

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



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

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: STREETWORKS

Report Number: P1379175

Luminaire Tested: **VAL-T-SB3A-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.

Report Generated By 670245763



**Test Information**

Test Method: LM-79-08  
 Report Number: P1379175  
 Test Lab: INNOVATION CENTER(G3)  
 Issue Date: 02/18/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: VAL-T-SB3A-730-U-SL4  
 Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 35 SQUARE 85W 70CRI  
 3000K FIXTURE w/ TYPE IV SPILL CONTROL DISTRIBUTION OPTIC  
 Light Source: (78) 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**

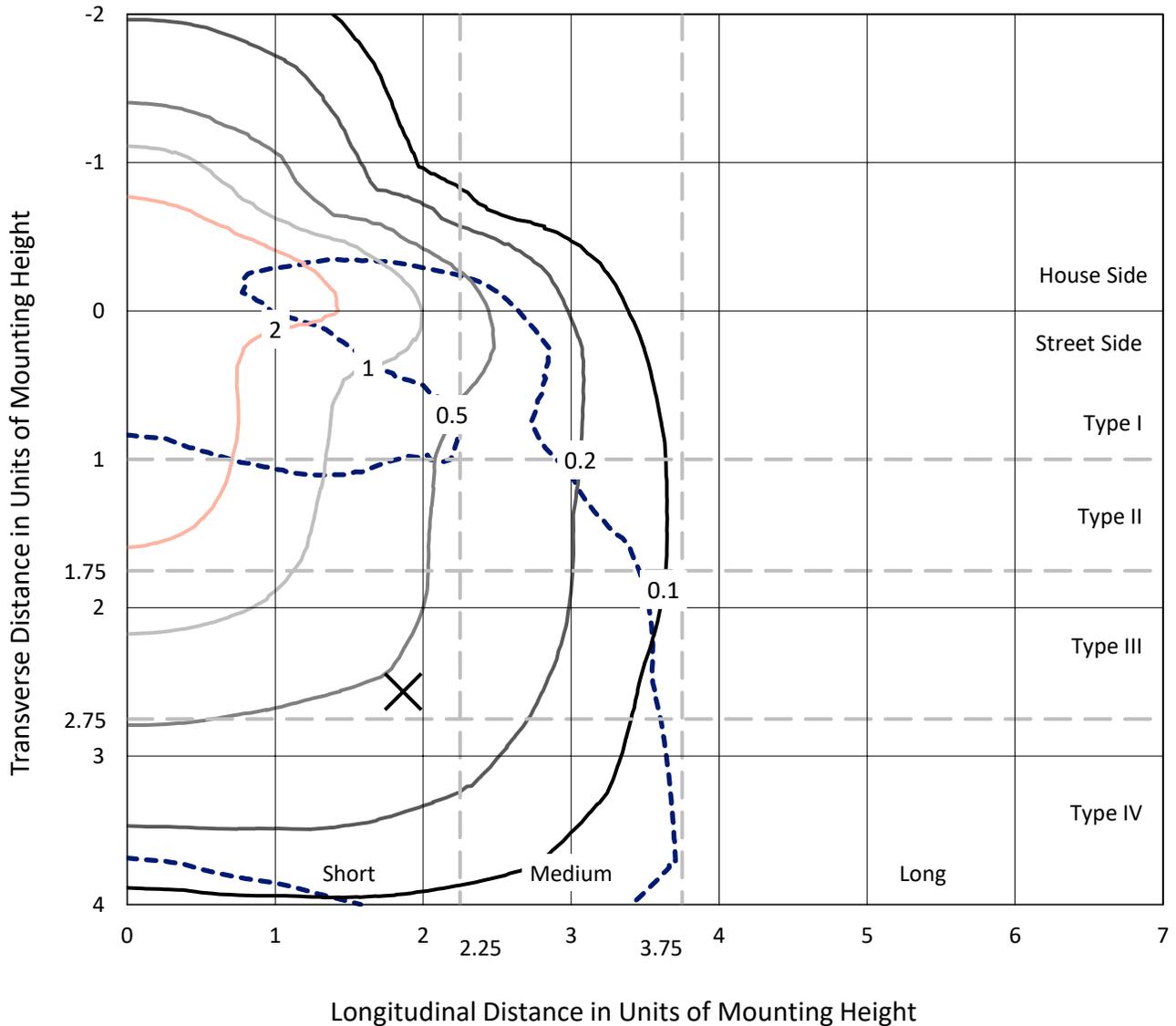
Lumens per Lamp: N/A  
 Luminaire Lumens: 12008.6 lumens  
 Efficiency: N/A  
 Efficacy: 141.3 lumens/watt  
 Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')  
 IES Classification: Type IV - Short  
 BUG Rating: B2 - U0 - G2

Input Watts (W): 85  
 Input Voltage (V): 120  
 Input Current (A<sub>in</sub>): NR  
 Voltage Rise (V): NR  
 Power Factor: 0.98  
 Total Harmonic Distortion (THDi): 11.0%  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 28.75 FT

REPORT NUMBER: P1379175  
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### Iso-Footcandle Lines of Horizontal Illumination

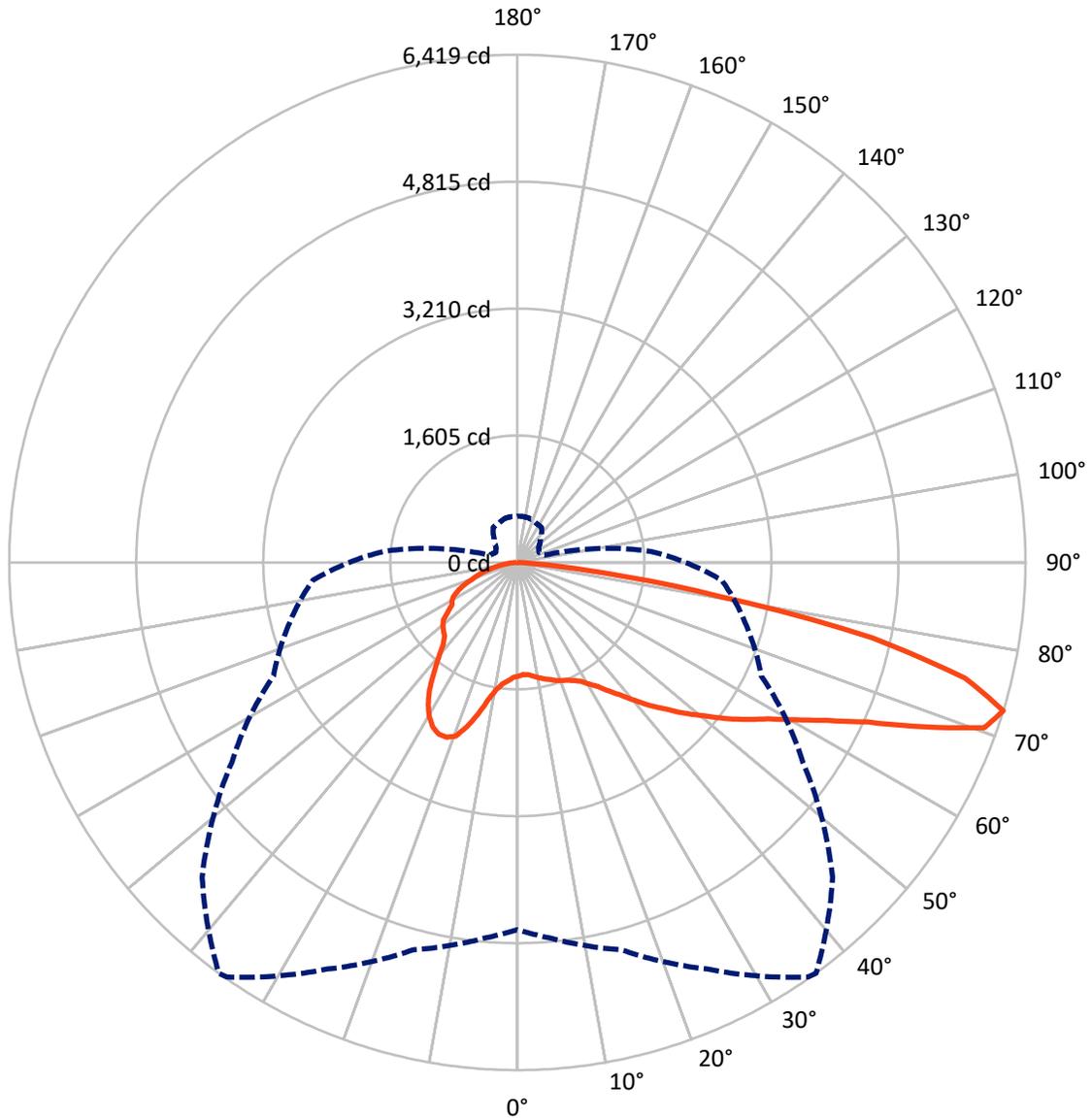
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 4.8 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 36-Deg Lateral      - - - Horizontal Cone Through 72.5-Deg Vertical

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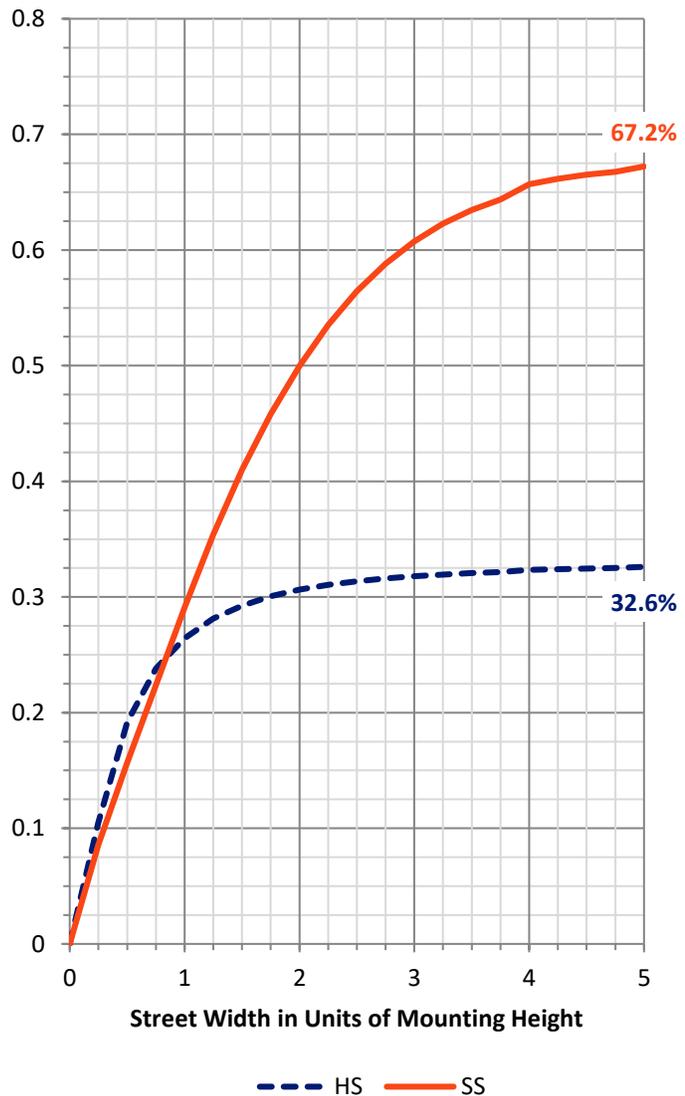
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 3951.9   | 0.0    | 3951.9  |
|                    | % Fixture | 32.9     | 0.0    | 32.9    |
| <b>Street Side</b> | Lumens    | 8056.7   | 0.0    | 8056.7  |
|                    | % Fixture | 67.1     | 0.0    | 67.1    |
| <b>Total</b>       | Lumens    | 12008.6  | 0.0    | 12008.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 142.4   | 1.2       |
| 10°-20°   | 490.8   | 4.1       |
| 20°-30°   | 931.9   | 7.8       |
| 30°-40°   | 1360.7  | 11.3      |
| 40°-50°   | 1809.8  | 15.1      |
| 50°-60°   | 2320.4  | 19.3      |
| 60°-70°   | 2729.5  | 22.7      |
| 70°-80°   | 2044.7  | 17.0      |
| 80°-90°   | 178.5   | 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°    | 12008.6 | 100.0     |
| 0°-180°   | 12008.6 | 100.0     |

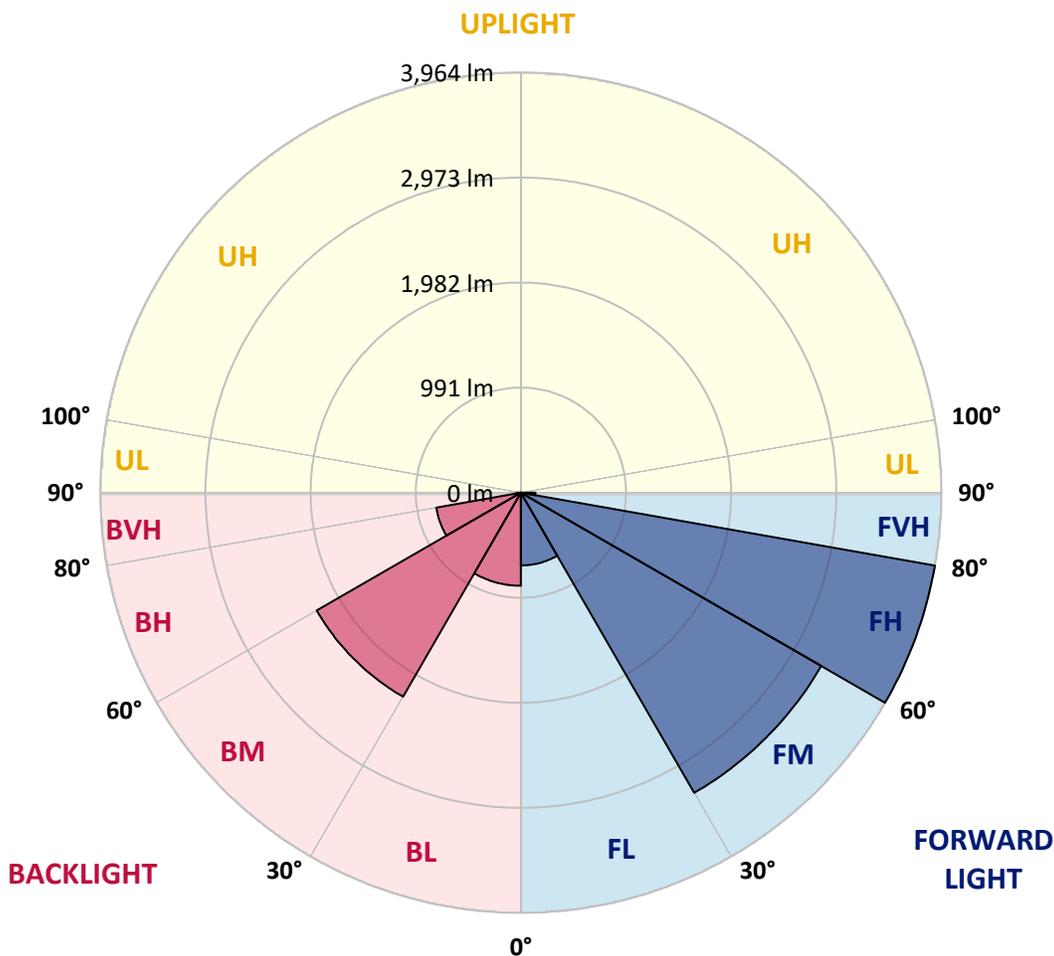


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 686.5  | 5.7       |                         |      |         |
| FM (30°-60°)   | 3269.2 | 27.2      |                         |      |         |
| FH (60°-80°)   | 3963.5 | 33.0      |                         |      | G2/5000 |
| FVH (80°-90°)  | 137.5  | 1.1       |                         |      | G2/225  |
| BL (0°-30°)    | 878.5  | 7.3       | B2/1000                 |      |         |
| BM (30°-60°)   | 2221.8 | 18.5      | B2/2500                 |      |         |
| BH (60°-80°)   | 810.7  | 6.8       | B2/1000                 |      | G2/1000 |
| BVH (80°-90°)  | 41.0   | 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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CATALOG NUMBER: VAL-T-SB3A-730-U-SL4

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 36°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 |
| 2.5°  | 1427.1 | 1419.0 | 1424.4 | 1419.0 | 1419.0 | 1419.0 | 1424.4 | 1424.4 | 1432.6 | 1432.6 | 1432.6 |
| 5°    | 1438.0 | 1435.3 | 1438.0 | 1435.3 | 1427.1 | 1427.1 | 1432.6 | 1427.1 | 1440.8 | 1435.3 | 1443.5 |
| 7.5°  | 1468.0 | 1462.5 | 1462.5 | 1454.4 | 1457.1 | 1451.7 | 1457.1 | 1448.9 | 1457.1 | 1451.7 | 1451.7 |
| 10°   | 1503.4 | 1495.2 | 1498.0 | 1487.1 | 1478.9 | 1481.6 | 1487.1 | 1478.9 | 1481.6 | 1484.3 | 1484.3 |
| 12.5° | 1533.4 | 1527.9 | 1527.9 | 1506.1 | 1511.6 | 1511.6 | 1517.0 | 1508.8 | 1514.3 | 1511.6 | 1522.5 |
| 15°   | 1571.5 | 1563.3 | 1557.9 | 1541.5 | 1538.8 | 1536.1 | 1544.3 | 1536.1 | 1549.7 | 1547.0 | 1560.6 |
| 17.5° | 1606.9 | 1598.7 | 1593.3 | 1566.0 | 1560.6 | 1568.8 | 1571.5 | 1566.0 | 1579.7 | 1585.1 | 1612.3 |
| 20°   | 1639.6 | 1642.3 | 1623.2 | 1590.6 | 1590.6 | 1593.3 | 1593.3 | 1593.3 | 1615.1 | 1623.2 | 1653.2 |
| 22.5° | 1696.8 | 1691.3 | 1672.3 | 1634.1 | 1617.8 | 1617.8 | 1642.3 | 1626.0 | 1639.6 | 1658.6 | 1710.4 |
| 25°   | 1770.3 | 1759.4 | 1726.7 | 1677.7 | 1650.5 | 1653.2 | 1661.4 | 1650.5 | 1666.8 | 1688.6 | 1767.6 |
| 27.5° | 1901.0 | 1887.4 | 1830.2 | 1732.2 | 1699.5 | 1702.2 | 1704.9 | 1675.0 | 1672.3 | 1707.7 | 1816.6 |
| 30°   | 2091.7 | 2075.3 | 1988.2 | 1865.6 | 1778.5 | 1783.9 | 1754.0 | 1699.5 | 1680.4 | 1718.6 | 1873.8 |
| 32.5° | 2298.7 | 2276.9 | 2189.7 | 2015.4 | 1898.3 | 1871.1 | 1813.9 | 1718.6 | 1688.6 | 1729.5 | 1925.5 |
| 35°   | 2546.5 | 2527.5 | 2421.2 | 2176.1 | 2015.4 | 1999.9 | 1884.7 | 1759.4 | 1710.4 | 1737.6 | 1974.6 |
| 37.5° | 2897.9 | 2848.8 | 2720.8 | 2383.1 | 2157.0 | 2132.5 | 1977.3 | 1816.6 | 1713.1 | 1732.2 | 2042.7 |
| 40°   | 3200.2 | 3151.1 | 3012.2 | 2644.6 | 2336.8 | 2298.7 | 2113.5 | 1884.7 | 1740.3 | 1743.1 | 2129.8 |
| 42.5° | 3516.1 | 3469.8 | 3320.0 | 2865.2 | 2497.5 | 2478.4 | 2233.3 | 1966.4 | 1775.8 | 1773.0 | 2227.9 |
| 45°   | 3848.4 | 3851.1 | 3619.6 | 3129.4 | 2688.1 | 2650.0 | 2380.4 | 2075.3 | 1841.1 | 1808.4 | 2388.5 |
| 47.5° | 4316.8 | 4265.1 | 3981.8 | 3382.6 | 2900.6 | 2851.6 | 2535.6 | 2189.7 | 1939.2 | 1890.1 | 2568.3 |
| 50°   | 4695.4 | 4657.3 | 4314.1 | 3674.1 | 3099.4 | 3047.6 | 2718.1 | 2315.0 | 2026.3 | 2004.5 | 2808.0 |
| 52.5° | 5011.3 | 4946.0 | 4630.0 | 3949.1 | 3322.7 | 3276.4 | 2867.9 | 2437.6 | 2148.9 | 2138.0 | 3088.5 |
| 55°   | 5185.6 | 5117.5 | 4847.9 | 4205.2 | 3576.0 | 3505.2 | 3036.8 | 2584.6 | 2295.9 | 2301.4 | 3401.7 |
| 57.5° | 5321.8 | 5251.0 | 4986.8 | 4398.5 | 3826.6 | 3731.3 | 3222.0 | 2745.3 | 2470.3 | 2522.0 | 3829.3 |
| 60°   | 5370.8 | 5300.0 | 5103.9 | 4654.5 | 4096.2 | 4036.3 | 3431.7 | 2944.2 | 2671.8 | 2780.7 | 4246.0 |
| 62.5° | 5441.6 | 5458.0 | 5319.1 | 4967.7 | 4447.6 | 4395.8 | 3701.3 | 3189.3 | 2919.6 | 3006.8 | 4393.1 |
| 65°   | 5498.8 | 5490.7 | 5507.0 | 5400.8 | 4937.8 | 4864.3 | 4101.7 | 3507.9 | 3085.8 | 3083.1 | 4319.5 |
| 67.5° | 5365.4 | 5373.6 | 5460.7 | 5722.2 | 5618.7 | 5547.9 | 4619.1 | 3802.1 | 3164.8 | 3227.4 | 4085.3 |
| 70°   | 5264.6 | 5289.1 | 5406.2 | 5733.1 | 6250.5 | 6258.7 | 5340.9 | 4052.6 | 3390.8 | 3227.4 | 3431.7 |
| 72.5° | 4643.6 | 4768.9 | 5071.2 | 5673.1 | 6400.3 | 6419.4 | 5632.3 | 4404.0 | 3399.0 | 2982.3 | 2592.8 |
| 75°   | 3074.9 | 3172.9 | 3979.1 | 5090.3 | 5869.2 | 5839.3 | 5215.6 | 4235.1 | 3181.1 | 2432.1 | 1650.5 |
| 77.5° | 906.9  | 1092.1 | 1862.9 | 3156.6 | 4393.1 | 4583.7 | 4278.7 | 2897.9 | 2358.6 | 1141.2 | 588.3  |
| 80°   | 258.7  | 288.7  | 520.2  | 1108.5 | 2372.2 | 2576.5 | 2658.2 | 1386.3 | 700.0  | 302.3  | 196.1  |
| 82.5° | 125.3  | 130.7  | 187.9  | 310.5  | 1015.9 | 1111.2 | 931.5  | 419.4  | 187.9  | 108.9  | 76.3   |
| 85°   | 21.8   | 27.2   | 46.3   | 92.6   | 182.5  | 220.6  | 207.0  | 84.4   | 57.2   | 49.0   | 35.4   |
| 87.5° | 5.4    | 5.4    | 8.2    | 8.2    | 10.9   | 10.9   | 10.9   | 13.6   | 13.6   | 13.6   | 13.6   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



REPORT NUMBER: P1379175

CATALOG NUMBER: VAL-T-SB3A-730-U-SL4

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 | 1438.0 |
| 2.5°  | 1446.2 | 1446.2 | 1457.1 | 1462.5 | 1462.5 | 1454.4 | 1454.4 | 1478.9 | 1468.0 | 1473.4 | 1470.7 |
| 5°    | 1448.9 | 1459.8 | 1459.8 | 1476.2 | 1484.3 | 1498.0 | 1503.4 | 1514.3 | 1525.2 | 1525.2 | 1522.5 |
| 7.5°  | 1465.3 | 1473.4 | 1487.1 | 1498.0 | 1519.7 | 1541.5 | 1549.7 | 1582.4 | 1587.8 | 1601.4 | 1596.0 |
| 10°   | 1489.8 | 1503.4 | 1525.2 | 1555.1 | 1582.4 | 1617.8 | 1634.1 | 1669.5 | 1688.6 | 1710.4 | 1696.8 |
| 12.5° | 1527.9 | 1544.3 | 1579.7 | 1620.5 | 1680.4 | 1734.9 | 1778.5 | 1813.9 | 1841.1 | 1865.6 | 1857.5 |
| 15°   | 1568.8 | 1601.4 | 1647.7 | 1721.3 | 1827.5 | 1925.5 | 1982.7 | 2042.7 | 2056.3 | 2078.1 | 2075.3 |
| 17.5° | 1639.6 | 1661.4 | 1754.0 | 1901.0 | 2039.9 | 2124.4 | 2173.4 | 2203.3 | 2195.2 | 2203.3 | 2197.9 |
| 20°   | 1696.8 | 1751.2 | 1917.4 | 2132.5 | 2268.7 | 2323.2 | 2328.6 | 2301.4 | 2244.2 | 2233.3 | 2211.5 |
| 22.5° | 1781.2 | 1862.9 | 2129.8 | 2353.1 | 2462.1 | 2456.6 | 2377.7 | 2295.9 | 2222.4 | 2192.5 | 2181.6 |
| 25°   | 1862.9 | 2010.0 | 2353.1 | 2562.9 | 2592.8 | 2497.5 | 2377.7 | 2271.4 | 2173.4 | 2143.4 | 2118.9 |
| 27.5° | 1966.4 | 2178.8 | 2606.4 | 2739.9 | 2650.0 | 2502.9 | 2325.9 | 2206.1 | 2113.5 | 2064.4 | 2053.6 |
| 30°   | 2072.6 | 2374.9 | 2818.9 | 2824.3 | 2666.4 | 2445.7 | 2230.6 | 2124.4 | 2018.1 | 1969.1 | 1971.8 |
| 32.5° | 2217.0 | 2590.1 | 2998.6 | 2887.0 | 2620.1 | 2331.4 | 2102.6 | 1988.2 | 1895.6 | 1871.1 | 1865.6 |
| 35°   | 2358.6 | 2832.5 | 3143.0 | 2892.4 | 2511.1 | 2170.7 | 1933.7 | 1805.7 | 1748.5 | 1724.0 | 1734.9 |
| 37.5° | 2560.1 | 3080.3 | 3227.4 | 2840.7 | 2353.1 | 1955.5 | 1734.9 | 1634.1 | 1590.6 | 1582.4 | 1593.3 |
| 40°   | 2780.7 | 3309.1 | 3281.9 | 2780.7 | 2138.0 | 1726.7 | 1544.3 | 1481.6 | 1454.4 | 1459.8 | 1478.9 |
| 42.5° | 3017.7 | 3497.0 | 3322.7 | 2644.6 | 1884.7 | 1517.0 | 1391.7 | 1364.5 | 1405.3 | 1429.9 | 1446.2 |
| 45°   | 3271.0 | 3668.6 | 3336.3 | 2451.2 | 1647.7 | 1356.3 | 1304.6 | 1356.3 | 1419.0 | 1429.9 | 1438.0 |
| 47.5° | 3521.5 | 3818.4 | 3336.3 | 2195.2 | 1421.7 | 1250.1 | 1277.3 | 1345.4 | 1394.5 | 1375.4 | 1378.1 |
| 50°   | 3761.2 | 3938.2 | 3328.2 | 1898.3 | 1263.7 | 1195.6 | 1241.9 | 1285.5 | 1263.7 | 1209.3 | 1214.7 |
| 52.5° | 3979.1 | 4044.5 | 3271.0 | 1593.3 | 1133.0 | 1182.0 | 1184.7 | 1130.3 | 1081.2 | 1054.0 | 1059.5 |
| 55°   | 4221.5 | 4142.5 | 3102.1 | 1320.9 | 1048.6 | 1146.6 | 1070.4 | 999.5  | 1024.1 | 1015.9 | 1013.2 |
| 57.5° | 4474.8 | 4256.9 | 2870.6 | 1086.7 | 969.6  | 1062.2 | 977.8  | 972.3  | 969.6  | 958.7  | 945.1  |
| 60°   | 4692.7 | 4349.5 | 2524.7 | 855.2  | 852.5  | 934.2  | 958.7  | 945.1  | 931.5  | 909.7  | 898.8  |
| 62.5° | 4567.4 | 4118.0 | 2018.1 | 691.8  | 732.6  | 833.4  | 923.3  | 896.0  | 898.8  | 879.7  | 871.5  |
| 65°   | 4213.3 | 3660.4 | 1375.4 | 577.4  | 618.2  | 743.5  | 838.9  | 814.3  | 800.7  | 795.3  | 789.8  |
| 67.5° | 3755.8 | 3170.2 | 906.9  | 457.6  | 517.5  | 650.9  | 740.8  | 710.8  | 729.9  | 729.9  | 727.2  |
| 70°   | 2955.0 | 2424.0 | 571.9  | 373.1  | 411.3  | 539.3  | 615.5  | 629.1  | 656.4  | 659.1  | 656.4  |
| 72.5° | 2124.4 | 1658.6 | 356.8  | 299.6  | 326.8  | 411.3  | 536.5  | 550.2  | 580.1  | 585.6  | 585.6  |
| 75°   | 1252.8 | 934.2  | 239.7  | 239.7  | 253.3  | 335.0  | 443.9  | 487.5  | 501.1  | 506.6  | 501.1  |
| 77.5° | 503.9  | 359.5  | 158.0  | 177.0  | 196.1  | 269.6  | 340.4  | 394.9  | 389.5  | 386.7  | 373.1  |
| 80°   | 179.8  | 155.2  | 108.9  | 117.1  | 141.6  | 201.5  | 253.3  | 269.6  | 286.0  | 277.8  | 269.6  |
| 82.5° | 73.5   | 70.8   | 68.1   | 76.3   | 84.4   | 122.6  | 177.0  | 177.0  | 179.8  | 177.0  | 174.3  |
| 85°   | 27.2   | 27.2   | 32.7   | 38.1   | 46.3   | 57.2   | 79.0   | 100.8  | 84.4   | 59.9   | 62.6   |
| 87.5° | 13.6   | 13.6   | 10.9   | 10.9   | 13.6   | 19.1   | 19.1   | 24.5   | 24.5   | 13.6   | 8.2    |
| 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: 4π  
 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  
 Rf: 73.8  
 Rg: 94.4

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



**Test Conditions**

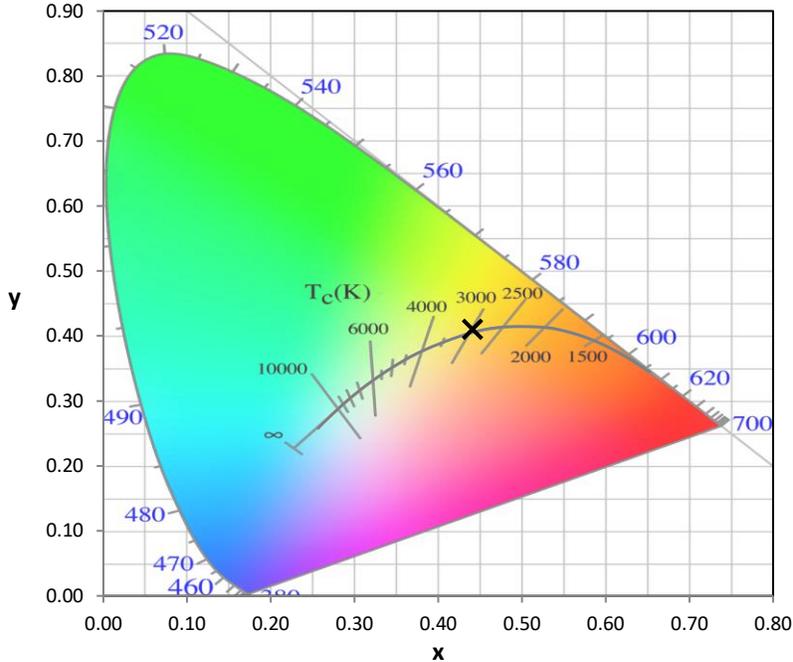
Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 25.2

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**

| $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /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**

| $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /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

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (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            |        |                          |               |

**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 ( $R_{f,i}$ )**

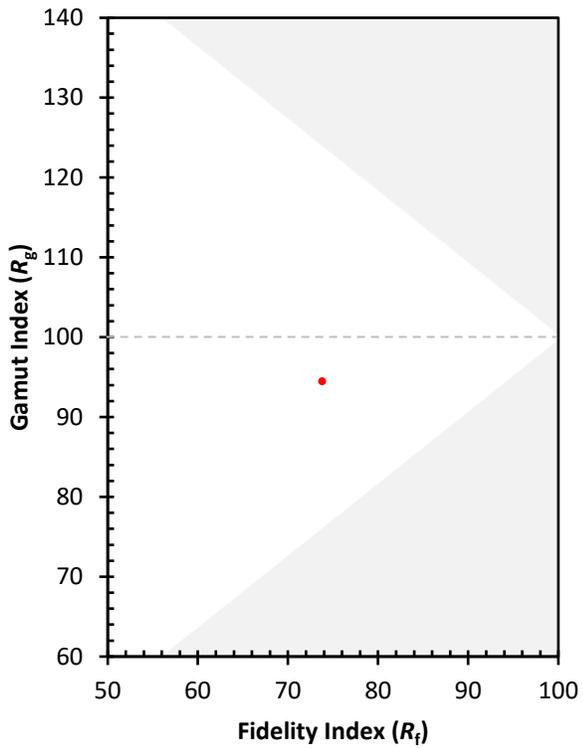
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54 = 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)