

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: P630382

Luminaire Tested: GWS-SA1D-750-U-RW-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P630382
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-51)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1D-750-U-RW-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND RECTANGULAR WIDE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (16) 5000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5467.9 lumens
Efficiency: N/A
Efficacy: 123.4 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

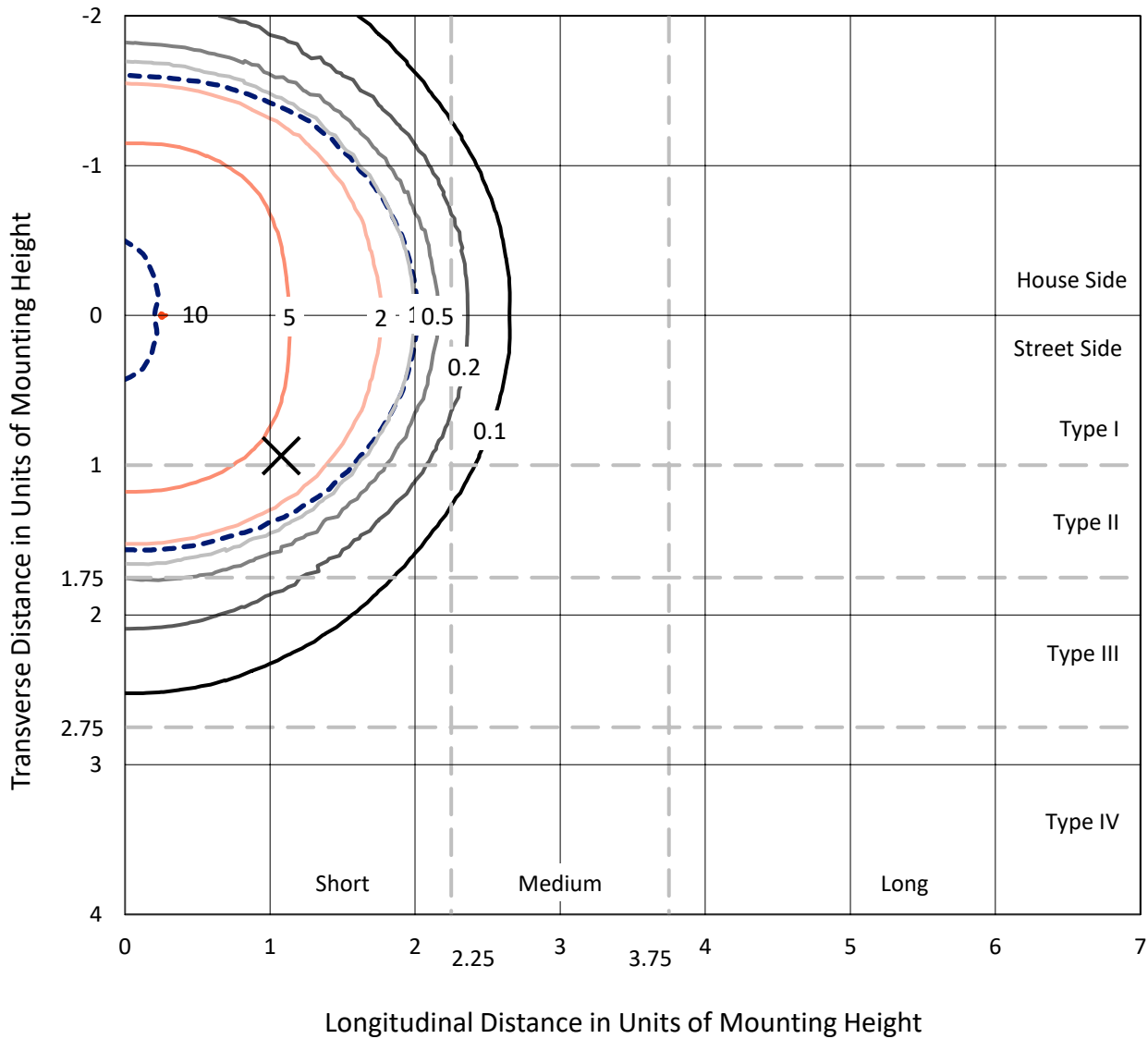
Input Watts (W): 44.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P630382
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Iso-Footcandle Lines of Horizontal Illumination

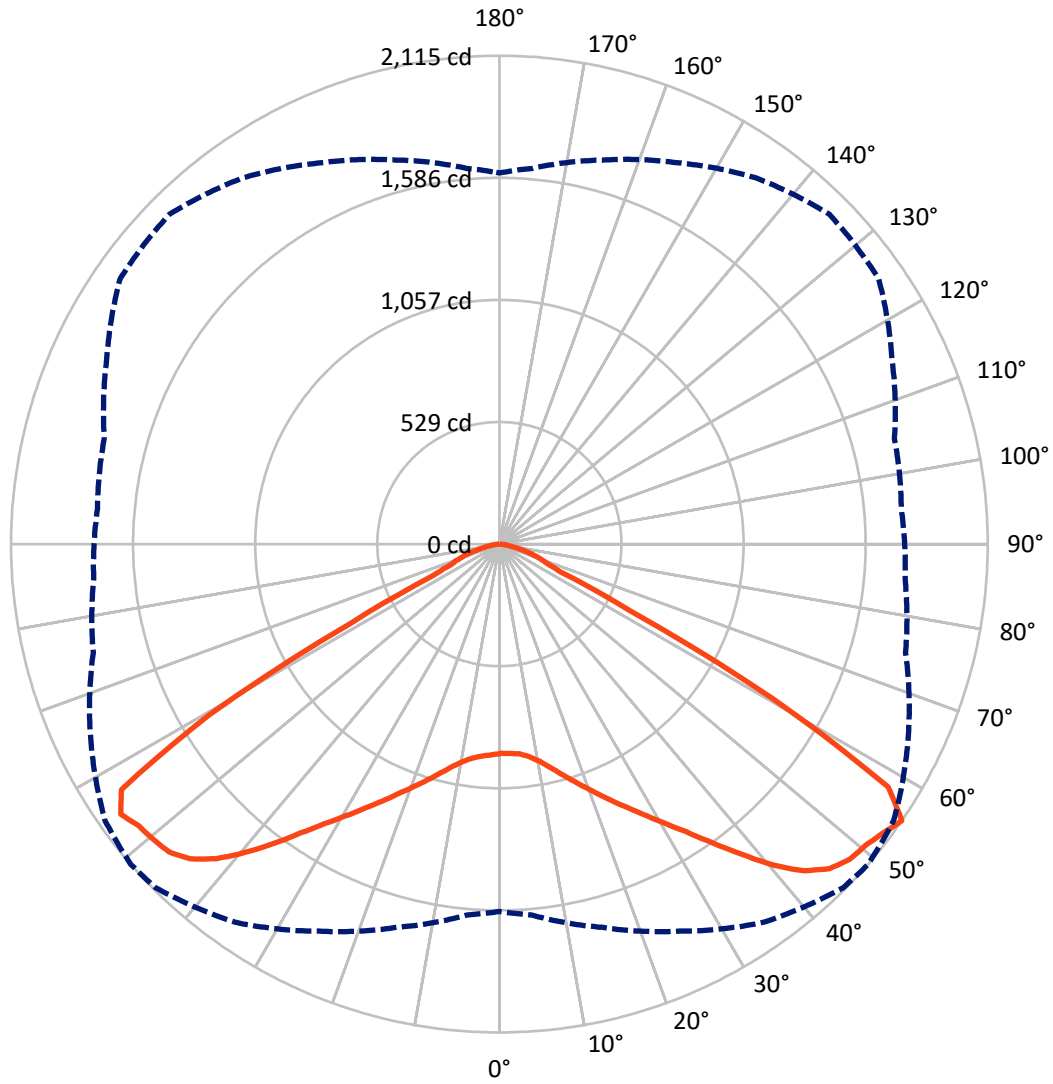
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 10.1 fc
 Type V - Short - N/A

REPORT NUMBER: P630382
CATALOG NUMBER: GWS-SA1D-750-U-RW-W-GRSWH

Luminous Intensity Polar Plot



— Vertical Plane Through 49-Deg Lateral - - - Horizontal Cone Through 55-Deg Vertical

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CATALOG NUMBER: GWS-SA1D-750-U-RW-W-GRSWH

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 2707.1 | 0.0 | 2707.1 |
| | % Fixture | 49.5 | 0.0 | 49.5 |
| Street Side | Lumens | 2760.8 | 0.0 | 2760.8 |
| | % Fixture | 50.5 | 0.0 | 50.5 |
| Total | Lumens | 5467.9 | 0.0 | 5467.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 88.4 | 1.6 |
| 10°-20° | 291.5 | 5.3 |
| 20°-30° | 555.1 | 10.2 |
| 30°-40° | 941.1 | 17.2 |
| 40°-50° | 1416.2 | 25.9 |
| 50°-60° | 1550.2 | 28.4 |
| 60°-70° | 490.2 | 9.0 |
| 70°-80° | 117.6 | 2.2 |
| 80°-90° | 17.7 | 0.3 |
| 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° | 5467.9 | 100.0 |
| 0°-180° | 5467.9 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P630382

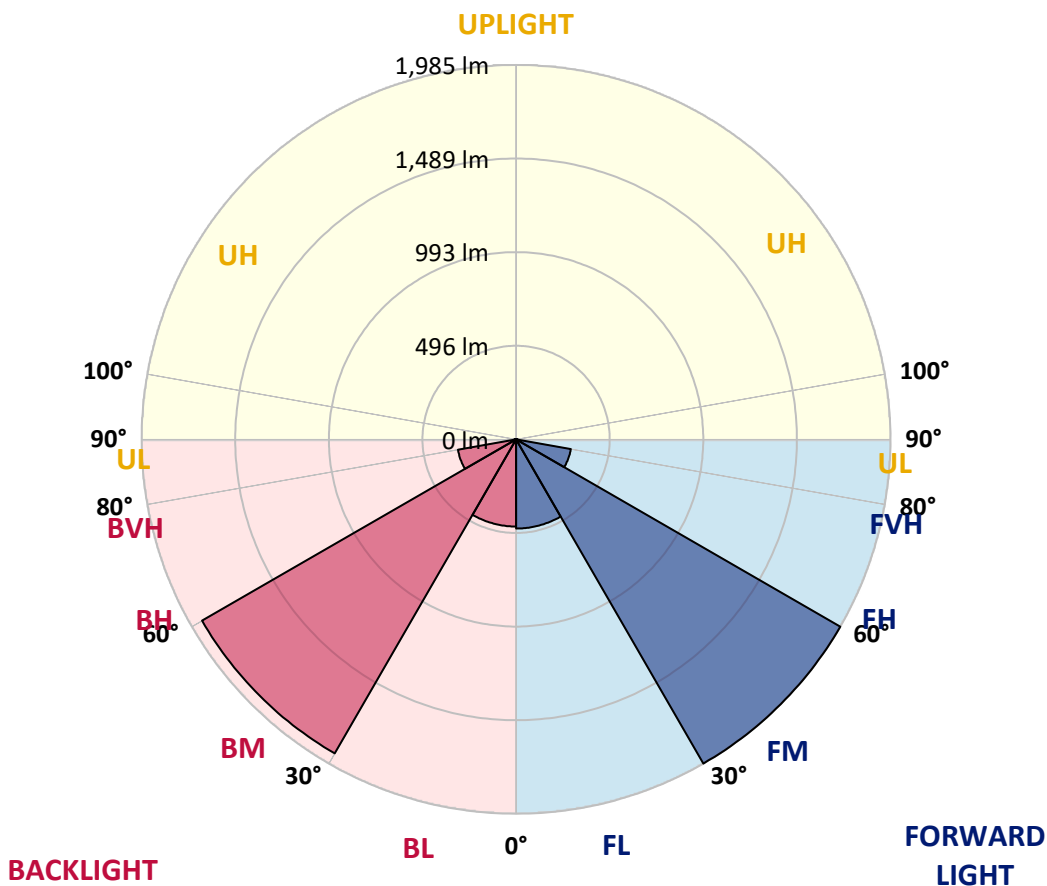
CATALOG NUMBER: GWS-SA1D-750-U-RW-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 472.8 | 8.6 | | | |
| FM (30°-60°) | 1985.0 | 36.3 | | | |
| FH (60°-80°) | 294.8 | 5.4 | | | G0/660 |
| FVH (80°-90°) | 8.2 | 0.1 | | | G0/10 |
| BL (0°-30°) | 462.2 | 8.5 | B1/500 | | |
| BM (30°-60°) | 1922.5 | 35.2 | B2/2500 | | |
| BH (60°-80°) | 313.0 | 5.7 | B1/500 | | G0/660 |
| BVH (80°-90°) | 9.5 | 0.2 | | | 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° | 45° | 49° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 |
| 2.5° | 892.5 | 893.3 | 895.1 | 898.2 | 901.3 | 905.8 | 907.6 | 909.8 | 909.3 | 912.0 | 912.0 |
| 5° | 888.0 | 889.3 | 892.0 | 896.5 | 901.8 | 910.2 | 912.5 | 917.8 | 923.1 | 929.8 | 932.0 |
| 7.5° | 893.3 | 895.1 | 898.2 | 905.3 | 913.4 | 924.5 | 928.9 | 937.8 | 948.0 | 960.0 | 964.9 |
| 10° | 903.6 | 905.8 | 911.1 | 922.7 | 935.6 | 952.5 | 956.5 | 967.6 | 984.1 | 1000.5 | 1010.3 |
| 12.5° | 915.1 | 918.7 | 928.5 | 946.7 | 965.8 | 988.1 | 994.3 | 1008.1 | 1025.9 | 1047.2 | 1060.5 |
| 15° | 928.5 | 931.6 | 946.7 | 972.5 | 1002.3 | 1031.6 | 1038.7 | 1052.1 | 1072.1 | 1093.0 | 1111.7 |
| 17.5° | 956.5 | 961.8 | 979.6 | 1009.4 | 1044.1 | 1078.8 | 1086.8 | 1101.9 | 1117.9 | 1134.4 | 1152.1 |
| 20° | 994.7 | 999.2 | 1021.8 | 1058.8 | 1099.7 | 1131.2 | 1139.2 | 1152.6 | 1160.1 | 1168.6 | 1183.7 |
| 22.5° | 1033.0 | 1039.2 | 1065.0 | 1108.6 | 1156.6 | 1190.8 | 1197.0 | 1209.5 | 1204.2 | 1201.5 | 1211.3 |
| 25° | 1080.5 | 1089.0 | 1114.3 | 1161.9 | 1210.8 | 1253.1 | 1258.0 | 1268.6 | 1259.7 | 1246.0 | 1245.5 |
| 27.5° | 1139.7 | 1147.2 | 1173.5 | 1222.4 | 1270.9 | 1314.9 | 1324.2 | 1338.5 | 1318.9 | 1302.0 | 1290.0 |
| 30° | 1209.9 | 1214.8 | 1243.7 | 1295.8 | 1345.6 | 1387.4 | 1399.4 | 1413.6 | 1398.9 | 1370.9 | 1358.9 |
| 32.5° | 1291.8 | 1298.4 | 1331.8 | 1386.5 | 1430.9 | 1472.7 | 1484.7 | 1502.5 | 1486.5 | 1455.0 | 1439.8 |
| 35° | 1390.0 | 1396.7 | 1431.8 | 1491.4 | 1536.8 | 1579.9 | 1588.4 | 1603.0 | 1583.0 | 1546.6 | 1534.6 |
| 37.5° | 1496.8 | 1505.2 | 1549.7 | 1606.1 | 1653.7 | 1704.0 | 1704.4 | 1708.9 | 1680.4 | 1635.0 | 1621.7 |
| 40° | 1616.8 | 1627.9 | 1672.4 | 1731.1 | 1788.5 | 1829.4 | 1828.9 | 1816.5 | 1768.4 | 1698.2 | 1677.7 |
| 42.5° | 1735.5 | 1744.4 | 1789.3 | 1849.8 | 1907.2 | 1945.9 | 1934.3 | 1904.1 | 1834.7 | 1739.1 | 1712.0 |
| 45° | 1821.4 | 1828.0 | 1875.2 | 1943.2 | 2001.5 | 2025.5 | 2004.6 | 1968.1 | 1874.3 | 1764.9 | 1724.9 |
| 47.5° | 1861.8 | 1870.7 | 1918.3 | 1985.9 | 2051.7 | 2065.5 | 2040.6 | 2006.3 | 1897.4 | 1788.9 | 1735.1 |
| 50° | 1840.0 | 1851.6 | 1905.4 | 1968.1 | 2042.4 | 2070.8 | 2053.0 | 2018.8 | 1921.9 | 1812.5 | 1753.3 |
| 52.5° | 1783.6 | 1794.7 | 1862.7 | 1938.8 | 2022.8 | 2079.3 | 2078.8 | 2050.8 | 1949.9 | 1819.1 | 1754.2 |
| 55° | 1590.6 | 1612.4 | 1718.2 | 1849.4 | 1998.8 | 2104.2 | 2114.8 | 2085.1 | 1954.3 | 1820.9 | 1763.6 |
| 57.5° | 1035.2 | 1073.4 | 1173.9 | 1344.7 | 1644.4 | 1913.9 | 1985.9 | 1993.0 | 1922.3 | 1813.4 | 1765.3 |
| 60° | 432.2 | 462.9 | 542.5 | 655.9 | 903.6 | 1224.2 | 1363.8 | 1503.9 | 1672.8 | 1734.2 | 1748.9 |
| 62.5° | 268.6 | 271.2 | 279.3 | 305.0 | 387.8 | 544.3 | 634.1 | 765.3 | 1016.5 | 1230.4 | 1329.1 |
| 65° | 242.3 | 243.7 | 245.5 | 243.7 | 247.7 | 266.8 | 290.8 | 336.6 | 438.9 | 545.2 | 671.5 |
| 67.5° | 213.4 | 215.2 | 216.6 | 215.2 | 216.6 | 217.4 | 220.1 | 224.1 | 242.8 | 257.9 | 269.5 |
| 70° | 172.5 | 175.2 | 177.4 | 176.5 | 181.9 | 181.9 | 184.5 | 187.7 | 197.0 | 208.1 | 216.1 |
| 72.5° | 131.6 | 129.4 | 132.1 | 133.0 | 137.8 | 140.5 | 144.5 | 148.1 | 158.7 | 165.4 | 175.6 |
| 75° | 85.4 | 83.2 | 87.2 | 89.4 | 96.0 | 99.6 | 103.2 | 106.7 | 114.3 | 118.7 | 128.5 |
| 77.5° | 46.2 | 45.8 | 49.8 | 52.9 | 60.0 | 64.5 | 67.1 | 69.8 | 76.0 | 77.4 | 83.6 |
| 80° | 26.7 | 26.7 | 29.3 | 31.6 | 36.0 | 40.9 | 43.6 | 45.8 | 50.2 | 51.6 | 54.2 |
| 82.5° | 14.7 | 14.7 | 16.0 | 17.3 | 20.9 | 23.6 | 25.8 | 27.6 | 31.6 | 32.9 | 34.2 |
| 85° | 7.1 | 6.7 | 7.6 | 8.4 | 9.8 | 11.1 | 12.5 | 13.3 | 16.5 | 17.3 | 19.1 |
| 87.5° | 0.9 | 0.9 | 0.9 | 1.3 | 1.8 | 2.7 | 3.1 | 3.1 | 4.9 | 5.8 | 6.7 |
| 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: P630382

CATALOG NUMBER: GWS-SA1D-750-U-RW-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 | 905.8 |
| 2.5° | 914.7 | 908.9 | 912.5 | 913.8 | 913.8 | 912.5 | 906.7 | 904.9 | 902.2 | 898.2 | 898.2 |
| 5° | 935.1 | 930.7 | 931.6 | 929.4 | 924.0 | 917.4 | 906.7 | 901.3 | 896.9 | 892.0 | 891.6 |
| 7.5° | 970.3 | 964.5 | 963.6 | 955.1 | 940.9 | 926.7 | 910.7 | 900.9 | 894.2 | 888.0 | 887.6 |
| 10° | 1016.1 | 1010.7 | 1004.1 | 987.2 | 966.3 | 945.4 | 923.6 | 910.2 | 900.5 | 891.6 | 891.1 |
| 12.5° | 1067.2 | 1061.0 | 1048.5 | 1023.6 | 997.4 | 976.9 | 952.0 | 931.6 | 916.9 | 904.9 | 902.7 |
| 15° | 1122.8 | 1113.9 | 1092.6 | 1063.2 | 1037.4 | 1015.6 | 988.9 | 959.6 | 937.4 | 918.2 | 916.0 |
| 17.5° | 1165.5 | 1153.9 | 1130.8 | 1103.2 | 1081.9 | 1060.1 | 1025.4 | 988.5 | 956.5 | 932.5 | 928.9 |
| 20° | 1194.8 | 1185.5 | 1159.3 | 1138.8 | 1126.3 | 1107.2 | 1066.8 | 1025.0 | 988.9 | 958.7 | 956.9 |
| 22.5° | 1222.0 | 1210.8 | 1185.0 | 1173.0 | 1173.0 | 1160.1 | 1121.5 | 1072.1 | 1029.9 | 994.7 | 990.3 |
| 25° | 1252.6 | 1240.6 | 1221.1 | 1219.7 | 1226.0 | 1220.2 | 1173.5 | 1120.6 | 1071.2 | 1031.6 | 1024.5 |
| 27.5° | 1295.3 | 1282.0 | 1270.4 | 1278.4 | 1287.3 | 1281.1 | 1229.1 | 1167.7 | 1115.7 | 1075.7 | 1069.4 |
| 30° | 1363.4 | 1346.9 | 1336.2 | 1346.0 | 1363.4 | 1345.1 | 1288.7 | 1223.7 | 1171.3 | 1127.2 | 1124.1 |
| 32.5° | 1442.5 | 1423.8 | 1412.7 | 1428.3 | 1443.8 | 1415.4 | 1359.4 | 1297.1 | 1242.0 | 1195.7 | 1190.4 |
| 35° | 1537.7 | 1514.1 | 1497.6 | 1518.5 | 1534.6 | 1506.5 | 1451.0 | 1391.8 | 1330.4 | 1282.4 | 1275.3 |
| 37.5° | 1622.2 | 1593.7 | 1582.6 | 1611.9 | 1633.3 | 1615.0 | 1554.6 | 1499.0 | 1431.8 | 1379.4 | 1376.3 |
| 40° | 1683.5 | 1655.5 | 1647.5 | 1696.0 | 1733.3 | 1728.9 | 1674.6 | 1611.0 | 1547.9 | 1487.4 | 1481.6 |
| 42.5° | 1710.2 | 1690.6 | 1692.4 | 1757.8 | 1815.6 | 1844.0 | 1795.6 | 1727.5 | 1666.6 | 1603.9 | 1599.9 |
| 45° | 1716.0 | 1704.0 | 1718.2 | 1800.0 | 1876.1 | 1934.3 | 1893.0 | 1836.0 | 1767.1 | 1706.6 | 1704.9 |
| 47.5° | 1722.2 | 1715.5 | 1737.3 | 1824.0 | 1914.3 | 1981.9 | 1958.8 | 1900.1 | 1830.3 | 1771.1 | 1766.7 |
| 50° | 1736.9 | 1734.2 | 1758.7 | 1840.9 | 1932.5 | 1994.8 | 1968.5 | 1910.3 | 1838.7 | 1780.5 | 1769.8 |
| 52.5° | 1741.3 | 1736.9 | 1772.0 | 1867.2 | 1962.8 | 1994.3 | 1937.9 | 1861.8 | 1789.8 | 1724.9 | 1713.8 |
| 55° | 1755.1 | 1747.1 | 1771.1 | 1876.9 | 2004.6 | 2020.1 | 1936.1 | 1822.3 | 1721.8 | 1633.3 | 1607.0 |
| 57.5° | 1758.7 | 1749.8 | 1765.3 | 1860.9 | 1959.2 | 1945.4 | 1701.7 | 1470.5 | 1281.1 | 1182.8 | 1193.9 |
| 60° | 1739.5 | 1742.2 | 1715.5 | 1704.9 | 1571.5 | 1387.4 | 1041.9 | 832.9 | 654.1 | 578.5 | 595.0 |
| 62.5° | 1324.2 | 1335.3 | 1244.2 | 1081.9 | 832.0 | 659.4 | 436.2 | 338.8 | 286.8 | 273.5 | 275.7 |
| 65° | 668.3 | 683.5 | 588.7 | 486.9 | 362.0 | 292.6 | 253.0 | 245.0 | 242.3 | 239.2 | 239.2 |
| 67.5° | 264.6 | 269.0 | 265.5 | 248.6 | 231.2 | 225.0 | 223.2 | 222.3 | 219.2 | 217.4 | 217.9 |
| 70° | 212.6 | 216.1 | 210.8 | 200.1 | 193.0 | 192.5 | 191.7 | 189.9 | 187.7 | 187.7 | 189.0 |
| 72.5° | 173.4 | 177.0 | 169.4 | 162.7 | 157.4 | 153.4 | 151.2 | 149.9 | 146.7 | 146.7 | 148.1 |
| 75° | 127.6 | 129.8 | 123.6 | 122.7 | 116.9 | 112.9 | 109.4 | 107.6 | 103.6 | 101.8 | 103.2 |
| 77.5° | 84.9 | 84.5 | 81.4 | 81.4 | 79.2 | 74.3 | 70.3 | 66.3 | 60.9 | 57.4 | 58.3 |
| 80° | 55.1 | 55.1 | 53.8 | 53.8 | 51.6 | 47.6 | 42.7 | 38.7 | 35.6 | 32.9 | 32.9 |
| 82.5° | 35.1 | 34.7 | 34.2 | 33.8 | 32.9 | 28.9 | 25.3 | 22.7 | 20.5 | 18.7 | 19.1 |
| 85° | 19.6 | 19.6 | 18.7 | 18.7 | 16.9 | 14.7 | 12.9 | 11.1 | 9.8 | 9.3 | 9.3 |
| 87.5° | 6.7 | 6.7 | 6.2 | 6.2 | 5.3 | 4.0 | 3.1 | 2.7 | 2.2 | 1.8 | 2.2 |
| 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: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

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

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-4-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-750-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): | 4884 | CRI (Ra): | 73.5 | R9: | -28.4 |
| CIE u': | 0.2101 | R1: | 70.5 | R10: | 48.6 |
| CIE v': | 0.4904 | R2: | 77.7 | R11: | 73.2 |
| Duv: | 0.0037 | R3: | 84.6 | R12: | 50.7 |
| CIE x: | 0.3493 | R4: | 74.7 | R13: | 71.2 |
| CIE y: | 0.3624 | R5: | 71.9 | R14: | 91.4 |
| CIE z: | 0.2884 | R6: | 70.7 | | |
| Peak Wavelength (nm): | 444 | R7: | 81.2 | | |
| Dominant Wavelength (nm): | 571 | R8: | 56.9 | | |
| Purity: | 13.7 | | | | |
| Rf: | 74.9 | | | | |
| Rg: | 96.3 | | | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-4-R4

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-4-R4

Photopic Flux vs. Wavelength



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9 M/P: 0.71

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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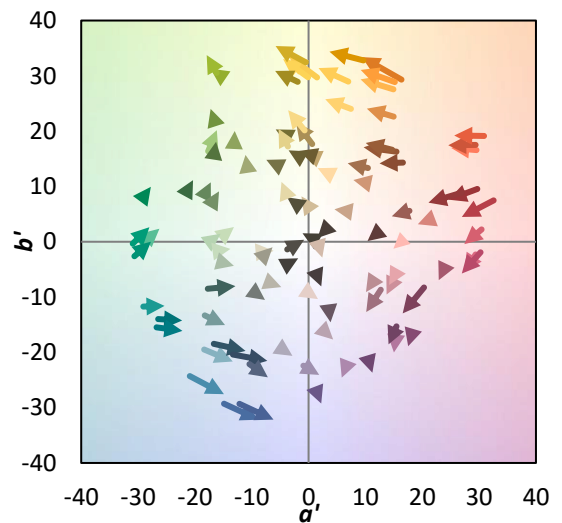
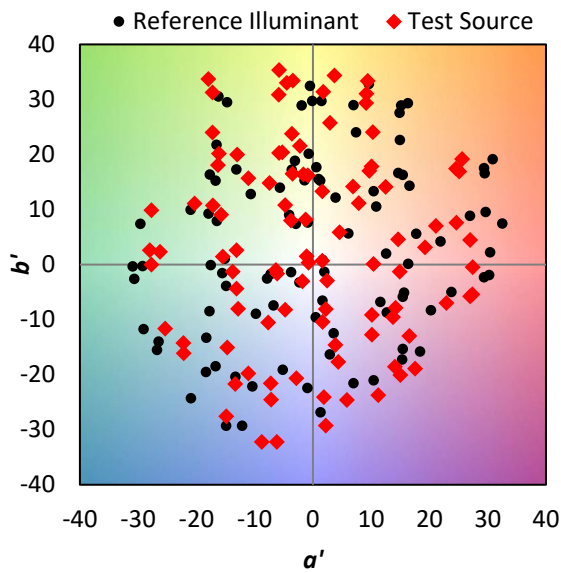
TM-30-18

Summary

$R_f = 74.9$
 $R_g = 96.3$
 CIE $R_a = 73.5$
 $R_g = -28.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)