

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: McGRAW-EDISON

Report Number: P630766

Luminaire Tested: GWS-SA1E-735-U-RW-W-GRSBK

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P630766  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-50)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA1E-735-U-RW-W-GRSBK  
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND RECTANGULAR WIDE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK  
Light Source: (16) 3500K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

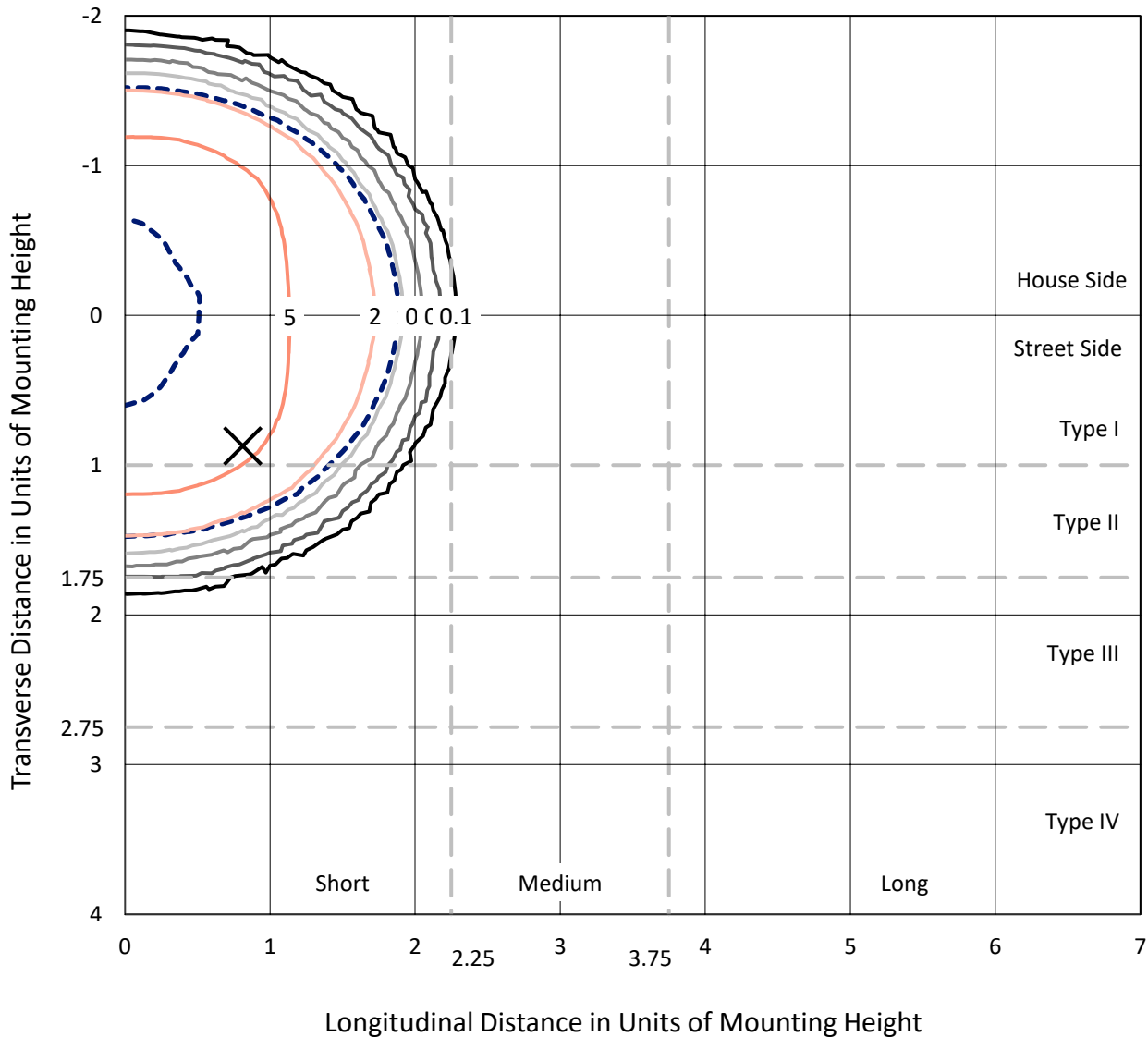
Lumens per Lamp: N/A  
Luminaire Lumens: 4843.9 lumens  
Efficiency: N/A  
Efficacy: 82.9 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B2 - U0 - G0  
  
Input Watts (W): 58.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 0  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



REPORT NUMBER: P630766  
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### Iso-Footcandle Lines of Horizontal Illumination

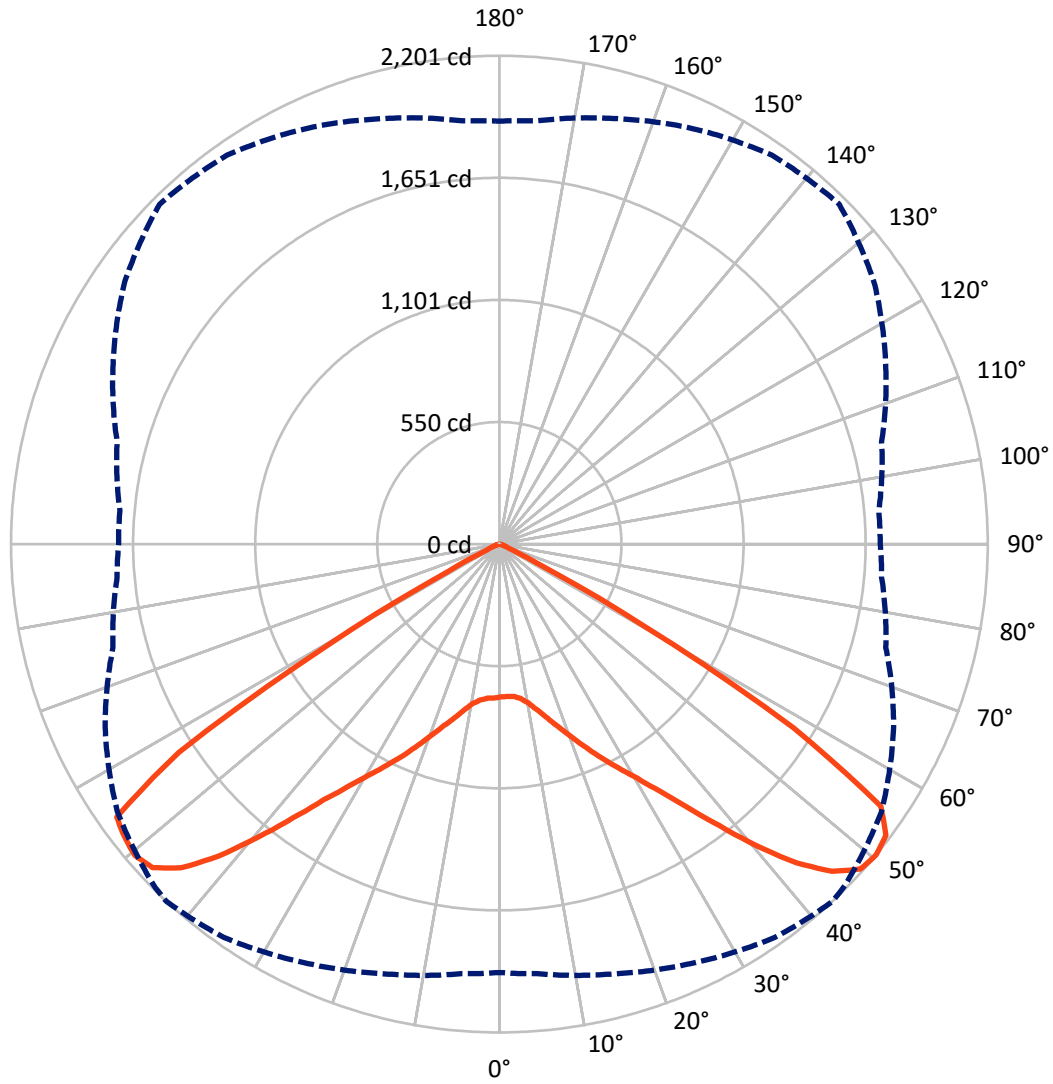
✕ Max cd  
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 8.3 fc  
 Type V - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 43-Deg Lateral    - - - Horizontal Cone Through 50-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 2421.9   | 0.0    | 2421.9 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Street Side</b> | Lumens    | 2422.0   | 0.0    | 2422.0 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Total</b>       | Lumens    | 4843.9   | 0.0    | 4843.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 67.8   | 1.4       |
| 10°-20°   | 233.5  | 4.8       |
| 20°-30°   | 472.4  | 9.8       |
| 30°-40°   | 876.4  | 18.1      |
| 40°-50°   | 1454.8 | 30.0      |
| 50°-60°   | 1484.7 | 30.7      |
| 60°-70°   | 243.5  | 5.0       |
| 70°-80°   | 10.7   | 0.2       |
| 80°-90°   | 0.1    | 0.0       |
| 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°    | 4843.9 | 100.0     |
| 0°-180°   | 4843.9 | 100.0     |

**Coefficient of Utilization**



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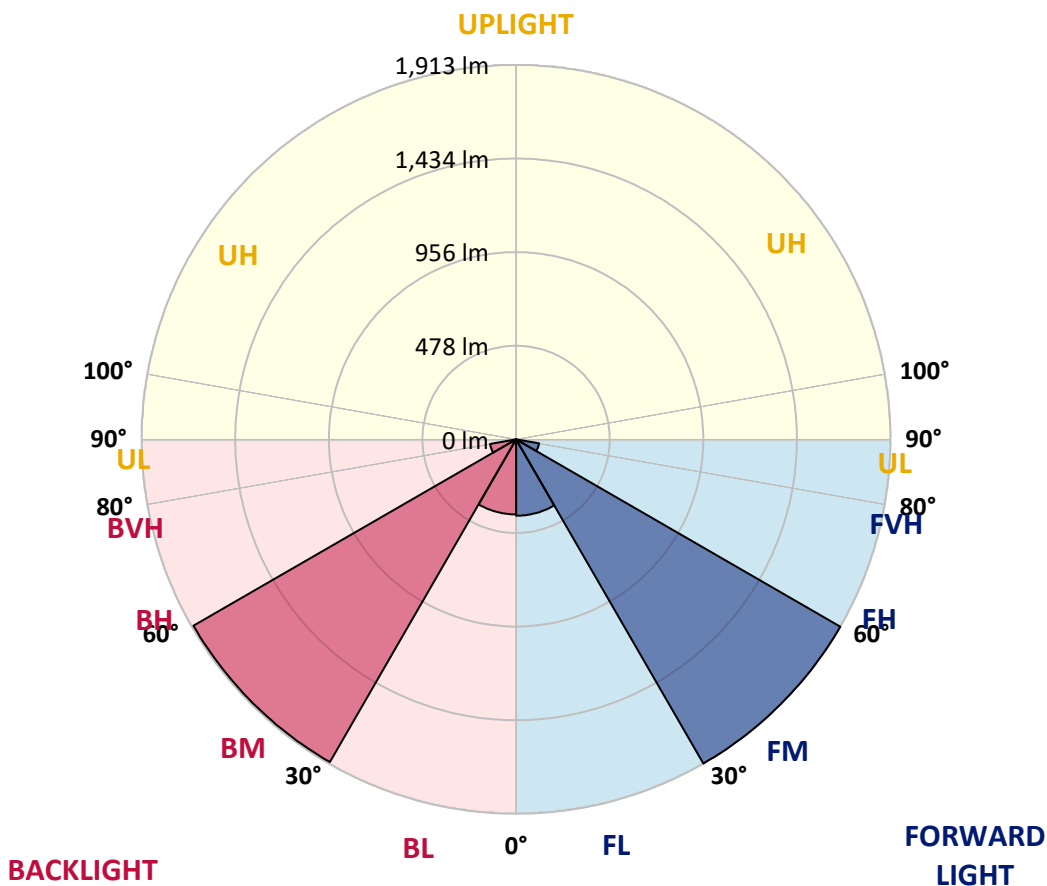
CATALOG NUMBER: GWS-SA1E-735-U-RW-W-GRSBK

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |        |
|----------------|--------|-----------|-------------------------|------|--------|
|                |        |           | B                       | U    | G      |
| FL (0°-30°)    | 390.2  | 8.1       |                         |      |        |
| FM (30°-60°)   | 1912.6 | 39.5      |                         |      |        |
| FH (60°-80°)   | 119.1  | 2.5       |                         |      | G0/660 |
| FVH (80°-90°)  | 0.0    | 0.0       |                         |      | G0/10  |
| BL (0°-30°)    | 383.5  | 7.9       | B1/500                  |      |        |
| BM (30°-60°)   | 1903.3 | 39.3      | B2/2500                 |      |        |
| BH (60°-80°)   | 135.0  | 2.8       | B1/500                  |      | G0/660 |
| BVH (80°-90°)  | 0.1    | 0.0       |                         |      | G0/10  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |        |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |        |

**BUG Rating: B2-U0-G0**

Type V Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 43°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  |
| 2.5°  | 676.1  | 677.7  | 679.9  | 682.0  | 684.7  | 687.4  | 689.0  | 693.8  | 692.7  | 697.0  | 697.0  |
| 5°    | 668.6  | 670.2  | 672.9  | 677.7  | 683.6  | 689.5  | 693.8  | 703.4  | 708.8  | 717.4  | 720.6  |
| 7.5°  | 672.4  | 674.5  | 677.7  | 685.2  | 694.3  | 703.4  | 708.3  | 723.8  | 734.5  | 750.6  | 759.7  |
| 10°   | 684.7  | 686.8  | 692.2  | 705.0  | 716.8  | 729.7  | 735.6  | 755.4  | 772.5  | 794.5  | 807.4  |
| 12.5° | 698.6  | 701.3  | 712.0  | 731.3  | 751.7  | 768.8  | 776.8  | 798.8  | 816.5  | 841.1  | 861.5  |
| 15°   | 713.1  | 717.4  | 734.0  | 762.4  | 791.3  | 814.3  | 822.9  | 846.5  | 864.2  | 890.4  | 913.4  |
| 17.5° | 746.8  | 751.7  | 770.4  | 800.9  | 840.6  | 867.4  | 874.9  | 899.5  | 912.9  | 930.6  | 954.7  |
| 20°   | 789.2  | 798.3  | 821.3  | 858.3  | 901.7  | 927.4  | 932.7  | 956.8  | 955.8  | 963.3  | 984.2  |
| 22.5° | 841.7  | 848.1  | 873.3  | 917.2  | 965.9  | 994.3  | 1006.7 | 1016.8 | 1003.5 | 997.0  | 1010.4 |
| 25°   | 896.3  | 903.8  | 931.1  | 979.3  | 1034.0 | 1066.7 | 1076.8 | 1084.9 | 1063.5 | 1039.3 | 1041.0 |
| 27.5° | 967.0  | 972.4  | 999.2  | 1050.6 | 1105.2 | 1142.2 | 1151.3 | 1165.2 | 1136.9 | 1098.3 | 1087.6 |
| 30°   | 1051.1 | 1056.5 | 1084.9 | 1139.0 | 1193.1 | 1224.7 | 1238.6 | 1255.8 | 1224.7 | 1176.5 | 1164.2 |
| 32.5° | 1149.7 | 1155.1 | 1191.5 | 1247.2 | 1291.7 | 1326.0 | 1339.4 | 1357.6 | 1332.9 | 1278.8 | 1264.9 |
| 35°   | 1267.6 | 1270.8 | 1313.6 | 1374.2 | 1421.3 | 1454.5 | 1463.7 | 1485.1 | 1457.8 | 1403.7 | 1396.2 |
| 37.5° | 1404.2 | 1407.9 | 1454.5 | 1524.7 | 1572.9 | 1609.9 | 1624.4 | 1630.3 | 1597.1 | 1536.5 | 1530.6 |
| 40°   | 1554.2 | 1566.5 | 1612.1 | 1687.6 | 1741.7 | 1788.3 | 1801.2 | 1781.4 | 1734.7 | 1652.2 | 1641.5 |
| 42.5° | 1710.6 | 1721.3 | 1772.2 | 1854.2 | 1916.9 | 1964.6 | 1965.1 | 1922.3 | 1843.0 | 1728.8 | 1712.8 |
| 45°   | 1840.8 | 1845.1 | 1911.0 | 1993.5 | 2070.7 | 2104.4 | 2107.6 | 2029.9 | 1910.5 | 1773.3 | 1739.0 |
| 47.5° | 1930.3 | 1937.3 | 1994.6 | 2073.9 | 2159.1 | 2189.6 | 2183.2 | 2086.2 | 1942.6 | 1802.2 | 1745.5 |
| 50°   | 1931.4 | 1943.1 | 2005.3 | 2081.9 | 2164.4 | 2201.4 | 2192.3 | 2102.3 | 1960.8 | 1803.3 | 1729.9 |
| 52.5° | 1760.5 | 1779.7 | 1881.0 | 1991.9 | 2118.3 | 2181.6 | 2183.7 | 2123.2 | 1953.9 | 1786.2 | 1716.0 |
| 55°   | 1328.1 | 1349.0 | 1476.5 | 1665.6 | 1909.9 | 2086.2 | 2116.7 | 2098.5 | 1945.8 | 1793.7 | 1740.6 |
| 57.5° | 702.9  | 686.8  | 757.5  | 945.1  | 1252.0 | 1563.8 | 1653.3 | 1799.0 | 1856.4 | 1802.8 | 1786.2 |
| 60°   | 153.2  | 163.4  | 217.5  | 293.1  | 488.6  | 735.6  | 822.9  | 1072.6 | 1369.4 | 1501.2 | 1596.5 |
| 62.5° | 65.9   | 64.8   | 67.5   | 76.6   | 112.0  | 186.4  | 227.7  | 371.8  | 586.6  | 805.8  | 954.2  |
| 65°   | 54.1   | 54.6   | 56.8   | 56.8   | 53.0   | 53.6   | 56.3   | 85.2   | 137.2  | 192.3  | 258.2  |
| 67.5° | 40.7   | 41.3   | 45.0   | 46.1   | 43.4   | 38.6   | 38.0   | 32.1   | 33.8   | 42.3   | 43.9   |
| 70°   | 25.7   | 25.7   | 27.9   | 28.9   | 28.9   | 26.8   | 26.3   | 23.0   | 22.5   | 25.7   | 28.9   |
| 72.5° | 13.9   | 13.9   | 15.0   | 15.5   | 15.0   | 14.5   | 14.5   | 13.9   | 13.4   | 15.5   | 19.8   |
| 75°   | 5.9    | 5.9    | 6.4    | 6.4    | 5.9    | 5.9    | 5.9    | 5.9    | 5.9    | 7.0    | 10.7   |
| 77.5° | 1.1    | 1.6    | 2.1    | 1.6    | 1.1    | 1.1    | 1.1    | 1.6    | 1.6    | 2.1    | 3.2    |
| 80°   | 0.5    | 0.5    | 1.1    | 0.5    | 0.0    | 0.0    | 0.0    | 0.0    | 0.5    | 0.5    | 0.5    |
| 82.5° | 0.5    | 0.5    | 0.5    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.5    |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 0.0    | 0.0    | 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    |



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CATALOG NUMBER: GWS-SA1E-735-U-RW-W-GRSBK

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  | 689.0  |
| 2.5°  | 700.8  | 694.9  | 697.0  | 698.1  | 696.5  | 695.4  | 689.5  | 687.9  | 685.2  | 680.9  | 679.9  |
| 5°    | 724.3  | 719.5  | 719.0  | 715.8  | 708.3  | 699.1  | 687.9  | 683.1  | 677.7  | 672.4  | 671.3  |
| 7.5°  | 764.0  | 758.1  | 754.3  | 743.6  | 726.5  | 712.0  | 693.3  | 683.1  | 676.1  | 669.1  | 667.5  |
| 10°   | 814.9  | 807.9  | 797.2  | 777.4  | 754.3  | 733.4  | 711.5  | 698.1  | 687.4  | 677.7  | 677.2  |
| 12.5° | 869.0  | 861.5  | 842.2  | 817.0  | 789.2  | 769.9  | 742.0  | 723.3  | 707.2  | 692.7  | 691.1  |
| 15°   | 925.8  | 916.7  | 890.4  | 860.4  | 834.7  | 814.9  | 784.3  | 754.3  | 729.7  | 708.8  | 706.6  |
| 17.5° | 969.2  | 957.9  | 926.8  | 904.3  | 883.4  | 863.1  | 828.8  | 789.2  | 756.5  | 731.3  | 725.4  |
| 20°   | 996.5  | 985.8  | 956.3  | 944.0  | 934.3  | 919.9  | 879.2  | 837.9  | 801.5  | 770.4  | 765.0  |
| 22.5° | 1022.7 | 1009.9 | 984.2  | 984.2  | 991.7  | 985.8  | 941.8  | 894.7  | 851.8  | 815.9  | 807.9  |
| 25°   | 1052.2 | 1042.0 | 1023.8 | 1038.8 | 1057.6 | 1057.0 | 1012.0 | 953.1  | 903.8  | 863.6  | 855.6  |
| 27.5° | 1095.1 | 1084.9 | 1078.5 | 1106.8 | 1130.4 | 1128.8 | 1079.5 | 1015.8 | 963.8  | 924.2  | 916.7  |
| 30°   | 1170.6 | 1161.0 | 1154.0 | 1188.3 | 1218.3 | 1207.0 | 1152.9 | 1091.3 | 1038.8 | 993.8  | 988.4  |
| 32.5° | 1271.3 | 1261.1 | 1252.0 | 1286.3 | 1313.1 | 1298.6 | 1247.2 | 1189.4 | 1128.8 | 1084.9 | 1074.2 |
| 35°   | 1403.7 | 1382.2 | 1373.1 | 1413.8 | 1425.1 | 1409.0 | 1359.7 | 1308.8 | 1244.5 | 1194.2 | 1187.2 |
| 37.5° | 1540.3 | 1515.1 | 1508.7 | 1544.0 | 1562.2 | 1556.3 | 1498.5 | 1445.4 | 1375.8 | 1320.1 | 1312.0 |
| 40°   | 1657.1 | 1634.0 | 1622.8 | 1678.0 | 1719.2 | 1723.0 | 1671.0 | 1606.2 | 1524.2 | 1466.3 | 1451.9 |
| 42.5° | 1725.6 | 1705.8 | 1703.1 | 1788.9 | 1856.4 | 1904.6 | 1842.4 | 1775.5 | 1689.2 | 1623.8 | 1612.1 |
| 45°   | 1741.2 | 1728.3 | 1750.8 | 1863.3 | 1968.3 | 2056.2 | 2003.2 | 1932.4 | 1839.2 | 1770.1 | 1758.9 |
| 47.5° | 1739.6 | 1735.3 | 1775.5 | 1901.9 | 2034.8 | 2143.0 | 2116.7 | 2036.9 | 1946.9 | 1874.6 | 1863.9 |
| 50°   | 1716.5 | 1717.1 | 1784.0 | 1921.2 | 2061.5 | 2166.6 | 2140.3 | 2066.4 | 1986.0 | 1914.8 | 1906.2 |
| 52.5° | 1707.4 | 1704.2 | 1768.0 | 1915.3 | 2088.9 | 2155.8 | 2096.9 | 2013.9 | 1924.4 | 1836.5 | 1823.7 |
| 55°   | 1739.6 | 1731.5 | 1770.1 | 1910.5 | 2092.1 | 2149.9 | 1994.6 | 1814.6 | 1631.3 | 1527.4 | 1518.8 |
| 57.5° | 1787.8 | 1779.2 | 1797.4 | 1875.1 | 1924.4 | 1787.8 | 1467.9 | 1177.6 | 989.0  | 909.2  | 874.3  |
| 60°   | 1596.5 | 1590.6 | 1576.7 | 1482.9 | 1271.9 | 959.5  | 653.6  | 416.8  | 299.5  | 242.2  | 242.2  |
| 62.5° | 990.6  | 982.6  | 907.0  | 674.0  | 489.7  | 283.4  | 155.9  | 97.5   | 73.9   | 69.1   | 68.6   |
| 65°   | 278.1  | 276.4  | 228.8  | 161.8  | 102.9  | 63.8   | 56.3   | 57.3   | 56.3   | 54.6   | 54.1   |
| 67.5° | 41.8   | 46.1   | 46.1   | 37.5   | 35.9   | 40.2   | 47.1   | 50.4   | 47.7   | 45.0   | 43.9   |
| 70°   | 26.8   | 28.9   | 27.9   | 24.1   | 25.7   | 30.0   | 33.8   | 34.3   | 32.7   | 30.0   | 29.5   |
| 72.5° | 18.8   | 20.9   | 17.1   | 15.5   | 16.1   | 17.7   | 19.3   | 19.3   | 18.8   | 17.7   | 16.6   |
| 75°   | 11.3   | 11.3   | 8.0    | 7.5    | 7.5    | 8.0    | 8.0    | 9.1    | 9.1    | 8.6    | 8.0    |
| 77.5° | 3.8    | 4.3    | 2.7    | 2.1    | 2.1    | 2.1    | 2.7    | 3.2    | 3.2    | 2.7    | 2.1    |
| 80°   | 0.5    | 1.1    | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    | 1.1    | 1.1    | 0.5    |
| 82.5° | 0.5    | 0.5    | 0.5    | 0.0    | 0.0    | 0.0    | 0.0    | 0.5    | 0.5    | 0.5    | 0.5    |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.5    | 0.5    |
| 87.5° | 0.0    | 0.0    | 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

All Brands

Data applicable to all product families using SA light engines

Report Number: SP1-2101-121-7

Luminaire Tested: IFLD-S-SA2A-735-U-T2

Test Date: 03/04/2021

**Test Information**

Test Method: LM-79-08  
 Report Number: SP1-2101-121-7  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry: 4π  
 Issue Date: 03/04/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2A-735-U-T2**  
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

**Spectral Parameters**

CCT (K): 3388  
 CIE u': 0.2371  
 CIE v': 0.5177  
 Duv: 0.0032  
 CIE x: 0.4153  
 CIE y: 0.4030  
 CIE z: 0.1817  
 Peak Wavelength (nm): 590  
 Dominant Wavelength (nm): 580  
 Purity: 45.7  
 Rf: 76.9  
 Rg: 94.4

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 73.1 |      |       |
| R1:       | 68.9 | R9:  | -34.6 |
| R2:       | 81.1 | R10: | 57.8  |
| R3:       | 93.1 | R11: | 68.6  |
| R4:       | 71.6 | R12: | 53.9  |
| R5:       | 69.4 | R13: | 70.9  |
| R6:       | 75.0 | R14: | 96.2  |
| R7:       | 79.5 |      |       |
| R8:       | 46.4 |      |       |

**Test Conditions**

Stabilization Time: 81M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0/30%  
 Sphere Temperature (°C): 24.1



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| 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            |

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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 3500K 4-step quadrangle

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**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    | 2672          | 0.0           | 490    | 34553         | 4.9           | 620    | 136720        | 35.6          | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 8.0           | 625    | 126308        | 27.9          | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 12.1          | 630    | 114625        | 20.7          | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 18.1          | 635    | 103216        | 15.5          | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 25.4          | 640    | 92605         | 11.1          | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 33.9          | 645    | 83234         | 8.0           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 43.0          | 650    | 73263         | 5.4           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 50.1          | 655    | 64627         | 3.7           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 57.9          | 660    | 56614         | 2.4           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.0           | 535    | 103269        | 64.0          | 665    | 49537         | 1.6           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.0           | 540    | 107316        | 69.9          | 670    | 42866         | 0.9           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.0           | 545    | 113101        | 75.3          | 675    | 36708         | 0.6           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 0.0           | 550    | 120690        | 82.0          | 680    | 31814         | 0.4           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 0.1           | 555    | 128583        | 87.8          | 685    | 27485         | 0.2           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 0.3           | 560    | 137796        | 93.6          | 690    | 23698         | 0.1           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 0.8           | 565    | 146577        | 97.5          | 695    | 20309         | 0.1           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 1.6           | 570    | 154581        | 100.5         | 700    | 17890         | 0.1           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 2.4           | 575    | 162633        | 101.2         | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 2.5           | 580    | 168101        | 99.9          | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 2.1           | 585    | 173145        | 96.2          | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 1.8           | 590    | 174675        | 90.3          | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 1.7           | 595    | 173724        | 82.3          | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 1.5           | 600    | 171241        | 73.8          | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 1.7           | 605    | 165134        | 64.0          | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 2.2           | 610    | 156652        | 53.8          | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 3.3           | 615    | 147879        | 44.6          | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

REPORT NUMBER: SP1-2101-121-7

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 12126**

**S/P: 1.36**

| $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 2672                                 | 0.0                            | 490               | 34553                                | 53.2                           | 620               | 136720                               | 1.7                            | 750               | 5870                                 | 0.0                            | 880               | 4216                                 | 0.0                            |
| 365               | 2252                                 | 0.0                            | 495               | 44336                                | 71.7                           | 625               | 126308                               | 1.1                            | 755               | 5421                                 | 0.0                            | 885               | 4132                                 | 0.0                            |
| 370               | 2217                                 | 0.0                            | 500               | 54643                                | 91.4                           | 630               | 114625                               | 0.6                            | 760               | 5097                                 | 0.0                            | 890               | 3992                                 | 0.0                            |
| 375               | 2697                                 | 0.0                            | 505               | 64676                                | 110.0                          | 635               | 103216                               | 0.4                            | 765               | 4626                                 | 0.0                            | 895               | 3214                                 | 0.0                            |
| 380               | 3039                                 | 0.0                            | 510               | 73825                                | 125.1                          | 640               | 92605                                | 0.2                            | 770               | 3782                                 | 0.0                            | 900               | 2580                                 | 0.0                            |
| 385               | 2655                                 | 0.0                            | 515               | 81872                                | 135.7                          | 645               | 83234                                | 0.1                            | 775               | 3506                                 | 0.0                            | 905               | 1776                                 | 0.0                            |
| 390               | 2357                                 | 0.0                            | 520               | 88574                                | 140.8                          | 650               | 73263                                | 0.1                            | 780               | 3507                                 | 0.0                            | 910               | 3995                                 | 0.0                            |
| 395               | 2186                                 | 0.0                            | 525               | 93289                                | 139.6                          | 655               | 64627                                | 0.1                            | 785               | 3267                                 | 0.0                            | 915               | 4288                                 | 0.0                            |
| 400               | 2015                                 | 0.0                            | 530               | 98393                                | 135.7                          | 660               | 56614                                | 0.0                            | 790               | 2849                                 | 0.0                            | 920               | 2446                                 | 0.0                            |
| 405               | 2234                                 | 0.1                            | 535               | 103269                               | 128.7                          | 665               | 49537                                | 0.0                            | 795               | 3037                                 | 0.0                            | 925               | 3009                                 | 0.0                            |
| 410               | 3412                                 | 0.2                            | 540               | 107316                               | 118.6                          | 670               | 42866                                | 0.0                            | 800               | 2716                                 | 0.0                            | 930               | 3026                                 | 0.0                            |
| 415               | 6135                                 | 0.6                            | 545               | 113101                               | 108.4                          | 675               | 36708                                | 0.0                            | 805               | 2648                                 | 0.0                            | 935               | 4734                                 | 0.0                            |
| 420               | 12146                                | 2.0                            | 550               | 120690                               | 98.7                           | 680               | 31814                                | 0.0                            | 810               | 3187                                 | 0.0                            | 940               | 3719                                 | 0.0                            |
| 425               | 23983                                | 5.9                            | 555               | 128583                               | 87.9                           | 685               | 27485                                | 0.0                            | 815               | 2931                                 | 0.0                            | 945               | 1480                                 | 0.0                            |
| 430               | 42142                                | 14.3                           | 560               | 137796                               | 77.0                           | 690               | 23698                                | 0.0                            | 820               | 2717                                 | 0.0                            | 950               | 3450                                 | 0.0                            |
| 435               | 68228                                | 30.5                           | 565               | 146577                               | 65.8                           | 695               | 20309                                | 0.0                            | 825               | 2236                                 | 0.0                            | 955               | 5051                                 | 0.0                            |
| 440               | 99323                                | 55.5                           | 570               | 154581                               | 54.6                           | 700               | 17890                                | 0.0                            | 830               | 2628                                 | 0.0                            | 960               | 3176                                 | 0.0                            |
| 445               | 115584                               | 77.4                           | 575               | 162633                               | 44.3                           | 705               | 15500                                | 0.0                            | 835               | 3140                                 | 0.0                            | 965               | 5178                                 | 0.0                            |
| 450               | 94997                                | 73.6                           | 580               | 168101                               | 34.6                           | 710               | 13699                                | 0.0                            | 840               | 3675                                 | 0.0                            | 970               | 6385                                 | 0.0                            |
| 455               | 61433                                | 53.7                           | 585               | 173145                               | 26.5                           | 715               | 12398                                | 0.0                            | 845               | 3283                                 | 0.0                            | 975               | 3810                                 | 0.0                            |
| 460               | 43373                                | 41.9                           | 590               | 174675                               | 19.5                           | 720               | 11147                                | 0.0                            | 850               | 3055                                 | 0.0                            | 980               | 4322                                 | 0.0                            |
| 465               | 32472                                | 34.3                           | 595               | 173724                               | 13.9                           | 725               | 9761                                 | 0.0                            | 855               | 2932                                 | 0.0                            | 985               | 4200                                 | 0.0                            |
| 470               | 24257                                | 27.9                           | 600               | 171241                               | 9.7                            | 730               | 8651                                 | 0.0                            | 860               | 3382                                 | 0.0                            | 990               | 4661                                 | 0.0                            |
| 475               | 21690                                | 27.1                           | 605               | 165134                               | 6.5                            | 735               | 7730                                 | 0.0                            | 865               | 2605                                 | 0.0                            | 995               | 6746                                 | 0.0                            |
| 480               | 23173                                | 31.3                           | 610               | 156652                               | 4.2                            | 740               | 6847                                 | 0.0                            | 870               | 3325                                 | 0.0                            | 1000              | 4150                                 | 0.0                            |
| 485               | 27564                                | 40.0                           | 615               | 147879                               | 2.7                            | 745               | 6124                                 | 0.0                            | 875               | 3325                                 | 0.0                            |                   |                                      |                                |

REPORT NUMBER: SP1-2101-121-7

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 4490.7 M/P: 0.5**

| 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    | 2672          | 0.0           | 490    | 34553         | 28.8          | 620    | 136720        | 0.1           | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 36.6          | 625    | 126308        | 0.1           | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 43.9          | 630    | 114625        | 0.0           | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 49.6          | 635    | 103216        | 0.0           | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 53.0          | 640    | 92605         | 0.0           | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 53.5          | 645    | 83234         | 0.0           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 51.6          | 650    | 73263         | 0.0           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 47.3          | 655    | 64627         | 0.0           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 42.5          | 660    | 56614         | 0.0           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.0           | 535    | 103269        | 37.2          | 665    | 49537         | 0.0           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.1           | 540    | 107316        | 31.4          | 670    | 42866         | 0.0           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.4           | 545    | 113101        | 26.3          | 675    | 36708         | 0.0           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 1.4           | 550    | 120690        | 21.7          | 680    | 31814         | 0.0           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 3.7           | 555    | 128583        | 17.3          | 685    | 27485         | 0.0           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 8.9           | 560    | 137796        | 13.6          | 690    | 23698         | 0.0           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 18.2          | 565    | 146577        | 10.3          | 695    | 20309         | 0.0           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 33.2          | 570    | 154581        | 7.6           | 700    | 17890         | 0.0           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 45.6          | 575    | 162633        | 5.4           | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 43.8          | 580    | 168101        | 3.8           | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 32.2          | 585    | 173145        | 2.6           | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 25.6          | 590    | 174675        | 1.7           | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 21.2          | 595    | 173724        | 1.1           | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 17.4          | 600    | 171241        | 0.7           | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 16.6          | 605    | 165134        | 0.5           | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 18.6          | 610    | 156652        | 0.3           | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 22.7          | 615    | 147879        | 0.2           | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

**Summary**

$R_f = 76.9$   
 $R_g = 94.4$   
 CIE  $R_a = 73.1$   
 $R_g = -34.6$



**Color Vector Graphics**





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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 68 | CES51 = 90 | CES76 = 63 |
| CES02 = 62 | CES27 = 88 | CES52 = 89 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 80 | CES78 = 65 |
| CES04 = 70 | CES29 = 67 | CES54 = 84 | CES79 = 87 |
| CES05 = 48 | CES30 = 74 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 71 | CES56 = 75 | CES81 = 75 |
| CES07 = 40 | CES32 = 67 | CES57 = 74 | CES82 = 94 |
| CES08 = 39 | CES33 = 74 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 78 | CES59 = 87 | CES84 = 89 |
| CES10 = 75 | CES35 = 89 | CES60 = 93 | CES85 = 80 |
| CES11 = 58 | CES36 = 98 | CES61 = 86 | CES86 = 66 |
| CES12 = 64 | CES37 = 86 | CES62 = 89 | CES87 = 79 |
| CES13 = 43 | CES38 = 82 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 95 | CES64 = 74 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 68 | CES90 = 77 |
| CES16 = 47 | CES41 = 89 | CES66 = 71 | CES91 = 88 |
| CES17 = 50 | CES42 = 88 | CES67 = 69 | CES92 = 60 |
| CES18 = 56 | CES43 = 82 | CES68 = 74 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 82 | CES94 = 52 |
| CES20 = 65 | CES45 = 87 | CES70 = 67 | CES95 = 69 |
| CES21 = 86 | CES46 = 82 | CES71 = 66 | CES96 = 78 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 85 |
| CES23 = 92 | CES48 = 72 | CES73 = 59 | CES98 = 76 |
| CES24 = 91 | CES49 = 82 | CES74 = 97 | CES99 = 63 |
| CES25 = 72 | CES50 = 88 | CES75 = 66 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)