

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: P1378762

Luminaire Tested: **VAL-T-SB1D-727-U-T4FT-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: P1378762  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 02/18/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: VAL-T-SB1D-727-U-T4FT-HSS  
Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 1SQUARE 76W 70CRI  
2700K FIXTURE w/ TYPE IV FORWARD THROW DISTRIBUTION OPTIC AND HOUSE SIDE  
SHIELD  
Light Source: (26) 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               |

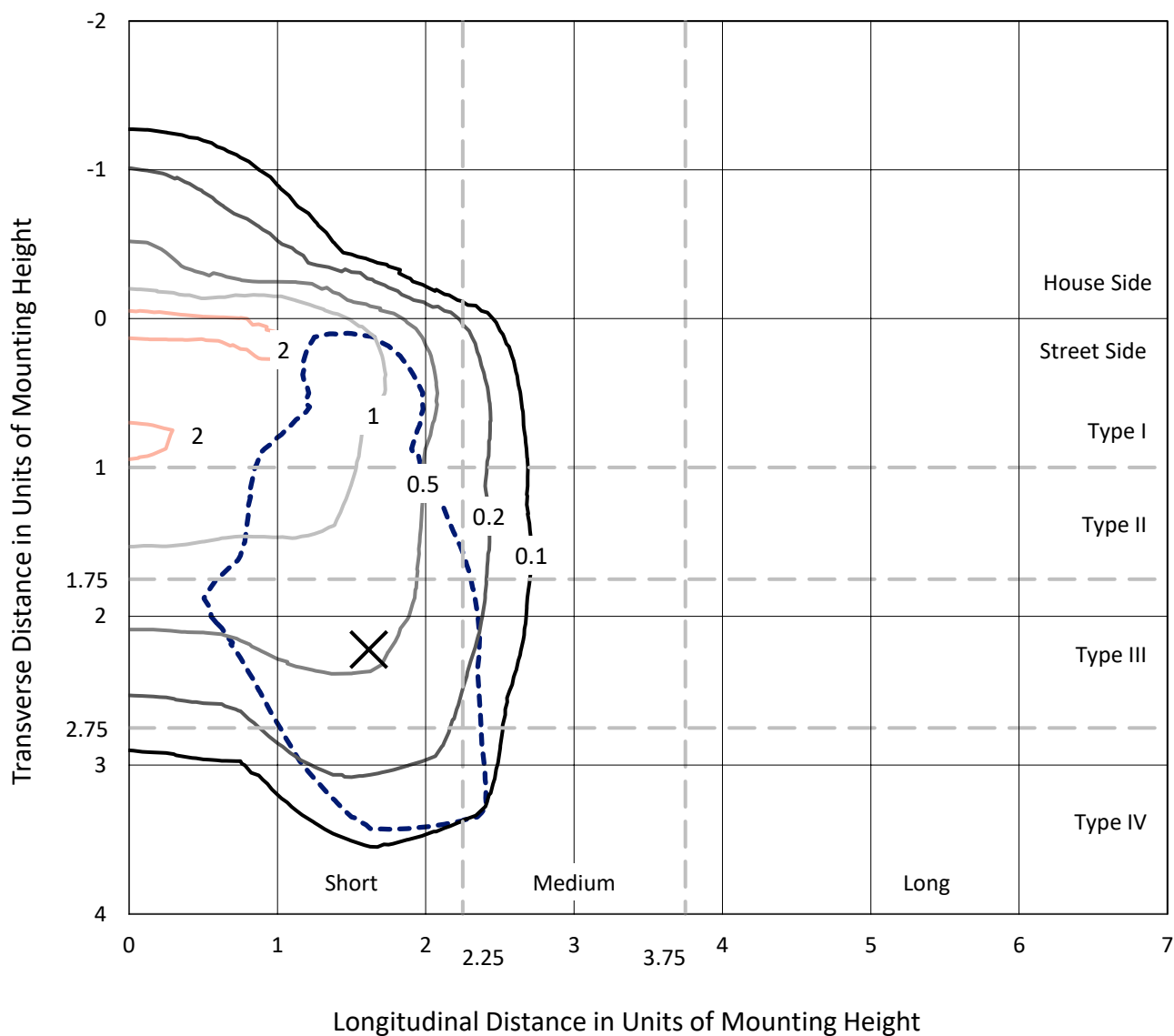
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5978.5 lumens  
Efficiency: N/A  
Efficacy: 78.7 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U0 - G2  
  
Input Watts (W): 76  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.98  
Total Harmonic Distortion (THDi): 6.7%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

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## Iso-Footcandle Lines of Horizontal Illumination

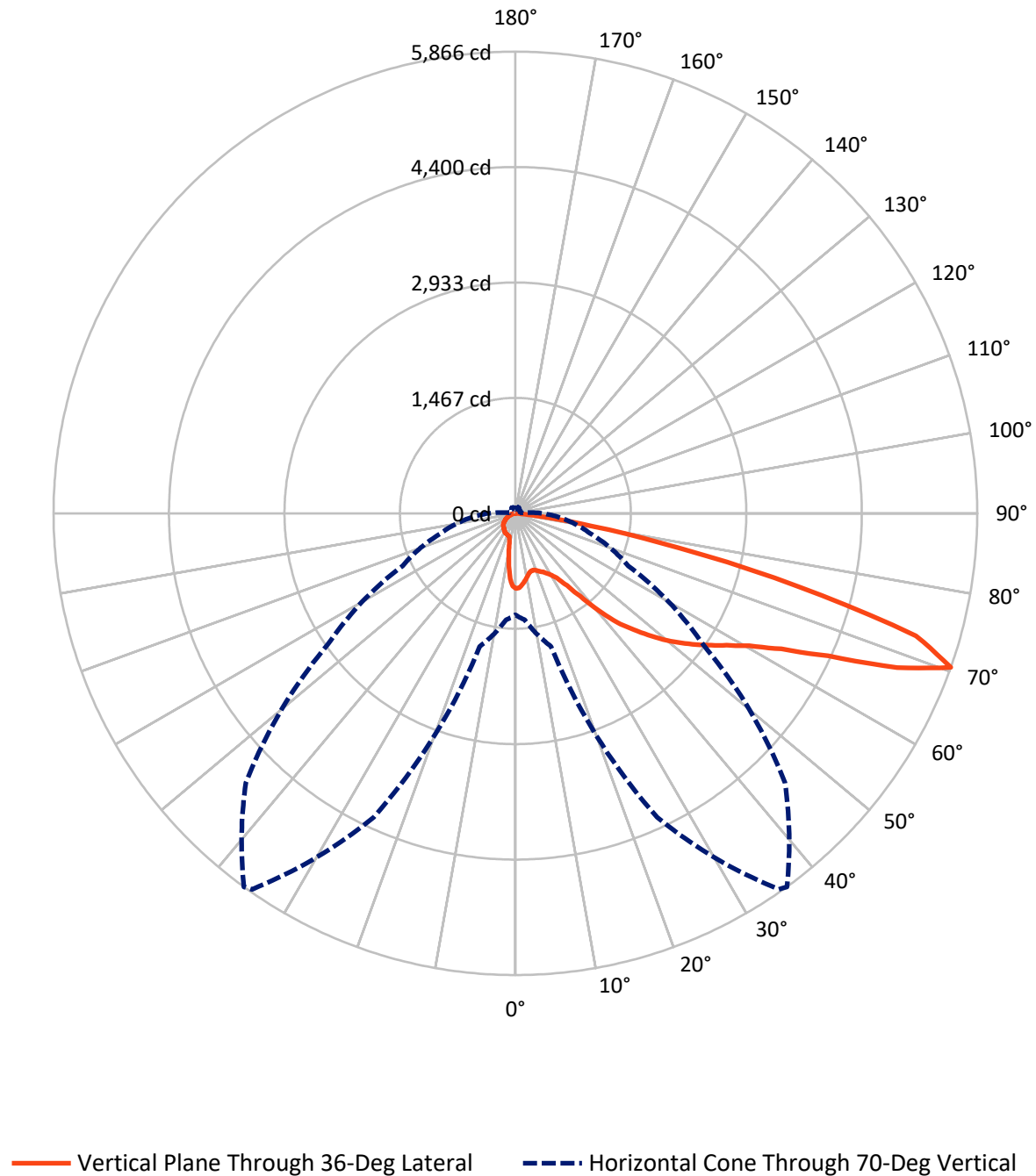
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 2.4 fc  
 Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 744.7    | 0.0    | 744.7  |
|                    | % Fixture | 12.5     | 0.0    | 12.5   |
| <b>Street Side</b> | Lumens    | 5233.8   | 0.0    | 5233.8 |
|                    | % Fixture | 87.5     | 0.0    | 87.5   |
| <b>Total</b>       | Lumens    | 5978.5   | 0.0    | 5978.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 80.6   | 1.3       |
| 10°-20°   | 190.6  | 3.2       |
| 20°-30°   | 311.3  | 5.2       |
| 30°-40°   | 556.3  | 9.3       |
| 40°-50°   | 996.1  | 16.7      |
| 50°-60°   | 1446.5 | 24.2      |
| 60°-70°   | 1613.3 | 27.0      |
| 70°-80°   | 742.6  | 12.4      |
| 80°-90°   | 41.2   | 0.7       |
| 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°    | 5978.5 | 100.0     |
| 0°-180°   | 5978.5 | 100.0     |

**Coefficient of Utilization**



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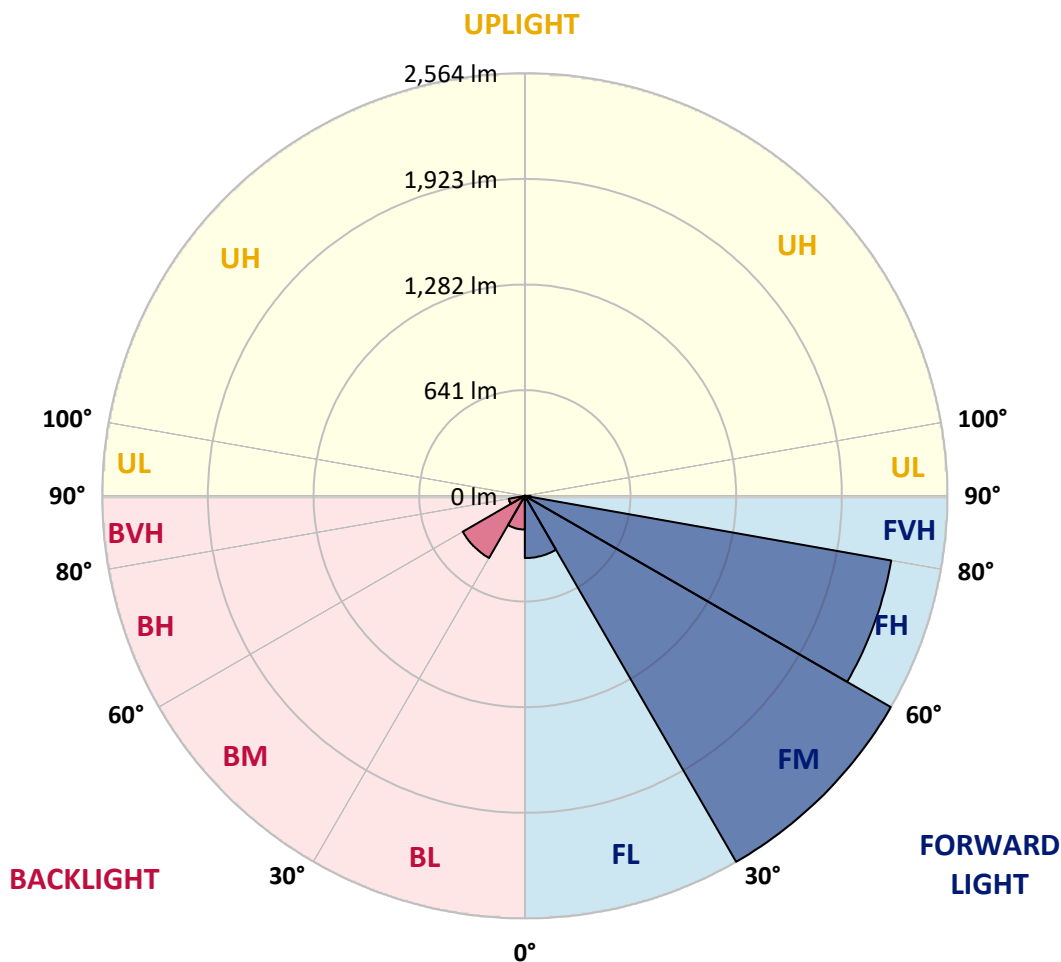
CATALOG NUMBER: VAL-T-SB1D-727-U-T4FT-HSS

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 377.9  | 6.3       |                         |      |         |
| FM   | (30°-60°)   | 2563.6 | 42.9      |                         |      |         |
| FH   | (60°-80°)   | 2257.1 | 37.8      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 35.2   | 0.6       |                         |      | G1/100  |
| BL   | (0°-30°)    | 204.6  | 3.4       | B1/500                  |      |         |
| BM   | (30°-60°)   | 435.3  | 7.3       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 98.7   | 1.7       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 6.0    | 0.1       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

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

Type IV Short





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CATALOG NUMBER: VAL-T-SB1D-727-U-T4FT-HSS

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 36°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 955.2  | 955.2  | 955.2  | 955.2  | 955.2  | 955.2  | 955.2  | 955.2  | 955.2  | 955.2  | 955.2  |
| 2.5°  | 943.9  | 940.2  | 940.2  | 943.9  | 953.3  | 947.7  | 943.9  | 949.5  | 951.4  | 957.0  | 958.9  |
| 5°    | 887.6  | 889.5  | 883.9  | 897.0  | 906.4  | 908.3  | 921.4  | 938.3  | 947.7  | 966.4  | 968.3  |
| 7.5°  | 814.4  | 821.9  | 825.7  | 844.4  | 863.2  | 865.1  | 889.5  | 915.8  | 943.9  | 970.2  | 983.3  |
| 10°   | 756.3  | 758.1  | 761.9  | 782.5  | 816.3  | 820.1  | 853.8  | 897.0  | 938.3  | 981.4  | 996.4  |
| 12.5° | 718.7  | 722.5  | 722.5  | 739.4  | 773.1  | 776.9  | 816.3  | 874.5  | 934.5  | 985.2  | 1013.3 |
| 15°   | 718.7  | 715.0  | 715.0  | 728.1  | 754.4  | 758.1  | 795.7  | 857.6  | 925.1  | 996.4  | 1041.5 |
| 17.5° | 722.5  | 724.3  | 720.6  | 730.0  | 752.5  | 756.3  | 790.0  | 848.2  | 927.0  | 1013.3 | 1064.0 |
| 20°   | 737.5  | 737.5  | 733.7  | 748.7  | 769.4  | 775.0  | 803.2  | 852.0  | 934.5  | 1037.7 | 1095.9 |
| 22.5° | 758.1  | 752.5  | 750.6  | 767.5  | 793.8  | 803.2  | 827.6  | 870.7  | 945.8  | 1067.8 | 1129.7 |
| 25°   | 788.2  | 782.5  | 778.8  | 797.5  | 821.9  | 825.7  | 868.8  | 902.6  | 975.8  | 1107.2 | 1186.0 |
| 27.5° | 844.4  | 836.9  | 818.2  | 831.3  | 861.3  | 865.1  | 908.3  | 949.5  | 1017.1 | 1152.2 | 1249.8 |
| 30°   | 1017.1 | 1005.8 | 951.4  | 897.0  | 908.3  | 913.9  | 957.0  | 1009.6 | 1073.4 | 1221.6 | 1345.5 |
| 32.5° | 1221.6 | 1225.4 | 1156.0 | 1052.7 | 985.2  | 987.1  | 1015.2 | 1088.4 | 1156.0 | 1319.2 | 1463.7 |
| 35°   | 1484.4 | 1473.1 | 1379.3 | 1259.2 | 1131.6 | 1125.9 | 1118.4 | 1199.1 | 1276.1 | 1441.2 | 1612.0 |
| 37.5° | 1735.8 | 1732.1 | 1655.1 | 1505.0 | 1356.7 | 1334.2 | 1281.7 | 1345.5 | 1416.8 | 1595.1 | 1777.1 |
| 40°   | 1923.5 | 1904.7 | 1859.7 | 1760.2 | 1634.5 | 1621.3 | 1510.6 | 1525.6 | 1593.2 | 1801.5 | 1949.7 |
| 42.5° | 2045.4 | 2041.7 | 1989.1 | 1959.1 | 1900.9 | 1895.3 | 1764.0 | 1771.5 | 1809.0 | 2036.1 | 2152.4 |
| 45°   | 2165.5 | 2156.2 | 2111.1 | 2092.4 | 2096.1 | 2109.2 | 2090.5 | 2047.3 | 2075.5 | 2296.9 | 2370.1 |
| 47.5° | 2285.6 | 2263.1 | 2229.3 | 2236.9 | 2315.7 | 2332.6 | 2394.5 | 2360.7 | 2325.0 | 2595.3 | 2574.6 |
| 50°   | 2330.7 | 2332.6 | 2341.9 | 2387.0 | 2516.5 | 2555.9 | 2700.4 | 2632.8 | 2576.5 | 2908.7 | 2811.1 |
| 52.5° | 2347.6 | 2357.0 | 2420.8 | 2499.6 | 2706.0 | 2754.8 | 3036.3 | 2951.8 | 2796.1 | 3212.7 | 2965.0 |
| 55°   | 2366.3 | 2360.7 | 2488.3 | 2589.6 | 2904.9 | 2957.4 | 3344.0 | 3207.0 | 3002.5 | 3441.6 | 3096.3 |
| 57.5° | 2462.0 | 2463.9 | 2563.4 | 2672.2 | 3090.7 | 3162.0 | 3625.5 | 3454.7 | 3117.0 | 3614.2 | 3133.8 |
| 60°   | 2614.0 | 2649.7 | 2717.2 | 2835.5 | 3312.1 | 3413.5 | 3903.2 | 3634.9 | 3233.3 | 3618.0 | 2970.6 |
| 62.5° | 2702.2 | 2722.9 | 2914.3 | 3145.1 | 3691.2 | 3792.5 | 4197.8 | 3775.6 | 3173.3 | 3284.0 | 2552.1 |
| 65°   | 2398.2 | 2415.1 | 2844.9 | 3614.2 | 4282.3 | 4366.7 | 4522.5 | 3786.9 | 2856.1 | 2728.5 | 1981.6 |
| 67.5° | 1790.2 | 1835.3 | 2347.6 | 4107.8 | 5188.7 | 5230.0 | 4916.6 | 3509.2 | 2347.6 | 1908.5 | 1163.5 |
| 70°   | 1291.1 | 1358.6 | 1750.8 | 4259.8 | 5832.3 | 5866.1 | 4841.5 | 2910.5 | 1580.1 | 979.6  | 548.0  |
| 72.5° | 934.5  | 970.2  | 1249.8 | 3995.2 | 5488.9 | 5320.0 | 3415.3 | 1820.3 | 833.2  | 499.2  | 251.5  |
| 75°   | 645.5  | 671.8  | 795.7  | 3006.2 | 3740.0 | 3706.2 | 1722.7 | 660.5  | 405.3  | 289.0  | 152.0  |
| 77.5° | 266.5  | 266.5  | 356.5  | 1692.7 | 2092.4 | 2126.1 | 782.5  | 180.1  | 213.9  | 167.0  | 88.2   |
| 80°   | 86.3   | 86.3   | 142.6  | 600.5  | 968.3  | 979.6  | 281.5  | 88.2   | 114.5  | 101.3  | 46.9   |
| 82.5° | 31.9   | 30.0   | 73.2   | 198.9  | 240.2  | 255.2  | 76.9   | 43.2   | 69.4   | 60.0   | 22.5   |
| 85°   | 11.3   | 11.3   | 26.3   | 41.3   | 45.0   | 39.4   | 20.6   | 20.6   | 33.8   | 28.1   | 9.4    |
| 87.5° | 0.0    | 0.0    | 1.9    | 3.8    | 5.6    | 5.6    | 5.6    | 5.6    | 7.5    | 5.6    | 5.6    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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CATALOG NUMBER: VAL-T-SB1D-727-U-T4FT-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 955.2  | 955.2  | 955.2 | 955.2 | 955.2 | 955.2 | 955.2 | 955.2 | 955.2 | 955.2 | 955.2 |
| 2.5°  | 955.2  | 958.9  | 951.4 | 943.9 | 942.0 | 932.6 | 927.0 | 919.5 | 917.6 | 915.8 | 919.5 |
| 5°    | 966.4  | 966.4  | 947.7 | 927.0 | 902.6 | 868.8 | 833.2 | 801.3 | 788.2 | 773.1 | 775.0 |
| 7.5°  | 979.6  | 970.2  | 942.0 | 887.6 | 814.4 | 733.7 | 666.2 | 615.5 | 585.5 | 559.2 | 566.7 |
| 10°   | 990.8  | 981.4  | 923.3 | 818.2 | 696.2 | 587.4 | 489.8 | 433.5 | 397.8 | 377.2 | 386.6 |
| 12.5° | 1007.7 | 988.9  | 891.4 | 730.0 | 563.0 | 429.7 | 354.7 | 324.6 | 315.3 | 309.6 | 309.6 |
| 15°   | 1026.5 | 994.6  | 842.6 | 630.5 | 435.4 | 324.6 | 304.0 | 304.0 | 305.9 | 305.9 | 307.8 |
| 17.5° | 1045.2 | 996.4  | 790.0 | 516.1 | 337.8 | 296.5 | 298.4 | 300.2 | 304.0 | 300.2 | 300.2 |
| 20°   | 1067.8 | 1009.6 | 722.5 | 414.7 | 296.5 | 290.9 | 292.7 | 296.5 | 300.2 | 296.5 | 298.4 |
| 22.5° | 1105.3 | 1022.7 | 664.3 | 349.0 | 290.9 | 287.1 | 287.1 | 292.7 | 294.6 | 289.0 | 290.9 |
| 25°   | 1148.5 | 1039.6 | 602.4 | 322.8 | 294.6 | 281.5 | 285.2 | 289.0 | 290.9 | 287.1 | 287.1 |
| 27.5° | 1202.9 | 1067.8 | 542.3 | 322.8 | 298.4 | 277.7 | 279.6 | 285.2 | 289.0 | 283.4 | 287.1 |
| 30°   | 1281.7 | 1101.5 | 504.8 | 332.1 | 302.1 | 270.2 | 272.1 | 279.6 | 285.2 | 281.5 | 283.4 |
| 32.5° | 1379.3 | 1159.7 | 472.9 | 339.7 | 300.2 | 262.7 | 260.8 | 272.1 | 281.5 | 279.6 | 283.4 |
| 35°   | 1499.4 | 1227.3 | 452.2 | 347.2 | 296.5 | 257.1 | 249.6 | 264.6 | 279.6 | 279.6 | 281.5 |
| 37.5° | 1619.5 | 1298.6 | 461.6 | 345.3 | 287.1 | 253.3 | 240.2 | 253.3 | 270.2 | 275.9 | 279.6 |
| 40°   | 1762.1 | 1377.4 | 484.2 | 334.0 | 281.5 | 242.1 | 232.7 | 242.1 | 259.0 | 268.3 | 272.1 |
| 42.5° | 1889.7 | 1452.5 | 506.7 | 320.9 | 274.0 | 230.8 | 225.2 | 232.7 | 242.1 | 251.5 | 257.1 |
| 45°   | 2039.8 | 1510.6 | 499.2 | 305.9 | 266.5 | 221.4 | 219.6 | 221.4 | 225.2 | 228.9 | 232.7 |
| 47.5° | 2146.8 | 1529.4 | 465.4 | 292.7 | 249.6 | 213.9 | 210.2 | 208.3 | 204.5 | 204.5 | 206.4 |
| 50°   | 2263.1 | 1476.8 | 397.8 | 277.7 | 225.2 | 204.5 | 197.0 | 191.4 | 185.8 | 182.0 | 183.9 |
| 52.5° | 2313.8 | 1341.7 | 334.0 | 251.5 | 197.0 | 191.4 | 182.0 | 174.5 | 167.0 | 165.1 | 163.3 |
| 55°   | 2293.1 | 1156.0 | 275.9 | 212.1 | 176.4 | 176.4 | 167.0 | 159.5 | 152.0 | 146.4 | 144.5 |
| 57.5° | 2214.3 | 964.5  | 221.4 | 157.6 | 155.8 | 159.5 | 152.0 | 144.5 | 137.0 | 129.5 | 129.5 |
| 60°   | 2030.4 | 739.4  | 170.8 | 127.6 | 135.1 | 140.7 | 138.9 | 133.2 | 120.1 | 108.8 | 108.8 |
| 62.5° | 1713.3 | 501.0  | 122.0 | 103.2 | 114.5 | 123.9 | 125.7 | 120.1 | 105.1 | 92.0  | 90.1  |
| 65°   | 1302.3 | 294.6  | 93.8  | 88.2  | 97.6  | 107.0 | 110.7 | 105.1 | 88.2  | 73.2  | 69.4  |
| 67.5° | 791.9  | 159.5  | 73.2  | 75.1  | 84.4  | 90.1  | 95.7  | 92.0  | 76.9  | 61.9  | 60.0  |
| 70°   | 337.8  | 80.7   | 60.0  | 61.9  | 67.6  | 69.4  | 80.7  | 82.6  | 69.4  | 54.4  | 52.5  |
| 72.5° | 155.8  | 60.0   | 48.8  | 52.5  | 50.7  | 52.5  | 69.4  | 73.2  | 60.0  | 43.2  | 43.2  |
| 75°   | 90.1   | 45.0   | 37.5  | 41.3  | 33.8  | 39.4  | 56.3  | 60.0  | 50.7  | 35.7  | 33.8  |
| 77.5° | 48.8   | 31.9   | 26.3  | 28.1  | 24.4  | 30.0  | 45.0  | 46.9  | 37.5  | 28.1  | 28.1  |
| 80°   | 28.1   | 20.6   | 18.8  | 16.9  | 16.9  | 20.6  | 31.9  | 30.0  | 24.4  | 24.4  | 24.4  |
| 82.5° | 15.0   | 11.3   | 11.3  | 11.3  | 11.3  | 13.1  | 16.9  | 18.8  | 20.6  | 20.6  | 20.6  |
| 85°   | 7.5    | 5.6    | 5.6   | 5.6   | 7.5   | 9.4   | 13.1  | 15.0  | 16.9  | 16.9  | 16.9  |
| 87.5° | 3.8    | 3.8    | 3.8   | 3.8   | 3.8   | 5.6   | 9.4   | 11.3  | 13.1  | 7.5   | 3.8   |
| 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           |



REPORT NUMBER: SP1-2407-184-3

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 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**

| $\lambda$<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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TM-30-18

### Summary

$R_f = 67.9$   
 $R_g = 98.6$   
 $\text{CIE } R_a = 71.1$   
 $R_g = -27.8$

### Spectral Power Distribution Comparison



### Color Vector Graphics



**Individual Sample Fidelity Index ( $R_{fi}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| 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)