

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: P362771

Luminaire Tested: NVN-SA1B-760-U-T3R-HSS

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2019
Report Number: P362771
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-SA1B-760-U-T3R-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(1) 70 CRI, 5700K, 800mA 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: 4488 lumens
Efficiency: N/A
Efficacy: 102.0 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G1

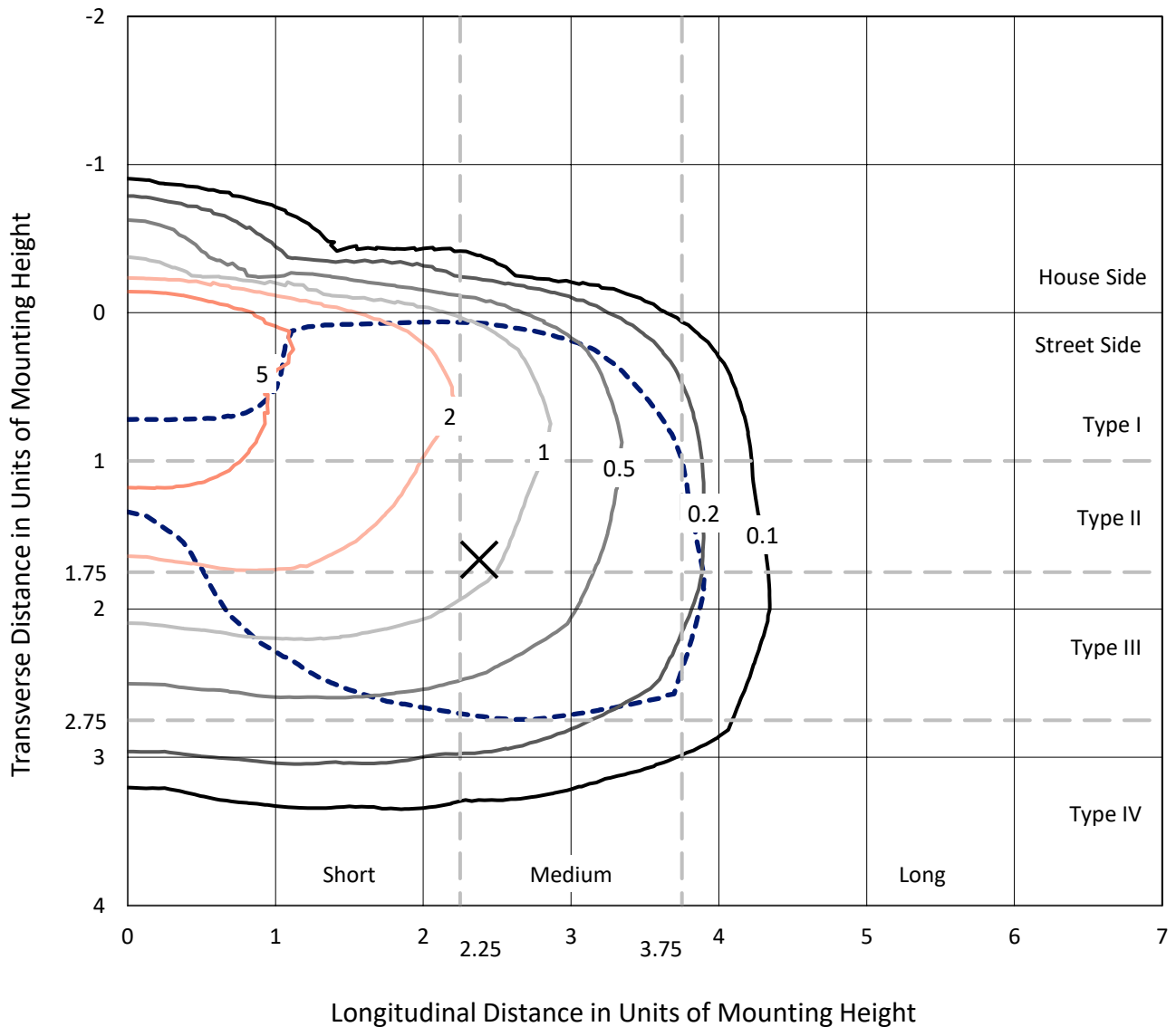
Input Watts (W): 44
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

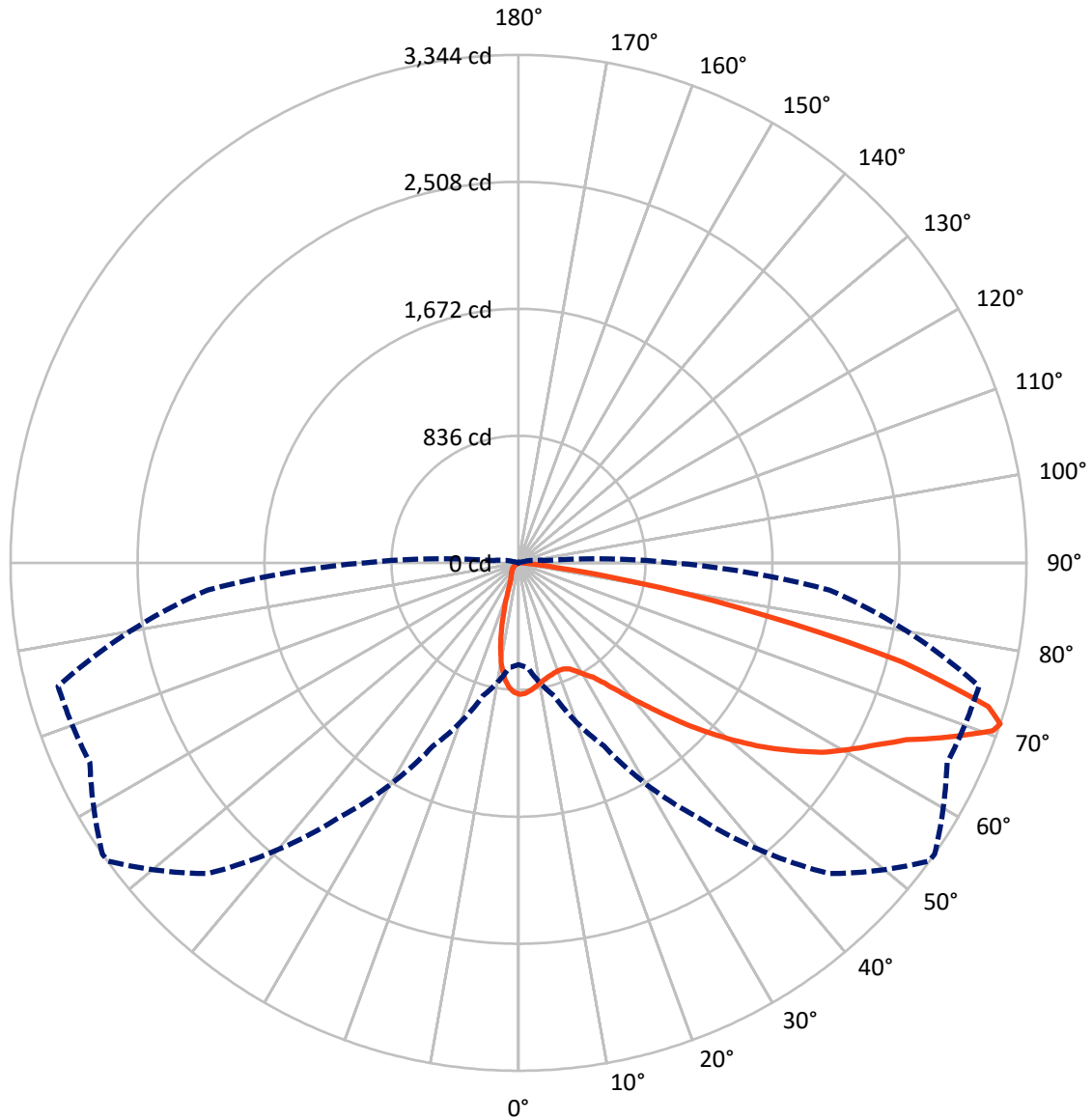
× Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 8.9 fc
 Type III - Medium - N/A

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Luminous Intensity Polar Plot



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

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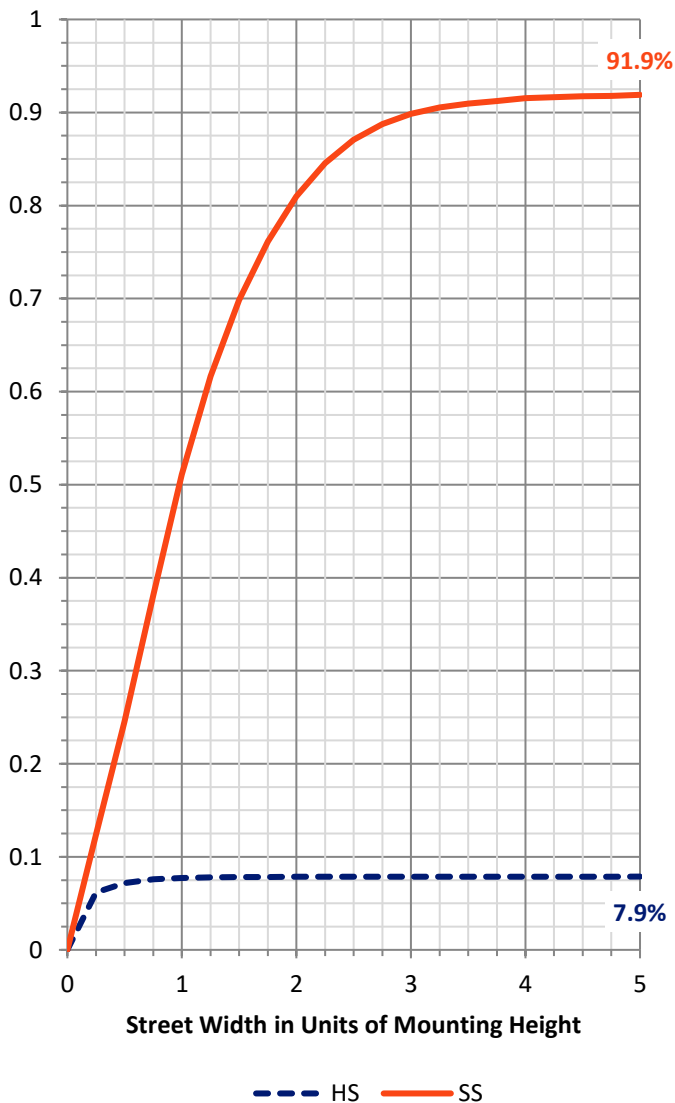
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 355.3 | 0.0 | 355.3 |
| | % Fixture | 7.9 | 0.0 | 7.9 |
| Street Side | Lumens | 4132.7 | 0.0 | 4132.7 |
| | % Fixture | 92.1 | 0.0 | 92.1 |
| Total | Lumens | 4488.0 | 0.0 | 4488.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 73.8 | 1.6 |
| 10°-20° | 166.6 | 3.7 |
| 20°-30° | 267.7 | 6.0 |
| 30°-40° | 454.9 | 10.1 |
| 40°-50° | 706.1 | 15.7 |
| 50°-60° | 949.3 | 21.2 |
| 60°-70° | 1161.3 | 25.9 |
| 70°-80° | 679.0 | 15.1 |
| 80°-90° | 29.3 | 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° | 4488.0 | 100.0 |
| 0°-180° | 4488.0 | 100.0 |

Coefficient of Utilization

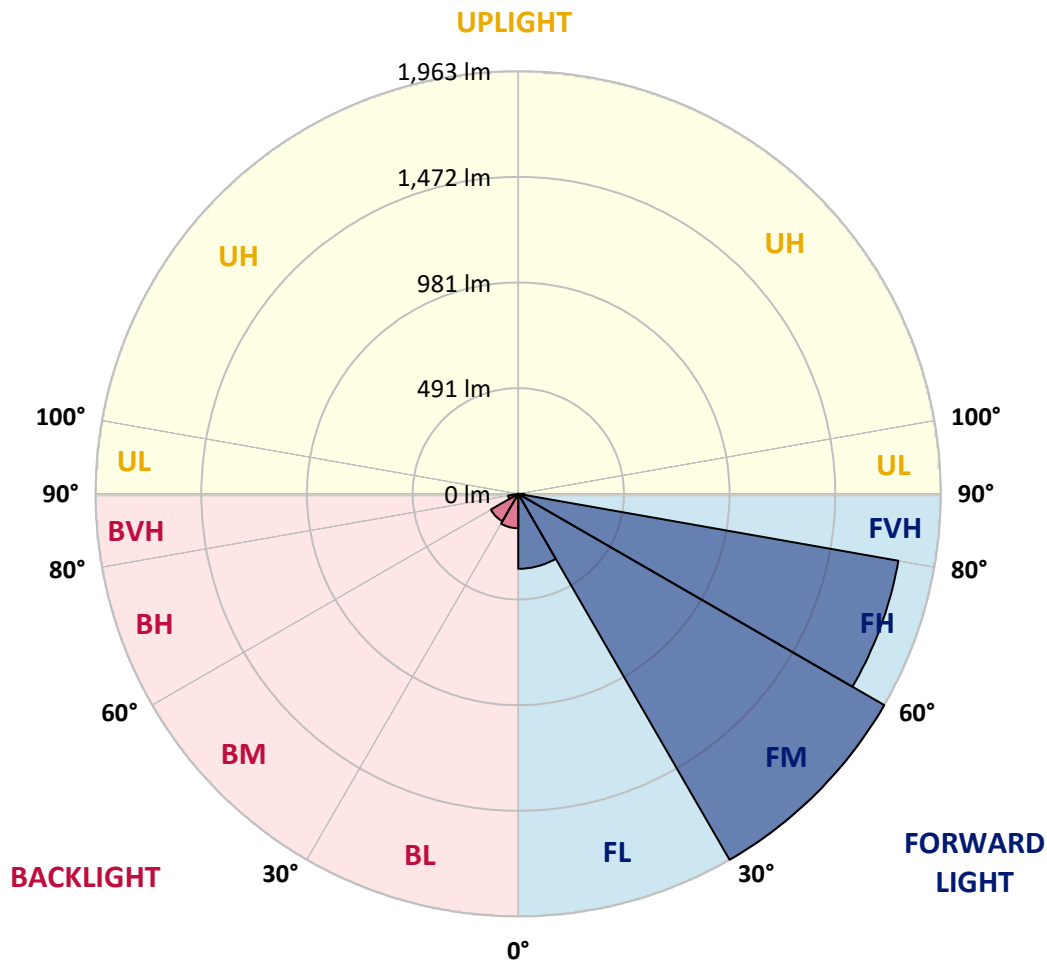


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 348.2 | 7.8 | | | |
| FM (30°-60°) | 1962.9 | 43.7 | | | |
| FH (60°-80°) | 1792.7 | 39.9 | | | G1/1800 |
| FVH (80°-90°) | 28.9 | 0.6 | | | G1/100 |
| BL (0°-30°) | 159.9 | 3.6 | B1/500 | | |
| BM (30°-60°) | 147.3 | 3.3 | B0/220 | | |
| BH (60°-80°) | 47.6 | 1.1 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.5 | 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 III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 54° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 |
| 2.5° | 840.1 | 841.1 | 844.8 | 846.4 | 850.2 | 856.7 | 859.9 | 860.1 | 865.3 | 867.3 | 869.0 |
| 5° | 780.7 | 786.7 | 792.8 | 799.2 | 810.9 | 826.4 | 841.7 | 843.2 | 860.1 | 872.6 | 879.2 |
| 7.5° | 729.5 | 734.9 | 742.2 | 752.5 | 769.0 | 793.4 | 819.0 | 822.0 | 854.0 | 882.5 | 897.4 |
| 10° | 676.9 | 681.3 | 691.8 | 706.9 | 729.7 | 762.3 | 796.8 | 801.8 | 848.6 | 895.8 | 922.0 |
| 12.5° | 620.7 | 623.3 | 636.0 | 657.8 | 691.2 | 732.7 | 778.1 | 784.7 | 845.2 | 911.1 | 951.0 |
| 15° | 578.0 | 579.2 | 591.3 | 613.8 | 652.1 | 706.1 | 763.6 | 771.6 | 846.0 | 929.4 | 982.6 |
| 17.5° | 567.1 | 567.7 | 574.1 | 589.6 | 623.5 | 682.3 | 752.1 | 761.9 | 848.4 | 947.3 | 1014.4 |
| 20° | 611.2 | 607.0 | 600.3 | 597.9 | 612.4 | 668.0 | 745.2 | 756.3 | 851.6 | 963.3 | 1043.1 |
| 22.5° | 732.3 | 719.8 | 692.2 | 655.3 | 633.0 | 669.0 | 747.0 | 758.1 | 861.9 | 982.8 | 1076.1 |
| 25° | 912.1 | 894.7 | 847.8 | 775.2 | 705.5 | 698.1 | 762.1 | 773.4 | 881.8 | 1006.2 | 1107.8 |
| 27.5° | 1116.6 | 1099.5 | 1042.1 | 938.5 | 819.6 | 755.5 | 796.8 | 807.3 | 911.5 | 1026.9 | 1131.9 |
| 30° | 1312.5 | 1307.7 | 1240.0 | 1122.3 | 963.1 | 848.6 | 841.5 | 850.4 | 933.4 | 1039.4 | 1151.1 |
| 32.5° | 1478.5 | 1470.9 | 1416.5 | 1302.0 | 1127.3 | 960.4 | 894.1 | 896.8 | 950.0 | 1055.6 | 1176.1 |
| 35° | 1632.5 | 1623.0 | 1575.3 | 1467.1 | 1295.8 | 1097.1 | 975.2 | 971.3 | 986.0 | 1088.0 | 1212.3 |
| 37.5° | 1766.9 | 1775.6 | 1722.6 | 1619.6 | 1446.9 | 1239.1 | 1084.4 | 1072.9 | 1042.5 | 1140.8 | 1264.9 |
| 40° | 1879.4 | 1879.4 | 1851.8 | 1765.9 | 1610.1 | 1386.1 | 1207.9 | 1192.8 | 1127.3 | 1222.2 | 1331.6 |
| 42.5° | 1919.9 | 1928.5 | 1938.8 | 1890.3 | 1756.2 | 1538.8 | 1345.5 | 1329.8 | 1246.8 | 1337.7 | 1415.9 |
| 45° | 1922.3 | 1936.0 | 1988.6 | 1988.4 | 1888.2 | 1690.5 | 1500.7 | 1493.3 | 1400.0 | 1486.0 | 1520.3 |
| 47.5° | 1888.2 | 1905.4 | 1992.0 | 2041.2 | 1992.8 | 1831.8 | 1670.4 | 1661.1 | 1579.9 | 1667.8 | 1629.5 |
| 50° | 1835.6 | 1854.6 | 1955.3 | 2061.9 | 2064.0 | 1954.7 | 1849.1 | 1835.2 | 1778.0 | 1875.5 | 1742.3 |
| 52.5° | 1741.5 | 1778.2 | 1922.5 | 2066.8 | 2110.7 | 2060.9 | 2019.2 | 2013.2 | 1999.7 | 2075.7 | 1832.2 |
| 55° | 1540.2 | 1580.9 | 1840.1 | 2068.4 | 2154.0 | 2155.1 | 2178.6 | 2180.2 | 2207.4 | 2262.7 | 1899.1 |
| 57.5° | 1445.1 | 1468.1 | 1696.2 | 2076.1 | 2218.3 | 2261.9 | 2341.1 | 2353.5 | 2395.7 | 2440.2 | 1975.5 |
| 60° | 1385.2 | 1412.5 | 1625.3 | 2065.6 | 2319.3 | 2401.9 | 2491.6 | 2495.8 | 2541.0 | 2623.4 | 2078.9 |
| 62.5° | 1337.5 | 1364.3 | 1580.5 | 2025.3 | 2432.7 | 2570.4 | 2638.7 | 2639.1 | 2673.0 | 2841.6 | 2196.4 |
| 65° | 1219.6 | 1242.2 | 1490.0 | 1979.9 | 2507.7 | 2737.0 | 2809.6 | 2807.0 | 2834.6 | 3071.8 | 2332.8 |
| 67.5° | 1049.1 | 1066.4 | 1305.2 | 1808.0 | 2479.5 | 2888.6 | 3067.5 | 3058.9 | 3025.4 | 3270.7 | 2386.4 |
| 70° | 811.1 | 817.4 | 1028.8 | 1506.8 | 2215.1 | 2946.8 | 3316.8 | 3312.4 | 3142.5 | 3235.0 | 2189.9 |
| 71° | 670.5 | 691.0 | 906.6 | 1329.8 | 2038.0 | 2893.0 | 3341.0 | 3343.6 | 3113.1 | 3137.9 | 2054.7 |
| 72.5° | 389.3 | 406.9 | 657.2 | 1021.3 | 1730.2 | 2668.5 | 3215.6 | 3234.6 | 2975.6 | 2854.1 | 1755.0 |
| 75° | 83.4 | 89.3 | 243.6 | 494.3 | 951.8 | 1870.3 | 2538.1 | 2605.6 | 2425.3 | 1941.6 | 1057.8 |
| 77.5° | 58.0 | 62.7 | 104.4 | 224.3 | 314.6 | 924.2 | 1576.7 | 1652.9 | 1448.9 | 729.7 | 338.6 |
| 80° | 45.9 | 51.2 | 81.4 | 110.8 | 85.0 | 298.0 | 738.6 | 785.1 | 483.2 | 162.8 | 57.0 |
| 82.5° | 25.6 | 30.4 | 63.5 | 59.9 | 32.6 | 56.6 | 206.8 | 233.8 | 96.7 | 32.8 | 13.5 |
| 85° | 7.5 | 9.1 | 40.9 | 43.5 | 13.9 | 10.9 | 35.3 | 43.7 | 18.3 | 8.7 | 6.0 |
| 87.5° | 0.0 | 0.0 | 19.7 | 16.7 | 4.0 | 1.6 | 3.2 | 3.6 | 3.6 | 3.6 | 4.0 |
| 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: P362771
 CATALOG NUMBER: NVN-SA1B-760-U-T3R-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 | 865.5 |
| 2.5° | 869.0 | 870.4 | 865.3 | 858.7 | 851.6 | 843.0 | 833.9 | 826.8 | 826.6 | 823.2 | 819.8 |
| 5° | 879.6 | 878.8 | 864.9 | 843.8 | 818.8 | 792.8 | 768.0 | 740.0 | 730.7 | 719.2 | 715.4 |
| 7.5° | 899.4 | 893.7 | 864.3 | 818.0 | 763.2 | 708.7 | 652.5 | 595.9 | 571.7 | 549.9 | 546.1 |
| 10° | 924.2 | 913.5 | 860.5 | 779.3 | 678.7 | 578.4 | 493.5 | 416.5 | 382.7 | 356.7 | 355.5 |
| 12.5° | 950.0 | 933.6 | 849.8 | 720.8 | 568.1 | 427.0 | 329.3 | 253.5 | 225.3 | 207.2 | 208.8 |
| 15° | 977.0 | 952.6 | 826.8 | 642.0 | 442.1 | 289.8 | 202.3 | 157.8 | 146.5 | 141.9 | 143.1 |
| 17.5° | 1004.6 | 965.7 | 794.8 | 547.1 | 317.8 | 187.0 | 140.1 | 127.6 | 127.6 | 128.6 | 129.0 |
| 20° | 1028.6 | 972.7 | 747.6 | 440.7 | 215.4 | 136.2 | 122.5 | 120.7 | 121.7 | 123.3 | 123.5 |
| 22.5° | 1052.3 | 973.1 | 686.2 | 332.9 | 150.7 | 119.3 | 116.7 | 115.9 | 116.5 | 118.3 | 118.5 |
| 25° | 1071.7 | 968.3 | 609.2 | 236.8 | 120.3 | 112.4 | 111.2 | 110.8 | 111.2 | 113.5 | 113.5 |
| 27.5° | 1079.5 | 950.8 | 515.3 | 166.5 | 107.8 | 104.8 | 104.4 | 104.8 | 105.4 | 107.0 | 107.2 |
| 30° | 1080.3 | 920.1 | 412.9 | 120.5 | 97.7 | 94.5 | 95.3 | 96.7 | 96.1 | 95.7 | 96.1 |
| 32.5° | 1082.4 | 884.7 | 313.2 | 99.1 | 89.3 | 84.2 | 83.2 | 83.2 | 80.8 | 79.4 | 78.6 |
| 35° | 1089.0 | 843.0 | 227.1 | 89.1 | 80.6 | 74.8 | 70.9 | 66.5 | 61.9 | 59.4 | 58.8 |
| 37.5° | 1099.5 | 799.2 | 162.6 | 82.4 | 73.0 | 66.3 | 59.0 | 51.2 | 44.5 | 42.7 | 42.7 |
| 40° | 1118.6 | 754.1 | 120.3 | 77.2 | 66.9 | 58.6 | 47.8 | 37.5 | 31.4 | 30.4 | 30.4 |
| 42.5° | 1148.9 | 706.5 | 95.9 | 72.5 | 61.7 | 50.8 | 36.5 | 27.2 | 22.8 | 22.2 | 22.0 |
| 45° | 1180.3 | 654.1 | 83.8 | 68.1 | 56.0 | 41.7 | 27.0 | 20.2 | 17.5 | 16.9 | 16.9 |
| 47.5° | 1211.7 | 598.3 | 78.0 | 63.9 | 50.6 | 32.4 | 20.2 | 15.9 | 14.7 | 14.7 | 14.9 |
| 50° | 1238.3 | 540.1 | 73.8 | 59.2 | 43.5 | 24.6 | 15.9 | 13.5 | 13.1 | 13.9 | 14.1 |
| 52.5° | 1245.0 | 482.8 | 68.5 | 53.4 | 34.9 | 18.7 | 13.1 | 11.9 | 11.9 | 11.9 | 11.9 |
| 55° | 1241.0 | 438.5 | 61.7 | 46.1 | 25.8 | 14.9 | 11.3 | 10.5 | 10.3 | 10.3 | 10.3 |
| 57.5° | 1254.7 | 412.3 | 49.4 | 35.9 | 18.5 | 12.1 | 9.9 | 9.3 | 8.9 | 8.7 | 8.7 |
| 60° | 1282.3 | 395.2 | 35.3 | 25.8 | 13.9 | 10.1 | 8.5 | 7.9 | 7.3 | 6.9 | 6.9 |
| 62.5° | 1318.9 | 380.3 | 26.2 | 19.1 | 10.7 | 8.1 | 7.1 | 6.4 | 5.6 | 5.2 | 5.2 |
| 65° | 1347.2 | 353.7 | 20.0 | 14.3 | 8.1 | 6.4 | 5.4 | 5.2 | 4.0 | 3.6 | 3.4 |
| 67.5° | 1304.0 | 295.2 | 16.1 | 10.5 | 6.0 | 5.0 | 4.2 | 4.0 | 2.4 | 2.0 | 2.0 |
| 70° | 1118.4 | 205.6 | 12.9 | 7.7 | 4.4 | 4.0 | 3.4 | 2.6 | 1.8 | 1.6 | 1.6 |
| 71° | 1014.2 | 171.7 | 11.7 | 6.4 | 3.8 | 3.8 | 3.2 | 2.2 | 1.6 | 1.4 | 1.4 |
| 72.5° | 842.6 | 121.9 | 9.9 | 5.0 | 3.4 | 4.0 | 3.4 | 2.0 | 1.6 | 1.4 | 1.2 |
| 75° | 489.1 | 51.0 | 6.9 | 3.4 | 2.6 | 4.8 | 4.4 | 1.8 | 1.2 | 1.0 | 1.0 |
| 77.5° | 147.1 | 18.7 | 3.8 | 2.2 | 2.0 | 4.2 | 5.0 | 1.6 | 0.6 | 0.2 | 0.2 |
| 80° | 26.8 | 8.1 | 2.4 | 1.4 | 1.4 | 2.6 | 3.8 | 0.8 | 0.0 | 0.0 | 0.0 |
| 82.5° | 9.5 | 4.0 | 1.4 | 0.8 | 0.6 | 1.2 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 5.4 | 2.8 | 0.8 | 0.4 | 0.0 | 0.2 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 3.6 | 0.8 | 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 |

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: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-9-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-760-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): | 5474 | CRI (Ra): | 71.7 | R9: | -27.1 |
| CIE u': | 0.2052 | R1: | 70.6 | R10: | 40.8 |
| CIE v': | 0.4804 | R2: | 74.6 | R11: | 74.6 |
| Duv: | 0.0025 | R3: | 78.3 | R12: | 50.4 |
| CIE x: | 0.3330 | R4: | 73.8 | R13: | 70.0 |
| CIE y: | 0.3466 | R5: | 72.4 | R14: | 87.8 |
| CIE z: | 0.3204 | R6: | 67.5 | | |
| Peak Wavelength (nm): | 442 | R7: | 77.5 | | |
| Dominant Wavelength (nm): | 554 | R8: | 58.9 | | |
| Purity: | 4.1 | | | | |
| Rf: | 72.1 | | | | |
| Rg: | 97.2 | | | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

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| 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 5700K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5527.6 M/P: 0.74

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

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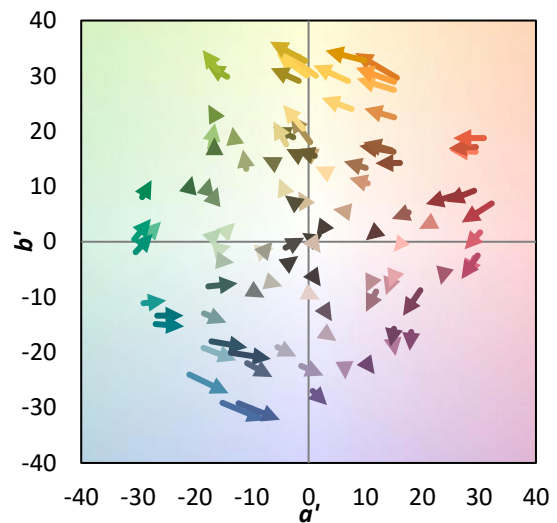
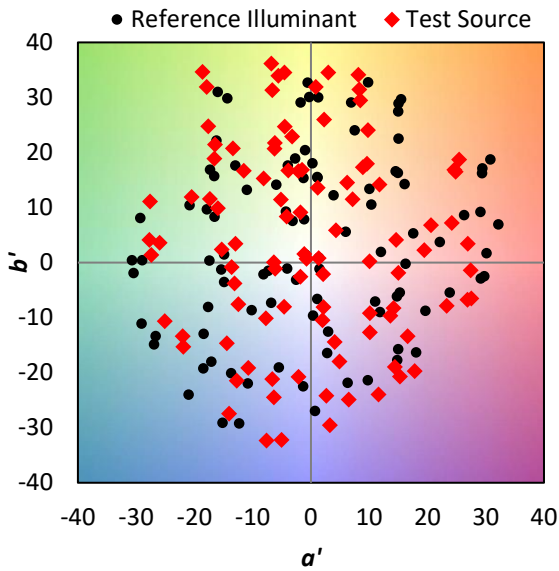
TM-30-18

Summary

$R_f = 72.1$
 $R_g = 97.2$
 CIE $R_a = 71.7$
 $R_g = -27.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)