

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: P631821

Luminaire Tested: GWS-SA2B-740-U-SL3-W

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P631821  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-31)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA2B-740-U-SL3-W  
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR OPTICS  
Light Source: (32) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

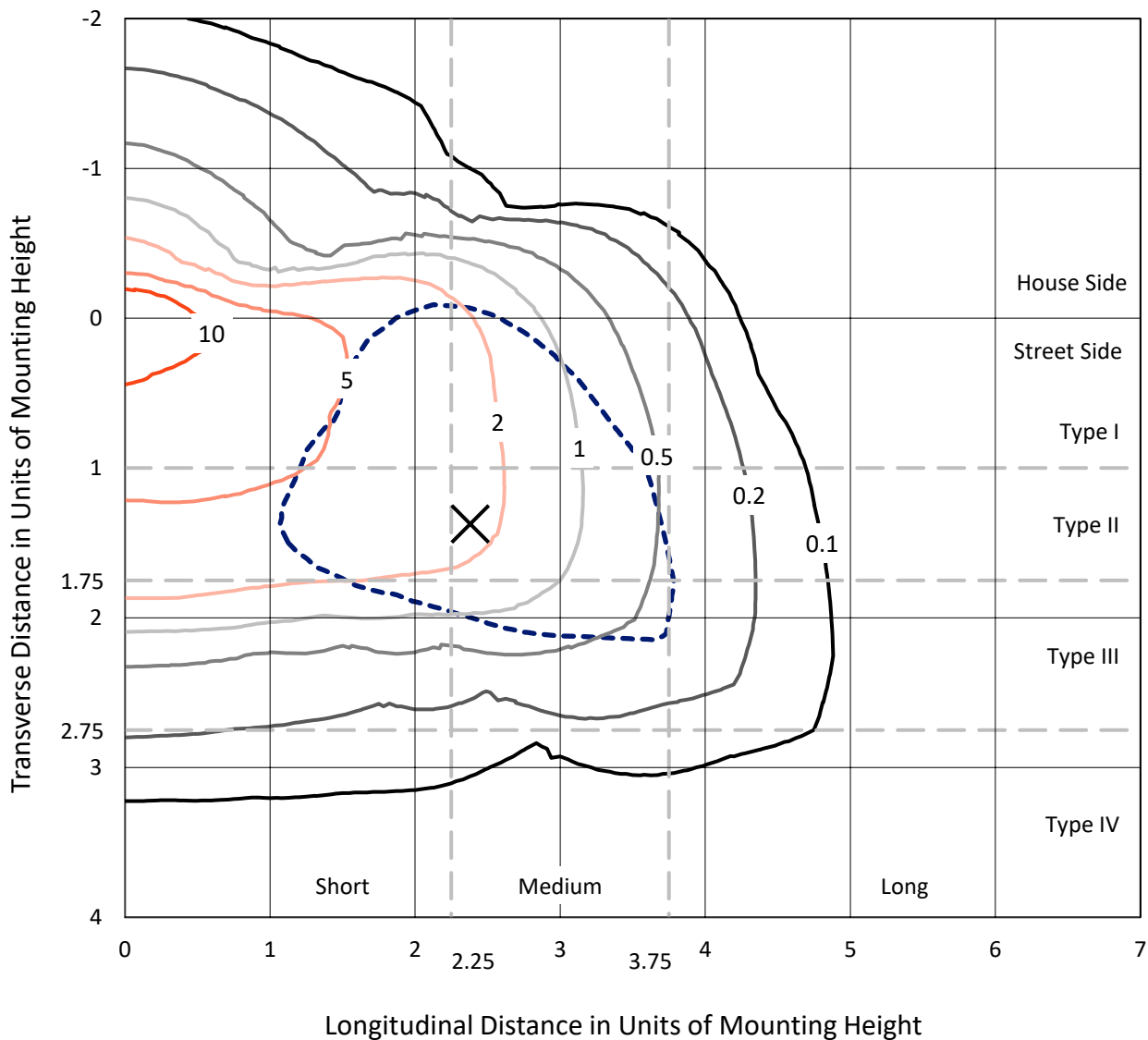
Lumens per Lamp: N/A  
Luminaire Lumens: 6761.9 lumens  
Efficiency: N/A  
Efficacy: 145.7 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B1 - U0 - G2  
  
Input Watts (W): 46.4  
Input Voltage (V): 120  
Input Current (Ain): 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



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 CATALOG NUMBER: GWS-SA2B-740-U-SL3-W

### Iso-Footcandle Lines of Horizontal Illumination

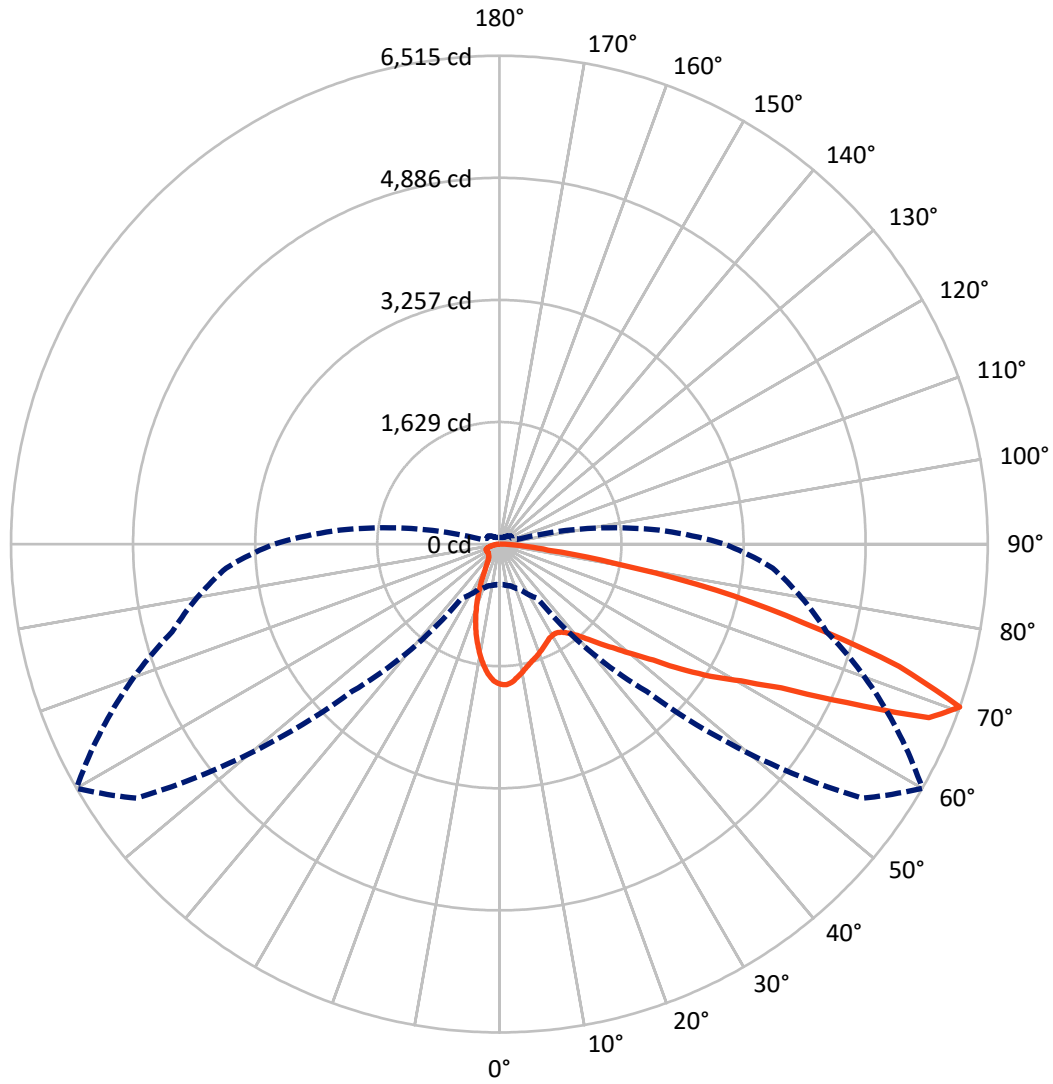
✕ Max cd  
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 18.7 fc  
 Type III - Medium - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 60-Deg Lateral    - - - Horizontal Cone Through 70-Deg Vertical

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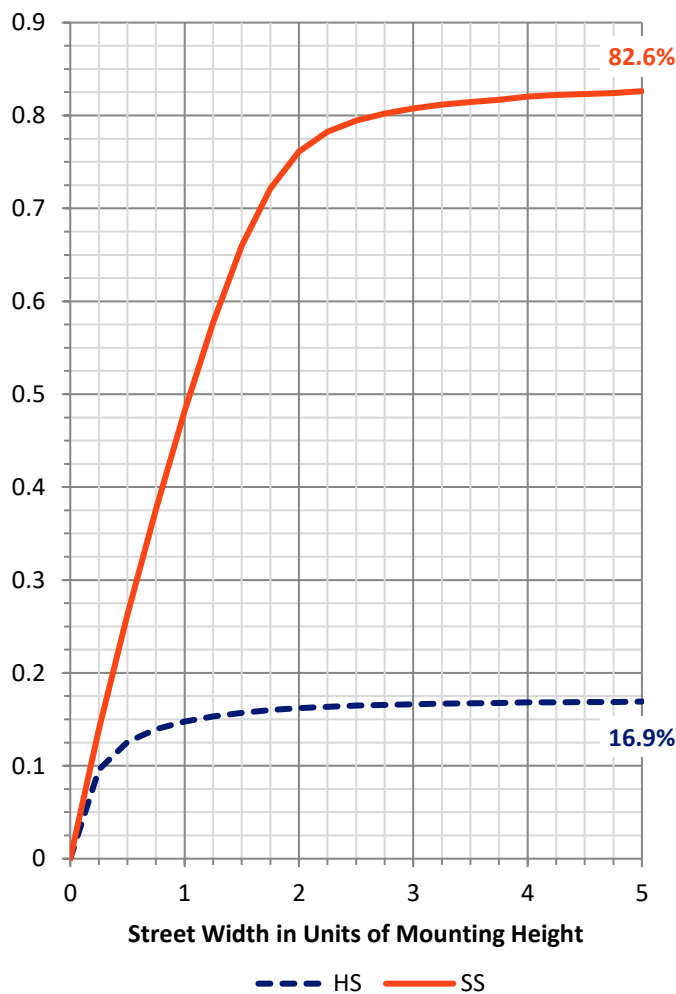
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1156.4   | 0.0    | 1156.4 |
|                    | % Fixture | 17.1     | 0.0    | 17.1   |
| <b>Street Side</b> | Lumens    | 5605.5   | 0.0    | 5605.5 |
|                    | % Fixture | 82.9     | 0.0    | 82.9   |
| <b>Total</b>       | Lumens    | 6761.9   | 0.0    | 6761.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 161.3  | 2.4       |
| 10°-20°   | 361.3  | 5.3       |
| 20°-30°   | 462.7  | 6.8       |
| 30°-40°   | 608.1  | 9.0       |
| 40°-50°   | 882.3  | 13.0      |
| 50°-60°   | 1376.6 | 20.4      |
| 60°-70°   | 1802.3 | 26.7      |
| 70°-80°   | 996.6  | 14.7      |
| 80°-90°   | 110.6  | 1.6       |
| 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°    | 6761.9 | 100.0     |
| 0°-180°   | 6761.9 | 100.0     |

**Coefficient of Utilization**



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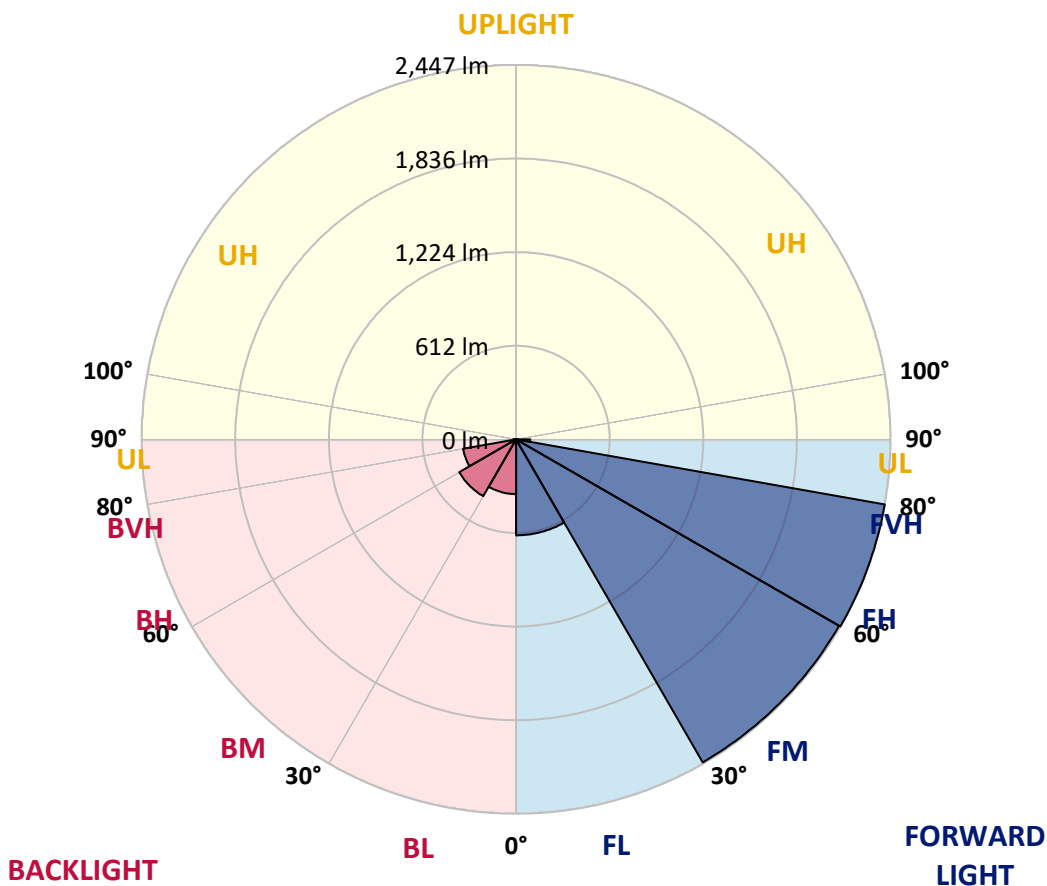
CATALOG NUMBER: GWS-SA2B-740-U-SL3-W

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

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 627.5  | 9.3       |                         |      |         |
| FM (30°-60°)   | 2438.3 | 36.1      |                         |      |         |
| FH (60°-80°)   | 2447.4 | 36.2      |                         |      | G2/5000 |
| FVH (80°-90°)  | 92.2   | 1.4       |                         |      | G1/100  |
| BL (0°-30°)    | 357.8  | 5.3       | B1/500                  |      |         |
| BM (30°-60°)   | 428.8  | 6.3       | B1/1000                 |      |         |
| BH (60°-80°)   | 351.4  | 5.2       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 18.4   | 0.3       |                         |      | G1/100  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G2**

Type III Medium





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CATALOG NUMBER: GWS-SA2B-740-U-SL3-W

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 60°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 |
| 2.5°  | 1844.9 | 1846.9 | 1852.3 | 1860.2 | 1868.1 | 1872.1 | 1882.0 | 1879.0 | 1877.0 | 1873.1 | 1868.1 |
| 5°    | 1763.3 | 1767.2 | 1772.2 | 1787.5 | 1804.8 | 1818.7 | 1840.9 | 1843.4 | 1844.4 | 1846.4 | 1838.5 |
| 7.5°  | 1659.4 | 1660.3 | 1672.2 | 1692.5 | 1715.3 | 1739.0 | 1776.1 | 1786.5 | 1795.4 | 1805.3 | 1798.9 |
| 10°   | 1544.6 | 1547.1 | 1556.0 | 1585.1 | 1624.2 | 1659.4 | 1709.3 | 1726.6 | 1745.4 | 1767.2 | 1758.3 |
| 12.5° | 1450.6 | 1451.1 | 1465.4 | 1496.6 | 1539.1 | 1586.6 | 1649.0 | 1669.7 | 1694.5 | 1728.6 | 1720.7 |
| 15°   | 1375.9 | 1375.9 | 1389.2 | 1415.9 | 1464.9 | 1520.8 | 1595.0 | 1621.8 | 1655.4 | 1701.4 | 1687.6 |
| 17.5° | 1316.5 | 1317.0 | 1325.4 | 1353.6 | 1397.1 | 1459.0 | 1547.1 | 1583.2 | 1620.3 | 1681.1 | 1660.3 |
| 20°   | 1285.3 | 1282.9 | 1284.3 | 1301.7 | 1338.8 | 1398.6 | 1499.1 | 1541.1 | 1591.1 | 1667.3 | 1635.6 |
| 22.5° | 1283.8 | 1279.4 | 1273.0 | 1274.4 | 1296.2 | 1345.7 | 1447.6 | 1498.6 | 1561.4 | 1655.9 | 1610.4 |
| 25°   | 1309.1 | 1304.1 | 1292.8 | 1279.9 | 1277.9 | 1307.6 | 1399.1 | 1457.0 | 1530.7 | 1650.9 | 1586.1 |
| 27.5° | 1351.6 | 1348.2 | 1333.3 | 1314.0 | 1293.7 | 1292.8 | 1362.5 | 1422.9 | 1508.5 | 1655.9 | 1568.8 |
| 30°   | 1408.0 | 1402.1 | 1392.7 | 1368.0 | 1337.3 | 1305.6 | 1348.2 | 1404.6 | 1493.6 | 1671.7 | 1561.4 |
| 32.5° | 1471.9 | 1468.4 | 1459.5 | 1434.7 | 1402.1 | 1351.6 | 1359.5 | 1408.5 | 1493.6 | 1699.4 | 1562.9 |
| 35°   | 1539.6 | 1539.1 | 1539.1 | 1522.8 | 1486.7 | 1423.9 | 1404.6 | 1442.2 | 1516.4 | 1744.0 | 1578.7 |
| 37.5° | 1605.4 | 1604.9 | 1620.8 | 1626.7 | 1585.6 | 1517.9 | 1481.3 | 1509.5 | 1566.3 | 1809.8 | 1617.8 |
| 40°   | 1658.9 | 1660.8 | 1695.5 | 1725.2 | 1702.4 | 1639.6 | 1588.1 | 1602.5 | 1647.5 | 1903.3 | 1686.1 |
| 42.5° | 1712.8 | 1718.2 | 1770.2 | 1822.6 | 1831.5 | 1777.1 | 1725.2 | 1733.6 | 1763.7 | 2026.9 | 1788.0 |
| 45°   | 1771.7 | 1774.1 | 1846.9 | 1920.1 | 1963.1 | 1931.0 | 1888.4 | 1899.8 | 1906.7 | 2179.8 | 1939.9 |
| 47.5° | 1828.6 | 1835.0 | 1929.0 | 2029.4 | 2111.1 | 2108.1 | 2084.3 | 2080.9 | 2082.4 | 2365.8 | 2119.5 |
| 50°   | 1906.2 | 1915.6 | 2026.0 | 2147.2 | 2266.9 | 2321.8 | 2328.7 | 2302.5 | 2291.6 | 2572.6 | 2343.1 |
| 52.5° | 2053.7 | 2053.7 | 2152.6 | 2271.8 | 2432.6 | 2568.7 | 2615.2 | 2572.2 | 2537.5 | 2791.3 | 2580.6 |
| 55°   | 2238.2 | 2246.1 | 2324.8 | 2421.3 | 2625.1 | 2828.4 | 2985.8 | 2938.3 | 2840.3 | 3029.3 | 2829.4 |
| 57.5° | 2320.3 | 2330.2 | 2454.9 | 2604.8 | 2876.9 | 3123.8 | 3342.0 | 3325.1 | 3182.2 | 3276.7 | 3087.7 |
| 60°   | 2171.9 | 2192.7 | 2364.4 | 2615.7 | 3105.0 | 3600.2 | 3754.1 | 3705.1 | 3500.8 | 3536.4 | 3367.7 |
| 62.5° | 1811.7 | 1834.5 | 2025.0 | 2375.7 | 3073.3 | 4115.2 | 4403.7 | 4223.1 | 3898.5 | 3864.4 | 3740.7 |
| 65°   | 1081.0 | 1080.0 | 1309.1 | 1774.1 | 2683.0 | 4258.2 | 5431.7 | 5094.8 | 4513.0 | 4314.6 | 4124.6 |
| 67.5° | 687.2  | 685.7  | 733.7  | 940.0  | 1785.5 | 3907.9 | 6092.7 | 6180.3 | 5347.6 | 4645.6 | 4156.3 |
| 70°   | 542.2  | 541.7  | 576.4  | 670.4  | 883.1  | 2780.9 | 5908.7 | 6514.7 | 5851.8 | 4519.4 | 3659.6 |
| 72.5° | 395.3  | 396.3  | 449.7  | 561.5  | 681.3  | 1396.2 | 4784.6 | 5574.2 | 5382.3 | 3989.6 | 2970.9 |
| 75°   | 284.0  | 285.5  | 317.6  | 429.9  | 628.3  | 763.4  | 3181.7 | 4191.4 | 4095.0 | 3198.0 | 2043.8 |
| 77.5° | 180.6  | 182.6  | 210.8  | 301.3  | 507.6  | 616.4  | 1929.0 | 2959.0 | 2724.5 | 1801.8 | 726.8  |
| 80°   | 110.3  | 116.8  | 140.5  | 224.6  | 405.7  | 462.6  | 964.2  | 1558.9 | 1364.5 | 494.2  | 244.4  |
| 82.5° | 56.9   | 61.8   | 84.6   | 139.0  | 279.5  | 406.2  | 545.7  | 655.0  | 422.5  | 206.8  | 130.1  |
| 85°   | 17.8   | 20.8   | 29.7   | 56.4   | 133.1  | 251.8  | 361.2  | 325.5  | 193.9  | 97.5   | 60.4   |
| 87.5° | 4.5    | 4.5    | 4.9    | 4.9    | 5.4    | 11.4   | 69.8   | 73.7   | 51.5   | 30.7   | 24.7   |
| 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-SA2B-740-U-SL3-W

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 | 1871.1 |
| 2.5°  | 1858.2 | 1846.4 | 1841.4 | 1840.9 | 1828.6 | 1810.7 | 1798.9 | 1790.5 | 1785.5 | 1784.5 | 1784.5 |
| 5°    | 1825.1 | 1809.8 | 1789.5 | 1774.1 | 1741.0 | 1707.3 | 1679.1 | 1663.3 | 1645.0 | 1642.5 | 1642.0 |
| 7.5°  | 1781.1 | 1758.8 | 1720.2 | 1677.2 | 1619.3 | 1563.4 | 1515.9 | 1483.7 | 1451.6 | 1445.6 | 1443.7 |
| 10°   | 1733.6 | 1703.4 | 1637.6 | 1561.9 | 1475.3 | 1391.7 | 1319.0 | 1262.1 | 1224.5 | 1197.8 | 1192.8 |
| 12.5° | 1686.6 | 1646.5 | 1550.0 | 1437.2 | 1318.5 | 1204.2 | 1094.9 | 1001.8 | 934.6  | 895.5  | 888.6  |
| 15°   | 1642.5 | 1586.6 | 1454.5 | 1310.6 | 1156.2 | 999.9  | 845.0  | 724.3  | 629.8  | 596.2  | 588.2  |
| 17.5° | 1602.5 | 1532.7 | 1362.0 | 1179.5 | 987.0  | 782.7  | 606.6  | 499.2  | 443.8  | 427.0  | 423.0  |
| 20°   | 1562.4 | 1477.3 | 1268.0 | 1041.4 | 807.4  | 578.4  | 443.3  | 392.8  | 372.0  | 365.6  | 363.6  |
| 22.5° | 1519.3 | 1416.4 | 1165.6 | 905.4  | 625.8  | 432.9  | 362.6  | 340.4  | 333.9  | 334.4  | 333.9  |
| 25°   | 1476.3 | 1354.6 | 1058.2 | 757.4  | 466.0  | 351.3  | 316.6  | 308.2  | 309.7  | 314.2  | 315.1  |
| 27.5° | 1440.7 | 1299.7 | 952.9  | 595.2  | 364.1  | 302.3  | 286.0  | 285.5  | 290.9  | 296.8  | 297.8  |
| 30°   | 1415.0 | 1250.7 | 849.0  | 457.6  | 299.8  | 268.6  | 262.2  | 265.2  | 271.6  | 276.1  | 277.5  |
| 32.5° | 1396.6 | 1208.6 | 738.2  | 359.7  | 262.7  | 244.9  | 241.9  | 244.9  | 248.9  | 253.3  | 254.3  |
| 35°   | 1390.2 | 1178.0 | 629.3  | 293.4  | 237.5  | 227.6  | 225.6  | 227.1  | 229.1  | 231.5  | 232.5  |
| 37.5° | 1404.6 | 1162.6 | 515.5  | 255.3  | 222.1  | 216.2  | 213.2  | 212.2  | 212.7  | 213.7  | 214.2  |
| 40°   | 1447.1 | 1169.6 | 422.5  | 233.0  | 212.2  | 206.8  | 201.9  | 199.9  | 199.4  | 200.4  | 199.9  |
| 42.5° | 1520.3 | 1198.8 | 355.2  | 220.2  | 204.3  | 196.4  | 191.0  | 189.0  | 189.0  | 191.5  | 191.5  |
| 45°   | 1627.7 | 1256.1 | 306.7  | 210.8  | 197.4  | 187.5  | 181.6  | 180.6  | 182.6  | 186.5  | 187.0  |
| 47.5° | 1785.0 | 1340.2 | 277.5  | 203.8  | 191.0  | 179.6  | 173.7  | 173.2  | 177.1  | 183.5  | 184.0  |
| 50°   | 1971.5 | 1461.5 | 261.7  | 198.9  | 186.5  | 173.2  | 167.2  | 167.7  | 172.2  | 179.1  | 180.6  |
| 52.5° | 2196.1 | 1626.7 | 262.7  | 196.9  | 184.0  | 169.2  | 163.3  | 162.3  | 166.7  | 173.7  | 175.1  |
| 55°   | 2428.2 | 1827.6 | 282.0  | 197.4  | 180.6  | 167.2  | 159.3  | 155.8  | 159.8  | 164.7  | 165.2  |
| 57.5° | 2683.5 | 2054.2 | 330.0  | 196.4  | 176.1  | 165.2  | 155.8  | 147.9  | 150.4  | 153.4  | 154.9  |
| 60°   | 2971.4 | 2320.8 | 433.4  | 198.4  | 174.1  | 160.8  | 148.9  | 138.5  | 138.0  | 140.0  | 140.5  |
| 62.5° | 3356.3 | 2683.5 | 549.7  | 201.9  | 178.6  | 155.3  | 138.5  | 127.6  | 125.7  | 126.7  | 127.1  |
| 65°   | 3650.7 | 2856.6 | 513.0  | 198.9  | 188.0  | 151.4  | 128.6  | 117.3  | 113.3  | 112.3  | 112.3  |
| 67.5° | 3531.0 | 2627.6 | 357.2  | 191.0  | 192.5  | 151.9  | 120.7  | 106.4  | 101.4  | 98.9   | 98.5   |
| 70°   | 3004.6 | 2134.3 | 248.4  | 183.1  | 187.5  | 150.9  | 112.3  | 97.5   | 91.0   | 87.6   | 87.1   |
| 72.5° | 2373.8 | 1629.7 | 200.9  | 167.2  | 170.2  | 136.1  | 99.9   | 87.6   | 82.1   | 77.7   | 77.7   |
| 75°   | 1527.8 | 994.4  | 167.7  | 148.9  | 139.0  | 105.9  | 86.6   | 78.2   | 72.7   | 68.3   | 68.3   |
| 77.5° | 514.0  | 369.1  | 130.1  | 126.2  | 103.9  | 79.7   | 72.7   | 67.3   | 62.8   | 58.9   | 58.4   |
| 80°   | 208.8  | 175.1  | 95.5   | 95.5   | 72.7   | 60.9   | 56.9   | 54.4   | 51.5   | 46.5   | 46.5   |
| 82.5° | 121.2  | 106.4  | 66.8   | 57.9   | 48.5   | 42.1   | 39.6   | 37.1   | 37.1   | 33.6   | 33.6   |
| 85°   | 58.4   | 58.9   | 40.1   | 35.6   | 27.7   | 24.2   | 23.3   | 21.8   | 21.3   | 19.3   | 18.8   |
| 87.5° | 31.7   | 32.2   | 20.3   | 15.8   | 10.9   | 9.4    | 7.9    | 7.4    | 6.9    | 6.4    | 6.4    |
| 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

MCGRAW, INVUE, LUMARK AND STREETWORKS

DATA VALID FOR LUMINAIRES UTILIZING SA LIGHT ENGINES

Report Number: SP1-2101-121-2

Luminaire Tested: IFLD-S-SA2A-740-U-T3R-HSS

Test Date: 03/05/2021

**Test Information**

Test Method: LM-79-08  
 Report Number: SP1-2101-121-2  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry: 4π  
 Issue Date: 03/05/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2A-740-U-T3R-HSS**  
 Description: STREETWORKS INF FLOOD

SHIELD, DRIVER PROGRAMMED @ 615mA.

**Spectral Parameters**

|                           |         |           |      |      |       |
|---------------------------|---------|-----------|------|------|-------|
| CCT (K):                  | 3905    | CRI (Ra): | 71.2 | R9:  | -29.7 |
| CIE u':                   | 0.2273  | R1:       | 68.9 | R10: | 46.2  |
| CIE v':                   | 0.5024  | R2:       | 77.0 | R11: | 68.8  |
| Duv:                      | -0.0008 | R3:       | 84.0 | R12: | 45.6  |
| CIE x:                    | 0.3841  | R4:       | 71.6 | R13: | 69.5  |
| CIE y:                    | 0.3774  | R5:       | 68.9 | R14: | 90.7  |
| CIE z:                    | 0.2385  | R6:       | 68.3 |      |       |
| Peak Wavelength (nm):     | 443     | R7:       | 78.7 |      |       |
| Dominant Wavelength (nm): | 579     | R8:       | 52.2 |      |       |
| Purity:                   | 28.7    |           |      |      |       |
| Rf:                       | 71.7    |           |      |      |       |
| Rg:                       | 96.9    |           |      |      |       |



**Test Conditions**

|                              |           |
|------------------------------|-----------|
| Stabilization Time:          | 211M      |
| Operation Time:              | 12H       |
| Room Temperature (°C) / RH%: | 24.8/312% |
| 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 4000K 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    | 2304          | 0.0           | 490    | 19043         | 2.7           | 620    | 97577         | 25.4          | 750    | 4830          | 0.0           | 880    | 3505          | 0.0           |
| 365    | 2150          | 0.0           | 495    | 26606         | 4.8           | 625    | 90158         | 19.9          | 755    | 4664          | 0.0           | 885    | 2991          | 0.0           |
| 370    | 2146          | 0.0           | 500    | 36376         | 8.0           | 630    | 82240         | 14.9          | 760    | 4006          | 0.0           | 890    | 2327          | 0.0           |
| 375    | 2332          | 0.0           | 505    | 47714         | 13.3          | 635    | 74361         | 11.2          | 765    | 3715          | 0.0           | 895    | 2775          | 0.0           |
| 380    | 2527          | 0.0           | 510    | 58741         | 20.2          | 640    | 66994         | 8.0           | 770    | 3696          | 0.0           | 900    | 2141          | 0.0           |
| 385    | 2304          | 0.0           | 515    | 68716         | 28.5          | 645    | 60405         | 5.8           | 775    | 3117          | 0.0           | 905    | 2421          | 0.0           |
| 390    | 2064          | 0.0           | 520    | 77136         | 37.4          | 650    | 53806         | 3.9           | 780    | 3062          | 0.0           | 910    | 2200          | 0.0           |
| 395    | 1856          | 0.0           | 525    | 83567         | 44.9          | 655    | 47610         | 2.7           | 785    | 2907          | 0.0           | 915    | 2716          | 0.0           |
| 400    | 1856          | 0.0           | 530    | 89283         | 52.6          | 660    | 42018         | 1.8           | 790    | 2655          | 0.0           | 920    | 2656          | 0.0           |
| 405    | 2374          | 0.0           | 535    | 94097         | 58.4          | 665    | 36742         | 1.2           | 795    | 2467          | 0.0           | 925    | 2671          | 0.0           |
| 410    | 4084          | 0.0           | 540    | 96845         | 63.1          | 670    | 32105         | 0.7           | 800    | 2609          | 0.0           | 930    | 3292          | 0.0           |
| 415    | 8543          | 0.0           | 545    | 100829        | 67.1          | 675    | 27946         | 0.5           | 805    | 2293          | 0.0           | 935    | 3188          | 0.0           |
| 420    | 18394         | 0.1           | 550    | 105648        | 71.8          | 680    | 24146         | 0.3           | 810    | 2188          | 0.0           | 940    | 1997          | 0.0           |
| 425    | 37987         | 0.2           | 555    | 110017        | 75.1          | 685    | 21191         | 0.2           | 815    | 2386          | 0.0           | 945    | 2623          | 0.0           |
| 430    | 67605         | 0.5           | 560    | 114586        | 77.9          | 690    | 18544         | 0.1           | 820    | 2712          | 0.0           | 950    | 2969          | 0.0           |
| 435    | 102160        | 1.2           | 565    | 118987        | 79.1          | 695    | 16058         | 0.1           | 825    | 2473          | 0.0           | 955    | 2277          | 0.0           |
| 440    | 135103        | 2.1           | 570    | 122326        | 79.5          | 700    | 14133         | 0.0           | 830    | 1969          | 0.0           | 960    | 4267          | 0.0           |
| 445    | 140126        | 2.9           | 575    | 125968        | 78.4          | 705    | 12309         | 0.0           | 835    | 1917          | 0.0           | 965    | 2034          | 0.0           |
| 450    | 102339        | 2.7           | 580    | 127613        | 75.8          | 710    | 11142         | 0.0           | 840    | 2248          | 0.0           | 970    | 3586          | 0.0           |
| 455    | 58751         | 2.0           | 585    | 129466        | 71.9          | 715    | 10143         | 0.0           | 845    | 2266          | 0.0           | 975    | 2505          | 0.0           |
| 460    | 36892         | 1.5           | 590    | 128813        | 66.6          | 720    | 9072          | 0.0           | 850    | 2558          | 0.0           | 980    | 2666          | 0.0           |
| 465    | 24637         | 1.3           | 595    | 126387        | 59.9          | 725    | 8130          | 0.0           | 855    | 2767          | 0.0           | 985    | 2934          | 0.0           |
| 470    | 16738         | 1.0           | 600    | 123477        | 53.2          | 730    | 7149          | 0.0           | 860    | 2826          | 0.0           | 990    | 4120          | 0.0           |
| 475    | 13456         | 1.1           | 605    | 118718        | 46.0          | 735    | 6311          | 0.0           | 865    | 2385          | 0.0           | 995    | 3858          | 0.0           |
| 480    | 13081         | 1.2           | 610    | 112091        | 38.5          | 740    | 5711          | 0.0           | 870    | 3194          | 0.0           | 1000   | 3405          | 0.0           |
| 485    | 14734         | 1.7           | 615    | 105039        | 31.7          | 745    | 5111          | 0.0           | 875    | 3189          | 0.0           |        |               |               |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 10425.8 S/P: 1.47**

| 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    | 2304          | 0.0           | 490    | 19043         | 29.3          | 620    | 97577         | 1.2           | 750    | 4830          | 0.0           | 880    | 3505          | 0.0           |
| 365    | 2150          | 0.0           | 495    | 26606         | 43.0          | 625    | 90158         | 0.8           | 755    | 4664          | 0.0           | 885    | 2991          | 0.0           |
| 370    | 2146          | 0.0           | 500    | 36376         | 60.8          | 630    | 82240         | 0.5           | 760    | 4006          | 0.0           | 890    | 2327          | 0.0           |
| 375    | 2332          | 0.0           | 505    | 47714         | 81.1          | 635    | 74361         | 0.3           | 765    | 3715          | 0.0           | 895    | 2775          | 0.0           |
| 380    | 2527          | 0.0           | 510    | 58741         | 99.6          | 640    | 66994         | 0.2           | 770    | 3696          | 0.0           | 900    | 2141          | 0.0           |
| 385    | 2304          | 0.0           | 515    | 68716         | 113.9         | 645    | 60405         | 0.1           | 775    | 3117          | 0.0           | 905    | 2421          | 0.0           |
| 390    | 2064          | 0.0           | 520    | 77136         | 122.6         | 650    | 53806         | 0.1           | 780    | 3062          | 0.0           | 910    | 2200          | 0.0           |
| 395    | 1856          | 0.0           | 525    | 83567         | 125.0         | 655    | 47610         | 0.0           | 785    | 2907          | 0.0           | 915    | 2716          | 0.0           |
| 400    | 1856          | 0.0           | 530    | 89283         | 123.1         | 660    | 42018         | 0.0           | 790    | 2655          | 0.0           | 920    | 2656          | 0.0           |
| 405    | 2374          | 0.1           | 535    | 94097         | 117.3         | 665    | 36742         | 0.0           | 795    | 2467          | 0.0           | 925    | 2671          | 0.0           |
| 410    | 4084          | 0.2           | 540    | 96845         | 107.0         | 670    | 32105         | 0.0           | 800    | 2609          | 0.0           | 930    | 3292          | 0.0           |
| 415    | 8543          | 0.9           | 545    | 100829        | 96.7          | 675    | 27946         | 0.0           | 805    | 2293          | 0.0           | 935    | 3188          | 0.0           |
| 420    | 18394         | 3.0           | 550    | 105648        | 86.4          | 680    | 24146         | 0.0           | 810    | 2188          | 0.0           | 940    | 1997          | 0.0           |
| 425    | 37987         | 9.3           | 555    | 110017        | 75.2          | 685    | 21191         | 0.0           | 815    | 2386          | 0.0           | 945    | 2623          | 0.0           |
| 430    | 67605         | 23.0          | 560    | 114586        | 64.0          | 690    | 18544         | 0.0           | 820    | 2712          | 0.0           | 950    | 2969          | 0.0           |
| 435    | 102160        | 45.7          | 565    | 118987        | 53.4          | 695    | 16058         | 0.0           | 825    | 2473          | 0.0           | 955    | 2277          | 0.0           |
| 440    | 135103        | 75.5          | 570    | 122326        | 43.2          | 700    | 14133         | 0.0           | 830    | 1969          | 0.0           | 960    | 4267          | 0.0           |
| 445    | 140126        | 93.8          | 575    | 125968        | 34.3          | 705    | 12309         | 0.0           | 835    | 1917          | 0.0           | 965    | 2034          | 0.0           |
| 450    | 102339        | 79.3          | 580    | 127613        | 26.3          | 710    | 11142         | 0.0           | 840    | 2248          | 0.0           | 970    | 3586          | 0.0           |
| 455    | 58751         | 51.3          | 585    | 129466        | 19.8          | 715    | 10143         | 0.0           | 845    | 2266          | 0.0           | 975    | 2505          | 0.0           |
| 460    | 36892         | 35.6          | 590    | 128813        | 14.3          | 720    | 9072          | 0.0           | 850    | 2558          | 0.0           | 980    | 2666          | 0.0           |
| 465    | 24637         | 26.0          | 595    | 126387        | 10.1          | 725    | 8130          | 0.0           | 855    | 2767          | 0.0           | 985    | 2934          | 0.0           |
| 470    | 16738         | 19.3          | 600    | 123477        | 7.0           | 730    | 7149          | 0.0           | 860    | 2826          | 0.0           | 990    | 4120          | 0.0           |
| 475    | 13456         | 16.8          | 605    | 118718        | 4.7           | 735    | 6311          | 0.0           | 865    | 2385          | 0.0           | 995    | 3858          | 0.0           |
| 480    | 13081         | 17.7          | 610    | 112091        | 3.0           | 740    | 5711          | 0.0           | 870    | 3194          | 0.0           | 1000   | 3405          | 0.0           |
| 485    | 14734         | 21.4          | 615    | 105039        | 1.9           | 745    | 5111          | 0.0           | 875    | 3189          | 0.0           |        |               |               |

REPORT NUMBER: SP1-2101-121-2

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 3927.2 M/P: 0.55**

| 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    | 2304          | 0.0           | 490    | 19043         | 15.8          | 620    | 97577         | 0.1           | 750    | 4830          | 0.0           | 880    | 3505          | 0.0           |
| 365    | 2150          | 0.0           | 495    | 26606         | 22.0          | 625    | 90158         | 0.0           | 755    | 4664          | 0.0           | 885    | 2991          | 0.0           |
| 370    | 2146          | 0.0           | 500    | 36376         | 29.2          | 630    | 82240         | 0.0           | 760    | 4006          | 0.0           | 890    | 2327          | 0.0           |
| 375    | 2332          | 0.0           | 505    | 47714         | 36.6          | 635    | 74361         | 0.0           | 765    | 3715          | 0.0           | 895    | 2775          | 0.0           |
| 380    | 2527          | 0.0           | 510    | 58741         | 42.2          | 640    | 66994         | 0.0           | 770    | 3696          | 0.0           | 900    | 2141          | 0.0           |
| 385    | 2304          | 0.0           | 515    | 68716         | 44.9          | 645    | 60405         | 0.0           | 775    | 3117          | 0.0           | 905    | 2421          | 0.0           |
| 390    | 2064          | 0.0           | 520    | 77136         | 44.9          | 650    | 53806         | 0.0           | 780    | 3062          | 0.0           | 910    | 2200          | 0.0           |
| 395    | 1856          | 0.0           | 525    | 83567         | 42.4          | 655    | 47610         | 0.0           | 785    | 2907          | 0.0           | 915    | 2716          | 0.0           |
| 400    | 1856          | 0.0           | 530    | 89283         | 38.6          | 660    | 42018         | 0.0           | 790    | 2655          | 0.0           | 920    | 2656          | 0.0           |
| 405    | 2374          | 0.0           | 535    | 94097         | 33.9          | 665    | 36742         | 0.0           | 795    | 2467          | 0.0           | 925    | 2671          | 0.0           |
| 410    | 4084          | 0.2           | 540    | 96845         | 28.3          | 670    | 32105         | 0.0           | 800    | 2609          | 0.0           | 930    | 3292          | 0.0           |
| 415    | 8543          | 0.6           | 545    | 100829        | 23.4          | 675    | 27946         | 0.0           | 805    | 2293          | 0.0           | 935    | 3188          | 0.0           |
| 420    | 18394         | 2.1           | 550    | 105648        | 19.0          | 680    | 24146         | 0.0           | 810    | 2188          | 0.0           | 940    | 1997          | 0.0           |
| 425    | 37987         | 5.9           | 555    | 110017        | 14.8          | 685    | 21191         | 0.0           | 815    | 2386          | 0.0           | 945    | 2623          | 0.0           |
| 430    | 67605         | 14.3          | 560    | 114586        | 11.3          | 690    | 18544         | 0.0           | 820    | 2712          | 0.0           | 950    | 2969          | 0.0           |
| 435    | 102160        | 27.3          | 565    | 118987        | 8.4           | 695    | 16058         | 0.0           | 825    | 2473          | 0.0           | 955    | 2277          | 0.0           |
| 440    | 135103        | 45.1          | 570    | 122326        | 6.0           | 700    | 14133         | 0.0           | 830    | 1969          | 0.0           | 960    | 4267          | 0.0           |
| 445    | 140126        | 55.3          | 575    | 125968        | 4.2           | 705    | 12309         | 0.0           | 835    | 1917          | 0.0           | 965    | 2034          | 0.0           |
| 450    | 102339        | 47.2          | 580    | 127613        | 2.9           | 710    | 11142         | 0.0           | 840    | 2248          | 0.0           | 970    | 3586          | 0.0           |
| 455    | 58751         | 30.8          | 585    | 129466        | 1.9           | 715    | 10143         | 0.0           | 845    | 2266          | 0.0           | 975    | 2505          | 0.0           |
| 460    | 36892         | 21.7          | 590    | 128813        | 1.3           | 720    | 9072          | 0.0           | 850    | 2558          | 0.0           | 980    | 2666          | 0.0           |
| 465    | 24637         | 16.1          | 595    | 126387        | 0.8           | 725    | 8130          | 0.0           | 855    | 2767          | 0.0           | 985    | 2934          | 0.0           |
| 470    | 16738         | 12.0          | 600    | 123477        | 0.5           | 730    | 7149          | 0.0           | 860    | 2826          | 0.0           | 990    | 4120          | 0.0           |
| 475    | 13456         | 10.3          | 605    | 118718        | 0.3           | 735    | 6311          | 0.0           | 865    | 2385          | 0.0           | 995    | 3858          | 0.0           |
| 480    | 13081         | 10.5          | 610    | 112091        | 0.2           | 740    | 5711          | 0.0           | 870    | 3194          | 0.0           | 1000   | 3405          | 0.0           |
| 485    | 14734         | 12.1          | 615    | 105039        | 0.1           | 745    | 5111          | 0.0           | 875    | 3189          | 0.0           |        |               |               |

**Summary**

$R_f = 71.7$   
 $R_g = 96.9$   
 CIE  $R_a = 71.2$   
 $R_g = -29.7$



**Color Vector Graphics**





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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 55 | CES51 = 86 | CES76 = 45 |
| CES02 = 61 | CES27 = 80 | CES52 = 87 | CES77 = 68 |
| CES03 = 30 | CES28 = 79 | CES53 = 74 | CES78 = 49 |
| CES04 = 70 | CES29 = 51 | CES54 = 81 | CES79 = 77 |
| CES05 = 47 | CES30 = 60 | CES55 = 80 | CES80 = 75 |
| CES06 = 50 | CES31 = 56 | CES56 = 69 | CES81 = 75 |
| CES07 = 40 | CES32 = 52 | CES57 = 67 | CES82 = 90 |
| CES08 = 39 | CES33 = 62 | CES58 = 69 | CES83 = 85 |
| CES09 = 29 | CES34 = 65 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 81 | CES60 = 91 | CES85 = 83 |
| CES11 = 57 | CES36 = 92 | CES61 = 85 | CES86 = 72 |
| CES12 = 63 | CES37 = 74 | CES62 = 81 | CES87 = 77 |
| CES13 = 42 | CES38 = 69 | CES63 = 72 | CES88 = 77 |
| CES14 = 74 | CES39 = 92 | CES64 = 69 | CES89 = 72 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 75 |
| CES16 = 46 | CES41 = 84 | CES66 = 63 | CES91 = 91 |
| CES17 = 49 | CES42 = 75 | CES67 = 60 | CES92 = 66 |
| CES18 = 56 | CES43 = 70 | CES68 = 67 | CES93 = 80 |
| CES19 = 72 | CES44 = 98 | CES69 = 77 | CES94 = 56 |
| CES20 = 65 | CES45 = 80 | CES70 = 57 | CES95 = 72 |
| CES21 = 86 | CES46 = 77 | CES71 = 53 | CES96 = 78 |
| CES22 = 78 | CES47 = 74 | CES72 = 84 | CES97 = 83 |
| CES23 = 92 | CES48 = 66 | CES73 = 47 | CES98 = 73 |
| CES24 = 91 | CES49 = 76 | CES74 = 96 | CES99 = 63 |
| CES25 = 72 | CES50 = 85 | CES75 = 52 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)