

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: P363133

Luminaire Tested: NVN-SA3B-722-U-T3-HSS

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P363133
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-15)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: STREETWORKS
Catalog Number: NVN-SA3B-722-U-T3-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(3) 70 CRI, 2200K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III
OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9317 lumens
Efficiency: N/A
Efficacy: 75.1 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

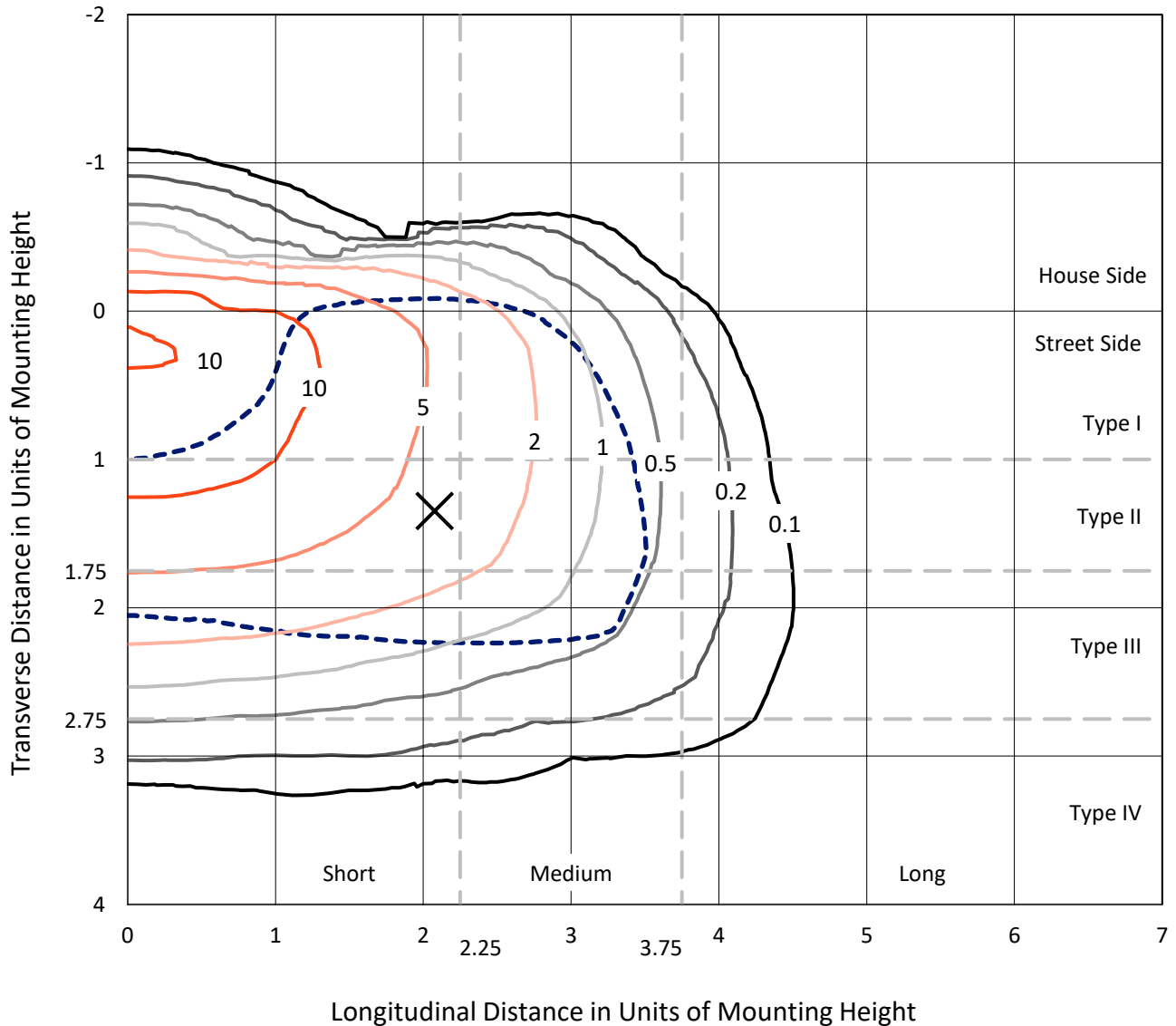
Input Watts (W): 124
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

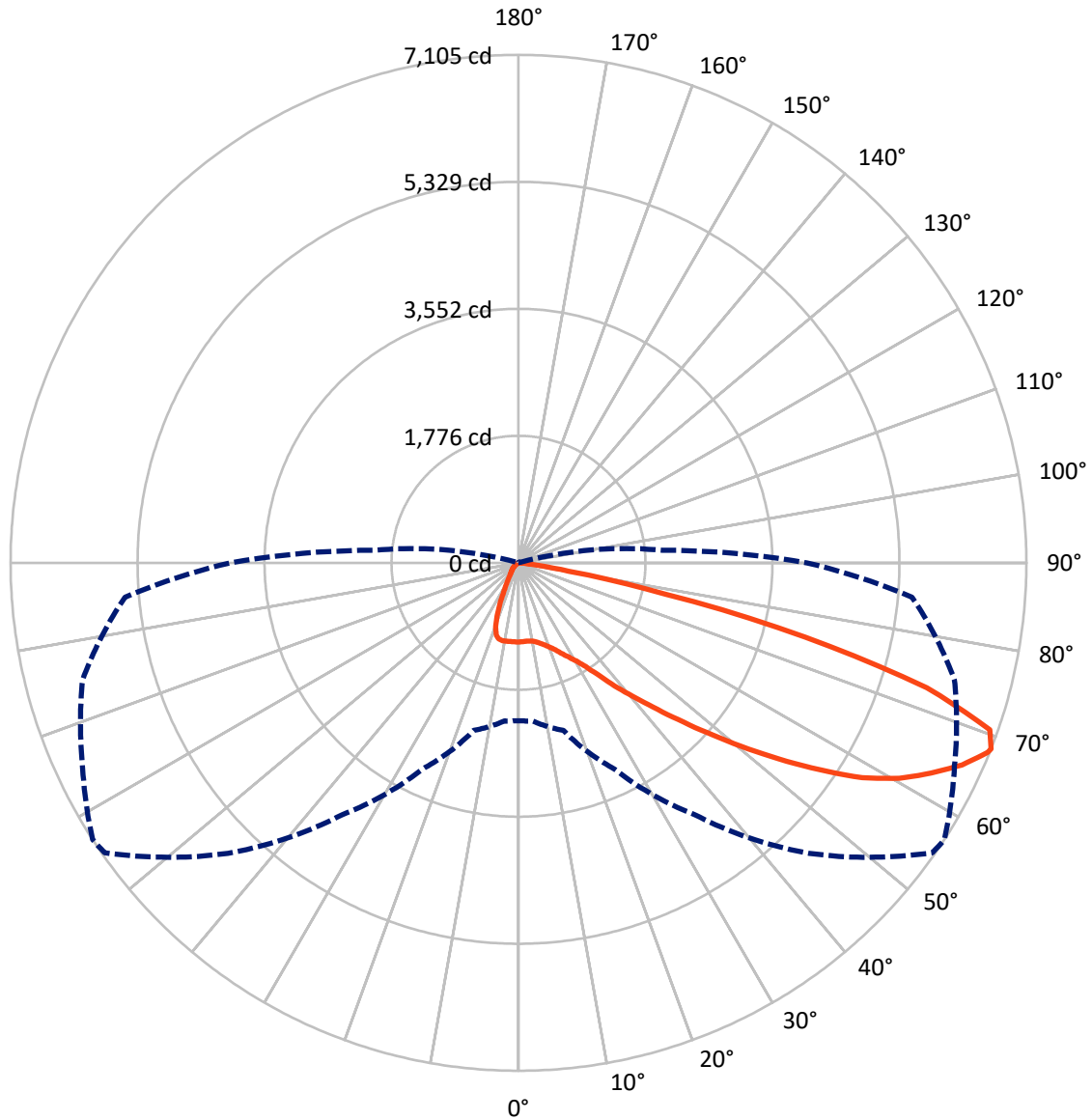
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 14.3 fc
 Type III - Short - N/A

REPORT NUMBER: P363133
CATALOG NUMBER: NVN-SA3B-722-U-T3-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 57-Deg Lateral - - - Horizontal Cone Through 68-Deg Vertical

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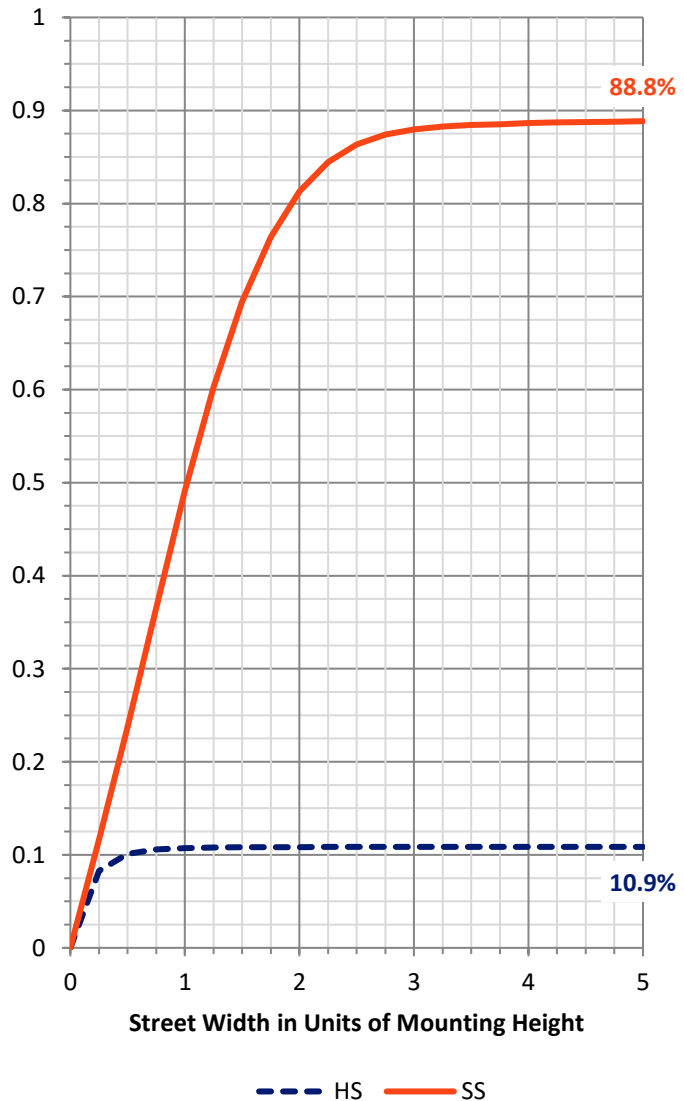
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1021.7 | 0.0 | 1021.7 |
| | % Fixture | 11.0 | 0.0 | 11.0 |
| Street Side | Lumens | 8295.3 | 0.0 | 8295.3 |
| | % Fixture | 89.0 | 0.0 | 89.0 |
| Total | Lumens | 9317.0 | 0.0 | 9317.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 103.6 | 1.1 |
| 10°-20° | 287.1 | 3.1 |
| 20°-30° | 495.3 | 5.3 |
| 30°-40° | 854.8 | 9.2 |
| 40°-50° | 1462.2 | 15.7 |
| 50°-60° | 2339.4 | 25.1 |
| 60°-70° | 2702.9 | 29.0 |
| 70°-80° | 1032.8 | 11.1 |
| 80°-90° | 38.7 | 0.4 |
| 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° | 9317.0 | 100.0 |
| 0°-180° | 9317.0 | 100.0 |

Coefficient of Utilization



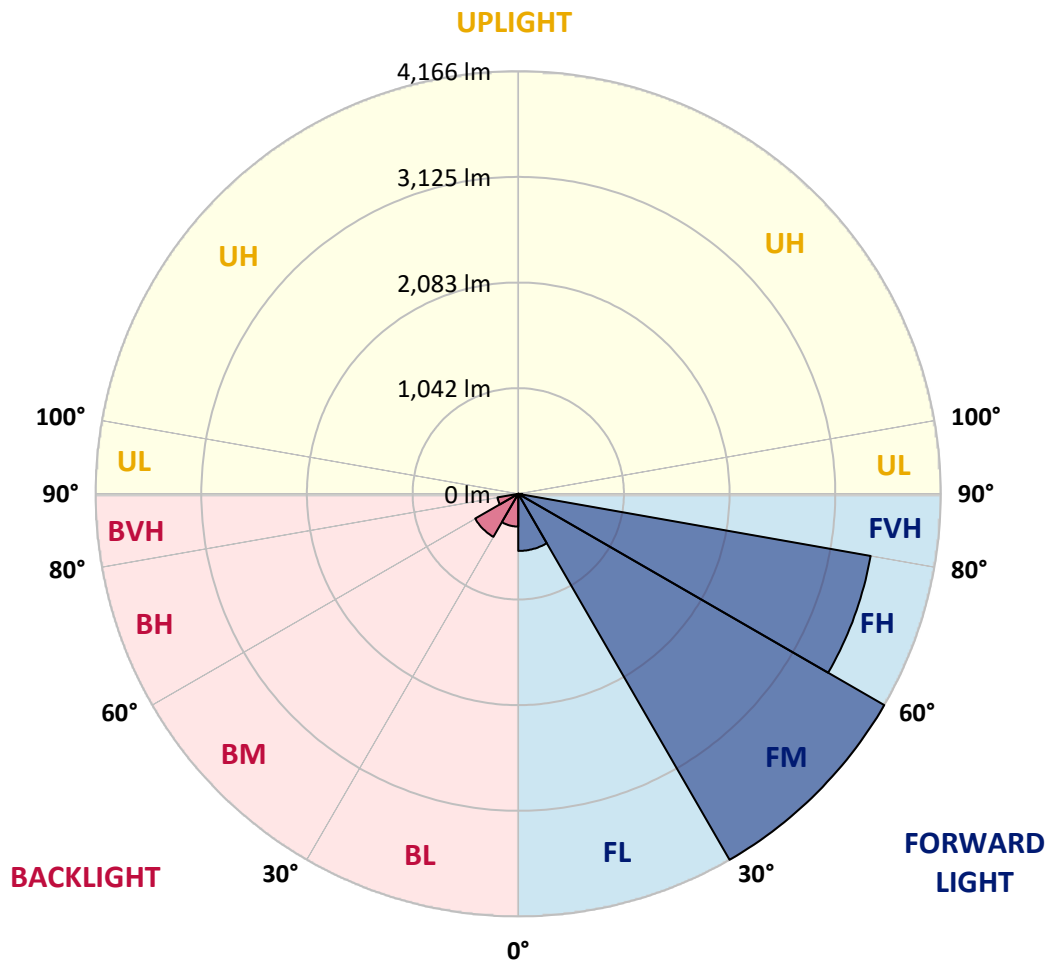
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 563.1 | 6.0 | | | |
| FM (30°-60°) | 4166.5 | 44.7 | | | |
| FH (60°-80°) | 3527.7 | 37.9 | | | G2/5000 |
| FVH (80°-90°) | 38.0 | 0.4 | | | G1/100 |
| BL (0°-30°) | 322.9 | 3.5 | B1/500 | | |
| BM (30°-60°) | 490.0 | 5.3 | B1/1000 | | |
| BH (60°-80°) | 208.1 | 2.2 | B1/500 | | G1/500 |
| BVH (80°-90°) | 0.7 | 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 Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 57° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 |
| 2.5° | 1081.1 | 1086.0 | 1089.5 | 1091.7 | 1094.3 | 1100.1 | 1101.8 | 1104.5 | 1105.8 | 1105.8 | 1108.9 |
| 5° | 1038.4 | 1043.7 | 1051.2 | 1057.3 | 1069.7 | 1085.5 | 1097.0 | 1101.4 | 1109.3 | 1116.4 | 1120.3 |
| 7.5° | 998.7 | 1004.9 | 1013.7 | 1028.2 | 1049.4 | 1074.9 | 1098.7 | 1104.9 | 1120.3 | 1135.3 | 1142.8 |
| 10° | 973.2 | 978.0 | 989.5 | 1010.2 | 1037.9 | 1073.6 | 1107.1 | 1114.6 | 1141.0 | 1166.1 | 1180.2 |
| 12.5° | 964.4 | 968.8 | 980.7 | 1004.0 | 1038.4 | 1080.2 | 1126.5 | 1137.5 | 1176.3 | 1212.8 | 1232.7 |
| 15° | 977.1 | 978.0 | 990.8 | 1012.8 | 1046.7 | 1096.5 | 1158.6 | 1171.9 | 1220.8 | 1268.3 | 1293.0 |
| 17.5° | 1026.5 | 1022.5 | 1029.1 | 1038.8 | 1065.7 | 1118.1 | 1192.6 | 1212.4 | 1277.6 | 1333.5 | 1356.9 |
| 20° | 1149.8 | 1149.8 | 1134.9 | 1108.4 | 1108.9 | 1151.6 | 1238.4 | 1260.9 | 1340.6 | 1405.4 | 1426.5 |
| 22.5° | 1360.9 | 1356.9 | 1326.9 | 1262.2 | 1202.7 | 1209.3 | 1294.3 | 1323.4 | 1416.4 | 1485.5 | 1492.6 |
| 25° | 1614.6 | 1609.8 | 1563.5 | 1472.3 | 1369.2 | 1302.7 | 1370.1 | 1403.6 | 1506.7 | 1567.9 | 1553.4 |
| 27.5° | 1883.4 | 1879.4 | 1833.6 | 1720.4 | 1573.6 | 1451.6 | 1460.4 | 1492.1 | 1598.8 | 1659.1 | 1612.9 |
| 30° | 2143.7 | 2145.0 | 2099.7 | 1983.4 | 1817.3 | 1641.5 | 1575.0 | 1593.5 | 1688.2 | 1749.4 | 1683.3 |
| 32.5° | 2391.3 | 2393.1 | 2353.9 | 2223.9 | 2068.8 | 1862.2 | 1733.6 | 1728.7 | 1792.2 | 1852.5 | 1776.7 |
| 35° | 2612.0 | 2616.4 | 2589.6 | 2488.7 | 2324.3 | 2108.0 | 1939.3 | 1927.9 | 1939.7 | 2008.0 | 1919.9 |
| 37.5° | 2824.8 | 2827.5 | 2807.2 | 2722.2 | 2584.7 | 2378.1 | 2199.2 | 2182.9 | 2157.4 | 2209.8 | 2108.9 |
| 40° | 3057.9 | 3051.3 | 3027.9 | 2950.8 | 2832.7 | 2676.3 | 2478.5 | 2450.3 | 2405.9 | 2452.5 | 2357.4 |
| 42.5° | 3274.6 | 3267.1 | 3271.1 | 3183.9 | 3084.3 | 2983.0 | 2804.1 | 2755.6 | 2729.7 | 2783.4 | 2662.3 |
| 45° | 3545.6 | 3541.6 | 3554.8 | 3479.0 | 3398.4 | 3324.8 | 3177.3 | 3124.4 | 3112.9 | 3175.9 | 3031.0 |
| 47.5° | 3813.0 | 3822.7 | 3863.6 | 3831.5 | 3798.9 | 3734.1 | 3572.4 | 3548.6 | 3555.7 | 3631.9 | 3420.0 |
| 50° | 4035.9 | 4047.3 | 4159.7 | 4196.7 | 4243.8 | 4205.9 | 4043.8 | 4029.3 | 4057.0 | 4125.8 | 3838.5 |
| 52.5° | 4197.1 | 4220.5 | 4360.1 | 4530.6 | 4702.4 | 4728.0 | 4566.3 | 4553.1 | 4590.5 | 4601.1 | 4161.9 |
| 55° | 4309.0 | 4329.7 | 4487.9 | 4799.8 | 5149.6 | 5259.7 | 5159.3 | 5108.2 | 5101.1 | 4996.7 | 4502.0 |
| 57.5° | 4328.9 | 4326.7 | 4554.0 | 4973.8 | 5500.3 | 5784.4 | 5721.0 | 5670.8 | 5526.3 | 5362.4 | 4891.9 |
| 60° | 4217.0 | 4229.7 | 4493.6 | 5034.2 | 5720.6 | 6181.4 | 6186.2 | 6121.0 | 5895.9 | 5717.9 | 5269.9 |
| 62.5° | 3872.4 | 3924.4 | 4191.0 | 4876.0 | 5717.9 | 6341.3 | 6527.2 | 6477.4 | 6208.2 | 6009.1 | 5653.2 |
| 65° | 3313.8 | 3332.3 | 3586.5 | 4334.1 | 5331.6 | 6274.3 | 6834.3 | 6815.8 | 6489.8 | 6292.0 | 5850.1 |
| 67.5° | 2419.9 | 2379.9 | 2646.8 | 3413.0 | 4513.9 | 5884.0 | 7054.5 | 7077.9 | 6707.0 | 6350.1 | 5640.4 |
| 68° | 2208.5 | 2220.4 | 2428.3 | 3185.2 | 4299.8 | 5746.1 | 7069.1 | 7104.8 | 6728.5 | 6312.2 | 5525.8 |
| 70° | 1316.4 | 1339.3 | 1524.7 | 2193.1 | 3271.1 | 4965.9 | 6912.2 | 6993.8 | 6599.9 | 5921.4 | 4779.5 |
| 72.5° | 336.1 | 363.5 | 538.8 | 981.5 | 1868.4 | 3498.9 | 5835.1 | 5973.0 | 5730.2 | 4803.8 | 3226.6 |
| 75° | 138.3 | 145.4 | 192.5 | 323.4 | 696.1 | 1576.3 | 3846.0 | 4141.2 | 3972.5 | 2875.9 | 1458.2 |
| 77.5° | 95.6 | 100.4 | 123.8 | 179.3 | 301.3 | 534.4 | 1885.6 | 2098.8 | 1890.8 | 981.5 | 318.1 |
| 80° | 68.7 | 72.7 | 88.6 | 119.4 | 173.1 | 190.8 | 614.6 | 710.6 | 564.3 | 215.4 | 78.9 |
| 82.5° | 41.0 | 44.1 | 66.1 | 85.0 | 105.3 | 91.2 | 152.9 | 173.6 | 163.4 | 107.1 | 35.2 |
| 85° | 20.3 | 23.8 | 44.5 | 60.8 | 56.8 | 38.3 | 46.7 | 52.0 | 64.3 | 65.2 | 18.9 |
| 87.5° | 1.3 | 2.6 | 26.0 | 36.6 | 15.9 | 8.8 | 13.7 | 16.7 | 22.9 | 32.2 | 7.9 |
| 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: P363133
 CATALOG NUMBER: NVN-SA3B-722-U-T3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 | 1107.1 |
| 2.5° | 1110.2 | 1110.6 | 1107.5 | 1106.2 | 1107.1 | 1101.8 | 1099.6 | 1100.5 | 1100.5 | 1101.8 | 1099.6 |
| 5° | 1121.2 | 1121.2 | 1115.9 | 1108.9 | 1104.9 | 1094.8 | 1088.2 | 1086.4 | 1085.1 | 1084.2 | 1082.4 |
| 7.5° | 1145.0 | 1142.3 | 1133.1 | 1117.7 | 1104.5 | 1082.4 | 1065.7 | 1056.9 | 1052.5 | 1050.7 | 1049.4 |
| 10° | 1183.3 | 1178.5 | 1163.1 | 1134.4 | 1104.0 | 1064.8 | 1028.2 | 1002.3 | 980.7 | 971.9 | 966.6 |
| 12.5° | 1234.9 | 1227.8 | 1201.8 | 1154.2 | 1100.9 | 1028.7 | 949.4 | 873.2 | 802.2 | 773.2 | 758.6 |
| 15° | 1294.3 | 1284.2 | 1243.2 | 1171.0 | 1082.9 | 947.2 | 774.9 | 641.4 | 543.2 | 506.2 | 490.3 |
| 17.5° | 1354.7 | 1341.5 | 1279.4 | 1181.6 | 1028.7 | 778.5 | 543.6 | 410.6 | 345.0 | 327.3 | 321.2 |
| 20° | 1415.5 | 1396.1 | 1310.6 | 1173.6 | 906.2 | 561.3 | 358.6 | 300.0 | 281.1 | 275.8 | 274.0 |
| 22.5° | 1473.2 | 1443.2 | 1338.8 | 1142.8 | 717.7 | 376.7 | 283.7 | 265.2 | 259.0 | 256.0 | 255.1 |
| 25° | 1523.4 | 1481.6 | 1363.5 | 1047.6 | 508.0 | 284.6 | 255.5 | 249.4 | 241.4 | 235.7 | 236.1 |
| 27.5° | 1570.6 | 1519.9 | 1378.5 | 890.8 | 338.8 | 243.2 | 236.6 | 228.2 | 213.7 | 205.3 | 205.3 |
| 30° | 1627.4 | 1571.0 | 1389.5 | 685.5 | 249.4 | 215.0 | 209.7 | 196.9 | 177.1 | 166.1 | 166.1 |
| 32.5° | 1712.9 | 1648.5 | 1382.4 | 481.1 | 206.6 | 189.0 | 176.7 | 159.0 | 137.5 | 126.9 | 126.4 |
| 35° | 1843.7 | 1768.4 | 1332.2 | 315.4 | 182.4 | 164.3 | 144.5 | 122.9 | 104.0 | 95.2 | 94.7 |
| 37.5° | 2019.9 | 1928.7 | 1219.4 | 225.6 | 163.4 | 141.4 | 117.6 | 93.8 | 79.7 | 74.0 | 73.6 |
| 40° | 2248.6 | 2115.1 | 1058.2 | 182.8 | 145.8 | 119.4 | 90.8 | 72.7 | 63.0 | 58.6 | 59.0 |
| 42.5° | 2523.0 | 2314.7 | 864.8 | 157.7 | 128.6 | 98.2 | 70.9 | 57.3 | 51.1 | 48.0 | 47.1 |
| 45° | 2827.9 | 2511.6 | 662.1 | 140.5 | 111.5 | 79.3 | 55.5 | 45.4 | 40.5 | 38.8 | 38.8 |
| 47.5° | 3163.2 | 2703.2 | 484.6 | 125.6 | 93.0 | 61.2 | 44.5 | 37.0 | 33.0 | 31.7 | 31.3 |
| 50° | 3467.6 | 2836.3 | 349.4 | 109.7 | 76.2 | 48.5 | 36.1 | 30.8 | 28.2 | 26.4 | 26.4 |
| 52.5° | 3721.3 | 2878.1 | 257.3 | 92.5 | 61.7 | 38.8 | 30.0 | 26.4 | 23.8 | 22.5 | 22.5 |
| 55° | 3944.7 | 2860.9 | 191.2 | 76.2 | 49.8 | 31.7 | 25.6 | 22.5 | 20.3 | 18.9 | 18.9 |
| 57.5° | 4158.8 | 2805.4 | 142.7 | 62.1 | 40.1 | 25.6 | 21.6 | 18.9 | 16.7 | 15.9 | 15.9 |
| 60° | 4333.7 | 2712.9 | 106.2 | 50.2 | 32.2 | 20.7 | 18.1 | 15.4 | 13.7 | 12.3 | 12.3 |
| 62.5° | 4475.6 | 2610.7 | 78.0 | 41.4 | 25.6 | 16.3 | 14.1 | 12.8 | 10.1 | 8.8 | 8.8 |
| 65° | 4476.4 | 2441.1 | 58.6 | 34.4 | 19.8 | 12.8 | 10.6 | 10.1 | 6.6 | 5.3 | 4.8 |
| 67.5° | 4152.6 | 2104.5 | 44.9 | 29.5 | 15.4 | 9.7 | 7.9 | 8.4 | 3.5 | 2.2 | 1.8 |
| 68° | 4035.0 | 2019.0 | 42.3 | 29.1 | 14.5 | 9.3 | 7.5 | 8.4 | 3.1 | 1.8 | 1.3 |
| 70° | 3401.9 | 1606.2 | 33.9 | 28.2 | 12.8 | 7.0 | 6.2 | 8.4 | 2.6 | 1.3 | 0.9 |
| 72.5° | 2175.9 | 932.2 | 25.1 | 22.5 | 9.7 | 5.3 | 4.0 | 7.5 | 2.6 | 0.9 | 0.4 |
| 75° | 926.0 | 289.0 | 17.2 | 15.9 | 5.7 | 4.0 | 2.6 | 4.8 | 1.8 | 0.4 | 0.0 |
| 77.5° | 195.2 | 65.2 | 10.1 | 9.7 | 4.0 | 2.6 | 1.8 | 1.3 | 0.4 | 0.0 | 0.0 |
| 80° | 50.2 | 18.9 | 5.3 | 4.8 | 2.2 | 1.3 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 15.9 | 7.5 | 3.1 | 2.2 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 7.9 | 4.4 | 1.8 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 4.4 | 1.3 | 0.4 | 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
 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 ($R_{f,i}$)

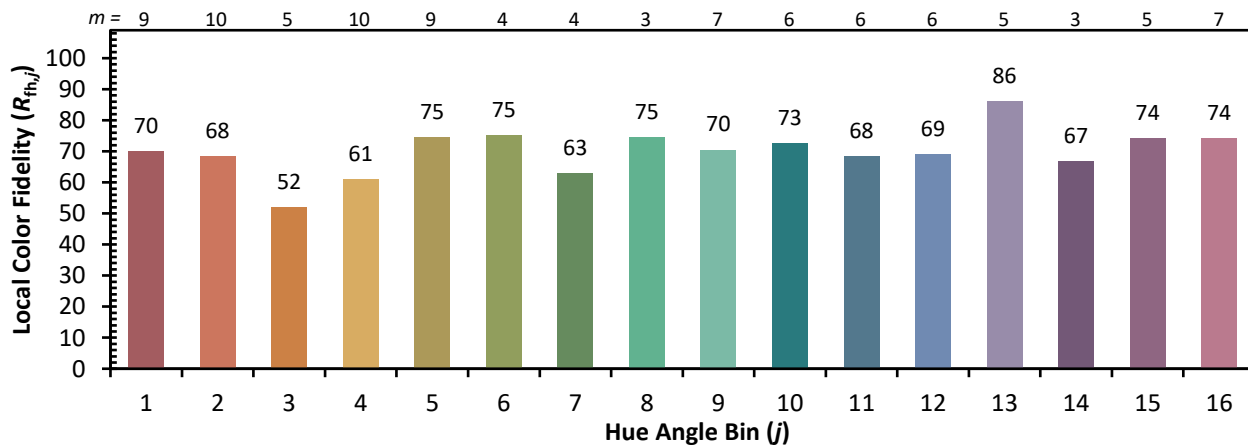
| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30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