

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: STREETWORKS

Report Number: P459926

Luminaire Tested: **NVN-SA6A-AMB-U-SL4-HSS**

Issue Date: 1/6/2021

Test Information

Test Method: LM-79-08
Report Number: P459926
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2003-697-9)
Test Lab: INNOVATION CENTER
Issue Date: 1/6/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: NVN-SA6A-AMB-U-SL4-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(6) NARROW BAND AMBER, 500mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV
SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4723 lumens
Efficiency: N/A
Efficacy: 39.7 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')
IES Classification: Type IV - Medium - Non-Cutoff
BUG Rating: B1 - U0 - G2

Input Watts (W): 119
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

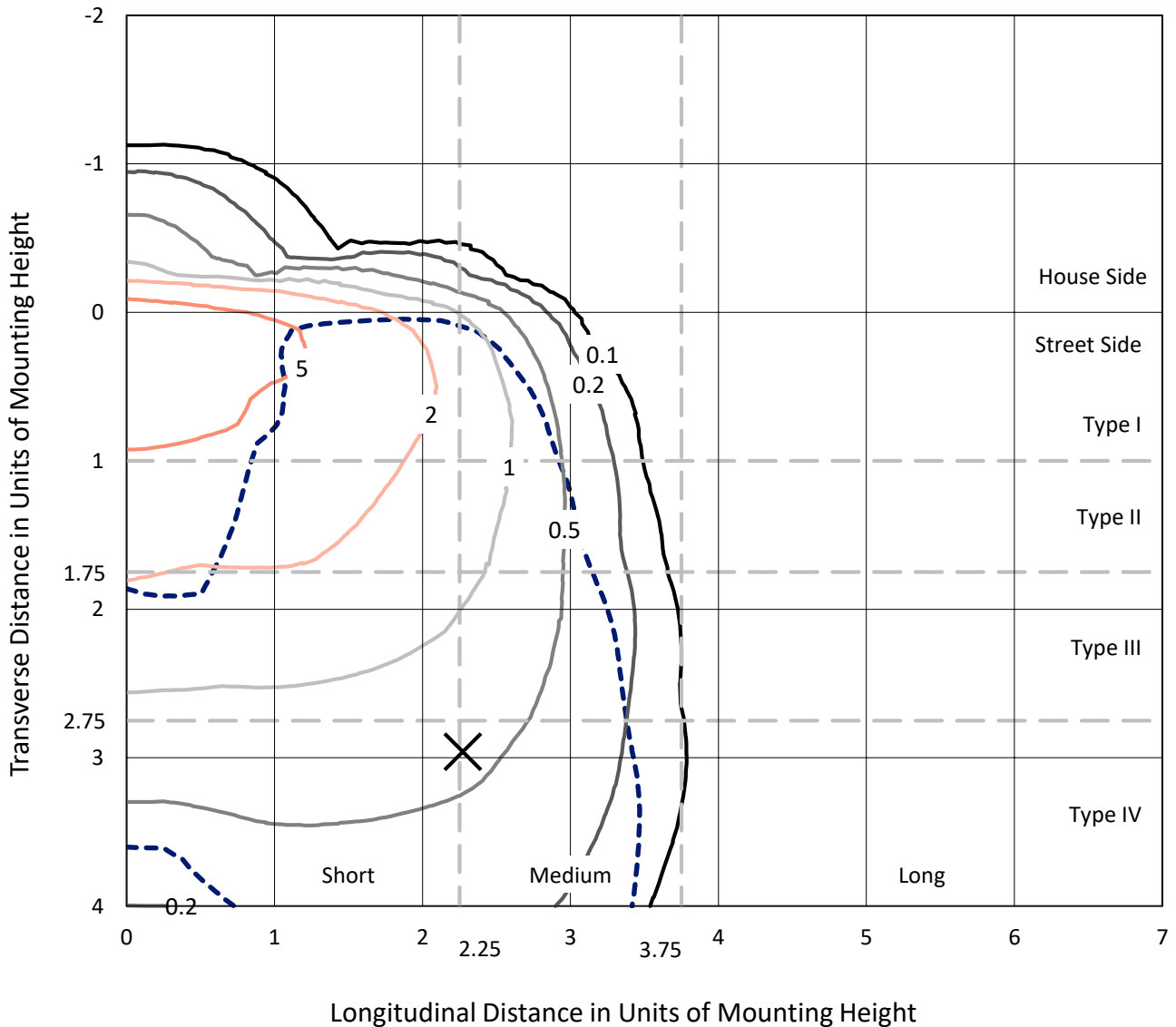




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Iso-Footcandle Lines of Horizontal Illumination

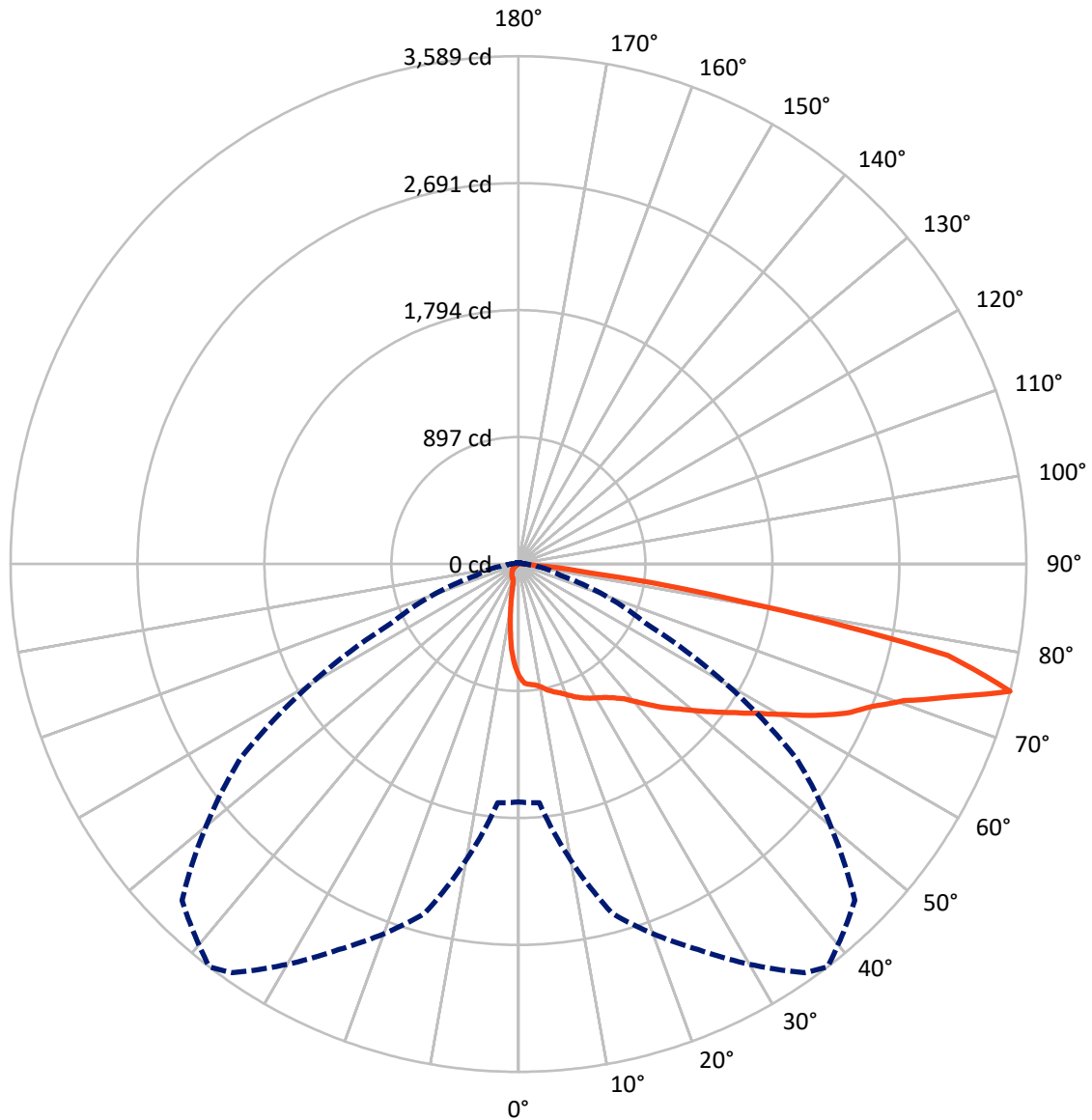
× Max cd
- - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 8.5 fc
Type IV - Medium - Non-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 37.5-Deg Lateral - - - Horizontal Cone Through 75-Deg Vertical

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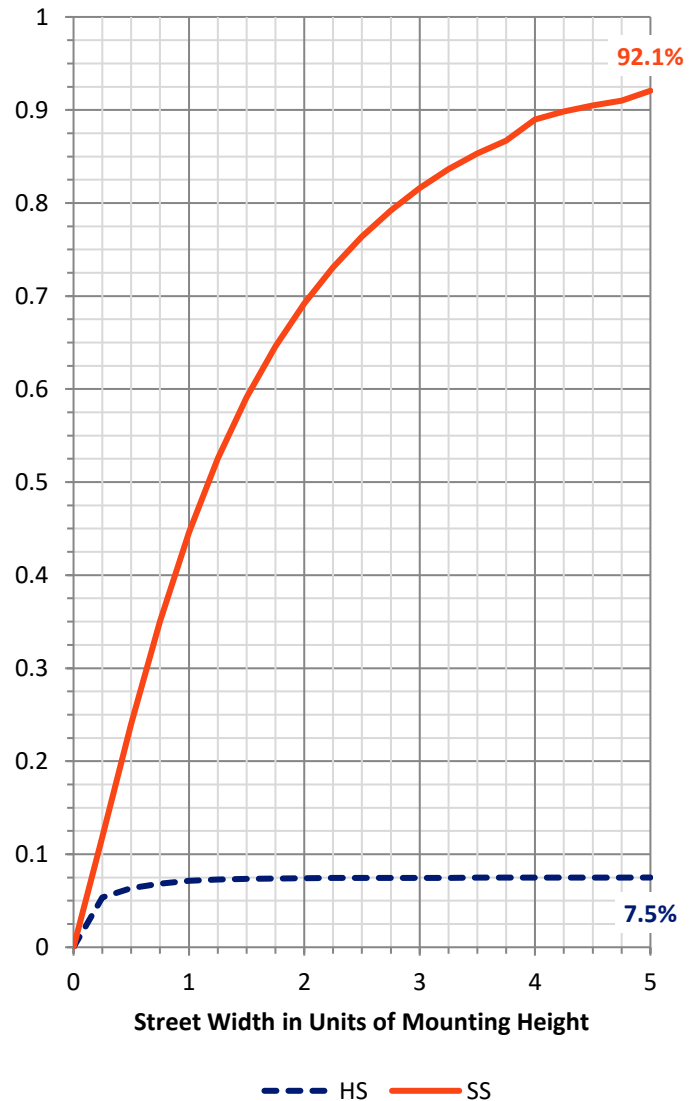
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 357.0 | 0.0 | 357.0 |
| | % Fixture | 7.6 | 0.0 | 7.6 |
| Street Side | Lumens | 4366.0 | 0.0 | 4366.0 |
| | % Fixture | 92.4 | 0.0 | 92.4 |
| Total | Lumens | 4723.0 | 0.0 | 4723.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 67.3 | 1.4 |
| 10°-20° | 170.6 | 3.6 |
| 20°-30° | 279.2 | 5.9 |
| 30°-40° | 414.8 | 8.8 |
| 40°-50° | 621.0 | 13.1 |
| 50°-60° | 892.3 | 18.9 |
| 60°-70° | 1195.8 | 25.3 |
| 70°-80° | 968.7 | 20.5 |
| 80°-90° | 113.3 | 2.4 |
| 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° | 4723.0 | 100.0 |
| 0°-180° | 4723.0 | 100.0 |



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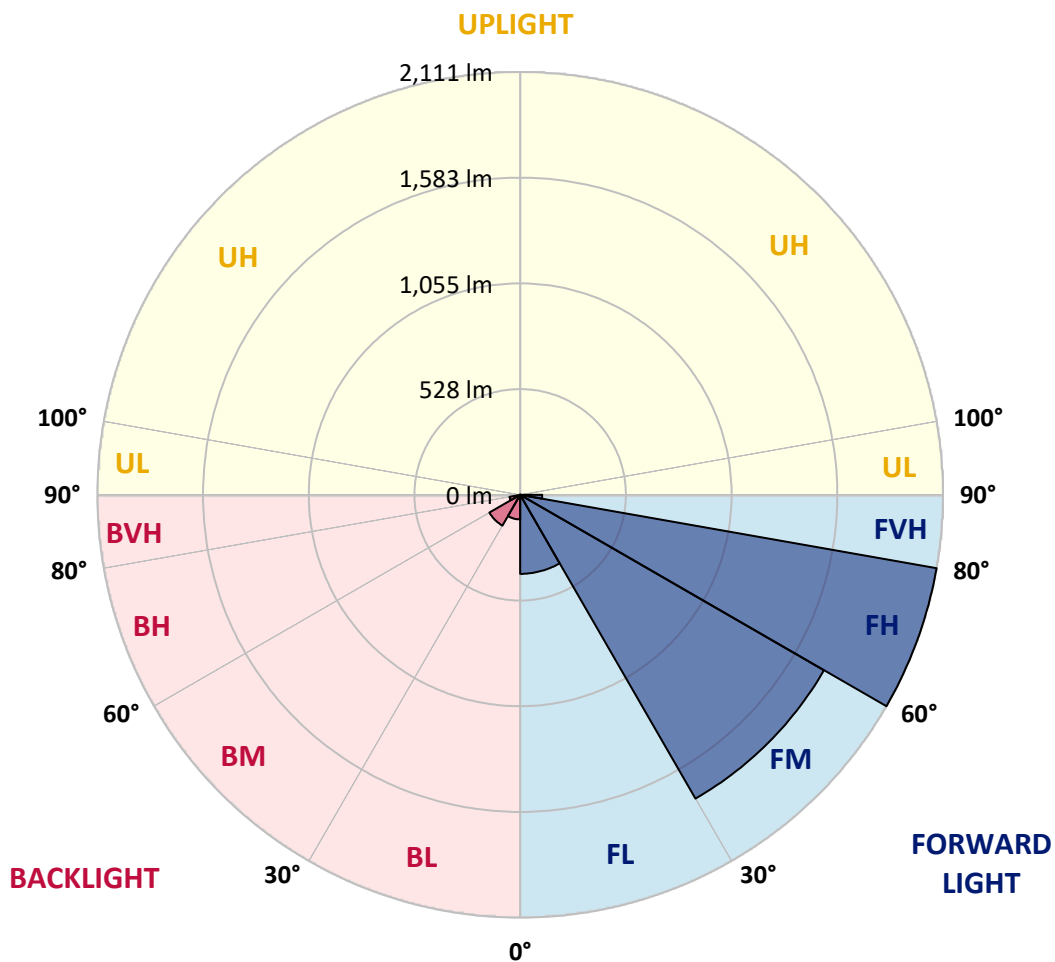
CATALOG NUMBER: NVN-SA6A-AMB-U-SL4-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 394.5 | 8.4 | | | |
| FM (30°-60°) | 1750.9 | 37.1 | | | |
| FH (60°-80°) | 2110.7 | 44.7 | | | G2/5000 |
| FVH (80°-90°) | 110.0 | 2.3 | | | G2/225 |
| BL (0°-30°) | 122.6 | 2.6 | B1/500 | | |
| BM (30°-60°) | 177.3 | 3.8 | B0/220 | | |
| BH (60°-80°) | 53.9 | 1.1 | B0/110 | | G0/110 |
| BVH (80°-90°) | 3.2 | 0.1 | | | 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 IV Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 37.5° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 |
| 2.5° | 854.9 | 852.3 | 852.3 | 847.0 | 844.4 | 844.4 | 833.8 | 831.2 | 820.6 | 810.1 | 796.9 |
| 5° | 857.5 | 857.5 | 854.9 | 857.5 | 854.9 | 854.9 | 849.6 | 847.0 | 836.4 | 815.3 | 791.6 |
| 7.5° | 873.4 | 870.7 | 868.1 | 868.1 | 862.8 | 862.8 | 849.6 | 844.4 | 833.8 | 820.6 | 786.3 |
| 10° | 873.4 | 873.4 | 878.7 | 883.9 | 883.9 | 883.9 | 870.7 | 854.9 | 839.1 | 825.9 | 786.3 |
| 12.5° | 870.7 | 870.7 | 878.7 | 897.1 | 910.3 | 913.0 | 905.0 | 883.9 | 857.5 | 833.8 | 796.9 |
| 15° | 868.1 | 870.7 | 881.3 | 907.7 | 931.4 | 936.7 | 934.1 | 918.2 | 883.9 | 849.6 | 810.1 |
| 17.5° | 873.4 | 878.7 | 891.8 | 928.8 | 955.2 | 957.8 | 960.5 | 949.9 | 913.0 | 870.7 | 831.2 |
| 20° | 881.3 | 883.9 | 913.0 | 957.8 | 984.2 | 986.8 | 984.2 | 968.4 | 936.7 | 897.1 | 854.9 |
| 22.5° | 894.5 | 899.8 | 936.7 | 986.8 | 1015.9 | 1018.5 | 1010.6 | 984.2 | 949.9 | 918.2 | 881.3 |
| 25° | 920.9 | 926.1 | 971.0 | 1021.1 | 1042.2 | 1047.5 | 1039.6 | 1007.9 | 963.1 | 942.0 | 910.3 |
| 27.5° | 952.5 | 960.5 | 1007.9 | 1055.4 | 1068.6 | 1073.9 | 1066.0 | 1029.1 | 981.6 | 973.6 | 947.3 |
| 30° | 1000.0 | 1005.3 | 1050.2 | 1089.7 | 1095.0 | 1097.7 | 1092.4 | 1050.2 | 1007.9 | 1007.9 | 984.2 |
| 32.5° | 1058.1 | 1066.0 | 1095.0 | 1124.0 | 1121.4 | 1124.0 | 1121.4 | 1076.6 | 1039.6 | 1060.7 | 1029.1 |
| 35° | 1126.7 | 1118.8 | 1153.1 | 1166.3 | 1155.7 | 1161.0 | 1163.6 | 1118.8 | 1087.1 | 1129.3 | 1089.7 |
| 37.5° | 1179.5 | 1179.5 | 1197.9 | 1211.1 | 1203.2 | 1208.5 | 1216.4 | 1174.2 | 1153.1 | 1227.0 | 1182.1 |
| 40° | 1224.3 | 1224.3 | 1237.5 | 1263.9 | 1266.5 | 1277.1 | 1292.9 | 1242.8 | 1242.8 | 1340.4 | 1290.3 |
| 42.5° | 1258.6 | 1263.9 | 1274.4 | 1308.7 | 1343.0 | 1361.5 | 1377.4 | 1327.2 | 1351.0 | 1485.5 | 1432.8 |
| 45° | 1292.9 | 1298.2 | 1303.5 | 1353.6 | 1422.2 | 1448.6 | 1480.3 | 1432.8 | 1475.0 | 1638.6 | 1580.5 |
| 47.5° | 1335.1 | 1335.1 | 1332.5 | 1411.7 | 1496.1 | 1530.4 | 1585.8 | 1546.2 | 1622.7 | 1825.9 | 1736.2 |
| 50° | 1387.9 | 1382.6 | 1358.9 | 1472.3 | 1585.8 | 1628.0 | 1712.5 | 1672.9 | 1789.0 | 2021.2 | 1852.3 |
| 52.5° | 1448.6 | 1435.4 | 1398.5 | 1535.7 | 1683.4 | 1736.2 | 1844.4 | 1818.0 | 1963.1 | 2176.8 | 1918.3 |
| 55° | 1525.1 | 1504.0 | 1453.9 | 1612.2 | 1802.2 | 1854.9 | 1981.6 | 1997.4 | 2129.4 | 2266.6 | 1986.9 |
| 57.5° | 1622.7 | 1583.2 | 1527.8 | 1707.2 | 1939.4 | 1989.5 | 2137.3 | 2171.6 | 2240.2 | 2353.6 | 2073.9 |
| 60° | 1720.4 | 1678.2 | 1628.0 | 1836.5 | 2089.8 | 2158.4 | 2303.5 | 2316.7 | 2329.9 | 2475.0 | 2168.9 |
| 62.5° | 1807.4 | 1783.7 | 1754.7 | 1981.6 | 2295.6 | 2356.3 | 2446.0 | 2427.5 | 2443.3 | 2617.5 | 2245.5 |
| 65° | 1918.3 | 1894.5 | 1889.2 | 2147.8 | 2490.8 | 2543.6 | 2554.2 | 2562.1 | 2620.1 | 2757.3 | 2285.0 |
| 67.5° | 2013.3 | 2005.3 | 2052.8 | 2345.7 | 2667.6 | 2688.7 | 2728.3 | 2773.2 | 2804.8 | 2820.7 | 2021.2 |
| 70° | 2147.8 | 2134.6 | 2240.2 | 2543.6 | 2844.4 | 2889.3 | 3029.1 | 3074.0 | 2855.0 | 2311.4 | 1237.5 |
| 72.5° | 2161.0 | 2184.8 | 2472.4 | 2749.4 | 3108.3 | 3205.9 | 3380.1 | 3139.9 | 2219.1 | 1240.1 | 385.2 |
| 75° | 1680.8 | 1694.0 | 2554.2 | 3005.4 | 3525.2 | 3588.5 | 3361.6 | 2401.1 | 992.1 | 306.1 | 87.1 |
| 77.5° | 936.7 | 986.8 | 1707.2 | 2789.0 | 3203.3 | 3103.0 | 2298.2 | 1060.7 | 255.9 | 68.6 | 44.9 |
| 80° | 686.0 | 709.8 | 823.2 | 1596.4 | 1812.7 | 1593.7 | 957.8 | 403.7 | 139.8 | 47.5 | 31.7 |
| 82.5° | 203.2 | 219.0 | 424.8 | 514.5 | 641.2 | 509.3 | 287.6 | 308.7 | 89.7 | 34.3 | 26.4 |
| 85° | 55.4 | 58.0 | 145.1 | 203.2 | 184.7 | 118.7 | 105.5 | 266.5 | 36.9 | 23.7 | 21.1 |
| 87.5° | 26.4 | 26.4 | 44.9 | 89.7 | 76.5 | 63.3 | 87.1 | 155.7 | 7.9 | 7.9 | 5.3 |
| 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: P459926

CATALOG NUMBER: NVN-SA6A-AMB-U-SL4-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 | 794.2 |
| 2.5° | 788.9 | 783.7 | 762.6 | 752.0 | 741.4 | 723.0 | 712.4 | 704.5 | 701.9 | 696.6 | 699.2 |
| 5° | 775.7 | 757.3 | 723.0 | 694.0 | 659.7 | 622.7 | 601.6 | 577.9 | 554.1 | 548.8 | 546.2 |
| 7.5° | 765.2 | 738.8 | 686.0 | 630.6 | 572.6 | 509.3 | 451.2 | 414.3 | 377.3 | 372.0 | 369.4 |
| 10° | 759.9 | 723.0 | 646.5 | 564.7 | 469.7 | 382.6 | 319.3 | 277.1 | 250.7 | 237.5 | 232.2 |
| 12.5° | 759.9 | 715.1 | 614.8 | 498.7 | 377.3 | 282.3 | 219.0 | 176.8 | 158.3 | 150.4 | 147.8 |
| 15° | 765.2 | 709.8 | 577.9 | 422.2 | 295.5 | 200.5 | 153.0 | 131.9 | 124.0 | 121.4 | 124.0 |
| 17.5° | 778.4 | 709.8 | 543.6 | 356.2 | 224.3 | 147.8 | 121.4 | 118.7 | 116.1 | 116.1 | 116.1 |
| 20° | 796.9 | 715.1 | 506.6 | 298.2 | 166.2 | 121.4 | 113.5 | 113.5 | 113.5 | 113.5 | 113.5 |
| 22.5° | 818.0 | 717.7 | 464.4 | 242.8 | 134.6 | 110.8 | 108.2 | 108.2 | 108.2 | 108.2 | 108.2 |
| 25° | 839.1 | 723.0 | 419.5 | 190.0 | 110.8 | 105.5 | 102.9 | 105.5 | 105.5 | 105.5 | 105.5 |
| 27.5° | 865.5 | 728.3 | 374.7 | 150.4 | 102.9 | 100.3 | 100.3 | 100.3 | 100.3 | 100.3 | 100.3 |
| 30° | 889.2 | 728.3 | 332.5 | 124.0 | 97.6 | 95.0 | 95.0 | 95.0 | 95.0 | 95.0 | 95.0 |
| 32.5° | 918.2 | 725.6 | 287.6 | 102.9 | 92.4 | 89.7 | 87.1 | 89.7 | 89.7 | 89.7 | 87.1 |
| 35° | 960.5 | 725.6 | 237.5 | 95.0 | 87.1 | 84.4 | 81.8 | 81.8 | 81.8 | 81.8 | 81.8 |
| 37.5° | 1015.9 | 736.2 | 187.3 | 87.1 | 79.2 | 76.5 | 76.5 | 76.5 | 73.9 | 73.9 | 73.9 |
| 40° | 1097.7 | 754.6 | 150.4 | 81.8 | 73.9 | 71.2 | 68.6 | 68.6 | 66.0 | 63.3 | 63.3 |
| 42.5° | 1195.3 | 775.7 | 124.0 | 76.5 | 68.6 | 66.0 | 63.3 | 60.7 | 58.0 | 55.4 | 55.4 |
| 45° | 1292.9 | 791.6 | 97.6 | 71.2 | 63.3 | 60.7 | 58.0 | 55.4 | 50.1 | 47.5 | 44.9 |
| 47.5° | 1395.8 | 791.6 | 79.2 | 66.0 | 60.7 | 55.4 | 52.8 | 47.5 | 42.2 | 36.9 | 36.9 |
| 50° | 1456.5 | 762.6 | 71.2 | 60.7 | 55.4 | 50.1 | 47.5 | 39.6 | 34.3 | 29.0 | 29.0 |
| 52.5° | 1490.8 | 723.0 | 66.0 | 55.4 | 52.8 | 47.5 | 39.6 | 34.3 | 26.4 | 21.1 | 21.1 |
| 55° | 1519.8 | 704.5 | 60.7 | 52.8 | 47.5 | 42.2 | 34.3 | 26.4 | 18.5 | 15.8 | 15.8 |
| 57.5° | 1556.8 | 675.5 | 55.4 | 47.5 | 42.2 | 36.9 | 29.0 | 21.1 | 13.2 | 10.6 | 10.6 |
| 60° | 1588.4 | 635.9 | 50.1 | 44.9 | 39.6 | 31.7 | 23.7 | 15.8 | 7.9 | 5.3 | 5.3 |
| 62.5° | 1604.3 | 575.2 | 44.9 | 39.6 | 34.3 | 26.4 | 18.5 | 10.6 | 5.3 | 2.6 | 2.6 |
| 65° | 1559.4 | 482.9 | 42.2 | 34.3 | 29.0 | 21.1 | 13.2 | 5.3 | 2.6 | 0.0 | 0.0 |
| 67.5° | 1274.4 | 311.4 | 34.3 | 29.0 | 23.7 | 15.8 | 10.6 | 5.3 | 2.6 | 0.0 | 0.0 |
| 70° | 654.4 | 131.9 | 29.0 | 23.7 | 21.1 | 13.2 | 7.9 | 2.6 | 0.0 | 0.0 | 0.0 |
| 72.5° | 171.5 | 47.5 | 23.7 | 21.1 | 18.5 | 13.2 | 5.3 | 2.6 | 0.0 | 0.0 | 0.0 |
| 75° | 52.8 | 31.7 | 18.5 | 15.8 | 15.8 | 10.6 | 5.3 | 2.6 | 0.0 | 0.0 | 0.0 |
| 77.5° | 36.9 | 23.7 | 15.8 | 13.2 | 13.2 | 10.6 | 5.3 | 2.6 | 0.0 | 0.0 | 0.0 |
| 80° | 29.0 | 21.1 | 13.2 | 10.6 | 13.2 | 13.2 | 5.3 | 2.6 | 0.0 | 0.0 | 0.0 |
| 82.5° | 23.7 | 18.5 | 10.6 | 10.6 | 13.2 | 13.2 | 7.9 | 2.6 | 0.0 | 0.0 | 0.0 |
| 85° | 18.5 | 13.2 | 10.6 | 10.6 | 13.2 | 10.6 | 5.3 | 2.6 | 0.0 | 0.0 | 0.0 |
| 87.5° | 5.3 | 5.3 | 2.6 | 2.6 | 2.6 | 5.3 | 5.3 | 2.6 | 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-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

STREETWORKS

Report Number: SP1-2005-791-1-R5

Test Date: 05/26/2020

Luminaire Tested: Light Squares Family Amber Color

Data in this report applies to families of products including Light Squares Family Amber Color

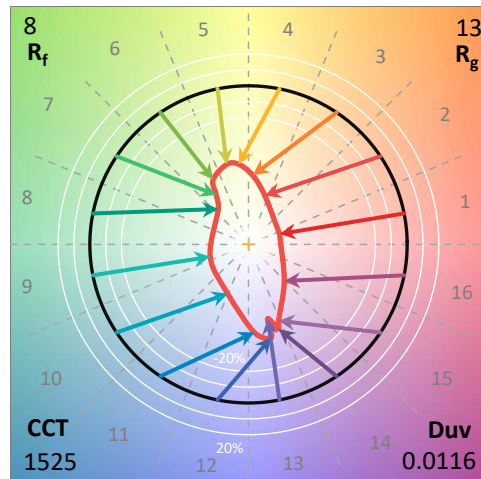
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2005-791-1-R5
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 02/07/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: STREETWORKS
 Catalog Number: **Light Squares Family Amber Color**
 Description: Light Squares Family Amber Color

Spectral Parameters

CCT (K): 1525
 CIE u': 0.3546
 CIE v': 0.5459
 Duv: 0.0116
 CIE x: 0.5918
 CIE y: 0.4049
 CIE z: 0.0033
 Peak Wavelength (nm): 597
 Dominant Wavelength (nm): 593
 Purity: 99.6
 Rf: 8.4
 Rg: 12.9

| | | | |
|-----------|--------|------|--------|
| CRI (Ra): | -20.7 | | |
| R1: | -32.5 | R9: | -382.8 |
| R2: | 55.0 | R10: | 34.9 |
| R3: | 15.4 | R11: | -92.4 |
| R4: | -67.7 | R12: | 2.7 |
| R5: | -38.7 | R13: | -12.7 |
| R6: | 47.4 | R14: | 45.0 |
| R7: | -9.2 | | |
| R8: | -135.0 | | |



Test Conditions

Stabilization Time: 65M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.6/42%
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2005-791-1-R5

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 1/17/2020 | 7/17/2020 |
| Power Meter | XITRON 2801 IN0071 | 12/3/2019 | 12/3/2020 |
| AC Power Source | CHROMA 61603 IN0063 | 12/3/2019 | 12/3/2020 |
| DC Power Source | AGILENT E3634A IN0208 | 12/3/2019 | 12/3/2020 |
| Sphere Thermometer | ONSET IN0085 | 12/3/2019 | 12/3/2020 |
| Room Thermometer | ONSET IN0046 | 12/3/2019 | 12/3/2020 |

REPORT NUMBER: SP1-2005-791-1-R5

CIE 1931 Chromaticity Diagram



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



REPORT NUMBER: SP1-2005-791-1-R5

Photopic Flux vs. Wavelength

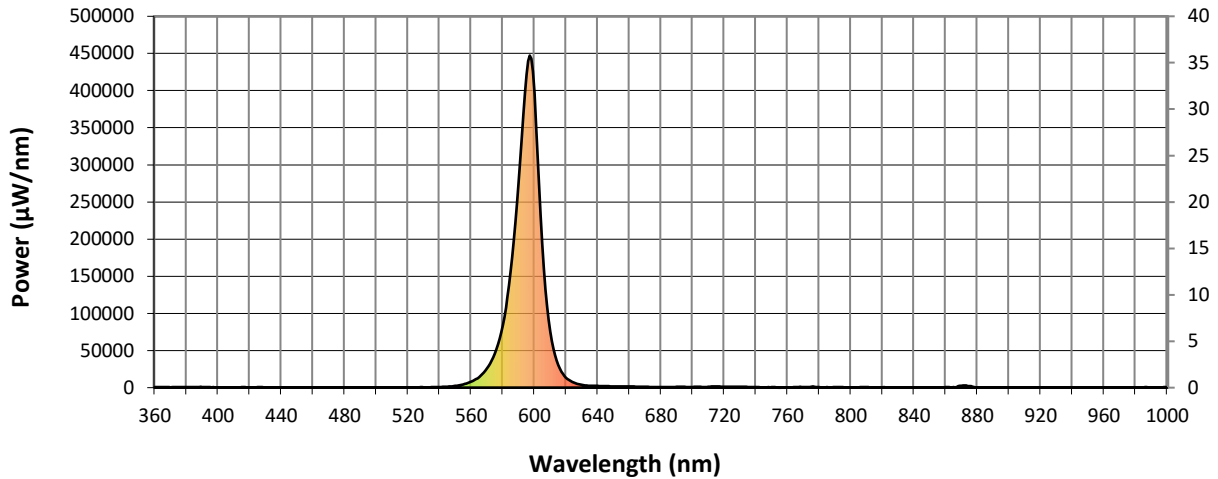


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| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 818 | NR | 490 | 224 | NR | 620 | 13485 | NR | 750 | 666 | NR | 880 | 467 | NR |
| 365 | 765 | NR | 495 | 377 | NR | 625 | 6667 | NR | 755 | 63 | NR | 885 | 232 | NR |
| 370 | 529 | NR | 500 | 342 | NR | 630 | 3617 | NR | 760 | 170 | NR | 890 | 396 | NR |
| 375 | 859 | NR | 505 | 327 | NR | 635 | 2624 | NR | 765 | 772 | NR | 895 | 250 | NR |
| 380 | 838 | NR | 510 | 403 | NR | 640 | 2321 | NR | 770 | 684 | NR | 900 | 194 | NR |
| 385 | 931 | NR | 515 | 396 | NR | 645 | 2019 | NR | 775 | 1108 | NR | 905 | 303 | NR |
| 390 | 814 | NR | 520 | 478 | NR | 650 | 1694 | NR | 780 | 562 | NR | 910 | 335 | NR |
| 395 | 695 | NR | 525 | 468 | NR | 655 | 1437 | NR | 785 | 582 | NR | 915 | 255 | NR |
| 400 | 338 | NR | 530 | 527 | NR | 660 | 1541 | NR | 790 | 675 | NR | 920 | 182 | NR |
| 405 | 555 | NR | 535 | 574 | NR | 665 | 1318 | NR | 795 | 578 | NR | 925 | 228 | NR |
| 410 | 491 | NR | 540 | 823 | NR | 670 | 1092 | NR | 800 | 147 | NR | 930 | 239 | NR |
| 415 | 563 | NR | 545 | 1340 | NR | 675 | 936 | NR | 805 | 559 | NR | 935 | 148 | NR |
| 420 | 360 | NR | 550 | 2313 | NR | 680 | 727 | NR | 810 | 727 | NR | 940 | 308 | NR |
| 425 | 598 | NR | 555 | 4294 | NR | 685 | 833 | NR | 815 | 444 | NR | 945 | 313 | NR |
| 430 | 464 | NR | 560 | 8017 | NR | 690 | 1005 | NR | 820 | 479 | NR | 950 | 345 | NR |
| 435 | 440 | NR | 565 | 14123 | NR | 695 | 1012 | NR | 825 | 224 | NR | 955 | 229 | NR |
| 440 | 368 | NR | 570 | 25560 | NR | 700 | 962 | NR | 830 | 333 | NR | 960 | 363 | NR |
| 445 | 428 | NR | 575 | 45938 | NR | 705 | 994 | NR | 835 | 379 | NR | 965 | 412 | NR |
| 450 | 279 | NR | 580 | 84007 | NR | 710 | 1014 | NR | 840 | 285 | NR | 970 | 272 | NR |
| 455 | 407 | NR | 585 | 155807 | NR | 715 | 1458 | NR | 845 | 333 | NR | 975 | 345 | NR |
| 460 | 365 | NR | 590 | 275552 | NR | 720 | 1076 | NR | 850 | 385 | NR | 980 | 449 | NR |
| 465 | 328 | NR | 595 | 421402 | NR | 725 | 1113 | NR | 855 | 558 | NR | 985 | 501 | NR |
| 470 | 249 | NR | 600 | 396839 | NR | 730 | 1144 | NR | 860 | 663 | NR | 990 | 343 | NR |
| 475 | 277 | NR | 605 | 193475 | NR | 735 | 799 | NR | 865 | 591 | NR | 995 | 152 | NR |
| 480 | 229 | NR | 610 | 75719 | NR | 740 | 692 | NR | 870 | 2634 | NR | 1000 | 132 | NR |
| 485 | 185 | NR | 615 | 30466 | NR | 745 | 414 | NR | 875 | 2146 | NR | | | |

REPORT NUMBER: SP1-2005-791-1-R5

Scotopic Flux vs. Wavelength



Scotopic Lumens: 939.9

S/P: 0.23

| 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 | 818 | NR | 490 | 224 | NR | 620 | 13485 | NR | 750 | 666 | NR | 880 | 467 | NR |
| 365 | 765 | NR | 495 | 377 | NR | 625 | 6667 | NR | 755 | 63 | NR | 885 | 232 | NR |
| 370 | 529 | NR | 500 | 342 | NR | 630 | 3617 | NR | 760 | 170 | NR | 890 | 396 | NR |
| 375 | 859 | NR | 505 | 327 | NR | 635 | 2624 | NR | 765 | 772 | NR | 895 | 250 | NR |
| 380 | 838 | NR | 510 | 403 | NR | 640 | 2321 | NR | 770 | 684 | NR | 900 | 194 | NR |
| 385 | 931 | NR | 515 | 396 | NR | 645 | 2019 | NR | 775 | 1108 | NR | 905 | 303 | NR |
| 390 | 814 | NR | 520 | 478 | NR | 650 | 1694 | NR | 780 | 562 | NR | 910 | 335 | NR |
| 395 | 695 | NR | 525 | 468 | NR | 655 | 1437 | NR | 785 | 582 | NR | 915 | 255 | NR |
| 400 | 338 | NR | 530 | 527 | NR | 660 | 1541 | NR | 790 | 675 | NR | 920 | 182 | NR |
| 405 | 555 | NR | 535 | 574 | NR | 665 | 1318 | NR | 795 | 578 | NR | 925 | 228 | NR |
| 410 | 491 | NR | 540 | 823 | NR | 670 | 1092 | NR | 800 | 147 | NR | 930 | 239 | NR |
| 415 | 563 | NR | 545 | 1340 | NR | 675 | 936 | NR | 805 | 559 | NR | 935 | 148 | NR |
| 420 | 360 | NR | 550 | 2313 | NR | 680 | 727 | NR | 810 | 727 | NR | 940 | 308 | NR |
| 425 | 598 | NR | 555 | 4294 | NR | 685 | 833 | NR | 815 | 444 | NR | 945 | 313 | NR |
| 430 | 464 | NR | 560 | 8017 | NR | 690 | 1005 | NR | 820 | 479 | NR | 950 | 345 | NR |
| 435 | 440 | NR | 565 | 14123 | NR | 695 | 1012 | NR | 825 | 224 | NR | 955 | 229 | NR |
| 440 | 368 | NR | 570 | 25560 | NR | 700 | 962 | NR | 830 | 333 | NR | 960 | 363 | NR |
| 445 | 428 | NR | 575 | 45938 | NR | 705 | 994 | NR | 835 | 379 | NR | 965 | 412 | NR |
| 450 | 279 | NR | 580 | 84007 | NR | 710 | 1014 | NR | 840 | 285 | NR | 970 | 272 | NR |
| 455 | 407 | NR | 585 | 155807 | NR | 715 | 1458 | NR | 845 | 333 | NR | 975 | 345 | NR |
| 460 | 365 | NR | 590 | 275552 | NR | 720 | 1076 | NR | 850 | 385 | NR | 980 | 449 | NR |
| 465 | 328 | NR | 595 | 421402 | NR | 725 | 1113 | NR | 855 | 558 | NR | 985 | 501 | NR |
| 470 | 249 | NR | 600 | 396839 | NR | 730 | 1144 | NR | 860 | 663 | NR | 990 | 343 | NR |
| 475 | 277 | NR | 605 | 193475 | NR | 735 | 799 | NR | 865 | 591 | NR | 995 | 152 | NR |
| 480 | 229 | NR | 610 | 75719 | NR | 740 | 692 | NR | 870 | 2634 | NR | 1000 | 132 | NR |
| 485 | 185 | NR | 615 | 30466 | NR | 745 | 414 | NR | 875 | 2146 | NR | | | |

REPORT NUMBER: SP1-2005-791-1-R5

Melanopic Flux vs. Wavelength



Melanopic Lumens: 115.1 M/P: 0.03

| 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 | 818 | NR | 490 | 224 | NR | 620 | 13485 | NR | 750 | 666 | NR | 880 | 467 | NR |
| 365 | 765 | NR | 495 | 377 | NR | 625 | 6667 | NR | 755 | 63 | NR | 885 | 232 | NR |
| 370 | 529 | NR | 500 | 342 | NR | 630 | 3617 | NR | 760 | 170 | NR | 890 | 396 | NR |
| 375 | 859 | NR | 505 | 327 | NR | 635 | 2624 | NR | 765 | 772 | NR | 895 | 250 | NR |
| 380 | 838 | NR | 510 | 403 | NR | 640 | 2321 | NR | 770 | 684 | NR | 900 | 194 | NR |
| 385 | 931 | NR | 515 | 396 | NR | 645 | 2019 | NR | 775 | 1108 | NR | 905 | 303 | NR |
| 390 | 814 | NR | 520 | 478 | NR | 650 | 1694 | NR | 780 | 562 | NR | 910 | 335 | NR |
| 395 | 695 | NR | 525 | 468 | NR | 655 | 1437 | NR | 785 | 582 | NR | 915 | 255 | NR |
| 400 | 338 | NR | 530 | 527 | NR | 660 | 1541 | NR | 790 | 675 | NR | 920 | 182 | NR |
| 405 | 555 | NR | 535 | 574 | NR | 665 | 1318 | NR | 795 | 578 | NR | 925 | 228 | NR |
| 410 | 491 | NR | 540 | 823 | NR | 670 | 1092 | NR | 800 | 147 | NR | 930 | 239 | NR |
| 415 | 563 | NR | 545 | 1340 | NR | 675 | 936 | NR | 805 | 559 | NR | 935 | 148 | NR |
| 420 | 360 | NR | 550 | 2313 | NR | 680 | 727 | NR | 810 | 727 | NR | 940 | 308 | NR |
| 425 | 598 | NR | 555 | 4294 | NR | 685 | 833 | NR | 815 | 444 | NR | 945 | 313 | NR |
| 430 | 464 | NR | 560 | 8017 | NR | 690 | 1005 | NR | 820 | 479 | NR | 950 | 345 | NR |
| 435 | 440 | NR | 565 | 14123 | NR | 695 | 1012 | NR | 825 | 224 | NR | 955 | 229 | NR |
| 440 | 368 | NR | 570 | 25560 | NR | 700 | 962 | NR | 830 | 333 | NR | 960 | 363 | NR |
| 445 | 428 | NR | 575 | 45938 | NR | 705 | 994 | NR | 835 | 379 | NR | 965 | 412 | NR |
| 450 | 279 | NR | 580 | 84007 | NR | 710 | 1014 | NR | 840 | 285 | NR | 970 | 272 | NR |
| 455 | 407 | NR | 585 | 155807 | NR | 715 | 1458 | NR | 845 | 333 | NR | 975 | 345 | NR |
| 460 | 365 | NR | 590 | 275552 | NR | 720 | 1076 | NR | 850 | 385 | NR | 980 | 449 | NR |
| 465 | 328 | NR | 595 | 421402 | NR | 725 | 1113 | NR | 855 | 558 | NR | 985 | 501 | NR |
| 470 | 249 | NR | 600 | 396839 | NR | 730 | 1144 | NR | 860 | 663 | NR | 990 | 343 | NR |
| 475 | 277 | NR | 605 | 193475 | NR | 735 | 799 | NR | 865 | 591 | NR | 995 | 152 | NR |
| 480 | 229 | NR | 610 | 75719 | NR | 740 | 692 | NR | 870 | 2634 | NR | 1000 | 132 | NR |
| 485 | 185 | NR | 615 | 30466 | NR | 745 | 414 | NR | 875 | 2146 | NR | | | |

REPORT NUMBER: SP1-2005-791-1-R5

TM-30-18

Summary

$R_f = 8.4$
 $R_g = 12.9$
 CIE $R_a = -20.7$
 $R_9 = -382.8$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 90 | CES26 = 15 | CES51 = 20 | CES76 = 12 |
| CES02 = 69 | CES27 = 67 | CES52 = 2 | CES77 = 33 |
| CES03 = 31 | CES28 = 58 | CES53 = 0 | CES78 = 19 |
| CES04 = 77 | CES29 = 32 | CES54 = 14 | CES79 = 47 |
| CES05 = 52 | CES30 = 61 | CES55 = 10 | CES80 = 37 |
| CES06 = 56 | CES31 = 36 | CES56 = 0 | CES81 = 4 |
| CES07 = 41 | CES32 = 24 | CES57 = 0 | CES82 = 72 |
| CES08 = 38 | CES33 = 64 | CES58 = 0 | CES83 = 58 |
| CES09 = 29 | CES34 = 25 | CES59 = 13 | CES84 = 61 |
| CES10 = 87 | CES35 = 53 | CES60 = 67 | CES85 = 21 |
| CES11 = 70 | CES36 = 88 | CES61 = 22 | CES86 = 0 |
| CES12 = 75 | CES37 = 31 | CES62 = 61 | CES87 = 17 |
| CES13 = 47 | CES38 = 86 | CES63 = 62 | CES88 = 5 |
| CES14 = 76 | CES39 = 88 | CES64 = 0 | CES89 = 1 |
| CES15 = 74 | CES40 = 74 | CES65 = 1 | CES90 = 5 |
| CES16 = 49 | CES41 = 91 | CES66 = 0 | CES91 = 54 |
| CES17 = 55 | CES42 = 2 | CES67 = 0 | CES92 = 0 |
| CES18 = 59 | CES43 = 3 | CES68 = 7 | CES93 = 3 |
| CES19 = 80 | CES44 = 98 | CES69 = 57 | CES94 = 0 |
| CES20 = 71 | CES45 = 3 | CES70 = 3 | CES95 = 0 |
| CES21 = 94 | CES46 = 11 | CES71 = 5 | CES96 = 2 |
| CES22 = 86 | CES47 = 83 | CES72 = 62 | CES97 = 1 |
| CES23 = 93 | CES48 = 0 | CES73 = 1 | CES98 = 0 |
| CES24 = 95 | CES49 = 7 | CES74 = 66 | CES99 = 0 |
| CES25 = 78 | CES50 = 10 | CES75 = 12 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)