

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: P1384527

Luminaire Tested: **VAL-T-SB3A-727-U-SL3-HSS**

Issue Date: 02/18/2026

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

**Test Information**

Test Method: LM-79-08  
 Report Number: P1384527  
 Test Lab: INNOVATION CENTER(G1)  
 Issue Date: 02/18/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: VAL-T-SB3A-727-U-SL3-HSS  
 Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 35 SQUARE 85W 70CRI  
 2700K FIXTURE w/ TYPE III SPILL CONTROL DISTRIBUTION OPTIC AND HOUSE SIDE  
 SHIELD  
 Light Source: (78) 2700K 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               |

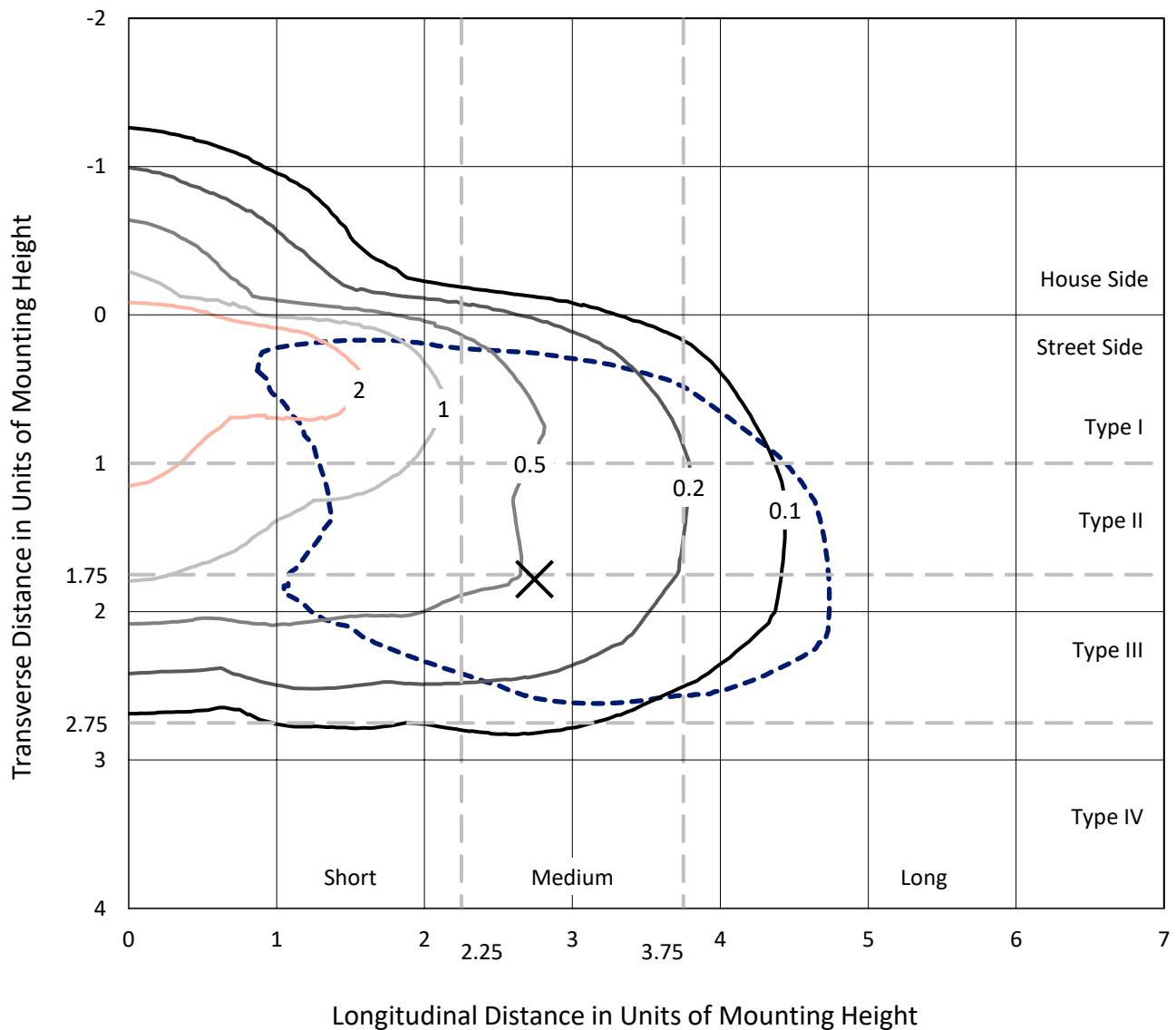
**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 8283 lumens  
 Efficiency: N/A  
 Efficacy: 97.4 lumens/watt  
 Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')  
 IES Classification: Type III - Medium  
 BUG Rating: B1 - U0 - G2  
  
 Input Watts (W): 85  
 Input Voltage (V): 120  
 Input Current (Ain): 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: P1384527  
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## Iso-Footcandle Lines of Horizontal Illumination

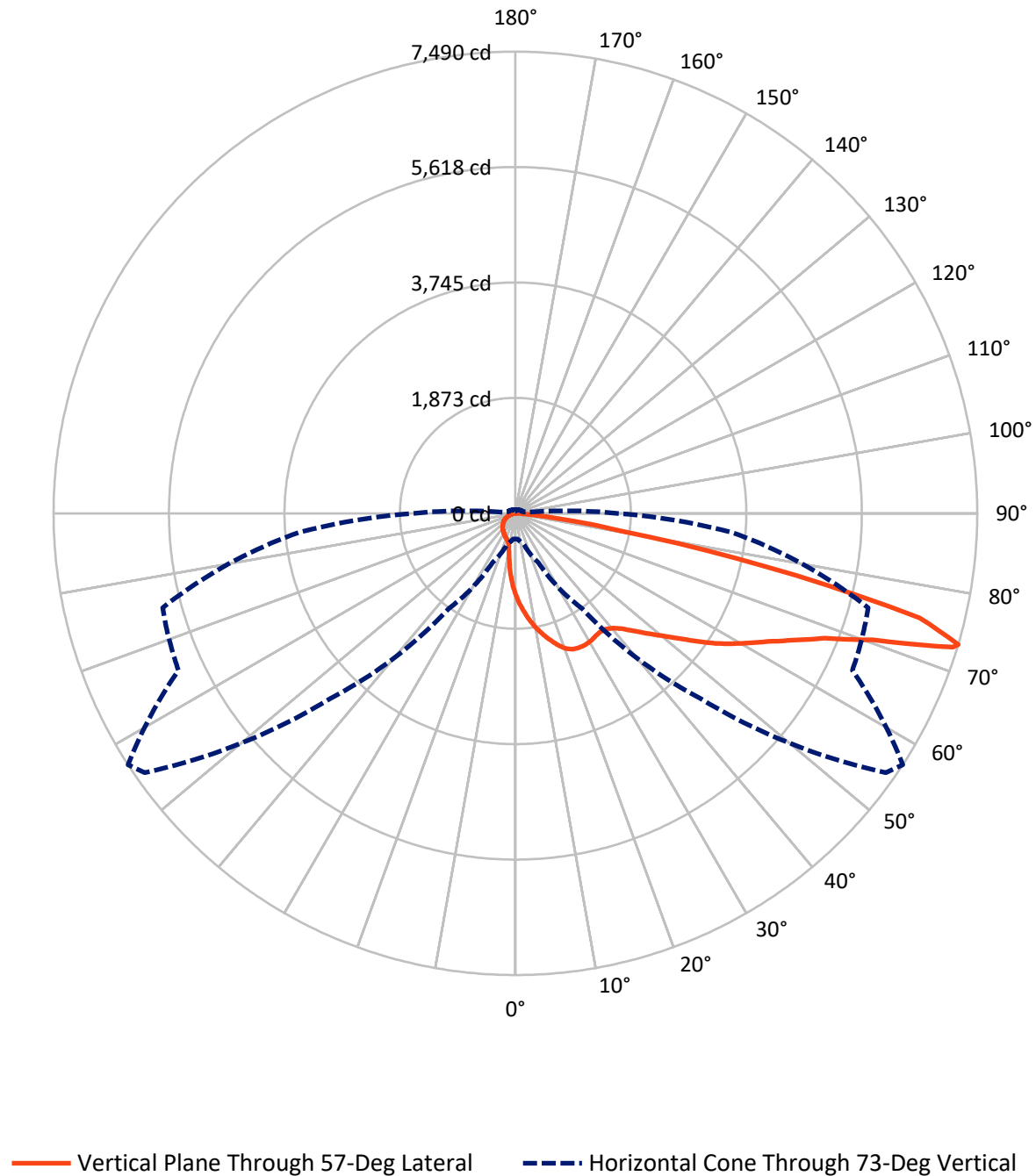
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 4.9 fc  
 Type III - Medium - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 741.9    | 0.0    | 741.9  |
|                    | % Fixture | 9.0      | 0.0    | 9.0    |
| <b>Street Side</b> | Lumens    | 7541.1   | 0.0    | 7541.1 |
|                    | % Fixture | 91.0     | 0.0    | 91.0   |
| <b>Total</b>       | Lumens    | 8283.0   | 0.0    | 8283.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 123.5  | 1.5       |
| 10°-20°   | 354.3  | 4.3       |
| 20°-30°   | 537.7  | 6.5       |
| 30°-40°   | 778.7  | 9.4       |
| 40°-50°   | 1162.9 | 14.0      |
| 50°-60°   | 1683.8 | 20.3      |
| 60°-70°   | 2039.8 | 24.6      |
| 70°-80°   | 1473.2 | 17.8      |
| 80°-90°   | 129.2  | 1.6       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 8283.0 | 100.0     |
| 0°-180°   | 8283.0 | 100.0     |

**Coefficient of Utilization**



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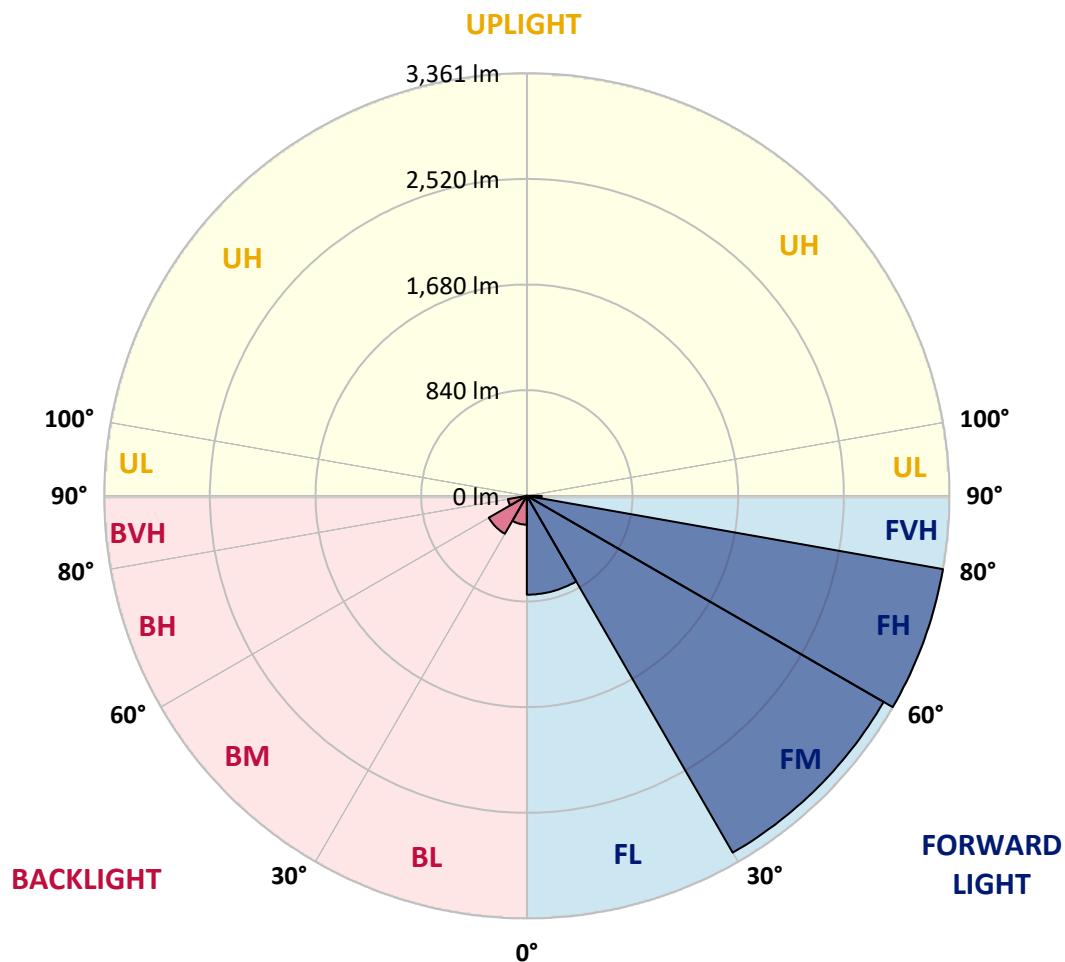
CATALOG NUMBER: VAL-T-SB3A-727-U-SL3-HSS

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 786.1  | 9.5       |                         |      |         |
| FM   | (30°-60°)   | 3276.4 | 39.6      |                         |      |         |
| FH   | (60°-80°)   | 3360.7 | 40.6      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 118.0  | 1.4       |                         |      | G2/225  |
| BL   | (0°-30°)    | 229.3  | 2.8       | B1/500                  |      |         |
| BM   | (30°-60°)   | 349.0  | 4.2       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 152.4  | 1.8       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 11.2   | 0.1       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

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

Type III Medium



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 57°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 |
| 2.5°  | 1602.2 | 1607.6 | 1588.7 | 1577.9 | 1556.3 | 1521.3 | 1486.2 | 1486.2 | 1445.8 | 1408.0 | 1359.4 |
| 5°    | 1839.6 | 1823.4 | 1815.3 | 1788.3 | 1747.8 | 1704.7 | 1642.7 | 1626.5 | 1561.7 | 1480.8 | 1383.7 |
| 7.5°  | 2020.3 | 2001.4 | 1993.3 | 1969.0 | 1923.2 | 1866.5 | 1782.9 | 1769.4 | 1675.0 | 1556.3 | 1416.1 |
| 10°   | 2130.9 | 2117.4 | 2117.4 | 2098.5 | 2063.4 | 2004.1 | 1920.5 | 1901.6 | 1788.3 | 1626.5 | 1437.7 |
| 12.5° | 2082.3 | 2076.9 | 2109.3 | 2152.4 | 2168.6 | 2133.6 | 2044.6 | 2020.3 | 1890.8 | 1704.7 | 1464.6 |
| 15°   | 1861.1 | 1855.7 | 1915.1 | 2028.4 | 2165.9 | 2225.3 | 2157.8 | 2136.3 | 2001.4 | 1785.6 | 1491.6 |
| 17.5° | 1648.0 | 1640.0 | 1696.6 | 1809.9 | 2014.9 | 2236.1 | 2276.5 | 2249.5 | 2112.0 | 1866.5 | 1521.3 |
| 20°   | 1526.7 | 1518.6 | 1556.3 | 1648.0 | 1834.2 | 2149.7 | 2338.6 | 2344.0 | 2233.4 | 1955.5 | 1550.9 |
| 22.5° | 1483.5 | 1480.8 | 1499.7 | 1561.7 | 1693.9 | 2001.4 | 2362.8 | 2395.2 | 2365.5 | 2058.0 | 1594.1 |
| 25°   | 1502.4 | 1491.6 | 1497.0 | 1521.3 | 1615.7 | 1882.7 | 2349.3 | 2411.4 | 2476.1 | 2182.1 | 1650.7 |
| 27.5° | 1550.9 | 1542.9 | 1534.8 | 1534.8 | 1583.3 | 1796.4 | 2314.3 | 2416.8 | 2589.4 | 2317.0 | 1699.3 |
| 30°   | 1631.9 | 1621.1 | 1596.8 | 1567.1 | 1583.3 | 1742.5 | 2273.8 | 2403.3 | 2686.5 | 2462.6 | 1766.7 |
| 32.5° | 1815.3 | 1807.2 | 1737.1 | 1642.7 | 1621.1 | 1729.0 | 2228.0 | 2379.0 | 2791.7 | 2635.3 | 1845.0 |
| 35°   | 1996.0 | 1987.9 | 1939.4 | 1804.5 | 1685.8 | 1739.8 | 2198.3 | 2362.8 | 2921.2 | 2845.6 | 1936.7 |
| 37.5° | 2076.9 | 2063.4 | 2025.7 | 1952.8 | 1836.9 | 1801.8 | 2206.4 | 2381.7 | 3107.3 | 3077.6 | 2049.9 |
| 40°   | 2179.4 | 2157.8 | 2101.2 | 2033.8 | 1982.5 | 1944.8 | 2271.1 | 2446.4 | 3315.0 | 3344.6 | 2174.0 |
| 42.5° | 2330.5 | 2306.2 | 2222.6 | 2128.2 | 2068.8 | 2144.4 | 2395.2 | 2562.4 | 3571.2 | 3641.4 | 2325.1 |
| 45°   | 2538.2 | 2505.8 | 2397.9 | 2273.8 | 2201.0 | 2244.2 | 2562.4 | 2727.0 | 3857.1 | 3978.5 | 2500.4 |
| 47.5° | 2727.0 | 2718.9 | 2597.5 | 2454.5 | 2368.2 | 2311.6 | 2743.2 | 2918.5 | 4159.2 | 4356.1 | 2681.1 |
| 50°   | 2905.0 | 2875.3 | 2756.6 | 2616.4 | 2543.6 | 2449.1 | 2942.8 | 3131.6 | 4461.3 | 4701.4 | 2875.3 |
| 52.5° | 3099.2 | 3066.8 | 2905.0 | 2745.8 | 2673.0 | 2651.4 | 3201.7 | 3385.1 | 4725.7 | 5065.5 | 3072.2 |
| 55°   | 3250.2 | 3204.4 | 3026.4 | 2894.2 | 2778.2 | 2851.0 | 3479.5 | 3689.9 | 4960.3 | 5394.6 | 3271.8 |
| 57.5° | 3439.1 | 3379.7 | 3126.2 | 3029.1 | 2940.1 | 3053.3 | 3792.4 | 3994.7 | 5205.8 | 5672.4 | 3471.4 |
| 60°   | 3603.6 | 3557.7 | 3312.3 | 3190.9 | 3107.3 | 3282.6 | 4097.2 | 4275.2 | 5397.3 | 5909.8 | 3654.8 |
| 62.5° | 3101.9 | 3096.5 | 3161.2 | 3525.4 | 3401.3 | 3630.6 | 4423.6 | 4580.0 | 5513.3 | 6068.9 | 3730.4 |
| 65°   | 2201.0 | 2217.2 | 2397.9 | 3530.8 | 3973.1 | 4213.2 | 4852.4 | 4954.9 | 5518.7 | 5888.2 | 3582.0 |
| 67.5° | 1399.9 | 1383.7 | 1607.6 | 2956.2 | 3994.7 | 5362.2 | 5505.2 | 5402.7 | 5270.5 | 5694.0 | 3600.9 |
| 70°   | 838.9  | 844.3  | 919.8  | 2144.4 | 3293.4 | 5623.9 | 6416.9 | 6152.5 | 5418.9 | 5837.0 | 3617.1 |
| 72.5° | 455.8  | 466.6  | 574.5  | 1051.9 | 2182.1 | 4474.8 | 7382.5 | 7420.3 | 5926.0 | 5904.4 | 3555.0 |
| 73°   | 415.4  | 418.1  | 515.2  | 879.3  | 1888.1 | 4253.6 | 7336.6 | 7490.4 | 6028.5 | 5923.3 | 3514.6 |
| 75°   | 275.1  | 275.1  | 350.6  | 499.0  | 828.1  | 3306.9 | 6090.5 | 6770.2 | 6376.4 | 5729.1 | 3199.0 |
| 77.5° | 169.9  | 180.7  | 242.8  | 345.3  | 302.1  | 1664.2 | 3582.0 | 4143.0 | 5685.9 | 4310.3 | 2009.5 |
| 80°   | 62.0   | 67.4   | 151.0  | 226.6  | 175.3  | 631.2  | 1502.4 | 1723.6 | 2635.3 | 2187.5 | 725.6  |
| 82.5° | 32.4   | 35.1   | 94.4   | 116.0  | 94.4   | 164.5  | 671.6  | 717.5  | 1062.7 | 569.1  | 134.9  |
| 85°   | 16.2   | 18.9   | 40.5   | 48.6   | 37.8   | 53.9   | 167.2  | 156.4  | 240.1  | 75.5   | 37.8   |
| 87.5° | 0.0    | 0.0    | 2.7    | 5.4    | 8.1    | 10.8   | 16.2   | 16.2   | 18.9   | 21.6   | 21.6   |
| 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: P1384527

CATALOG NUMBER: VAL-T-SB3A-727-U-SL3-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 | 1332.5 |
| 2.5°  | 1329.8 | 1308.2 | 1256.9 | 1205.7 | 1167.9 | 1127.5 | 1089.7 | 1057.3 | 1038.5 | 1030.4 | 1038.5 |
| 5°    | 1332.5 | 1286.6 | 1181.4 | 1076.2 | 973.7  | 890.1  | 811.9  | 755.2  | 714.8  | 701.3  | 695.9  |
| 7.5°  | 1332.5 | 1256.9 | 1092.4 | 919.8  | 768.7  | 658.1  | 579.9  | 544.9  | 526.0  | 523.3  | 523.3  |
| 10°   | 1329.8 | 1221.9 | 992.6  | 766.0  | 593.4  | 517.9  | 493.6  | 488.2  | 488.2  | 488.2  | 490.9  |
| 12.5° | 1327.1 | 1189.5 | 879.3  | 617.7  | 499.0  | 474.7  | 466.6  | 466.6  | 469.3  | 472.0  | 474.7  |
| 15°   | 1321.7 | 1141.0 | 760.6  | 515.2  | 463.9  | 455.8  | 450.4  | 450.4  | 453.1  | 458.5  | 458.5  |
| 17.5° | 1316.3 | 1092.4 | 644.7  | 469.3  | 447.8  | 439.7  | 437.0  | 434.3  | 439.7  | 445.1  | 445.1  |
| 20°   | 1305.5 | 1030.4 | 547.6  | 445.1  | 431.6  | 426.2  | 423.5  | 420.8  | 423.5  | 428.9  | 431.6  |
| 22.5° | 1292.0 | 952.1  | 482.8  | 428.9  | 418.1  | 410.0  | 407.3  | 404.6  | 404.6  | 415.4  | 415.4  |
| 25°   | 1278.5 | 865.8  | 445.1  | 412.7  | 401.9  | 393.8  | 388.4  | 385.7  | 388.4  | 396.5  | 396.5  |
| 27.5° | 1251.5 | 771.4  | 420.8  | 399.2  | 388.4  | 377.6  | 372.2  | 366.8  | 369.5  | 377.6  | 377.6  |
| 30°   | 1211.1 | 671.6  | 407.3  | 385.7  | 372.2  | 358.7  | 350.6  | 345.3  | 348.0  | 356.0  | 358.7  |
| 32.5° | 1151.7 | 585.3  | 401.9  | 374.9  | 358.7  | 339.9  | 329.1  | 321.0  | 323.7  | 334.5  | 334.5  |
| 35°   | 1089.7 | 523.3  | 399.2  | 364.1  | 342.6  | 323.7  | 304.8  | 294.0  | 299.4  | 310.2  | 312.9  |
| 37.5° | 1025.0 | 488.2  | 399.2  | 358.7  | 331.8  | 307.5  | 280.5  | 269.7  | 272.4  | 283.2  | 285.9  |
| 40°   | 968.3  | 472.0  | 401.9  | 353.3  | 318.3  | 288.6  | 258.9  | 245.5  | 250.8  | 264.3  | 261.6  |
| 42.5° | 946.8  | 469.3  | 401.9  | 339.9  | 304.8  | 269.7  | 237.4  | 223.9  | 229.3  | 237.4  | 240.1  |
| 45°   | 971.0  | 480.1  | 396.5  | 326.4  | 285.9  | 248.2  | 221.2  | 207.7  | 210.4  | 215.8  | 221.2  |
| 47.5° | 1054.6 | 493.6  | 388.4  | 310.2  | 269.7  | 232.0  | 205.0  | 194.2  | 188.8  | 196.9  | 199.6  |
| 50°   | 1170.6 | 501.7  | 374.9  | 294.0  | 256.2  | 215.8  | 191.5  | 178.0  | 172.6  | 175.3  | 178.0  |
| 52.5° | 1302.8 | 501.7  | 361.4  | 277.8  | 242.8  | 199.6  | 180.7  | 167.2  | 156.4  | 159.1  | 159.1  |
| 55°   | 1435.0 | 496.3  | 326.4  | 264.3  | 229.3  | 188.8  | 169.9  | 151.0  | 143.0  | 143.0  | 140.3  |
| 57.5° | 1572.5 | 488.2  | 283.2  | 245.5  | 213.1  | 175.3  | 156.4  | 140.3  | 129.5  | 124.1  | 124.1  |
| 60°   | 1707.4 | 477.4  | 258.9  | 226.6  | 194.2  | 164.5  | 143.0  | 129.5  | 116.0  | 107.9  | 105.2  |
| 62.5° | 1777.5 | 447.8  | 232.0  | 202.3  | 175.3  | 148.4  | 129.5  | 116.0  | 99.8   | 89.0   | 86.3   |
| 65°   | 1739.8 | 385.7  | 199.6  | 180.7  | 159.1  | 132.2  | 116.0  | 102.5  | 83.6   | 70.1   | 70.1   |
| 67.5° | 1780.2 | 323.7  | 169.9  | 153.7  | 137.6  | 113.3  | 97.1   | 89.0   | 72.8   | 62.0   | 62.0   |
| 70°   | 1793.7 | 253.5  | 143.0  | 132.2  | 118.7  | 94.4   | 83.6   | 78.2   | 64.7   | 53.9   | 51.2   |
| 72.5° | 1693.9 | 188.8  | 116.0  | 110.6  | 97.1   | 72.8   | 70.1   | 64.7   | 53.9   | 43.2   | 43.2   |
| 73°   | 1653.4 | 175.3  | 110.6  | 105.2  | 91.7   | 70.1   | 67.4   | 62.0   | 51.2   | 43.2   | 40.5   |
| 75°   | 1456.5 | 134.9  | 91.7   | 86.3   | 72.8   | 59.3   | 56.6   | 51.2   | 43.2   | 35.1   | 35.1   |
| 77.5° | 965.6  | 97.1   | 70.1   | 64.7   | 53.9   | 45.9   | 43.2   | 37.8   | 32.4   | 27.0   | 27.0   |
| 80°   | 356.0  | 64.7   | 51.2   | 45.9   | 40.5   | 37.8   | 32.4   | 27.0   | 21.6   | 21.6   | 18.9   |
| 82.5° | 72.8   | 43.2   | 37.8   | 32.4   | 29.7   | 27.0   | 21.6   | 18.9   | 16.2   | 16.2   | 16.2   |
| 85°   | 29.7   | 27.0   | 21.6   | 21.6   | 21.6   | 18.9   | 16.2   | 16.2   | 13.5   | 13.5   | 10.8   |
| 87.5° | 18.9   | 16.2   | 16.2   | 13.5   | 13.5   | 10.8   | 10.8   | 10.8   | 10.8   | 10.8   | 10.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-3

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-727-U-5WQ

Data in this report applies to families of products including GSS-SB1A-727-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-727-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 2700K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 2672     | CRI (Ra): | 71.1 |      |       |
| CIE u':                   | 0.2638   | R1:       | 68.3 | R9:  | -27.8 |
| CIE v':                   | 0.5276   | R2:       | 79.8 | R10: | 54.4  |
| Duv:                      | -0.0002  | R3:       | 91.2 | R11: | 65.8  |
| CIE x:                    | 0.4619   | R4:       | 69.4 | R12: | 45.6  |
| CIE y:                    | 0.4106   | R5:       | 66.5 | R13: | 69.8  |
| CIE z:                    | 0.1275   | R6:       | 72.6 | R14: | 94.5  |
| Peak Wavelength (nm):     | 601      | R7:       | 77.0 | R15: | 60.1  |
| Dominant Wavelength (nm): | 584      | R8:       | 44.1 |      |       |
| Purity:                   | 61.88407 |           |      |      |       |
| Rf:                       | 67.9     |           |      |      |       |
| Rg:                       | 98.6     |           |      |      |       |



### Test Conditions

Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-3

| 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 2700K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-3

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 0                             | NR                             | 490               | 52                            | NR                             | 620               | 888                           | NR                             | 750               | 27                            | NR                             | 880               | 1                             | NR                             |
| 365               | 0                             | NR                             | 495               | 87                            | NR                             | 625               | 834                           | NR                             | 755               | 23                            | NR                             | 885               | 1                             | NR                             |
| 370               | 0                             | NR                             | 500               | 135                           | NR                             | 630               | 776                           | NR                             | 760               | 20                            | NR                             | 890               | 1                             | NR                             |
| 375               | 0                             | NR                             | 505               | 196                           | NR                             | 635               | 712                           | NR                             | 765               | 17                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 258                           | NR                             | 640               | 648                           | NR                             | 770               | 15                            | NR                             | 900               | 0                             | NR                             |
| 385               | 1                             | NR                             | 515               | 317                           | NR                             | 645               | 583                           | NR                             | 775               | 12                            | NR                             | 905               | 0                             | NR                             |
| 390               | 2                             | NR                             | 520               | 368                           | NR                             | 650               | 523                           | NR                             | 780               | 11                            | NR                             | 910               | 0                             | NR                             |
| 395               | 4                             | NR                             | 525               | 408                           | NR                             | 655               | 465                           | NR                             | 785               | 9                             | NR                             | 915               | 0                             | NR                             |
| 400               | 6                             | NR                             | 530               | 443                           | NR                             | 660               | 410                           | NR                             | 790               | 8                             | NR                             | 920               | 0                             | NR                             |
| 405               | 11                            | NR                             | 535               | 473                           | NR                             | 665               | 360                           | NR                             | 795               | 7                             | NR                             | 925               | 0                             | NR                             |
| 410               | 23                            | NR                             | 540               | 498                           | NR                             | 670               | 313                           | NR                             | 800               | 6                             | NR                             | 930               | 0                             | NR                             |
| 415               | 51                            | NR                             | 545               | 530                           | NR                             | 675               | 272                           | NR                             | 805               | 5                             | NR                             | 935               | 0                             | NR                             |
| 420               | 111                           | NR                             | 550               | 563                           | NR                             | 680               | 236                           | NR                             | 810               | 4                             | NR                             | 940               | 0                             | NR                             |
| 425               | 214                           | NR                             | 555               | 605                           | NR                             | 685               | 203                           | NR                             | 815               | 4                             | NR                             | 945               | 0                             | NR                             |
| 430               | 339                           | NR                             | 560               | 651                           | NR                             | 690               | 175                           | NR                             | 820               | 3                             | NR                             | 950               | 0                             | NR                             |
| 435               | 467                           | NR                             | 565               | 705                           | NR                             | 695               | 150                           | NR                             | 825               | 3                             | NR                             | 955               | 0                             | NR                             |
| 440               | 535                           | NR                             | 570               | 765                           | NR                             | 700               | 128                           | NR                             | 830               | 3                             | NR                             | 960               | 0                             | NR                             |
| 445               | 372                           | NR                             | 575               | 824                           | NR                             | 705               | 110                           | NR                             | 835               | 2                             | NR                             | 965               | 0                             | NR                             |
| 450               | 160                           | NR                             | 580               | 882                           | NR                             | 710               | 94                            | NR                             | 840               | 2                             | NR                             | 970               | 0                             | NR                             |
| 455               | 89                            | NR                             | 585               | 930                           | NR                             | 715               | 80                            | NR                             | 845               | 2                             | NR                             | 975               | 0                             | NR                             |
| 460               | 53                            | NR                             | 590               | 968                           | NR                             | 720               | 69                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 31                            | NR                             | 595               | 991                           | NR                             | 725               | 59                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 23                            | NR                             | 600               | 999                           | NR                             | 730               | 50                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 21                            | NR                             | 605               | 992                           | NR                             | 735               | 43                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 23                            | NR                             | 610               | 969                           | NR                             | 740               | 36                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 32                            | NR                             | 615               | 935                           | NR                             | 745               | 31                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.02

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 52                                   | NR                             | 620               | 888                                  | NR                             | 750               | 27                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 87                                   | NR                             | 625               | 834                                  | NR                             | 755               | 23                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 135                                  | NR                             | 630               | 776                                  | NR                             | 760               | 20                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 196                                  | NR                             | 635               | 712                                  | NR                             | 765               | 17                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 258                                  | NR                             | 640               | 648                                  | NR                             | 770               | 15                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 1                                    | NR                             | 515               | 317                                  | NR                             | 645               | 583                                  | NR                             | 775               | 12                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 2                                    | NR                             | 520               | 368                                  | NR                             | 650               | 523                                  | NR                             | 780               | 11                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 408                                  | NR                             | 655               | 465                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 6                                    | NR                             | 530               | 443                                  | NR                             | 660               | 410                                  | NR                             | 790               | 8                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 11                                   | NR                             | 535               | 473                                  | NR                             | 665               | 360                                  | NR                             | 795               | 7                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 23                                   | NR                             | 540               | 498                                  | NR                             | 670               | 313                                  | NR                             | 800               | 6                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 51                                   | NR                             | 545               | 530                                  | NR                             | 675               | 272                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 111                                  | NR                             | 550               | 563                                  | NR                             | 680               | 236                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 214                                  | NR                             | 555               | 605                                  | NR                             | 685               | 203                                  | NR                             | 815               | 4                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 339                                  | NR                             | 560               | 651                                  | NR                             | 690               | 175                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 467                                  | NR                             | 565               | 705                                  | NR                             | 695               | 150                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 535                                  | NR                             | 570               | 765                                  | NR                             | 700               | 128                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 372                                  | NR                             | 575               | 824                                  | NR                             | 705               | 110                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 160                                  | NR                             | 580               | 882                                  | NR                             | 710               | 94                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 89                                   | NR                             | 585               | 930                                  | NR                             | 715               | 80                                   | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 53                                   | NR                             | 590               | 968                                  | NR                             | 720               | 69                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 31                                   | NR                             | 595               | 991                                  | NR                             | 725               | 59                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 23                                   | NR                             | 600               | 999                                  | NR                             | 730               | 50                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 21                                   | NR                             | 605               | 992                                  | NR                             | 735               | 43                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 23                                   | NR                             | 610               | 969                                  | NR                             | 740               | 36                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 32                                   | NR                             | 615               | 935                                  | NR                             | 745               | 31                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 1.71

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 52                          | NR               | 620       | 888                         | NR               | 750       | 27                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 87                          | NR               | 625       | 834                         | NR               | 755       | 23                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 135                         | NR               | 630       | 776                         | NR               | 760       | 20                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 196                         | NR               | 635       | 712                         | NR               | 765       | 17                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 258                         | NR               | 640       | 648                         | NR               | 770       | 15                          | NR               | 900       | 0                           | NR               |
| 385       | 1                           | NR               | 515       | 317                         | NR               | 645       | 583                         | NR               | 775       | 12                          | NR               | 905       | 0                           | NR               |
| 390       | 2                           | NR               | 520       | 368                         | NR               | 650       | 523                         | NR               | 780       | 11                          | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 408                         | NR               | 655       | 465                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 6                           | NR               | 530       | 443                         | NR               | 660       | 410                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 11                          | NR               | 535       | 473                         | NR               | 665       | 360                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 23                          | NR               | 540       | 498                         | NR               | 670       | 313                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 51                          | NR               | 545       | 530                         | NR               | 675       | 272                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 111                         | NR               | 550       | 563                         | NR               | 680       | 236                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 214                         | NR               | 555       | 605                         | NR               | 685       | 203                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 339                         | NR               | 560       | 651                         | NR               | 690       | 175                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 467                         | NR               | 565       | 705                         | NR               | 695       | 150                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 535                         | NR               | 570       | 765                         | NR               | 700       | 128                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 372                         | NR               | 575       | 824                         | NR               | 705       | 110                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 160                         | NR               | 580       | 882                         | NR               | 710       | 94                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 89                          | NR               | 585       | 930                         | NR               | 715       | 80                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 53                          | NR               | 590       | 968                         | NR               | 720       | 69                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 31                          | NR               | 595       | 991                         | NR               | 725       | 59                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 23                          | NR               | 600       | 999                         | NR               | 730       | 50                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 21                          | NR               | 605       | 992                         | NR               | 735       | 43                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 23                          | NR               | 610       | 969                         | NR               | 740       | 36                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 32                          | NR               | 615       | 935                         | NR               | 745       | 31                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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TM-30-18

### Summary

$R_f = 67.9$   
 $R_g = 98.6$   
 $CIE R_a = 71.1$   
 $R_g = -27.8$

### Spectral Power Distribution Comparison



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 53 | CES51 = 75 | CES76 = 51 |
| CES02 = 63 | CES27 = 70 | CES52 = 80 | CES77 = 79 |
| CES03 = 31 | CES28 = 81 | CES53 = 64 | CES78 = 58 |
| CES04 = 71 | CES29 = 37 | CES54 = 73 | CES79 = 82 |
| CES05 = 50 | CES30 = 33 | CES55 = 69 | CES80 = 82 |
| CES06 = 52 | CES31 = 44 | CES56 = 60 | CES81 = 69 |
| CES07 = 42 | CES32 = 47 | CES57 = 54 | CES82 = 92 |
| CES08 = 41 | CES33 = 45 | CES58 = 59 | CES83 = 82 |
| CES09 = 29 | CES34 = 67 | CES59 = 85 | CES84 = 92 |
| CES10 = 77 | CES35 = 84 | CES60 = 86 | CES85 = 87 |
| CES11 = 60 | CES36 = 68 | CES61 = 86 | CES86 = 60 |
| CES12 = 66 | CES37 = 77 | CES62 = 59 | CES87 = 79 |
| CES13 = 44 | CES38 = 40 | CES63 = 66 | CES88 = 70 |
| CES14 = 74 | CES39 = 88 | CES64 = 69 | CES89 = 66 |
| CES15 = 72 | CES40 = 82 | CES65 = 64 | CES90 = 64 |
| CES16 = 48 | CES41 = 70 | CES66 = 65 | CES91 = 81 |
| CES17 = 51 | CES42 = 76 | CES67 = 64 | CES92 = 69 |
| CES18 = 57 | CES43 = 63 | CES68 = 73 | CES93 = 81 |
| CES19 = 73 | CES44 = 97 | CES69 = 83 | CES94 = 53 |
| CES20 = 67 | CES45 = 74 | CES70 = 64 | CES95 = 77 |
| CES21 = 88 | CES46 = 67 | CES71 = 60 | CES96 = 79 |
| CES22 = 80 | CES47 = 55 | CES72 = 87 | CES97 = 78 |
| CES23 = 92 | CES48 = 42 | CES73 = 57 | CES98 = 69 |
| CES24 = 92 | CES49 = 65 | CES74 = 84 | CES99 = 60 |
| CES25 = 73 | CES50 = 74 | CES75 = 60 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)