

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: P1388011

Luminaire Tested: **VAL-T-SB4A-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.

Report Generated By 670245763



**Test Information**

Test Method: LM-79-08  
 Report Number: P1388011  
 Test Lab: INNOVATION CENTER(G1)  
 Issue Date: 02/18/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: VAL-T-SB4A-730-U-T4W  
 Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 45 SQUARE 114W 70CRI  
 3000K FIXTURE w/ TYPE IV WIDE DISTRIBUTION OPTIC  
 Light Source: (104) 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               |

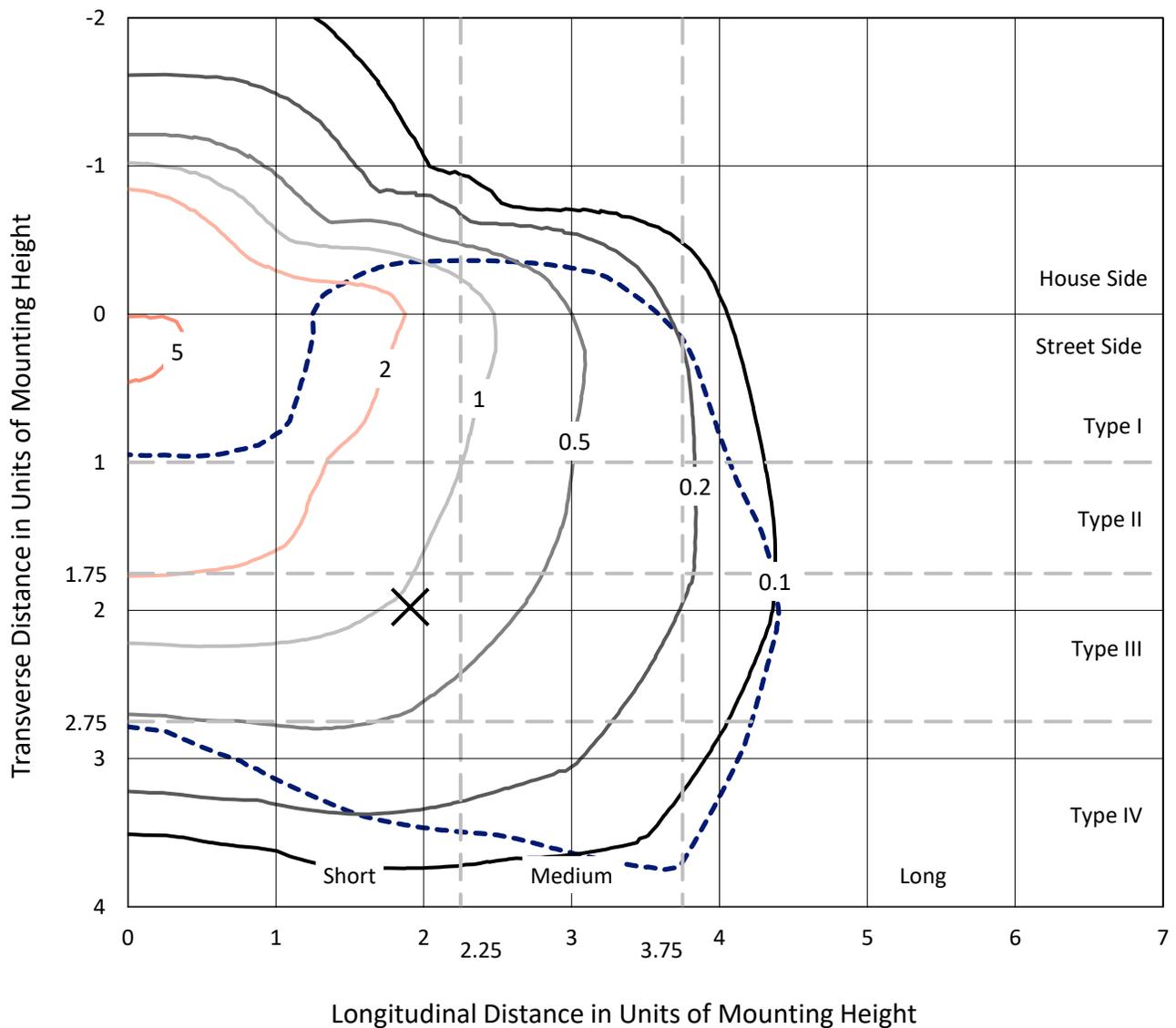
**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 16653.2 lumens  
 Efficiency: N/A  
 Efficacy: 146.1 lumens/watt  
 Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
 IES Classification: Type IV - Short  
 BUG Rating: B3 - U0 - G3  
  
 Input Watts (W): 114  
 Input Voltage (V): 120  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: 0.98  
 Total Harmonic Distortion (THDi): 8.2%  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 28.75 FT

REPORT NUMBER: P1388011  
 CATALOG NUMBER: VAL-T-SB4A-730-U-T4W

### Iso-Footcandle Lines of Horizontal Illumination

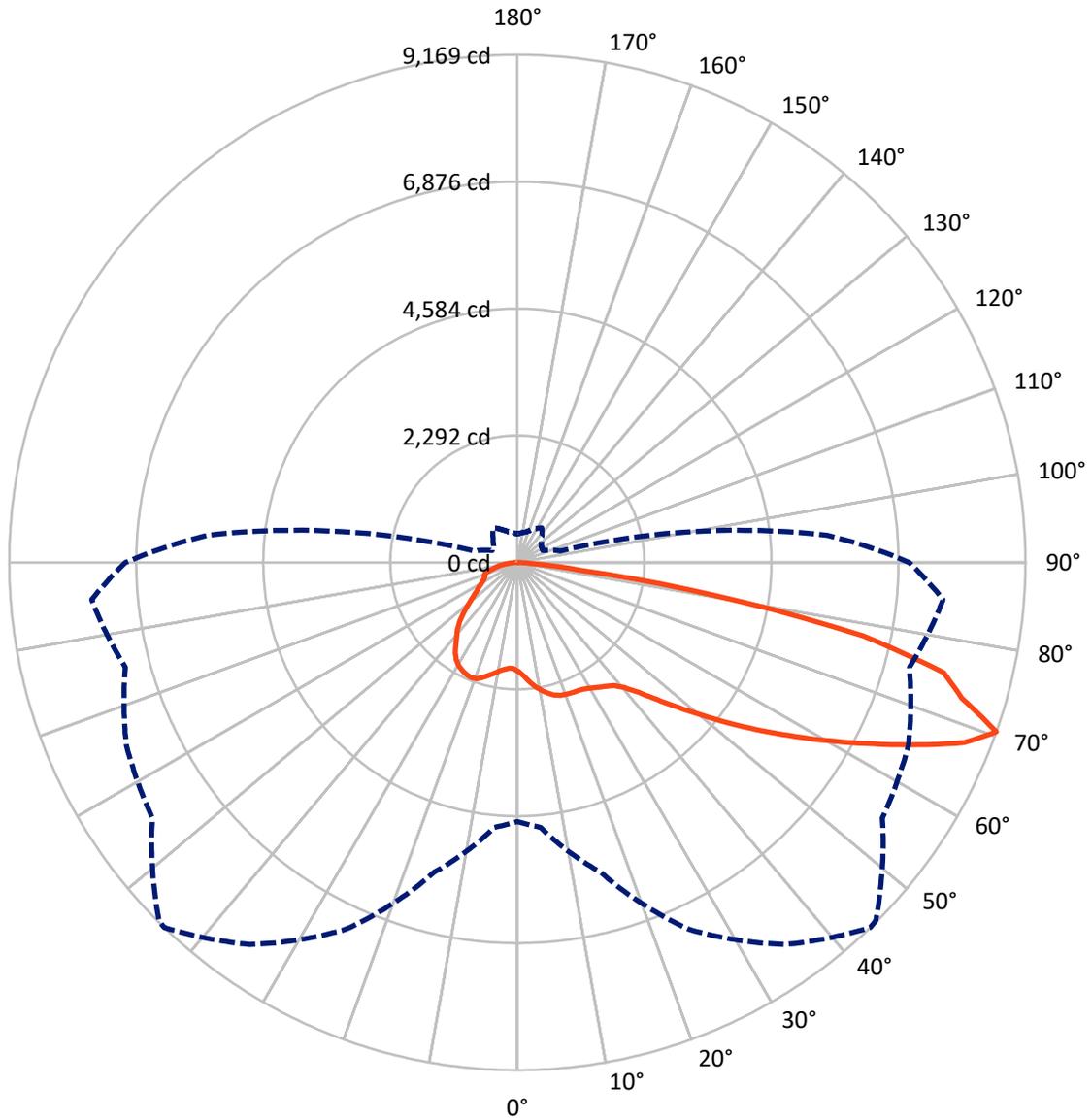
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 6.1 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 44-Deg Lateral    - - - Horizontal Cone Through 70-Deg Vertical

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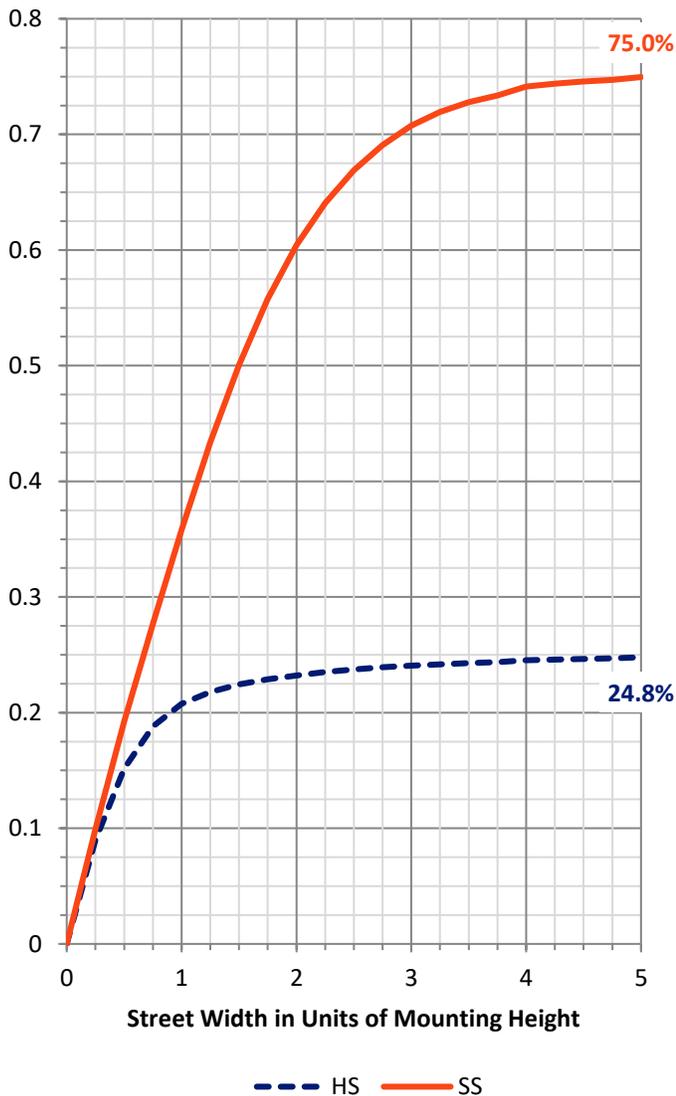
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 4172.8   | 0.0    | 4172.8  |
|                    | % Fixture | 25.1     | 0.0    | 25.1    |
| <b>Street Side</b> | Lumens    | 12480.5  | 0.0    | 12480.5 |
|                    | % Fixture | 74.9     | 0.0    | 74.9    |
| <b>Total</b>       | Lumens    | 16653.2  | 0.0    | 16653.2 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 198.6   | 1.2       |
| 10°-20°   | 651.9   | 3.9       |
| 20°-30°   | 1121.8  | 6.7       |
| 30°-40°   | 1581.4  | 9.5       |
| 40°-50°   | 2188.4  | 13.1      |
| 50°-60°   | 3249.9  | 19.5      |
| 60°-70°   | 4343.4  | 26.1      |
| 70°-80°   | 3064.0  | 18.4      |
| 80°-90°   | 253.7   | 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°    | 16653.2 | 100.0     |
| 0°-180°   | 16653.2 | 100.0     |

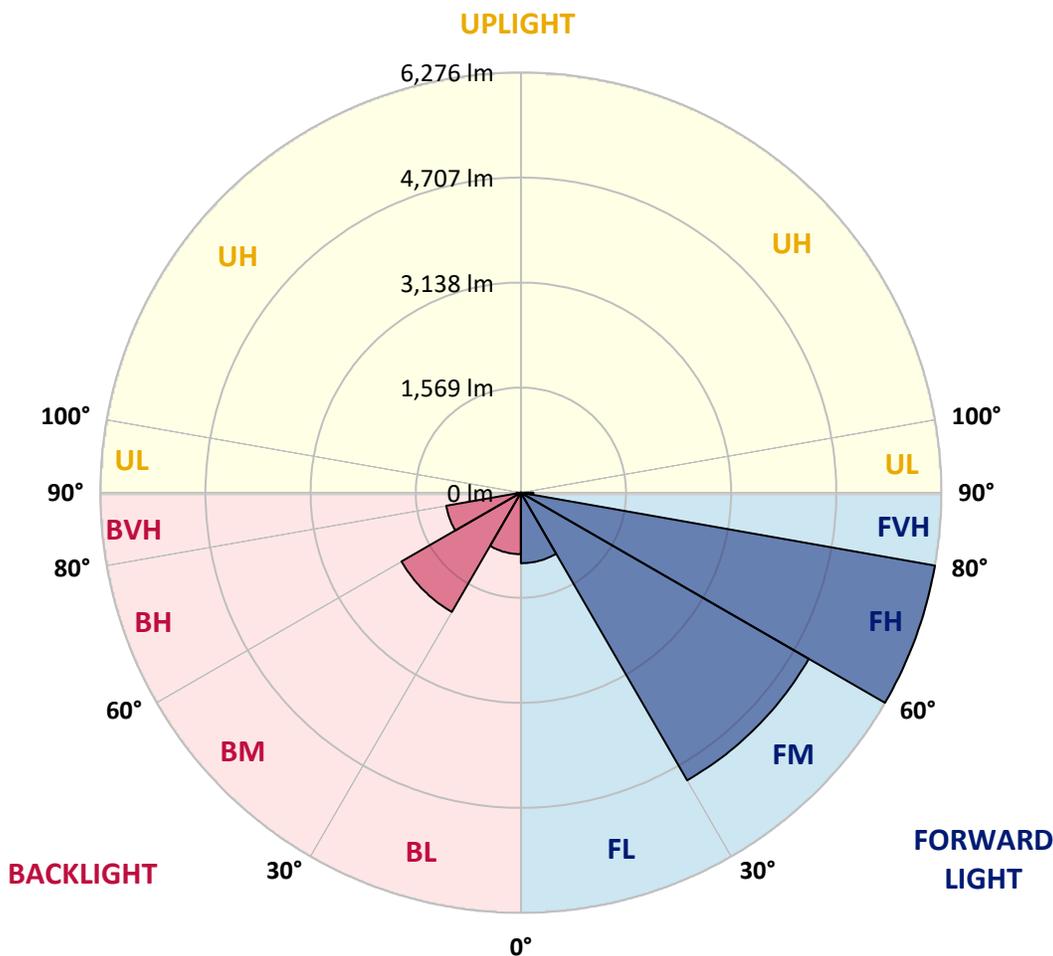


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 1053.9 | 6.3       |                         |      |         |
| FM   | (30°-60°)   | 4962.3 | 29.8      |                         |      |         |
| FH   | (60°-80°)   | 6276.5 | 37.7      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 187.8  | 1.1       |                         |      | G2/225  |
| BL   | (0°-30°)    | 918.5  | 5.5       | B2/1000                 |      |         |
| BM   | (30°-60°)   | 2057.5 | 12.4      | B2/2500                 |      |         |
| BH   | (60°-80°)   | 1130.9 | 6.8       | B3/2500                 |      | G3/2500 |
| BVH  | (80°-90°)   | 65.9   | 0.4       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G3**  
 Type IV Short





REPORT NUMBER: P1388011

CATALOG NUMBER: VAL-T-SB4A-730-U-T4W

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 44°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 |
| 2.5°  | 2113.4 | 2101.2 | 2089.1 | 2085.1 | 2068.9 | 2044.7 | 2044.7 | 2036.6 | 2016.4 | 2000.2 | 1988.1 |
| 5°    | 2250.7 | 2254.8 | 2234.6 | 2218.4 | 2194.2 | 2153.8 | 2157.8 | 2121.4 | 2081.0 | 2036.6 | 2004.2 |
| 7.5°  | 2384.1 | 2384.1 | 2359.8 | 2339.6 | 2307.3 | 2258.8 | 2258.8 | 2202.2 | 2153.8 | 2093.1 | 2048.7 |
| 10°   | 2505.3 | 2497.2 | 2464.9 | 2440.7 | 2396.2 | 2343.7 | 2339.6 | 2283.1 | 2222.5 | 2153.8 | 2093.1 |
| 12.5° | 2598.3 | 2598.3 | 2565.9 | 2525.5 | 2477.0 | 2420.5 | 2416.4 | 2355.8 | 2295.2 | 2222.5 | 2149.7 |
| 15°   | 2687.1 | 2666.9 | 2638.7 | 2586.1 | 2529.6 | 2485.1 | 2477.0 | 2424.5 | 2363.9 | 2299.2 | 2218.4 |
| 17.5° | 2719.5 | 2711.4 | 2675.0 | 2622.5 | 2570.0 | 2521.5 | 2521.5 | 2473.0 | 2428.5 | 2363.9 | 2283.1 |
| 20°   | 2711.4 | 2699.3 | 2666.9 | 2622.5 | 2582.1 | 2541.7 | 2541.7 | 2505.3 | 2481.1 | 2420.5 | 2347.7 |
| 22.5° | 2671.0 | 2658.9 | 2638.7 | 2598.3 | 2578.0 | 2553.8 | 2553.8 | 2533.6 | 2525.5 | 2489.1 | 2420.5 |
| 25°   | 2658.9 | 2650.8 | 2622.5 | 2586.1 | 2565.9 | 2561.9 | 2565.9 | 2570.0 | 2578.0 | 2549.8 | 2493.2 |
| 27.5° | 2666.9 | 2666.9 | 2642.7 | 2606.3 | 2582.1 | 2586.1 | 2590.2 | 2614.4 | 2638.7 | 2622.5 | 2574.0 |
| 30°   | 2719.5 | 2707.4 | 2691.2 | 2654.8 | 2626.5 | 2630.6 | 2630.6 | 2679.1 | 2703.3 | 2683.1 | 2646.7 |
| 32.5° | 2808.4 | 2796.3 | 2772.0 | 2695.2 | 2666.9 | 2687.1 | 2695.2 | 2735.6 | 2751.8 | 2731.6 | 2715.4 |
| 35°   | 3014.5 | 3026.6 | 2945.8 | 2808.4 | 2731.6 | 2747.8 | 2755.8 | 2784.1 | 2804.3 | 2796.3 | 2780.1 |
| 37.5° | 3390.3 | 3394.3 | 3293.3 | 3046.8 | 2869.0 | 2820.5 | 2824.5 | 2864.9 | 2889.2 | 2860.9 | 2848.8 |
| 40°   | 3859.0 | 3863.0 | 3721.6 | 3386.2 | 3087.2 | 2966.0 | 2961.9 | 2970.0 | 3006.4 | 2957.9 | 2949.8 |
| 42.5° | 4368.1 | 4311.6 | 4190.3 | 3806.5 | 3410.5 | 3208.4 | 3172.0 | 3147.8 | 3192.3 | 3131.6 | 3091.2 |
| 45°   | 4853.0 | 4812.6 | 4646.9 | 4250.9 | 3798.4 | 3527.6 | 3491.3 | 3370.0 | 3442.8 | 3394.3 | 3321.6 |
| 47.5° | 5257.1 | 5224.8 | 5099.5 | 4731.8 | 4238.8 | 3911.5 | 3854.9 | 3665.0 | 3794.3 | 3770.1 | 3681.2 |
| 50°   | 5556.1 | 5523.8 | 5438.9 | 5212.7 | 4796.5 | 4339.8 | 4287.3 | 4057.0 | 4190.3 | 4234.8 | 4166.1 |
| 52.5° | 5774.3 | 5766.3 | 5733.9 | 5697.6 | 5362.2 | 4836.9 | 4776.3 | 4489.4 | 4707.6 | 4792.4 | 4772.2 |
| 55°   | 6105.7 | 6089.5 | 6101.6 | 6162.3 | 5968.3 | 5366.2 | 5277.3 | 4941.9 | 5240.9 | 5398.5 | 5430.9 |
| 57.5° | 6420.9 | 6420.9 | 6525.9 | 6683.5 | 6659.3 | 5936.0 | 5830.9 | 5471.3 | 5887.5 | 5964.3 | 6117.8 |
| 60°   | 6715.9 | 6744.1 | 6889.6 | 7237.1 | 7305.8 | 6554.2 | 6429.0 | 6081.4 | 6501.7 | 6586.5 | 6865.4 |
| 62.5° | 6590.6 | 6659.3 | 7124.0 | 7685.6 | 7911.9 | 7216.9 | 7091.6 | 6752.2 | 7192.7 | 7091.6 | 7342.2 |
| 65°   | 5952.1 | 6057.2 | 6776.5 | 7713.9 | 8501.9 | 7944.3 | 7839.2 | 7507.9 | 7572.5 | 7168.4 | 7608.9 |
| 67.5° | 5281.4 | 5434.9 | 6271.4 | 7370.5 | 8655.4 | 8687.8 | 8594.8 | 7972.5 | 7568.5 | 7249.2 | 7879.6 |
| 70°   | 4679.3 | 4804.5 | 5790.5 | 7309.9 | 8425.1 | 9168.6 | 9148.4 | 8041.2 | 7786.7 | 7322.0 | 7709.9 |
| 72.5° | 3281.1 | 3454.9 | 4465.1 | 6748.2 | 8493.8 | 8384.7 | 8340.3 | 8522.1 | 7948.3 | 7055.3 | 6833.0 |
| 75°   | 1179.9 | 1248.6 | 2315.4 | 4566.1 | 6752.2 | 7940.2 | 7976.6 | 7895.8 | 7790.7 | 6319.8 | 5135.9 |
| 77.5° | 351.6  | 375.8  | 658.7  | 1810.3 | 3786.3 | 6372.4 | 6433.0 | 6218.8 | 5855.2 | 3810.5 | 1943.6 |
| 80°   | 189.9  | 206.1  | 311.1  | 529.3  | 1418.3 | 3596.3 | 3762.0 | 3184.2 | 2109.3 | 1006.2 | 436.4  |
| 82.5° | 92.9   | 101.0  | 161.6  | 258.6  | 610.2  | 1143.6 | 1147.6 | 1018.3 | 686.9  | 303.1  | 161.6  |
| 85°   | 32.3   | 36.4   | 52.5   | 97.0   | 210.1  | 234.4  | 234.4  | 218.2  | 202.0  | 149.5  | 72.7   |
| 87.5° | 8.1    | 8.1    | 12.1   | 16.2   | 20.2   | 24.2   | 24.2   | 28.3   | 32.3   | 36.4   | 36.4   |
| 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: P1388011  
 CATALOG NUMBER: VAL-T-SB4A-730-U-T4W

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 | 1967.9 |
| 2.5°  | 1980.0 | 1963.8 | 1951.7 | 1939.6 | 1931.5 | 1915.4 | 1911.3 | 1911.3 | 1907.3 | 1911.3 | 1907.3 |
| 5°    | 1992.1 | 1967.9 | 1947.7 | 1931.5 | 1923.4 | 1915.4 | 1915.4 | 1919.4 | 1915.4 | 1919.4 | 1915.4 |
| 7.5°  | 2016.4 | 2000.2 | 1980.0 | 1955.8 | 1951.7 | 1947.7 | 1951.7 | 1959.8 | 1963.8 | 1967.9 | 1959.8 |
| 10°   | 2064.9 | 2040.6 | 2012.3 | 2000.2 | 1992.1 | 1988.1 | 2000.2 | 2016.4 | 2020.4 | 2028.5 | 2020.4 |
| 12.5° | 2121.4 | 2093.1 | 2072.9 | 2044.7 | 2044.7 | 2048.7 | 2060.8 | 2081.0 | 2093.1 | 2105.3 | 2093.1 |
| 15°   | 2186.1 | 2157.8 | 2129.5 | 2105.3 | 2101.2 | 2109.3 | 2129.5 | 2149.7 | 2153.8 | 2157.8 | 2149.7 |
| 17.5° | 2250.7 | 2222.5 | 2186.1 | 2157.8 | 2153.8 | 2174.0 | 2182.0 | 2182.0 | 2174.0 | 2174.0 | 2161.8 |
| 20°   | 2315.4 | 2295.2 | 2258.8 | 2206.3 | 2222.5 | 2230.5 | 2206.3 | 2186.1 | 2174.0 | 2169.9 | 2157.8 |
| 22.5° | 2392.2 | 2359.8 | 2319.4 | 2262.9 | 2275.0 | 2242.7 | 2198.2 | 2190.1 | 2178.0 | 2182.0 | 2169.9 |
| 25°   | 2464.9 | 2444.7 | 2380.0 | 2307.3 | 2275.0 | 2222.5 | 2194.2 | 2194.2 | 2182.0 | 2190.1 | 2186.1 |
| 27.5° | 2549.8 | 2525.5 | 2436.6 | 2331.6 | 2246.7 | 2190.1 | 2186.1 | 2186.1 | 2165.9 | 2169.9 | 2165.9 |
| 30°   | 2634.6 | 2598.3 | 2481.1 | 2311.4 | 2178.0 | 2141.6 | 2153.8 | 2149.7 | 2141.6 | 2153.8 | 2161.8 |
| 32.5° | 2707.4 | 2679.1 | 2505.3 | 2262.9 | 2093.1 | 2077.0 | 2085.1 | 2105.3 | 2125.5 | 2137.6 | 2153.8 |
| 35°   | 2784.1 | 2751.8 | 2525.5 | 2178.0 | 2000.2 | 1976.0 | 1971.9 | 2032.5 | 2068.9 | 2089.1 | 2101.2 |
| 37.5° | 2864.9 | 2824.5 | 2537.6 | 2085.1 | 1911.3 | 1838.6 | 1850.7 | 1899.2 | 1939.6 | 1976.0 | 2004.2 |
| 40°   | 2974.0 | 2933.6 | 2553.8 | 1984.0 | 1818.4 | 1721.4 | 1705.2 | 1717.4 | 1745.6 | 1798.2 | 1826.5 |
| 42.5° | 3135.7 | 3071.0 | 2553.8 | 1854.7 | 1685.0 | 1616.3 | 1559.8 | 1515.3 | 1499.1 | 1531.5 | 1547.6 |
| 45°   | 3357.9 | 3260.9 | 2537.6 | 1721.4 | 1531.5 | 1483.0 | 1390.0 | 1317.3 | 1252.7 | 1220.3 | 1212.2 |
| 47.5° | 3725.6 | 3555.9 | 2521.5 | 1592.1 | 1386.0 | 1325.4 | 1212.2 | 1127.4 | 1034.5 | 949.6  | 929.4  |
| 50°   | 4218.6 | 3947.9 | 2525.5 | 1462.8 | 1240.5 | 1159.7 | 1058.7 | 969.8  | 860.7  | 779.9  | 767.8  |
| 52.5° | 4869.2 | 4497.4 | 2549.8 | 1321.3 | 1099.1 | 1026.4 | 941.5  | 852.6  | 743.5  | 682.9  | 678.9  |
| 55°   | 5624.8 | 5160.1 | 2634.6 | 1163.8 | 969.8  | 913.2  | 852.6  | 767.8  | 674.8  | 622.3  | 614.2  |
| 57.5° | 6505.7 | 5927.9 | 2804.3 | 998.1  | 852.6  | 832.4  | 783.9  | 703.1  | 626.3  | 573.8  | 565.7  |
| 60°   | 7374.5 | 6671.4 | 2933.6 | 852.6  | 759.7  | 759.7  | 715.2  | 654.6  | 549.6  | 505.1  | 497.0  |
| 62.5° | 7778.6 | 6901.7 | 2687.1 | 735.4  | 686.9  | 699.1  | 670.8  | 585.9  | 553.6  | 533.4  | 521.3  |
| 65°   | 7875.6 | 6772.4 | 2020.4 | 646.5  | 626.3  | 666.7  | 622.3  | 626.3  | 598.0  | 577.8  | 565.7  |
| 67.5° | 7758.4 | 6404.7 | 1293.1 | 569.8  | 581.9  | 626.3  | 686.9  | 691.0  | 598.0  | 553.6  | 545.5  |
| 70°   | 7071.4 | 5616.7 | 796.0  | 505.1  | 521.3  | 618.2  | 763.7  | 650.6  | 565.7  | 529.3  | 513.2  |
| 72.5° | 5899.6 | 4634.8 | 557.6  | 444.5  | 444.5  | 585.9  | 686.9  | 610.2  | 521.3  | 501.1  | 480.9  |
| 75°   | 4141.8 | 3135.7 | 408.1  | 371.8  | 371.8  | 456.6  | 634.4  | 557.6  | 488.9  | 497.0  | 488.9  |
| 77.5° | 1410.2 | 1018.3 | 295.0  | 286.9  | 274.8  | 392.0  | 565.7  | 533.4  | 452.6  | 428.3  | 396.0  |
| 80°   | 416.2  | 327.3  | 218.2  | 202.0  | 198.0  | 315.2  | 476.8  | 392.0  | 323.3  | 295.0  | 274.8  |
| 82.5° | 161.6  | 145.5  | 141.4  | 129.3  | 125.3  | 210.1  | 315.2  | 270.7  | 242.4  | 202.0  | 198.0  |
| 85°   | 64.7   | 64.7   | 72.7   | 72.7   | 64.7   | 113.1  | 189.9  | 149.5  | 141.4  | 125.3  | 121.2  |
| 87.5° | 32.3   | 32.3   | 28.3   | 20.2   | 20.2   | 24.2   | 20.2   | 20.2   | 20.2   | 20.2   | 20.2   |
| 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 ( $R_{f,i}$ )**

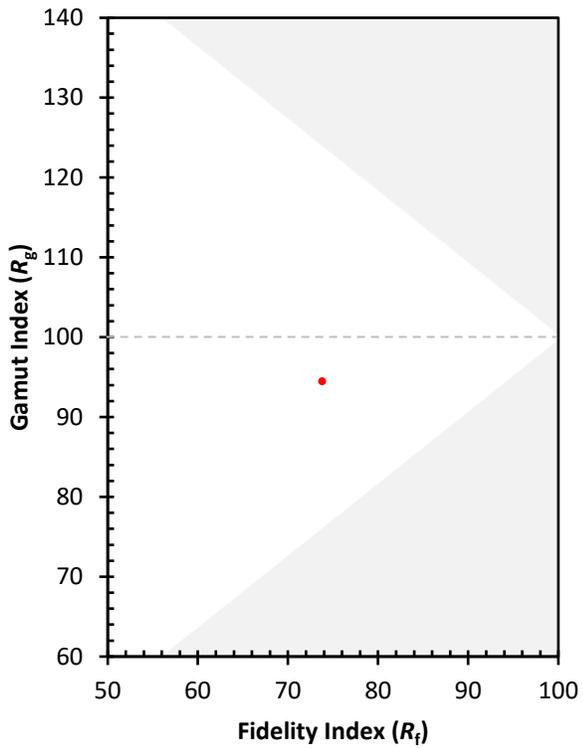
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54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