

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: P1388004

Luminaire Tested: **VAL-T-SB2B-730-U-T4W**

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: P1388004  
 Test Lab: INNOVATION CENTER(G1)  
 Issue Date: 02/18/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: VAL-T-SB2B-730-U-T4W  
 Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 25 SQUARE 74W 70CRI  
 3000K FIXTURE w/ TYPE IV WIDE DISTRIBUTION OPTIC  
 Light Source: (52) 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               |

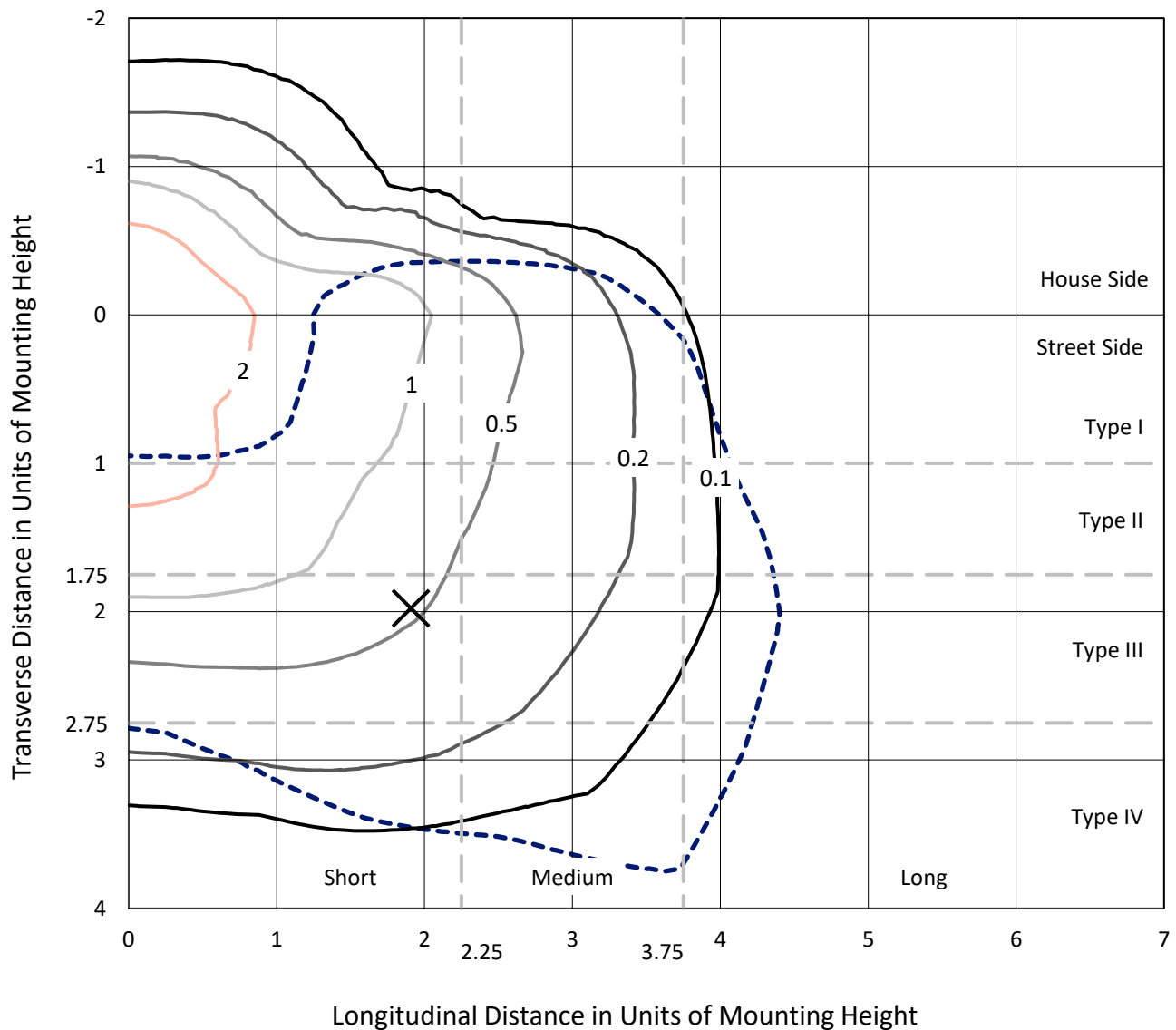
**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 10018.4 lumens  
 Efficiency: N/A  
 Efficacy: 135.4 lumens/watt  
 Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')  
 IES Classification: Type IV - Short  
 BUG Rating: B2 - U0 - G2  
  
 Input Watts (W): 74  
 Input Voltage (V): 120  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: 0.98  
 Total Harmonic Distortion (THDi): 13.6%  
 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-SB2B-730-U-T4W

## Iso-Footcandle Lines of Horizontal Illumination

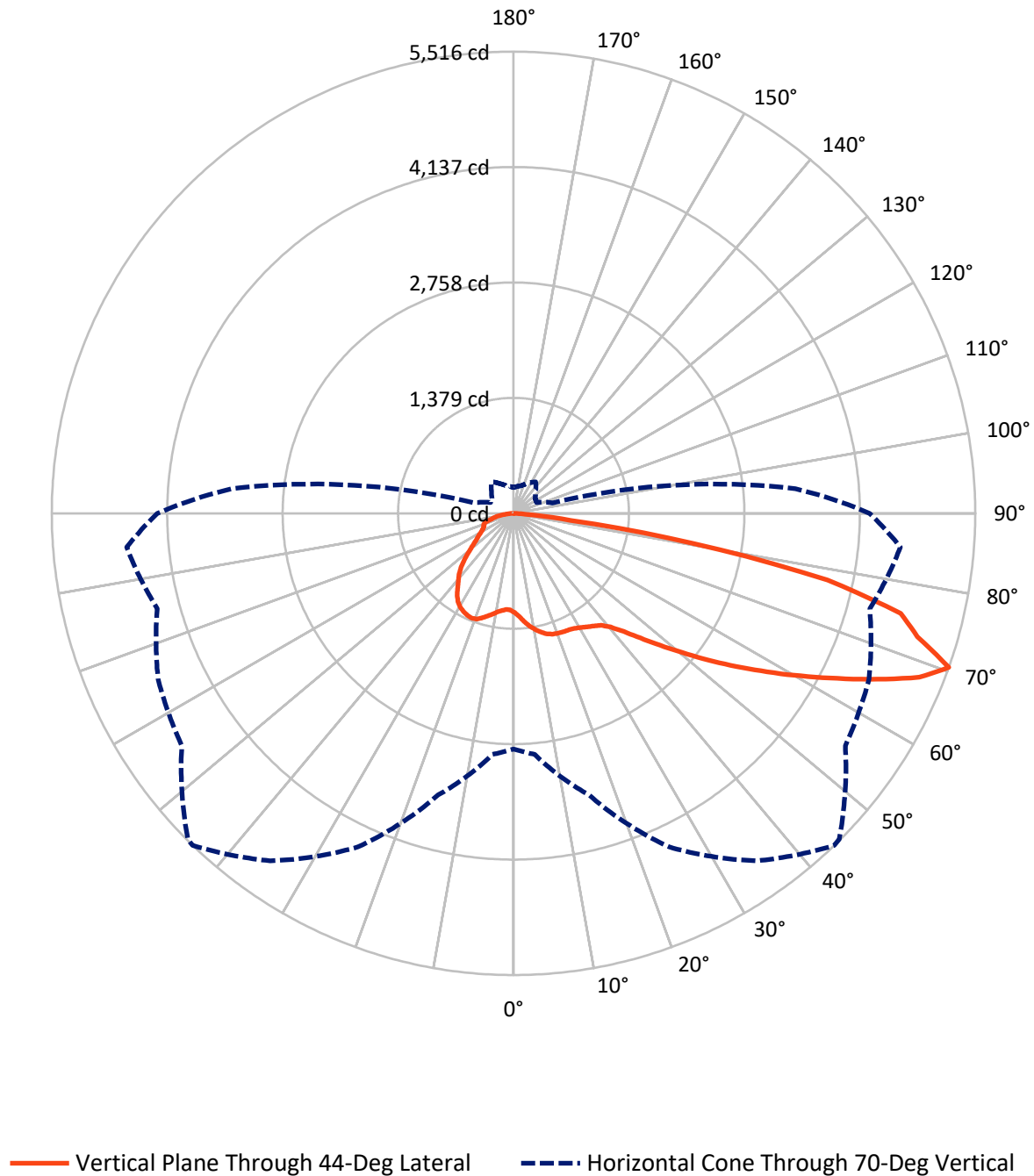
✕ Max cd  
 - - - 1/2 Max cd



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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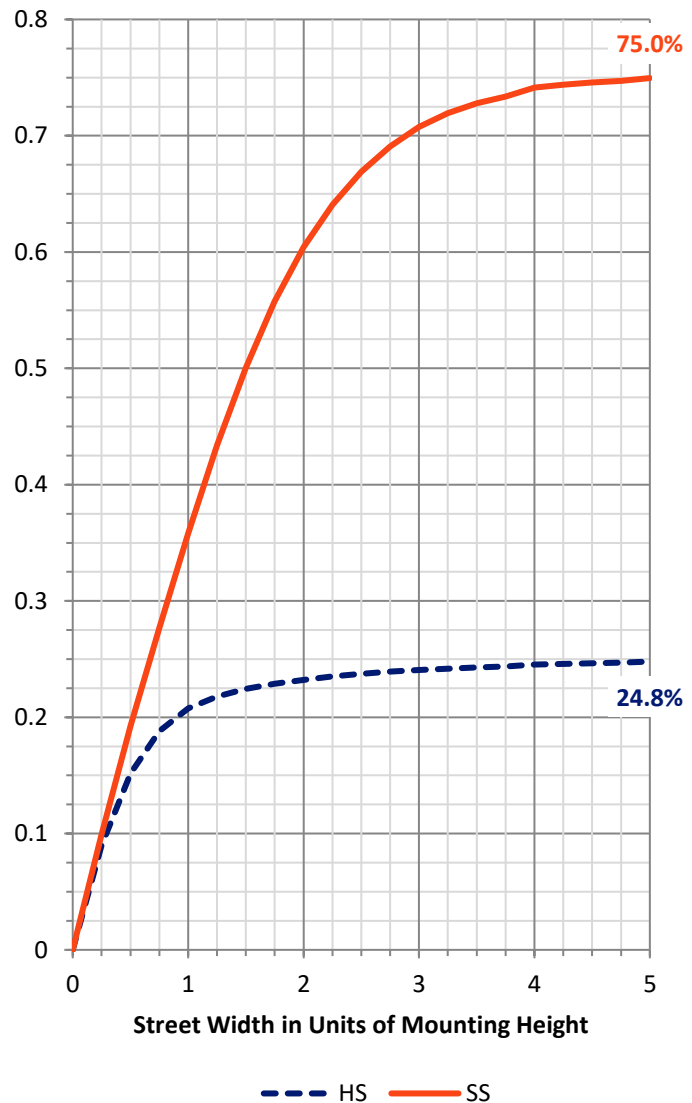
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 2510.3   | 0.0    | 2510.3  |
|                    | % Fixture | 25.1     | 0.0    | 25.1    |
| <b>Street Side</b> | Lumens    | 7508.1   | 0.0    | 7508.1  |
|                    | % Fixture | 74.9     | 0.0    | 74.9    |
| <b>Total</b>       | Lumens    | 10018.4  | 0.0    | 10018.4 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 119.5   | 1.2       |
| 10°-20°   | 392.2   | 3.9       |
| 20°-30°   | 674.9   | 6.7       |
| 30°-40°   | 951.4   | 9.5       |
| 40°-50°   | 1316.5  | 13.1      |
| 50°-60°   | 1955.1  | 19.5      |
| 60°-70°   | 2613.0  | 26.1      |
| 70°-80°   | 1843.2  | 18.4      |
| 80°-90°   | 152.7   | 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°    | 10018.4 | 100.0     |
| 0°-180°   | 10018.4 | 100.0     |



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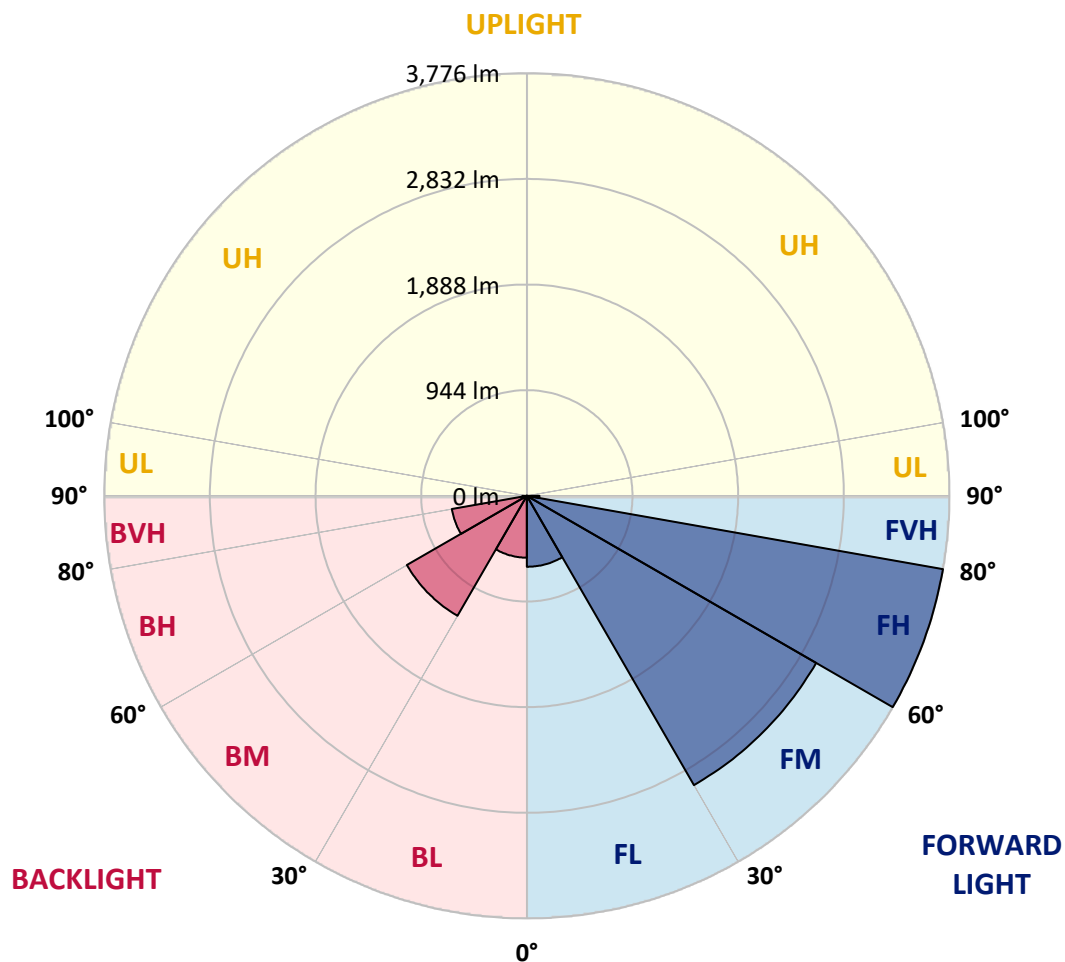
CATALOG NUMBER: VAL-T-SB2B-730-U-T4W

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 634.0  | 6.3       |                         |      |         |
| FM   | (30°-60°)   | 2985.2 | 29.8      |                         |      |         |
| FH   | (60°-80°)   | 3775.9 | 37.7      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 113.0  | 1.1       |                         |      | G2/225  |
| BL   | (0°-30°)    | 552.5  | 5.5       | B2/1000                 |      |         |
| BM   | (30°-60°)   | 1237.7 | 12.4      | B2/2500                 |      |         |
| BH   | (60°-80°)   | 680.3  | 6.8       | B2/1000                 |      | G2/1000 |
| BVH  | (80°-90°)   | 39.7   | 0.4       |                         |      | 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°    | 44°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 |
| 2.5°  | 1271.4 | 1264.1 | 1256.8 | 1254.3 | 1244.6 | 1230.0 | 1230.0 | 1225.2 | 1213.0 | 1203.3 | 1196.0 |
| 5°    | 1354.0 | 1356.4 | 1344.3 | 1334.6 | 1320.0 | 1295.7 | 1298.1 | 1276.2 | 1251.9 | 1225.2 | 1205.7 |
| 7.5°  | 1434.2 | 1434.2 | 1419.7 | 1407.5 | 1388.0 | 1358.9 | 1358.9 | 1324.8 | 1295.7 | 1259.2 | 1232.5 |
| 10°   | 1507.2 | 1502.3 | 1482.9 | 1468.3 | 1441.5 | 1409.9 | 1407.5 | 1373.5 | 1337.0 | 1295.7 | 1259.2 |
| 12.5° | 1563.1 | 1563.1 | 1543.6 | 1519.3 | 1490.1 | 1456.1 | 1453.7 | 1417.2 | 1380.8 | 1337.0 | 1293.2 |
| 15°   | 1616.6 | 1604.4 | 1587.4 | 1555.8 | 1521.7 | 1495.0 | 1490.1 | 1458.5 | 1422.1 | 1383.2 | 1334.6 |
| 17.5° | 1636.0 | 1631.1 | 1609.3 | 1577.7 | 1546.1 | 1516.9 | 1516.9 | 1487.7 | 1461.0 | 1422.1 | 1373.5 |
| 20°   | 1631.1 | 1623.8 | 1604.4 | 1577.7 | 1553.4 | 1529.0 | 1529.0 | 1507.2 | 1492.6 | 1456.1 | 1412.4 |
| 22.5° | 1606.8 | 1599.5 | 1587.4 | 1563.1 | 1550.9 | 1536.3 | 1536.3 | 1524.2 | 1519.3 | 1497.4 | 1456.1 |
| 25°   | 1599.5 | 1594.7 | 1577.7 | 1555.8 | 1543.6 | 1541.2 | 1543.6 | 1546.1 | 1550.9 | 1533.9 | 1499.9 |
| 27.5° | 1604.4 | 1604.4 | 1589.8 | 1567.9 | 1553.4 | 1555.8 | 1558.2 | 1572.8 | 1587.4 | 1577.7 | 1548.5 |
| 30°   | 1636.0 | 1628.7 | 1619.0 | 1597.1 | 1580.1 | 1582.5 | 1582.5 | 1611.7 | 1626.3 | 1614.1 | 1592.2 |
| 32.5° | 1689.5 | 1682.2 | 1667.6 | 1621.4 | 1604.4 | 1616.6 | 1621.4 | 1645.7 | 1655.4 | 1643.3 | 1633.6 |
| 35°   | 1813.5 | 1820.8 | 1772.1 | 1689.5 | 1643.3 | 1653.0 | 1657.9 | 1674.9 | 1687.1 | 1682.2 | 1672.5 |
| 37.5° | 2039.5 | 2042.0 | 1981.2 | 1832.9 | 1725.9 | 1696.8 | 1699.2 | 1723.5 | 1738.1 | 1721.1 | 1713.8 |
| 40°   | 2321.5 | 2323.9 | 2238.9 | 2037.1 | 1857.2 | 1784.3 | 1781.9 | 1786.7 | 1808.6 | 1779.4 | 1774.6 |
| 42.5° | 2627.8 | 2593.8 | 2520.9 | 2289.9 | 2051.7 | 1930.1 | 1908.3 | 1893.7 | 1920.4 | 1884.0 | 1859.6 |
| 45°   | 2919.5 | 2895.2 | 2795.5 | 2557.3 | 2285.1 | 2122.2 | 2100.3 | 2027.4 | 2071.1 | 2042.0 | 1998.2 |
| 47.5° | 3162.6 | 3143.2 | 3067.8 | 2846.6 | 2550.0 | 2353.1 | 2319.1 | 2204.8 | 2282.6 | 2268.0 | 2214.6 |
| 50°   | 3342.5 | 3323.1 | 3272.0 | 3135.9 | 2885.5 | 2610.8 | 2579.2 | 2440.6 | 2520.9 | 2547.6 | 2506.3 |
| 52.5° | 3473.8 | 3468.9 | 3449.5 | 3427.6 | 3225.8 | 2909.8 | 2873.3 | 2700.7 | 2832.0 | 2883.1 | 2870.9 |
| 55°   | 3673.1 | 3663.4 | 3670.7 | 3707.1 | 3590.5 | 3228.2 | 3174.8 | 2973.0 | 3152.9 | 3247.7 | 3267.1 |
| 57.5° | 3862.7 | 3862.7 | 3925.9 | 4020.7 | 4006.1 | 3571.0 | 3507.8 | 3291.5 | 3541.8 | 3588.0 | 3680.4 |
| 60°   | 4040.2 | 4057.2 | 4144.7 | 4353.8 | 4395.1 | 3942.9 | 3867.6 | 3658.5 | 3911.3 | 3962.4 | 4130.1 |
| 62.5° | 3964.8 | 4006.1 | 4285.7 | 4623.6 | 4759.7 | 4341.6 | 4266.2 | 4062.0 | 4327.0 | 4266.2 | 4417.0 |
| 65°   | 3580.7 | 3643.9 | 4076.6 | 4640.6 | 5114.6 | 4779.2 | 4716.0 | 4516.6 | 4555.5 | 4312.4 | 4577.4 |
| 67.5° | 3177.2 | 3269.6 | 3772.8 | 4434.0 | 5207.0 | 5226.5 | 5170.5 | 4796.2 | 4553.1 | 4361.1 | 4740.3 |
| 70°   | 2815.0 | 2890.4 | 3483.5 | 4397.5 | 5068.4 | 5515.7 | 5503.6 | 4837.5 | 4684.4 | 4404.8 | 4638.2 |
| 72.5° | 1973.9 | 2078.4 | 2686.2 | 4059.6 | 5109.8 | 5044.1 | 5017.4 | 5126.8 | 4781.6 | 4244.4 | 4110.7 |
| 75°   | 709.8  | 751.2  | 1392.9 | 2746.9 | 4062.0 | 4776.7 | 4798.6 | 4750.0 | 4686.8 | 3801.9 | 3089.7 |
| 77.5° | 211.5  | 226.1  | 396.2  | 1089.0 | 2277.8 | 3833.5 | 3870.0 | 3741.2 | 3522.4 | 2292.3 | 1169.3 |
| 80°   | 114.3  | 124.0  | 187.2  | 318.4  | 853.2  | 2163.5 | 2263.2 | 1915.6 | 1268.9 | 605.3  | 262.5  |
| 82.5° | 55.9   | 60.8   | 97.2   | 155.6  | 367.1  | 687.9  | 690.4  | 612.6  | 413.3  | 182.3  | 97.2   |
| 85°   | 19.4   | 21.9   | 31.6   | 58.3   | 126.4  | 141.0  | 141.0  | 131.3  | 121.5  | 89.9   | 43.8   |
| 87.5° | 4.9    | 4.9    | 7.3    | 9.7    | 12.2   | 14.6   | 14.6   | 17.0   | 19.4   | 21.9   | 21.9   |
| 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: VAL-T-SB2B-730-U-T4W

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 | 1183.9 |
| 2.5°  | 1191.1 | 1181.4 | 1174.1 | 1166.8 | 1162.0 | 1152.3 | 1149.8 | 1149.8 | 1147.4 | 1149.8 | 1147.4 |
| 5°    | 1198.4 | 1183.9 | 1171.7 | 1162.0 | 1157.1 | 1152.3 | 1152.3 | 1154.7 | 1152.3 | 1154.7 | 1152.3 |
| 7.5°  | 1213.0 | 1203.3 | 1191.1 | 1176.6 | 1174.1 | 1171.7 | 1174.1 | 1179.0 | 1181.4 | 1183.9 | 1179.0 |
| 10°   | 1242.2 | 1227.6 | 1210.6 | 1203.3 | 1198.4 | 1196.0 | 1203.3 | 1213.0 | 1215.5 | 1220.3 | 1215.5 |
| 12.5° | 1276.2 | 1259.2 | 1247.1 | 1230.0 | 1230.0 | 1232.5 | 1239.8 | 1251.9 | 1259.2 | 1266.5 | 1259.2 |
| 15°   | 1315.1 | 1298.1 | 1281.1 | 1266.5 | 1264.1 | 1268.9 | 1281.1 | 1293.2 | 1295.7 | 1298.1 | 1293.2 |
| 17.5° | 1354.0 | 1337.0 | 1315.1 | 1298.1 | 1295.7 | 1307.8 | 1312.7 | 1312.7 | 1307.8 | 1307.8 | 1300.5 |
| 20°   | 1392.9 | 1380.8 | 1358.9 | 1327.3 | 1337.0 | 1341.9 | 1327.3 | 1315.1 | 1307.8 | 1305.4 | 1298.1 |
| 22.5° | 1439.1 | 1419.7 | 1395.3 | 1361.3 | 1368.6 | 1349.2 | 1322.4 | 1317.6 | 1310.3 | 1312.7 | 1305.4 |
| 25°   | 1482.9 | 1470.7 | 1431.8 | 1388.0 | 1368.6 | 1337.0 | 1320.0 | 1320.0 | 1312.7 | 1317.6 | 1315.1 |
| 27.5° | 1533.9 | 1519.3 | 1465.8 | 1402.6 | 1351.6 | 1317.6 | 1315.1 | 1315.1 | 1303.0 | 1305.4 | 1303.0 |
| 30°   | 1585.0 | 1563.1 | 1492.6 | 1390.5 | 1310.3 | 1288.4 | 1295.7 | 1293.2 | 1288.4 | 1295.7 | 1300.5 |
| 32.5° | 1628.7 | 1611.7 | 1507.2 | 1361.3 | 1259.2 | 1249.5 | 1254.3 | 1266.5 | 1278.7 | 1286.0 | 1295.7 |
| 35°   | 1674.9 | 1655.4 | 1519.3 | 1310.3 | 1203.3 | 1188.7 | 1186.3 | 1222.7 | 1244.6 | 1256.8 | 1264.1 |
| 37.5° | 1723.5 | 1699.2 | 1526.6 | 1254.3 | 1149.8 | 1106.1 | 1113.4 | 1142.5 | 1166.8 | 1188.7 | 1205.7 |
| 40°   | 1789.1 | 1764.8 | 1536.3 | 1193.6 | 1093.9 | 1035.6 | 1025.8 | 1033.1 | 1050.2 | 1081.8 | 1098.8 |
| 42.5° | 1886.4 | 1847.5 | 1536.3 | 1115.8 | 1013.7 | 972.4  | 938.3  | 911.6  | 901.9  | 921.3  | 931.0  |
| 45°   | 2020.1 | 1961.7 | 1526.6 | 1035.6 | 921.3  | 892.1  | 836.2  | 792.5  | 753.6  | 734.1  | 729.3  |
| 47.5° | 2241.3 | 2139.2 | 1516.9 | 957.8  | 833.8  | 797.3  | 729.3  | 678.2  | 622.3  | 571.3  | 559.1  |
| 50°   | 2537.9 | 2375.0 | 1519.3 | 880.0  | 746.3  | 697.7  | 636.9  | 583.4  | 517.8  | 469.2  | 461.9  |
| 52.5° | 2929.2 | 2705.6 | 1533.9 | 794.9  | 661.2  | 617.5  | 566.4  | 512.9  | 447.3  | 410.8  | 408.4  |
| 55°   | 3383.8 | 3104.3 | 1585.0 | 700.1  | 583.4  | 549.4  | 512.9  | 461.9  | 406.0  | 374.4  | 369.5  |
| 57.5° | 3913.8 | 3566.1 | 1687.1 | 600.4  | 512.9  | 500.8  | 471.6  | 423.0  | 376.8  | 345.2  | 340.3  |
| 60°   | 4436.4 | 4013.4 | 1764.8 | 512.9  | 457.0  | 457.0  | 430.3  | 393.8  | 330.6  | 303.9  | 299.0  |
| 62.5° | 4679.5 | 4152.0 | 1616.6 | 442.4  | 413.3  | 420.5  | 403.5  | 352.5  | 333.0  | 320.9  | 313.6  |
| 65°   | 4737.8 | 4074.2 | 1215.5 | 388.9  | 376.8  | 401.1  | 374.4  | 376.8  | 359.8  | 347.6  | 340.3  |
| 67.5° | 4667.3 | 3853.0 | 777.9  | 342.8  | 350.1  | 376.8  | 413.3  | 415.7  | 359.8  | 333.0  | 328.2  |
| 70°   | 4254.1 | 3379.0 | 478.9  | 303.9  | 313.6  | 371.9  | 459.4  | 391.4  | 340.3  | 318.4  | 308.7  |
| 72.5° | 3549.1 | 2788.3 | 335.5  | 267.4  | 267.4  | 352.5  | 413.3  | 367.1  | 313.6  | 301.4  | 289.3  |
| 75°   | 2491.7 | 1886.4 | 245.5  | 223.6  | 223.6  | 274.7  | 381.7  | 335.5  | 294.1  | 299.0  | 294.1  |
| 77.5° | 848.4  | 612.6  | 177.5  | 172.6  | 165.3  | 235.8  | 340.3  | 320.9  | 272.3  | 257.7  | 238.2  |
| 80°   | 250.4  | 196.9  | 131.3  | 121.5  | 119.1  | 189.6  | 286.8  | 235.8  | 194.5  | 177.5  | 165.3  |
| 82.5° | 97.2   | 87.5   | 85.1   | 77.8   | 75.4   | 126.4  | 189.6  | 162.9  | 145.9  | 121.5  | 119.1  |
| 85°   | 38.9   | 38.9   | 43.8   | 43.8   | 38.9   | 68.1   | 114.3  | 89.9   | 85.1   | 75.4   | 72.9   |
| 87.5° | 19.4   | 19.4   | 17.0   | 12.2   | 12.2   | 14.6   | 12.2   | 12.2   | 12.2   | 12.2   | 12.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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



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

Report Prepared for

Cooper Lighting Solutions

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

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| 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

REPORT NUMBER: SP1-2407-184-4

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | 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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### 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

$R_f = 73.8$   
 $R_g = 94.4$   
 $CIE R_a = 70.8$   
 $R_g = -43.2$



### 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)