

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

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: STREETWORKS

Report Number: P1379170

Luminaire Tested: **VAL-T-SB1D-730-U-SL4**

Issue Date: 02/18/2026

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been  
influenced by sources from within Cooper Lighting Solutions or from external interests.

**Test Information**

Test Method: LM-79-08  
Report Number: P1379170  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 02/18/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: VAL-T-SB1D-730-U-SL4  
Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 15 SQUARE 76W 70CRI  
3000K FIXTURE w/ TYPE IV SPILL CONTROL DISTRIBUTION OPTIC  
Light Source: (26) 3000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER  
Luminaire Equipment: 

| <u>Sample No.</u> | <u>Condition</u> | <u>Description</u> |
|-------------------|------------------|--------------------|
| a                 | good             | reflector          |
| b                 | good             | lens               |
| c                 | good             | housing            |
| d                 | good             | cord               |

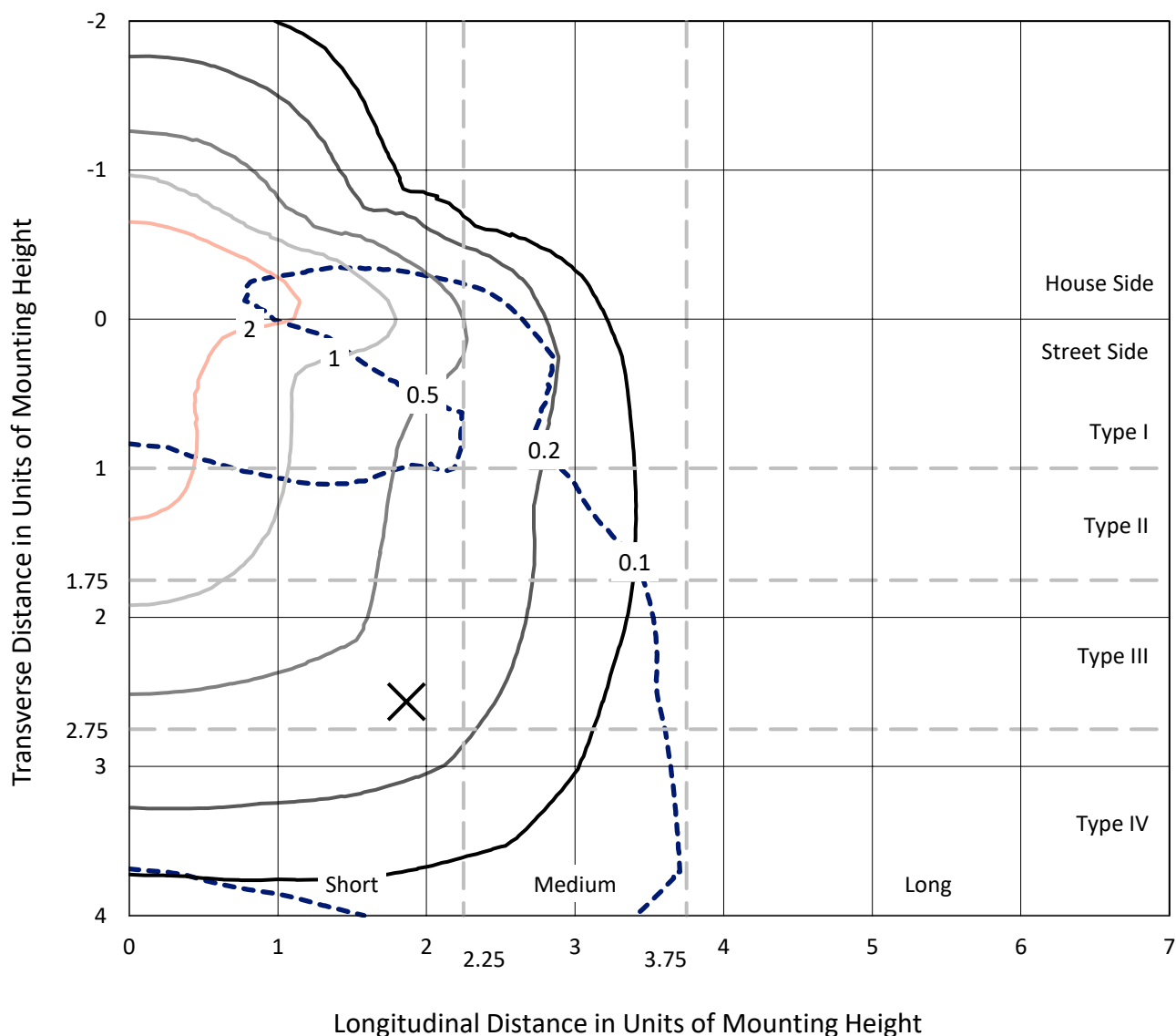
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8915.5 lumens  
Efficiency: N/A  
Efficacy: 117.3 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B2 - U0 - G2  
  
Input Watts (W): 76  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.98  
Total Harmonic Distortion (THDi): 6.7%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

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 CATALOG NUMBER: VAL-T-SB1D-730-U-SL4

## Iso-Footcandle Lines of Horizontal Illumination

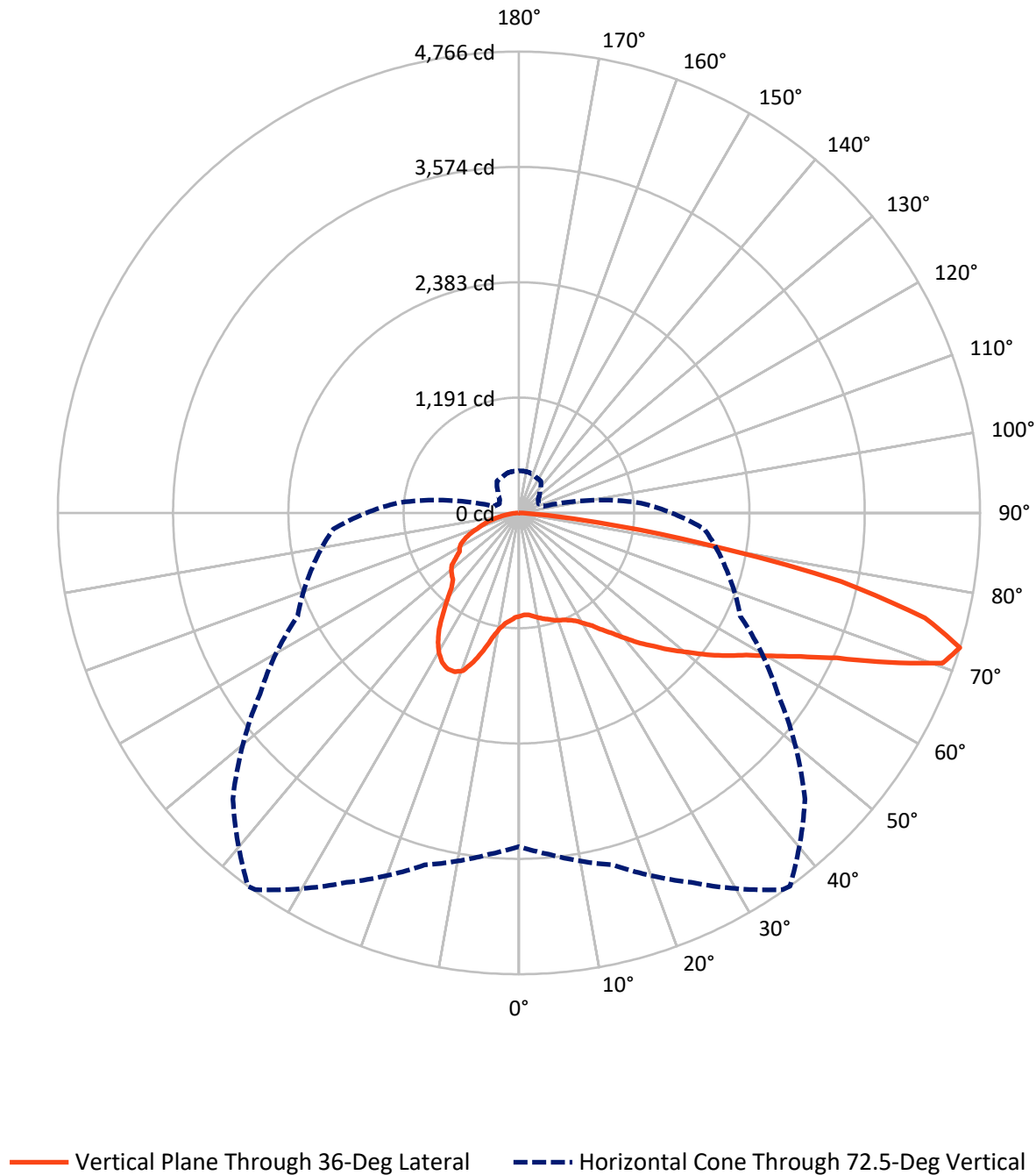
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 3.6 fc  
 Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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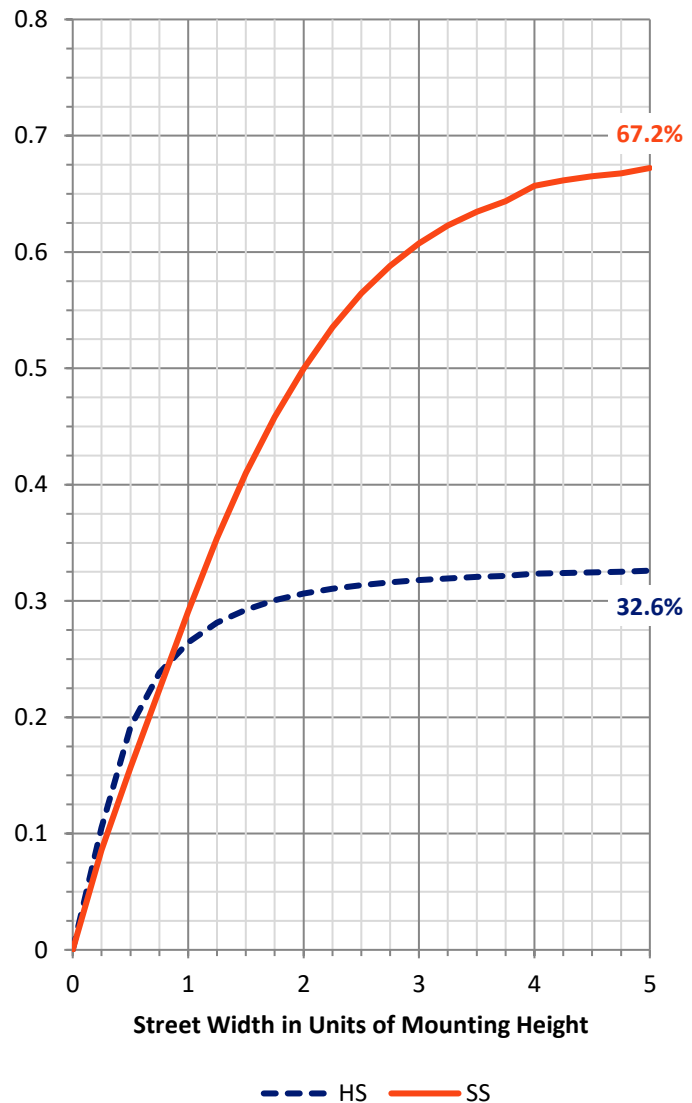
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 2934.0   | 0.0    | 2934.0 |
|                    | % Fixture | 32.9     | 0.0    | 32.9   |
| <b>Street Side</b> | Lumens    | 5981.5   | 0.0    | 5981.5 |
|                    | % Fixture | 67.1     | 0.0    | 67.1   |
| <b>Total</b>       | Lumens    | 8915.5   | 0.0    | 8915.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 105.7  | 1.2       |
| 10°-20°   | 364.4  | 4.1       |
| 20°-30°   | 691.8  | 7.8       |
| 30°-40°   | 1010.2 | 11.3      |
| 40°-50°   | 1343.6 | 15.1      |
| 50°-60°   | 1722.8 | 19.3      |
| 60°-70°   | 2026.5 | 22.7      |
| 70°-80°   | 1518.0 | 17.0      |
| 80°-90°   | 132.5  | 1.5       |
| 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°    | 8915.5 | 100.0     |
| 0°-180°   | 8915.5 | 100.0     |

**Coefficient of Utilization**



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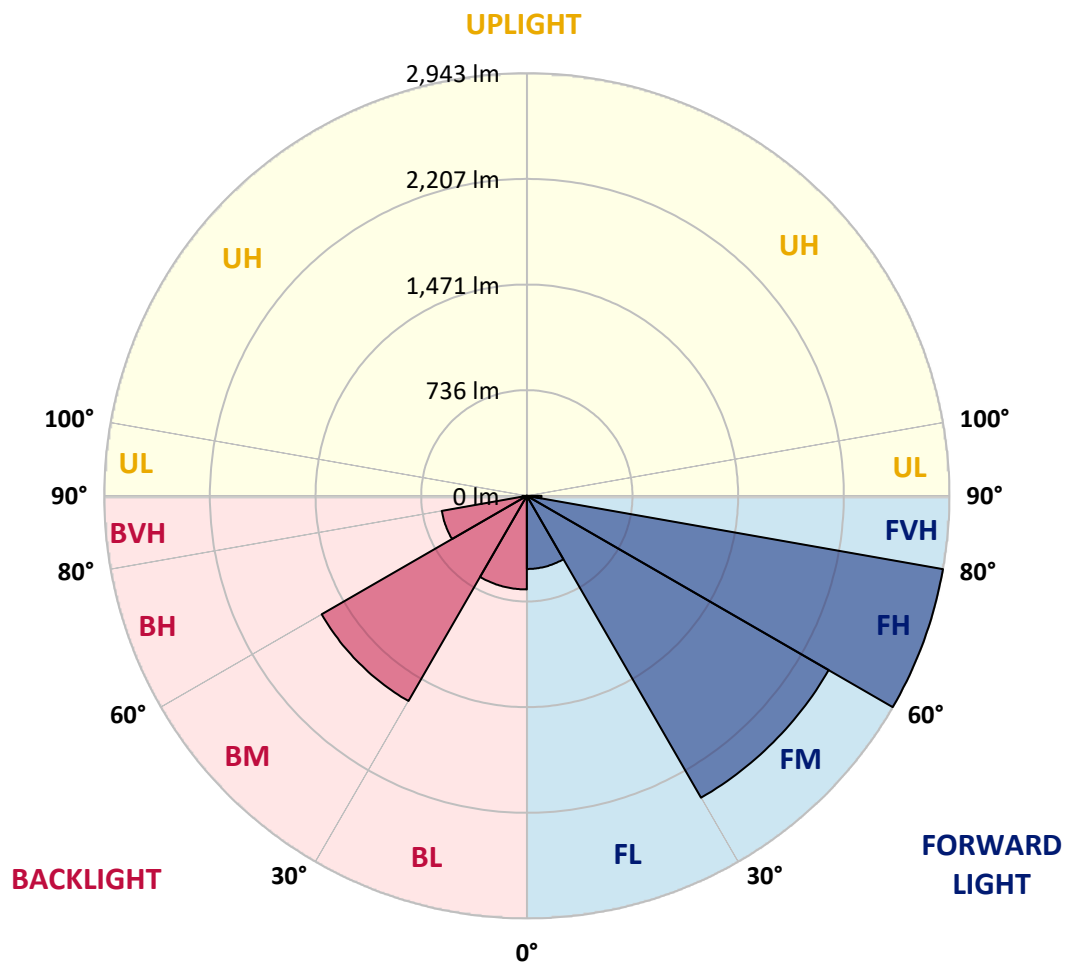
CATALOG NUMBER: VAL-T-SB1D-730-U-SL4

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 509.7  | 5.7       |                         |      |         |
| FM   | (30°-60°)   | 2427.1 | 27.2      |                         |      |         |
| FH   | (60°-80°)   | 2942.6 | 33.0      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 102.1  | 1.1       |                         |      | G2/225  |
| BL   | (0°-30°)    | 652.2  | 7.3       | B2/1000                 |      |         |
| BM   | (30°-60°)   | 1649.5 | 18.5      | B2/2500                 |      |         |
| BH   | (60°-80°)   | 601.9  | 6.8       | B2/1000                 |      | G2/1000 |
| BVH  | (80°-90°)   | 30.4   | 0.3       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B2-U0-G2**

Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 36°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 |
| 2.5°  | 1059.5 | 1053.5 | 1057.5 | 1053.5 | 1053.5 | 1053.5 | 1057.5 | 1057.5 | 1063.6 | 1063.6 | 1063.6 |
| 5°    | 1067.6 | 1065.6 | 1067.6 | 1065.6 | 1059.5 | 1059.5 | 1063.6 | 1059.5 | 1069.7 | 1065.6 | 1071.7 |
| 7.5°  | 1089.9 | 1085.8 | 1085.8 | 1079.8 | 1081.8 | 1077.7 | 1081.8 | 1075.7 | 1081.8 | 1077.7 | 1077.7 |
| 10°   | 1116.2 | 1110.1 | 1112.1 | 1104.0 | 1098.0 | 1100.0 | 1104.0 | 1098.0 | 1100.0 | 1102.0 | 1102.0 |
| 12.5° | 1138.4 | 1134.4 | 1134.4 | 1118.2 | 1122.2 | 1122.2 | 1126.3 | 1120.2 | 1124.3 | 1122.2 | 1130.3 |
| 15°   | 1166.7 | 1160.7 | 1156.6 | 1144.5 | 1142.5 | 1140.4 | 1146.5 | 1140.4 | 1150.5 | 1148.5 | 1158.6 |
| 17.5° | 1193.0 | 1186.9 | 1182.9 | 1162.7 | 1158.6 | 1164.7 | 1166.7 | 1162.7 | 1172.8 | 1176.8 | 1197.0 |
| 20°   | 1217.3 | 1219.3 | 1205.1 | 1180.9 | 1180.9 | 1182.9 | 1182.9 | 1182.9 | 1199.1 | 1205.1 | 1227.4 |
| 22.5° | 1259.7 | 1255.7 | 1241.5 | 1213.2 | 1201.1 | 1201.1 | 1219.3 | 1207.2 | 1217.3 | 1231.4 | 1269.8 |
| 25°   | 1314.3 | 1306.2 | 1282.0 | 1245.6 | 1225.4 | 1227.4 | 1233.4 | 1225.4 | 1237.5 | 1253.7 | 1312.3 |
| 27.5° | 1411.4 | 1401.3 | 1358.8 | 1286.0 | 1261.8 | 1263.8 | 1265.8 | 1243.6 | 1241.5 | 1267.8 | 1348.7 |
| 30°   | 1552.9 | 1540.8 | 1476.1 | 1385.1 | 1320.4 | 1324.4 | 1302.2 | 1261.8 | 1247.6 | 1275.9 | 1391.2 |
| 32.5° | 1706.6 | 1690.4 | 1625.7 | 1496.3 | 1409.4 | 1389.1 | 1346.7 | 1275.9 | 1253.7 | 1284.0 | 1429.6 |
| 35°   | 1890.6 | 1876.5 | 1797.6 | 1615.6 | 1496.3 | 1484.2 | 1399.3 | 1306.2 | 1269.8 | 1290.1 | 1466.0 |
| 37.5° | 2151.4 | 2115.1 | 2020.0 | 1769.3 | 1601.5 | 1583.3 | 1468.0 | 1348.7 | 1271.9 | 1286.0 | 1516.5 |
| 40°   | 2375.9 | 2339.5 | 2236.4 | 1963.4 | 1734.9 | 1706.6 | 1569.1 | 1399.3 | 1292.1 | 1294.1 | 1581.2 |
| 42.5° | 2610.5 | 2576.1 | 2464.9 | 2127.2 | 1854.2 | 1840.1 | 1658.1 | 1459.9 | 1318.4 | 1316.3 | 1654.0 |
| 45°   | 2857.1 | 2859.2 | 2687.3 | 2323.3 | 1995.8 | 1967.4 | 1767.3 | 1540.8 | 1366.9 | 1342.6 | 1773.3 |
| 47.5° | 3204.9 | 3166.5 | 2956.2 | 2511.4 | 2153.5 | 2117.1 | 1882.5 | 1625.7 | 1439.7 | 1403.3 | 1906.8 |
| 50°   | 3486.0 | 3457.7 | 3202.9 | 2727.7 | 2301.1 | 2262.7 | 2018.0 | 1718.7 | 1504.4 | 1488.2 | 2084.7 |
| 52.5° | 3720.6 | 3672.0 | 3437.5 | 2932.0 | 2466.9 | 2432.5 | 2129.2 | 1809.7 | 1595.4 | 1587.3 | 2293.0 |
| 55°   | 3850.0 | 3799.4 | 3599.2 | 3122.0 | 2654.9 | 2602.4 | 2254.6 | 1918.9 | 1704.6 | 1708.6 | 2525.5 |
| 57.5° | 3951.1 | 3898.5 | 3702.4 | 3265.6 | 2841.0 | 2770.2 | 2392.1 | 2038.2 | 1834.0 | 1872.4 | 2843.0 |
| 60°   | 3987.5 | 3934.9 | 3789.3 | 3455.7 | 3041.1 | 2996.7 | 2547.8 | 2185.8 | 1983.6 | 2064.5 | 3152.4 |
| 62.5° | 4040.0 | 4052.2 | 3949.0 | 3688.2 | 3302.0 | 3263.6 | 2748.0 | 2367.8 | 2167.6 | 2232.3 | 3261.5 |
| 65°   | 4082.5 | 4076.4 | 4088.6 | 4009.7 | 3666.0 | 3611.4 | 3045.2 | 2604.4 | 2291.0 | 2288.9 | 3207.0 |
| 67.5° | 3983.4 | 3989.5 | 4054.2 | 4248.3 | 4171.5 | 4118.9 | 3429.4 | 2822.8 | 2349.6 | 2396.1 | 3033.1 |
| 70°   | 3908.6 | 3926.8 | 4013.7 | 4256.4 | 4640.6 | 4646.6 | 3965.2 | 3008.8 | 2517.4 | 2396.1 | 2547.8 |
| 72.5° | 3447.6 | 3540.6 | 3765.0 | 4211.9 | 4751.8 | 4765.9 | 4181.6 | 3269.6 | 2523.5 | 2214.1 | 1925.0 |
| 75°   | 2282.9 | 2355.7 | 2954.2 | 3779.2 | 4357.5 | 4335.3 | 3872.2 | 3144.3 | 2361.7 | 1805.7 | 1225.4 |
| 77.5° | 673.3  | 810.8  | 1383.1 | 2343.5 | 3261.5 | 3403.1 | 3176.6 | 2151.4 | 1751.1 | 847.2  | 436.8  |
| 80°   | 192.1  | 214.3  | 386.2  | 823.0  | 1761.2 | 1912.8 | 1973.5 | 1029.2 | 519.7  | 224.4  | 145.6  |
| 82.5° | 93.0   | 97.1   | 139.5  | 230.5  | 754.2  | 825.0  | 691.5  | 311.4  | 139.5  | 80.9   | 56.6   |
| 85°   | 16.2   | 20.2   | 34.4   | 68.7   | 135.5  | 163.8  | 153.7  | 62.7   | 42.5   | 36.4   | 26.3   |
| 87.5° | 4.0    | 4.0    | 6.1    | 6.1    | 8.1    | 8.1    | 8.1    | 10.1   | 10.1   | 10.1   | 10.1   |
| 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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**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 | 1067.6 |
| 2.5°  | 1073.7 | 1073.7 | 1081.8 | 1085.8 | 1085.8 | 1079.8 | 1079.8 | 1098.0 | 1089.9 | 1093.9 | 1091.9 |
| 5°    | 1075.7 | 1083.8 | 1083.8 | 1095.9 | 1102.0 | 1112.1 | 1116.2 | 1124.3 | 1132.3 | 1132.3 | 1130.3 |
| 7.5°  | 1087.9 | 1093.9 | 1104.0 | 1112.1 | 1128.3 | 1144.5 | 1150.5 | 1174.8 | 1178.8 | 1189.0 | 1184.9 |
| 10°   | 1106.1 | 1116.2 | 1132.3 | 1154.6 | 1174.8 | 1201.1 | 1213.2 | 1239.5 | 1253.7 | 1269.8 | 1259.7 |
| 12.5° | 1134.4 | 1146.5 | 1172.8 | 1203.1 | 1247.6 | 1288.0 | 1320.4 | 1346.7 | 1366.9 | 1385.1 | 1379.0 |
| 15°   | 1164.7 | 1189.0 | 1223.3 | 1277.9 | 1356.8 | 1429.6 | 1472.0 | 1516.5 | 1526.6 | 1542.8 | 1540.8 |
| 17.5° | 1217.3 | 1233.4 | 1302.2 | 1411.4 | 1514.5 | 1577.2 | 1613.6 | 1635.8 | 1629.8 | 1635.8 | 1631.8 |
| 20°   | 1259.7 | 1300.2 | 1423.5 | 1583.3 | 1684.4 | 1724.8 | 1728.8 | 1708.6 | 1666.2 | 1658.1 | 1641.9 |
| 22.5° | 1322.4 | 1383.1 | 1581.2 | 1747.0 | 1827.9 | 1823.9 | 1765.2 | 1704.6 | 1650.0 | 1627.7 | 1619.7 |
| 25°   | 1383.1 | 1492.3 | 1747.0 | 1902.7 | 1925.0 | 1854.2 | 1765.2 | 1686.4 | 1613.6 | 1591.3 | 1573.1 |
| 27.5° | 1459.9 | 1617.6 | 1935.1 | 2034.2 | 1967.4 | 1858.3 | 1726.8 | 1637.9 | 1569.1 | 1532.7 | 1524.6 |
| 30°   | 1538.8 | 1763.2 | 2092.8 | 2096.9 | 1979.6 | 1815.8 | 1656.1 | 1577.2 | 1498.3 | 1461.9 | 1464.0 |
| 32.5° | 1645.9 | 1923.0 | 2226.3 | 2143.4 | 1945.2 | 1730.9 | 1561.0 | 1476.1 | 1407.3 | 1389.1 | 1385.1 |
| 35°   | 1751.1 | 2102.9 | 2333.4 | 2147.4 | 1864.3 | 1611.6 | 1435.6 | 1340.6 | 1298.1 | 1280.0 | 1288.0 |
| 37.5° | 1900.7 | 2286.9 | 2396.1 | 2109.0 | 1747.0 | 1451.8 | 1288.0 | 1213.2 | 1180.9 | 1174.8 | 1182.9 |
| 40°   | 2064.5 | 2456.8 | 2436.6 | 2064.5 | 1587.3 | 1282.0 | 1146.5 | 1100.0 | 1079.8 | 1083.8 | 1098.0 |
| 42.5° | 2240.4 | 2596.3 | 2466.9 | 1963.4 | 1399.3 | 1126.3 | 1033.3 | 1013.0 | 1043.4 | 1061.6 | 1073.7 |
| 45°   | 2428.5 | 2723.7 | 2477.0 | 1819.8 | 1223.3 | 1007.0 | 968.6  | 1007.0 | 1053.5 | 1061.6 | 1067.6 |
| 47.5° | 2614.5 | 2834.9 | 2477.0 | 1629.8 | 1055.5 | 928.1  | 948.3  | 998.9  | 1035.3 | 1021.1 | 1023.2 |
| 50°   | 2792.4 | 2923.9 | 2470.9 | 1409.4 | 938.2  | 887.7  | 922.0  | 954.4  | 938.2  | 897.8  | 901.8  |
| 52.5° | 2954.2 | 3002.7 | 2428.5 | 1182.9 | 841.2  | 877.6  | 879.6  | 839.1  | 802.7  | 782.5  | 786.6  |
| 55°   | 3134.2 | 3075.5 | 2303.1 | 980.7  | 778.5  | 851.3  | 794.7  | 742.1  | 760.3  | 754.2  | 752.2  |
| 57.5° | 3322.2 | 3160.4 | 2131.2 | 806.8  | 719.8  | 788.6  | 725.9  | 721.9  | 719.8  | 711.8  | 701.6  |
| 60°   | 3484.0 | 3229.2 | 1874.4 | 634.9  | 632.9  | 693.6  | 711.8  | 701.6  | 691.5  | 675.4  | 667.3  |
| 62.5° | 3391.0 | 3057.3 | 1498.3 | 513.6  | 543.9  | 618.7  | 685.5  | 665.3  | 667.3  | 653.1  | 647.1  |
| 65°   | 3128.1 | 2717.6 | 1021.1 | 428.7  | 459.0  | 552.0  | 622.8  | 604.6  | 594.5  | 590.4  | 586.4  |
| 67.5° | 2788.4 | 2353.7 | 673.3  | 339.7  | 384.2  | 483.3  | 550.0  | 527.8  | 541.9  | 541.9  | 539.9  |
| 70°   | 2193.9 | 1799.6 | 424.6  | 277.0  | 305.3  | 400.4  | 457.0  | 467.1  | 487.3  | 489.3  | 487.3  |
| 72.5° | 1577.2 | 1231.4 | 264.9  | 222.4  | 242.6  | 305.3  | 398.3  | 408.5  | 430.7  | 434.7  | 434.7  |
| 75°   | 930.1  | 693.6  | 177.9  | 177.9  | 188.0  | 248.7  | 329.6  | 361.9  | 372.1  | 376.1  | 372.1  |
| 77.5° | 374.1  | 266.9  | 117.3  | 131.4  | 145.6  | 200.2  | 252.8  | 293.2  | 289.2  | 287.1  | 277.0  |
| 80°   | 133.5  | 115.3  | 80.9   | 86.9   | 105.1  | 149.6  | 188.0  | 200.2  | 212.3  | 206.2  | 200.2  |
| 82.5° | 54.6   | 52.6   | 50.6   | 56.6   | 62.7   | 91.0   | 131.4  | 131.4  | 133.5  | 131.4  | 129.4  |
| 85°   | 20.2   | 20.2   | 24.3   | 28.3   | 34.4   | 42.5   | 58.6   | 74.8   | 62.7   | 44.5   | 46.5   |
| 87.5° | 10.1   | 10.1   | 8.1    | 8.1    | 10.1   | 14.2   | 14.2   | 18.2   | 18.2   | 10.1   | 6.1    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-4

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-730-U-5WQ

Data in this report applies to families of products including GSS-SB1A-730-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-730-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2985  
 CIE  $u'$ : 0.2504  
 CIE  $v'$ : 0.5243  
 Duv: 0.0019  
 CIE x: 0.4408  
 CIE y: 0.4101  
 CIE z: 0.1491  
 Peak Wavelength (nm): 595  
 Dominant Wavelength (nm): 582  
 Purity: 55.41818  
 R<sub>f</sub>: 73.8  
 R<sub>g</sub>: 94.4

CRI (Ra): 70.8  
 R1: 66.3  
 R2: 80.6  
 R3: 94.5  
 R4: 68.2  
 R5: 66.5  
 R6: 74.7  
 R7: 76.2  
 R8: 39.6  
 R9: -43.2  
 R10: 57.6  
 R11: 64.8  
 R12: 53.5  
 R13: 68.7  
 R14: 97.0  
 R15: 56.4



### Test Conditions

Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-4

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/18/2024        | 12/18/2024           |
| Power Meter                    | INXT2011004           | 2/8/2024         | 2/8/2025             |
| AC Power Source                | IN0063                | 10/24/2023       | 10/24/2024           |
| DC Power Source                | IN0208                | 10/24/2023       | 10/24/2024           |
| Sphere Thermometer             | IN0085                | 10/24/2023       | 10/24/2024           |
| Room Thermometer               | IN0046                | 10/24/2023       | 10/24/2024           |

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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 3000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 142                         | NR               | 620       | 803                         | NR               | 750       | 17                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 189                         | NR               | 625       | 734                         | NR               | 755       | 15                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 240                         | NR               | 630       | 670                         | NR               | 760       | 13                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 290                         | NR               | 635       | 600                         | NR               | 765       | 11                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 335                         | NR               | 640       | 535                         | NR               | 770       | 9                           | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 375                         | NR               | 645       | 473                         | NR               | 775       | 8                           | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 408                         | NR               | 650       | 415                         | NR               | 780       | 7                           | NR               | 910       | 0                           | NR               |
| 395       | 2                           | NR               | 525       | 434                         | NR               | 655       | 362                         | NR               | 785       | 6                           | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 461                         | NR               | 660       | 313                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 8                           | NR               | 535       | 486                         | NR               | 665       | 271                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 16                          | NR               | 540       | 514                         | NR               | 670       | 231                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 33                          | NR               | 545       | 549                         | NR               | 675       | 198                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 69                          | NR               | 550       | 591                         | NR               | 680       | 169                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 131                         | NR               | 555       | 640                         | NR               | 685       | 144                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 227                         | NR               | 560       | 695                         | NR               | 690       | 123                         | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 369                         | NR               | 565       | 757                         | NR               | 695       | 104                         | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 517                         | NR               | 570       | 822                         | NR               | 700       | 88                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 498                         | NR               | 575       | 882                         | NR               | 705       | 75                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 315                         | NR               | 580       | 935                         | NR               | 710       | 63                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 204                         | NR               | 585       | 972                         | NR               | 715       | 54                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 145                         | NR               | 590       | 996                         | NR               | 720       | 46                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 100                         | NR               | 595       | 1000                        | NR               | 725       | 39                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 78                          | NR               | 600       | 989                         | NR               | 730       | 33                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 76                          | NR               | 605       | 960                         | NR               | 735       | 28                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 83                          | NR               | 610       | 918                         | NR               | 740       | 24                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 105                         | NR               | 615       | 864                         | NR               | 745       | 20                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.19

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 142                                  | NR                             | 620               | 803                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 189                                  | NR                             | 625               | 734                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 240                                  | NR                             | 630               | 670                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 290                                  | NR                             | 635               | 600                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 335                                  | NR                             | 640               | 535                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 375                                  | NR                             | 645               | 473                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 408                                  | NR                             | 650               | 415                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 434                                  | NR                             | 655               | 362                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 461                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 486                                  | NR                             | 665               | 271                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 16                                   | NR                             | 540               | 514                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 33                                   | NR                             | 545               | 549                                  | NR                             | 675               | 198                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 69                                   | NR                             | 550               | 591                                  | NR                             | 680               | 169                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 640                                  | NR                             | 685               | 144                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 227                                  | NR                             | 560               | 695                                  | NR                             | 690               | 123                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 369                                  | NR                             | 565               | 757                                  | NR                             | 695               | 104                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 517                                  | NR                             | 570               | 822                                  | NR                             | 700               | 88                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 498                                  | NR                             | 575               | 882                                  | NR                             | 705               | 75                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 315                                  | NR                             | 580               | 935                                  | NR                             | 710               | 63                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 204                                  | NR                             | 585               | 972                                  | NR                             | 715               | 54                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 145                                  | NR                             | 590               | 996                                  | NR                             | 720               | 46                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 100                                  | NR                             | 595               | 1000                                 | NR                             | 725               | 39                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 78                                   | NR                             | 600               | 989                                  | NR                             | 730               | 33                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 76                                   | NR                             | 605               | 960                                  | NR                             | 735               | 28                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 83                                   | NR                             | 610               | 918                                  | NR                             | 740               | 24                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 105                                  | NR                             | 615               | 864                                  | NR                             | 745               | 20                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.13**

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 142                                  | NR                             | 620               | 803                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 189                                  | NR                             | 625               | 734                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 240                                  | NR                             | 630               | 670                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 290                                  | NR                             | 635               | 600                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 335                                  | NR                             | 640               | 535                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 375                                  | NR                             | 645               | 473                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 408                                  | NR                             | 650               | 415                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 434                                  | NR                             | 655               | 362                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 461                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 486                                  | NR                             | 665               | 271                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 16                                   | NR                             | 540               | 514                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 33                                   | NR                             | 545               | 549                                  | NR                             | 675               | 198                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 69                                   | NR                             | 550               | 591                                  | NR                             | 680               | 169                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 640                                  | NR                             | 685               | 144                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 227                                  | NR                             | 560               | 695                                  | NR                             | 690               | 123                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 369                                  | NR                             | 565               | 757                                  | NR                             | 695               | 104                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 517                                  | NR                             | 570               | 822                                  | NR                             | 700               | 88                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 498                                  | NR                             | 575               | 882                                  | NR                             | 705               | 75                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 315                                  | NR                             | 580               | 935                                  | NR                             | 710               | 63                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 204                                  | NR                             | 585               | 972                                  | NR                             | 715               | 54                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 145                                  | NR                             | 590               | 996                                  | NR                             | 720               | 46                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 100                                  | NR                             | 595               | 1000                                 | NR                             | 725               | 39                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 78                                   | NR                             | 600               | 989                                  | NR                             | 730               | 33                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 76                                   | NR                             | 605               | 960                                  | NR                             | 735               | 28                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 83                                   | NR                             | 610               | 918                                  | NR                             | 740               | 24                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 105                                  | NR                             | 615               | 864                                  | NR                             | 745               | 20                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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TM-30-18

### Summary

$R_f = 73.8$   
 $R_g = 94.4$   
 $\text{CIE } R_a = 70.8$   
 $R_g = -43.2$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54 = 81 | CES79 = 86 |
| CES05 = 49 | CES30 = 61 | CES55 = 80 | CES80 = 86 |
| CES06 = 51 | CES31 = 63 | CES56 = 71 | CES81 = 70 |
| CES07 = 41 | CES32 = 61 | CES57 = 69 | CES82 = 94 |
| CES08 = 40 | CES33 = 65 | CES58 = 72 | CES83 = 88 |
| CES09 = 29 | CES34 = 77 | CES59 = 85 | CES84 = 90 |
| CES10 = 76 | CES35 = 88 | CES60 = 93 | CES85 = 80 |
| CES11 = 59 | CES36 = 89 | CES61 = 86 | CES86 = 60 |
| CES12 = 65 | CES37 = 85 | CES62 = 81 | CES87 = 78 |
| CES13 = 43 | CES38 = 69 | CES63 = 73 | CES88 = 75 |
| CES14 = 74 | CES39 = 93 | CES64 = 72 | CES89 = 66 |
| CES15 = 71 | CES40 = 89 | CES65 = 67 | CES90 = 72 |
| CES16 = 47 | CES41 = 83 | CES66 = 70 | CES91 = 95 |
| CES17 = 50 | CES42 = 87 | CES67 = 68 | CES92 = 59 |
| CES18 = 56 | CES43 = 77 | CES68 = 73 | CES93 = 76 |
| CES19 = 73 | CES44 = 99 | CES69 = 83 | CES94 = 48 |
| CES20 = 66 | CES45 = 83 | CES70 = 66 | CES95 = 70 |
| CES21 = 87 | CES46 = 77 | CES71 = 66 | CES96 = 76 |
| CES22 = 79 | CES47 = 74 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 62 | CES73 = 59 | CES98 = 73 |
| CES24 = 91 | CES49 = 77 | CES74 = 93 | CES99 = 60 |
| CES25 = 73 | CES50 = 85 | CES75 = 67 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)