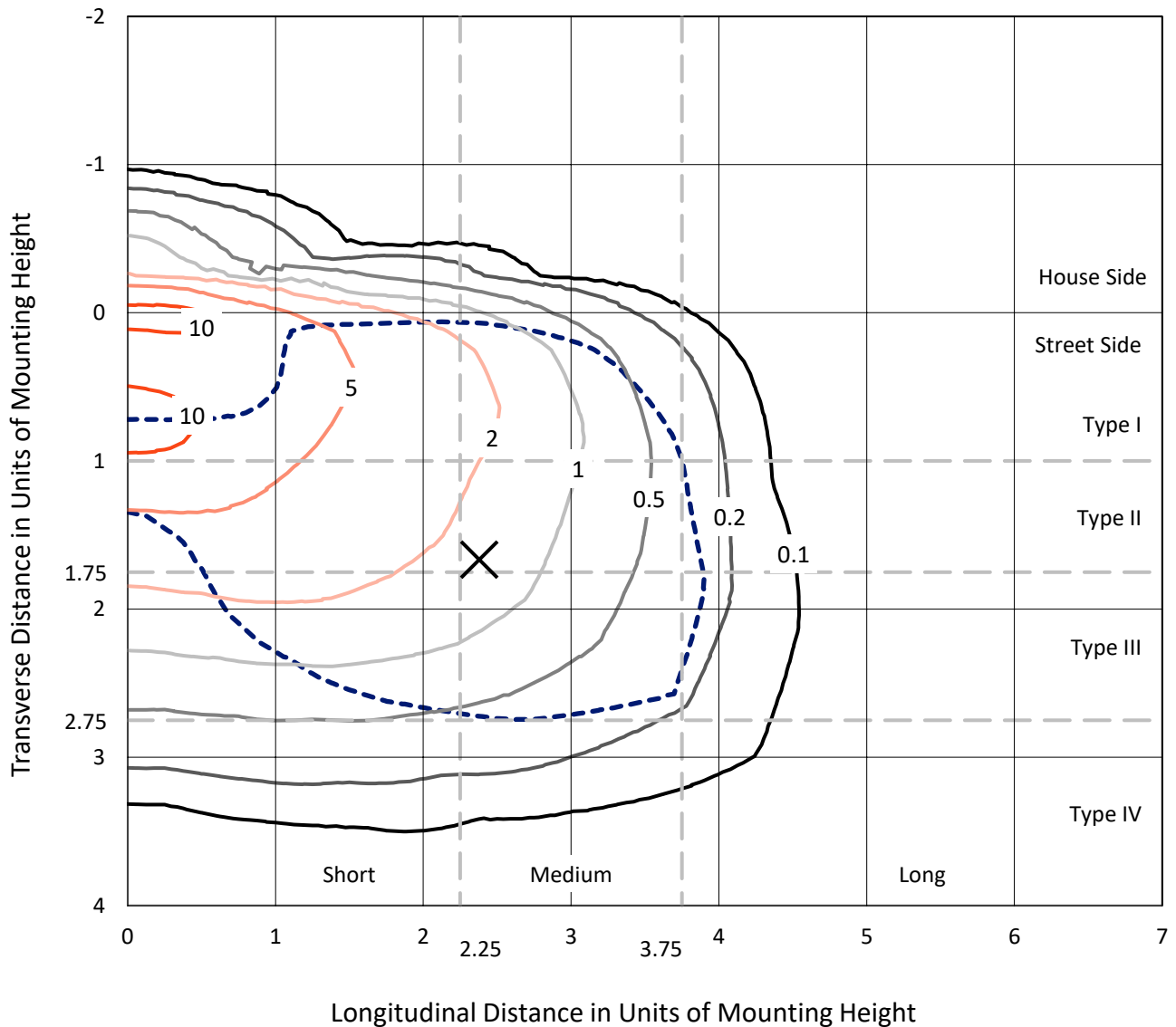
Input Watts (W): 67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

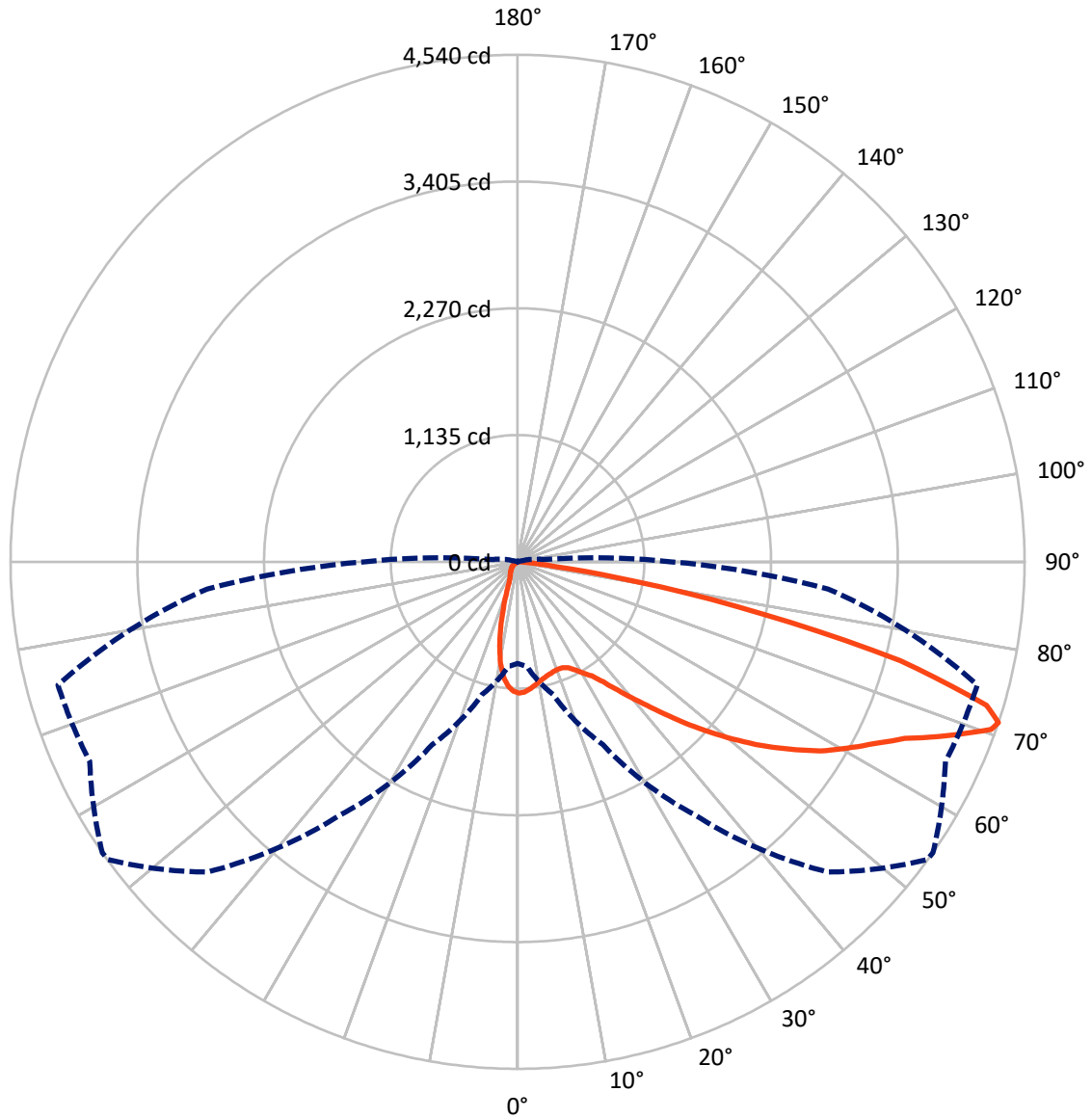
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 12 fc
 Type III - Medium - N/A

REPORT NUMBER: P359783
CATALOG NUMBER: NVN-SA1D-740-U-T3R-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 55-Deg Lateral - - - Horizontal Cone Through 71-Deg Vertical

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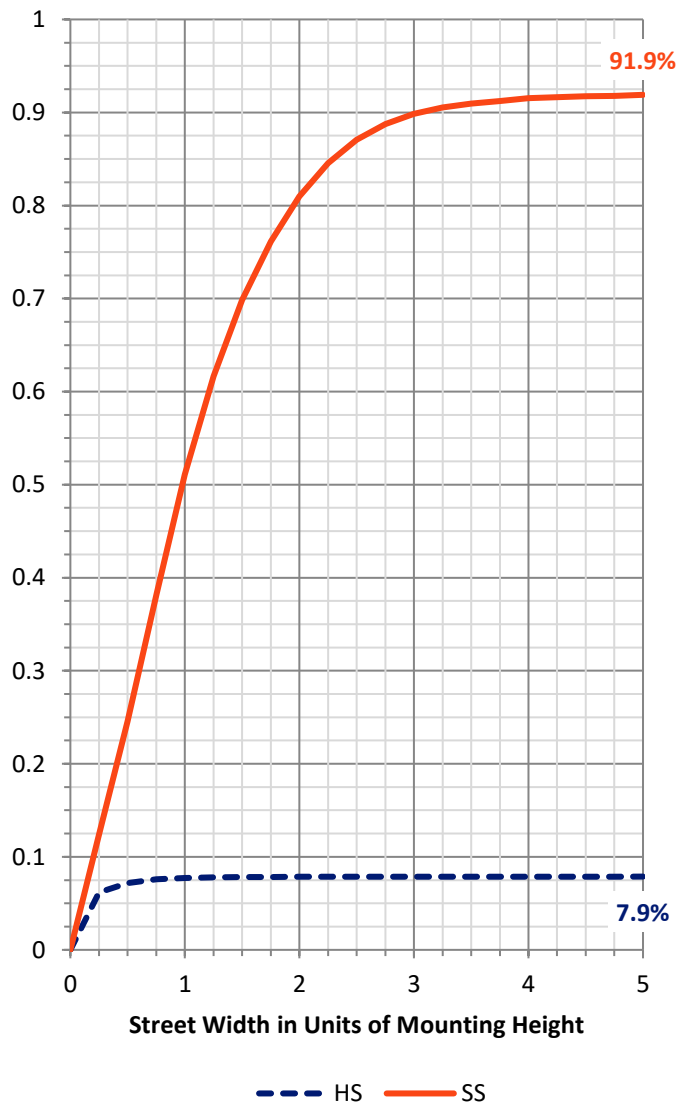
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 482.5 | 0.0 | 482.5 |
| | % Fixture | 7.9 | 0.0 | 7.9 |
| Street Side | Lumens | 5611.5 | 0.0 | 5611.5 |
| | % Fixture | 92.1 | 0.0 | 92.1 |
| Total | Lumens | 6094.0 | 0.0 | 6094.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 100.2 | 1.6 |
| 10°-20° | 226.2 | 3.7 |
| 20°-30° | 363.5 | 6.0 |
| 30°-40° | 617.7 | 10.1 |
| 40°-50° | 958.7 | 15.7 |
| 50°-60° | 1289.0 | 21.2 |
| 60°-70° | 1576.8 | 25.9 |
| 70°-80° | 921.9 | 15.1 |
| 80°-90° | 39.8 | 0.7 |
| 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° | 6094.0 | 100.0 |
| 0°-180° | 6094.0 | 100.0 |

Coefficient of Utilization

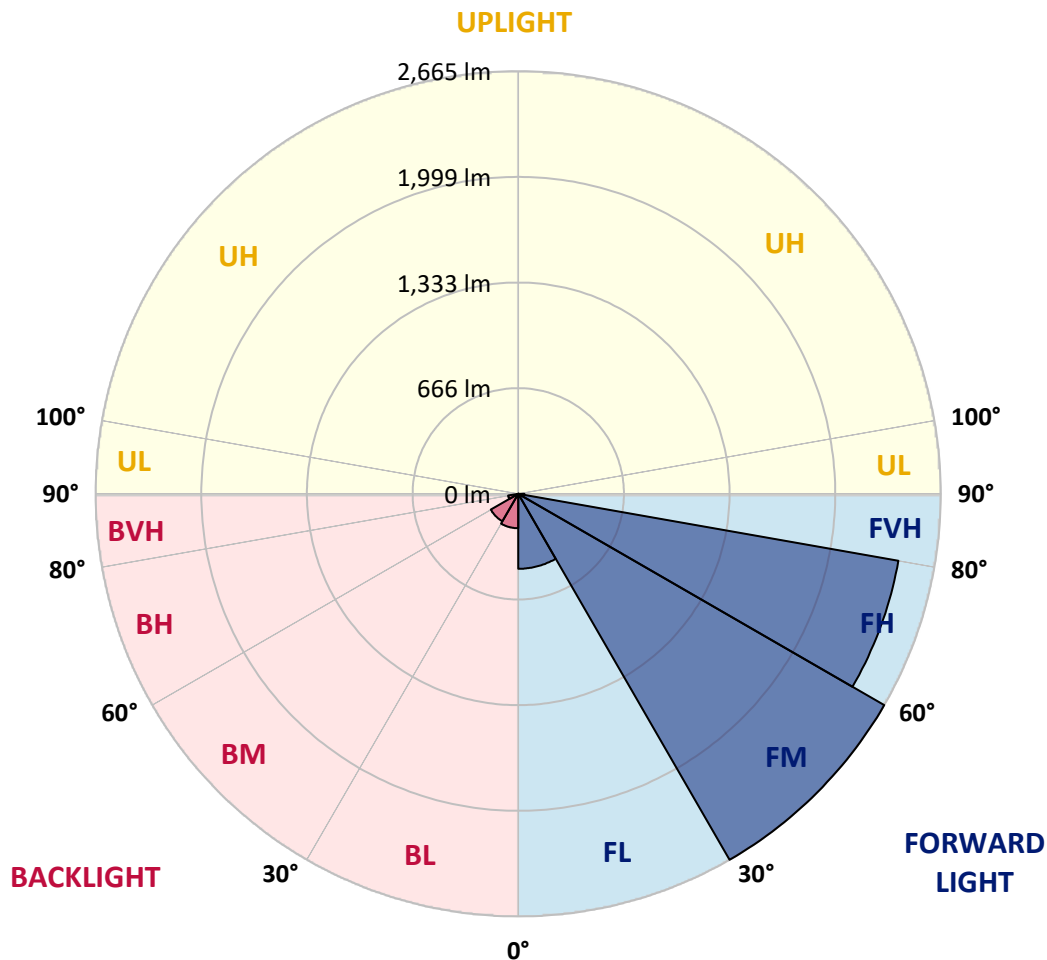


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 472.8 | 7.8 | | | |
| FM (30°-60°) | 2665.3 | 43.7 | | | |
| FH (60°-80°) | 2434.2 | 39.9 | | | G2/5000 |
| FVH (80°-90°) | 39.2 | 0.6 | | | G1/100 |
| BL (0°-30°) | 217.2 | 3.6 | B1/500 | | |
| BM (30°-60°) | 200.0 | 3.3 | B0/220 | | |
| BH (60°-80°) | 64.6 | 1.1 | 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-G2
 Type III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 54° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 |
| 2.5° | 1140.8 | 1142.1 | 1147.1 | 1149.3 | 1154.5 | 1163.2 | 1167.6 | 1167.9 | 1175.0 | 1177.7 | 1179.9 |
| 5° | 1060.1 | 1068.3 | 1076.5 | 1085.2 | 1101.1 | 1122.2 | 1143.0 | 1144.9 | 1167.9 | 1184.8 | 1193.9 |
| 7.5° | 990.5 | 997.9 | 1007.8 | 1021.7 | 1044.2 | 1077.3 | 1112.0 | 1116.1 | 1159.7 | 1198.2 | 1218.5 |
| 10° | 919.1 | 925.2 | 939.4 | 959.9 | 990.8 | 1035.2 | 1081.9 | 1088.8 | 1152.3 | 1216.3 | 1251.9 |
| 12.5° | 842.8 | 846.3 | 863.6 | 893.1 | 938.6 | 994.9 | 1056.5 | 1065.5 | 1147.6 | 1237.1 | 1291.3 |
| 15° | 784.8 | 786.4 | 802.8 | 833.5 | 885.5 | 958.8 | 1036.8 | 1047.7 | 1148.7 | 1262.0 | 1334.2 |
| 17.5° | 770.0 | 770.8 | 779.6 | 800.6 | 846.6 | 926.5 | 1021.2 | 1034.6 | 1152.0 | 1286.3 | 1377.5 |
| 20° | 829.9 | 824.2 | 815.1 | 811.9 | 831.6 | 907.1 | 1011.9 | 1026.9 | 1156.4 | 1308.0 | 1416.3 |
| 22.5° | 994.4 | 977.4 | 939.9 | 889.9 | 859.5 | 908.5 | 1014.4 | 1029.4 | 1170.3 | 1334.5 | 1461.2 |
| 25° | 1238.5 | 1214.9 | 1151.2 | 1052.7 | 958.0 | 947.9 | 1034.9 | 1050.2 | 1197.4 | 1366.2 | 1504.2 |
| 27.5° | 1516.2 | 1492.9 | 1415.0 | 1274.3 | 1112.9 | 1025.8 | 1081.9 | 1096.2 | 1237.6 | 1394.4 | 1537.0 |
| 30° | 1782.2 | 1775.6 | 1683.7 | 1523.9 | 1307.7 | 1152.3 | 1142.7 | 1154.7 | 1267.5 | 1411.4 | 1563.0 |
| 32.5° | 2007.6 | 1997.2 | 1923.4 | 1767.9 | 1530.7 | 1304.1 | 1214.1 | 1217.7 | 1289.9 | 1433.3 | 1596.9 |
| 35° | 2216.7 | 2203.8 | 2139.0 | 1992.0 | 1759.5 | 1489.7 | 1324.1 | 1318.9 | 1338.9 | 1477.3 | 1646.2 |
| 37.5° | 2399.2 | 2411.0 | 2339.0 | 2199.2 | 1964.7 | 1682.6 | 1472.4 | 1456.8 | 1415.5 | 1549.0 | 1717.6 |
| 40° | 2551.9 | 2551.9 | 2514.4 | 2397.8 | 2186.3 | 1882.0 | 1640.2 | 1619.6 | 1530.7 | 1659.6 | 1808.2 |
| 42.5° | 2606.9 | 2618.7 | 2632.6 | 2566.7 | 2384.7 | 2089.5 | 1827.0 | 1805.7 | 1693.0 | 1816.4 | 1922.5 |
| 45° | 2610.2 | 2628.8 | 2700.2 | 2699.9 | 2563.9 | 2295.5 | 2037.7 | 2027.6 | 1900.9 | 2017.8 | 2064.3 |
| 47.5° | 2563.9 | 2587.2 | 2704.9 | 2771.6 | 2705.9 | 2487.3 | 2268.1 | 2255.5 | 2145.3 | 2264.6 | 2212.6 |
| 50° | 2492.5 | 2518.2 | 2655.1 | 2799.8 | 2802.5 | 2654.2 | 2510.8 | 2492.0 | 2414.3 | 2546.7 | 2365.8 |
| 52.5° | 2364.7 | 2414.5 | 2610.4 | 2806.4 | 2866.0 | 2798.4 | 2741.8 | 2733.6 | 2715.3 | 2818.4 | 2487.9 |
| 55° | 2091.4 | 2146.6 | 2498.5 | 2808.6 | 2924.9 | 2926.2 | 2958.2 | 2960.4 | 2997.4 | 3072.3 | 2578.7 |
| 57.5° | 1962.2 | 1993.4 | 2303.2 | 2819.0 | 3012.1 | 3071.2 | 3178.8 | 3195.7 | 3252.9 | 3313.4 | 2682.4 |
| 60° | 1880.9 | 1917.9 | 2206.8 | 2804.7 | 3149.2 | 3261.4 | 3383.2 | 3388.9 | 3450.2 | 3562.1 | 2822.8 |
| 62.5° | 1816.1 | 1852.5 | 2146.1 | 2750.0 | 3303.3 | 3490.2 | 3582.9 | 3583.5 | 3629.5 | 3858.5 | 2982.3 |
| 65° | 1656.0 | 1686.7 | 2023.2 | 2688.4 | 3405.1 | 3716.5 | 3815.0 | 3811.4 | 3848.9 | 4171.0 | 3167.6 |
| 67.5° | 1424.5 | 1448.1 | 1772.3 | 2455.0 | 3366.8 | 3922.2 | 4165.2 | 4153.5 | 4108.0 | 4441.0 | 3240.4 |
| 70° | 1101.4 | 1109.9 | 1396.9 | 2045.9 | 3007.8 | 4001.3 | 4503.7 | 4497.7 | 4267.0 | 4392.6 | 2973.6 |
| 71° | 910.4 | 938.3 | 1231.1 | 1805.7 | 2767.2 | 3928.3 | 4536.5 | 4540.1 | 4227.1 | 4260.7 | 2790.0 |
| 72.5° | 528.7 | 552.5 | 892.3 | 1386.8 | 2349.4 | 3623.4 | 4366.3 | 4392.1 | 4040.5 | 3875.5 | 2383.1 |
| 75° | 113.3 | 121.2 | 330.8 | 671.2 | 1292.4 | 2539.6 | 3446.4 | 3538.1 | 3293.2 | 2636.4 | 1436.3 |
| 77.5° | 78.8 | 85.1 | 141.7 | 304.6 | 427.1 | 1254.9 | 2140.9 | 2244.3 | 1967.4 | 990.8 | 459.7 |
| 80° | 62.4 | 69.5 | 110.5 | 150.5 | 115.5 | 404.7 | 1002.9 | 1066.1 | 656.2 | 221.1 | 77.4 |
| 82.5° | 34.8 | 41.3 | 86.2 | 81.3 | 44.3 | 76.9 | 280.7 | 317.4 | 131.3 | 44.6 | 18.3 |
| 85° | 10.1 | 12.3 | 55.5 | 59.1 | 18.9 | 14.8 | 47.9 | 59.4 | 24.9 | 11.8 | 8.2 |
| 87.5° | 0.0 | 0.0 | 26.8 | 22.7 | 5.5 | 2.2 | 4.4 | 4.9 | 4.9 | 4.9 | 5.5 |
| 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: P359783

CATALOG NUMBER: NVN-SA1D-740-U-T3R-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 | 1175.2 |
| 2.5° | 1179.9 | 1181.8 | 1175.0 | 1165.9 | 1156.4 | 1144.6 | 1132.3 | 1122.7 | 1122.4 | 1117.8 | 1113.1 |
| 5° | 1194.4 | 1193.3 | 1174.4 | 1145.7 | 1111.8 | 1076.5 | 1042.8 | 1004.8 | 992.2 | 976.6 | 971.4 |
| 7.5° | 1221.2 | 1213.6 | 1173.6 | 1110.7 | 1036.2 | 962.4 | 886.0 | 809.1 | 776.3 | 746.7 | 741.5 |
| 10° | 1254.9 | 1240.4 | 1168.4 | 1058.1 | 921.6 | 785.3 | 670.1 | 565.6 | 519.6 | 484.3 | 482.7 |
| 12.5° | 1289.9 | 1267.7 | 1153.9 | 978.8 | 771.4 | 579.8 | 447.1 | 344.2 | 305.9 | 281.3 | 283.5 |
| 15° | 1326.6 | 1293.5 | 1122.7 | 871.8 | 600.3 | 393.5 | 274.7 | 214.3 | 198.9 | 192.6 | 194.3 |
| 17.5° | 1364.1 | 1311.2 | 1079.2 | 742.9 | 431.5 | 253.9 | 190.2 | 173.2 | 173.2 | 174.6 | 175.1 |
| 20° | 1396.6 | 1320.8 | 1015.2 | 598.4 | 292.5 | 185.0 | 166.4 | 163.9 | 165.3 | 167.5 | 167.7 |
| 22.5° | 1428.9 | 1321.4 | 931.7 | 452.0 | 204.7 | 162.0 | 158.4 | 157.3 | 158.2 | 160.6 | 160.9 |
| 25° | 1455.2 | 1314.8 | 827.2 | 321.5 | 163.4 | 152.7 | 151.0 | 150.5 | 151.0 | 154.1 | 154.1 |
| 27.5° | 1465.8 | 1291.0 | 699.7 | 226.0 | 146.4 | 142.3 | 141.7 | 142.3 | 143.1 | 145.3 | 145.6 |
| 30° | 1466.9 | 1249.4 | 560.7 | 163.6 | 132.7 | 128.3 | 129.4 | 131.3 | 130.5 | 130.0 | 130.5 |
| 32.5° | 1469.7 | 1201.2 | 425.2 | 134.6 | 121.2 | 114.4 | 113.0 | 113.0 | 109.7 | 107.8 | 106.7 |
| 35° | 1478.7 | 1144.6 | 308.4 | 120.9 | 109.5 | 101.5 | 96.3 | 90.3 | 84.0 | 80.7 | 79.9 |
| 37.5° | 1492.9 | 1085.2 | 220.8 | 111.9 | 99.1 | 90.0 | 80.2 | 69.5 | 60.5 | 58.0 | 58.0 |
| 40° | 1518.9 | 1023.9 | 163.4 | 104.8 | 90.8 | 79.6 | 64.9 | 50.9 | 42.7 | 41.3 | 41.3 |
| 42.5° | 1560.0 | 959.4 | 130.2 | 98.5 | 83.7 | 69.0 | 49.5 | 36.9 | 30.9 | 30.1 | 29.8 |
| 45° | 1602.7 | 888.2 | 113.8 | 92.5 | 76.1 | 56.6 | 36.7 | 27.4 | 23.8 | 23.0 | 23.0 |
| 47.5° | 1645.3 | 812.4 | 105.9 | 86.7 | 68.7 | 44.1 | 27.4 | 21.6 | 20.0 | 20.0 | 20.2 |
| 50° | 1681.5 | 733.3 | 100.1 | 80.4 | 59.1 | 33.4 | 21.6 | 18.3 | 17.8 | 18.9 | 19.2 |
| 52.5° | 1690.5 | 655.6 | 93.0 | 72.5 | 47.3 | 25.4 | 17.8 | 16.1 | 16.1 | 16.1 | 16.1 |
| 55° | 1685.0 | 595.4 | 83.7 | 62.7 | 35.0 | 20.2 | 15.3 | 14.2 | 14.0 | 14.0 | 14.0 |
| 57.5° | 1703.6 | 559.9 | 67.0 | 48.7 | 25.2 | 16.4 | 13.4 | 12.6 | 12.0 | 11.8 | 11.8 |
| 60° | 1741.1 | 536.6 | 47.9 | 35.0 | 18.9 | 13.7 | 11.5 | 10.7 | 9.9 | 9.3 | 9.3 |
| 62.5° | 1790.9 | 516.3 | 35.6 | 26.0 | 14.5 | 10.9 | 9.6 | 8.8 | 7.7 | 7.1 | 7.1 |
| 65° | 1829.2 | 480.2 | 27.1 | 19.4 | 10.9 | 8.8 | 7.4 | 7.1 | 5.5 | 4.9 | 4.7 |
| 67.5° | 1770.7 | 400.9 | 21.9 | 14.2 | 8.2 | 6.8 | 5.7 | 5.5 | 3.3 | 2.7 | 2.7 |
| 70° | 1518.7 | 279.1 | 17.5 | 10.4 | 6.0 | 5.5 | 4.7 | 3.6 | 2.5 | 2.2 | 2.2 |
| 71° | 1377.2 | 233.1 | 15.9 | 8.8 | 5.2 | 5.2 | 4.4 | 3.0 | 2.2 | 1.9 | 1.9 |
| 72.5° | 1144.1 | 165.5 | 13.4 | 6.8 | 4.7 | 5.5 | 4.7 | 2.7 | 2.2 | 1.9 | 1.6 |
| 75° | 664.1 | 69.2 | 9.3 | 4.7 | 3.6 | 6.6 | 6.0 | 2.5 | 1.6 | 1.4 | 1.4 |
| 77.5° | 199.8 | 25.4 | 5.2 | 3.0 | 2.7 | 5.7 | 6.8 | 2.2 | 0.8 | 0.3 | 0.3 |
| 80° | 36.4 | 10.9 | 3.3 | 1.9 | 1.9 | 3.6 | 5.2 | 1.1 | 0.0 | 0.0 | 0.0 |
| 82.5° | 12.9 | 5.5 | 1.9 | 1.1 | 0.8 | 1.6 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 7.4 | 3.8 | 1.1 | 0.5 | 0.0 | 0.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 4.9 | 1.1 | 0.0 | 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 |

LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW, INVUE, LUMARK AND STREETWORKS

DATA VALID FOR LUMINAIRES UTILIZING SA LIGHT ENGINES

Report Number: SP1-2101-121-2

Luminaire Tested: IFLD-S-SA2A-740-U-T3R-HSS

Test Date: 03/05/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2101-121-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 03/05/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: STREETWORKS
 Catalog Number: **IFLD-S-SA2A-740-U-T3R-HSS**
 Description: STREETWORKS INF FLOOD

SHIELD, DRIVER PROGRAMMED @ 615mA.

Spectral Parameters

| | | | | | |
|---------------------------|---------|-----------|------|------|-------|
| CCT (K): | 3905 | CRI (Ra): | 71.2 | R9: | -29.7 |
| CIE u': | 0.2273 | R1: | 68.9 | R10: | 46.2 |
| CIE v': | 0.5024 | R2: | 77.0 | R11: | 68.8 |
| Duv: | -0.0008 | R3: | 84.0 | R12: | 45.6 |
| CIE x: | 0.3841 | R4: | 71.6 | R13: | 69.5 |
| CIE y: | 0.3774 | R5: | 68.9 | R14: | 90.7 |
| CIE z: | 0.2385 | R6: | 68.3 | | |
| Peak Wavelength (nm): | 443 | R7: | 78.7 | | |
| Dominant Wavelength (nm): | 579 | R8: | 52.2 | | |
| Purity: | 28.7 | | | | |
| Rf: | 71.7 | | | | |
| Rg: | 96.9 | | | | |



Test Conditions

Stabilization Time: 211M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.8/312%
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2101-121-2

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 1/31/2021 | 7/31/2021 |
| Power Meter | IN0071 | 12/1/2020 | 12/1/2021 |
| AC Power Source | IN0063 | 12/1/2020 | 12/1/2021 |
| DC Power Source | IN0208 | 12/1/2020 | 12/1/2021 |
| Sphere Thermometer | IN0085 | 12/1/2020 | 12/1/2021 |
| Room Thermometer | IN0046 | 12/1/2020 | 12/1/2021 |

REPORT NUMBER: SP1-2101-121-2

CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 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 | 2304 | 0.0 | 490 | 19043 | 2.7 | 620 | 97577 | 25.4 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 4.8 | 625 | 90158 | 19.9 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 8.0 | 630 | 82240 | 14.9 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 13.3 | 635 | 74361 | 11.2 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 20.2 | 640 | 66994 | 8.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 28.5 | 645 | 60405 | 5.8 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 37.4 | 650 | 53806 | 3.9 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 44.9 | 655 | 47610 | 2.7 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 52.6 | 660 | 42018 | 1.8 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 58.4 | 665 | 36742 | 1.2 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.0 | 540 | 96845 | 63.1 | 670 | 32105 | 0.7 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.0 | 545 | 100829 | 67.1 | 675 | 27946 | 0.5 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 0.1 | 550 | 105648 | 71.8 | 680 | 24146 | 0.3 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 0.2 | 555 | 110017 | 75.1 | 685 | 21191 | 0.2 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 0.5 | 560 | 114586 | 77.9 | 690 | 18544 | 0.1 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 1.2 | 565 | 118987 | 79.1 | 695 | 16058 | 0.1 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 2.1 | 570 | 122326 | 79.5 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 2.9 | 575 | 125968 | 78.4 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 2.7 | 580 | 127613 | 75.8 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 2.0 | 585 | 129466 | 71.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 1.5 | 590 | 128813 | 66.6 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 1.3 | 595 | 126387 | 59.9 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 1.0 | 600 | 123477 | 53.2 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 1.1 | 605 | 118718 | 46.0 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 1.2 | 610 | 112091 | 38.5 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 1.7 | 615 | 105039 | 31.7 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: 10425.8 S/P: 1.47

| 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 | 2304 | 0.0 | 490 | 19043 | 29.3 | 620 | 97577 | 1.2 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 43.0 | 625 | 90158 | 0.8 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 60.8 | 630 | 82240 | 0.5 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 81.1 | 635 | 74361 | 0.3 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 99.6 | 640 | 66994 | 0.2 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 113.9 | 645 | 60405 | 0.1 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 122.6 | 650 | 53806 | 0.1 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 125.0 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 123.1 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.1 | 535 | 94097 | 117.3 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 107.0 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.9 | 545 | 100829 | 96.7 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 3.0 | 550 | 105648 | 86.4 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 9.3 | 555 | 110017 | 75.2 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 23.0 | 560 | 114586 | 64.0 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 45.7 | 565 | 118987 | 53.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 75.5 | 570 | 122326 | 43.2 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 93.8 | 575 | 125968 | 34.3 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 79.3 | 580 | 127613 | 26.3 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 51.3 | 585 | 129466 | 19.8 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 35.6 | 590 | 128813 | 14.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 26.0 | 595 | 126387 | 10.1 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 19.3 | 600 | 123477 | 7.0 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 16.8 | 605 | 118718 | 4.7 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 17.7 | 610 | 112091 | 3.0 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 21.4 | 615 | 105039 | 1.9 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3927.2 M/P: 0.55

| 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 | 2304 | 0.0 | 490 | 19043 | 15.8 | 620 | 97577 | 0.1 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 22.0 | 625 | 90158 | 0.0 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 29.2 | 630 | 82240 | 0.0 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 36.6 | 635 | 74361 | 0.0 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 42.2 | 640 | 66994 | 0.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 44.9 | 645 | 60405 | 0.0 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 44.9 | 650 | 53806 | 0.0 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 42.4 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 38.6 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 33.9 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 28.3 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.6 | 545 | 100829 | 23.4 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 2.1 | 550 | 105648 | 19.0 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 5.9 | 555 | 110017 | 14.8 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 14.3 | 560 | 114586 | 11.3 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 27.3 | 565 | 118987 | 8.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 45.1 | 570 | 122326 | 6.0 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 55.3 | 575 | 125968 | 4.2 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 47.2 | 580 | 127613 | 2.9 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 30.8 | 585 | 129466 | 1.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 21.7 | 590 | 128813 | 1.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 16.1 | 595 | 126387 | 0.8 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 12.0 | 600 | 123477 | 0.5 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 10.3 | 605 | 118718 | 0.3 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 10.5 | 610 | 112091 | 0.2 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 12.1 | 615 | 105039 | 0.1 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

Summary

$R_f = 71.7$
 $R_g = 96.9$
 CIE $R_a = 71.2$
 $R_g = -29.7$



Color Vector Graphics



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

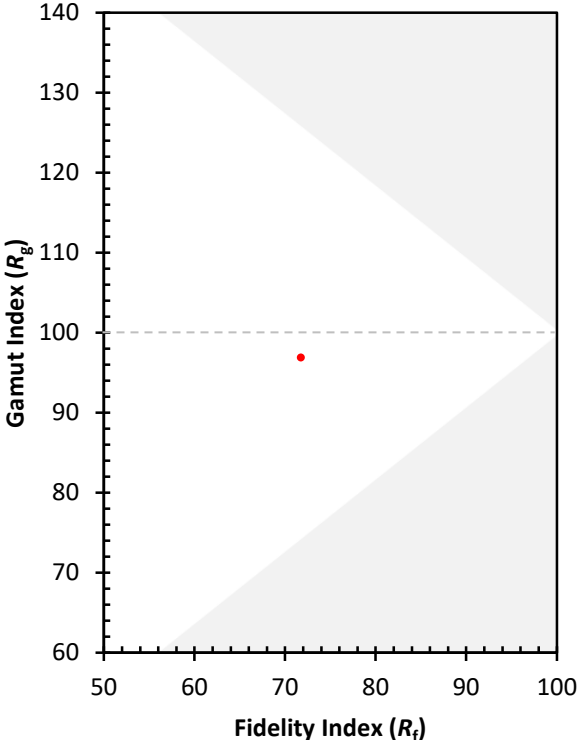
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 55 | CES51 = 86 | CES76 = 45 |
| CES02 = 61 | CES27 = 80 | CES52 = 87 | CES77 = 68 |
| CES03 = 30 | CES28 = 79 | CES53 = 74 | CES78 = 49 |
| CES04 = 70 | CES29 = 51 | CES54 = 81 | CES79 = 77 |
| CES05 = 47 | CES30 = 60 | CES55 = 80 | CES80 = 75 |
| CES06 = 50 | CES31 = 56 | CES56 = 69 | CES81 = 75 |
| CES07 = 40 | CES32 = 52 | CES57 = 67 | CES82 = 90 |
| CES08 = 39 | CES33 = 62 | CES58 = 69 | CES83 = 85 |
| CES09 = 29 | CES34 = 65 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 81 | CES60 = 91 | CES85 = 83 |
| CES11 = 57 | CES36 = 92 | CES61 = 85 | CES86 = 72 |
| CES12 = 63 | CES37 = 74 | CES62 = 81 | CES87 = 77 |
| CES13 = 42 | CES38 = 69 | CES63 = 72 | CES88 = 77 |
| CES14 = 74 | CES39 = 92 | CES64 = 69 | CES89 = 72 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 75 |
| CES16 = 46 | CES41 = 84 | CES66 = 63 | CES91 = 91 |
| CES17 = 49 | CES42 = 75 | CES67 = 60 | CES92 = 66 |
| CES18 = 56 | CES43 = 70 | CES68 = 67 | CES93 = 80 |
| CES19 = 72 | CES44 = 98 | CES69 = 77 | CES94 = 56 |
| CES20 = 65 | CES45 = 80 | CES70 = 57 | CES95 = 72 |
| CES21 = 86 | CES46 = 77 | CES71 = 53 | CES96 = 78 |
| CES22 = 78 | CES47 = 74 | CES72 = 84 | CES97 = 83 |
| CES23 = 92 | CES48 = 66 | CES73 = 47 | CES98 = 73 |
| CES24 = 91 | CES49 = 76 | CES74 = 96 | CES99 = 63 |
| CES25 = 72 | CES50 = 85 | CES75 = 52 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)