

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: P1380720

Luminaire Tested: **VAL-T-SB5B-730-U-T3**

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: P1380720  
 Test Lab: INNOVATION CENTER(G3)  
 Issue Date: 02/18/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: VAL-T-SB5B-730-U-T3  
 Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 55 SQUARE 184W 70CRI  
 3000K FIXTURE w/ TYPE III DISTRIBUTION OPTIC  
 Light Source: (130) 3000K CCT, 70 CRI LEDS  
 Ballast/Driver: ELECTRONIC DRIVER  
 Luminaire Equipment:

| <u>Sample No.</u> | <u>Condition</u> | <u>Description</u> |
|-------------------|------------------|--------------------|
| a                 | good             | reflector          |
| b                 | good             | lens               |
| c                 | good             | housing            |
| d                 | good             | cord               |

**Summary**

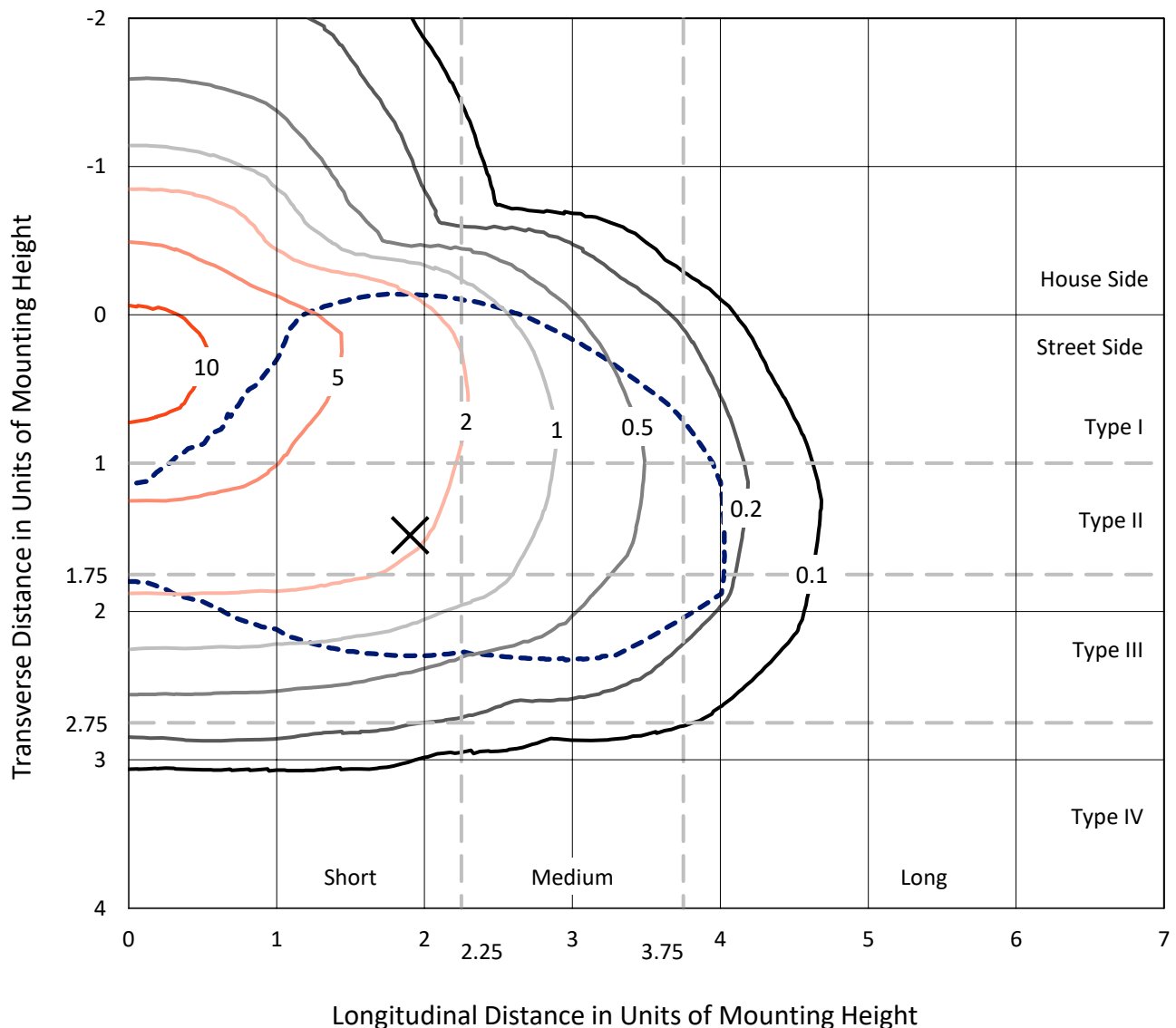
Lumens per Lamp: N/A  
 Luminaire Lumens: 26764.7 lumens  
 Efficiency: N/A  
 Efficacy: 145.5 lumens/watt  
 Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
 IES Classification: Type III - Short  
 BUG Rating: B3 - U0 - G4  
  
 Input Watts (W): 184  
 Input Voltage (V): 120  
 Input Current (A<sub>in</sub>): NR  
 Voltage Rise (V): NR  
 Power Factor: 0.98  
 Total Harmonic Distortion (THDi): 11.1%  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 28.75 FT

REPORT NUMBER: P1380720

CATALOG NUMBER: VAL-T-SB5B-730-U-T3

## Iso-Footcandle Lines of Horizontal Illumination

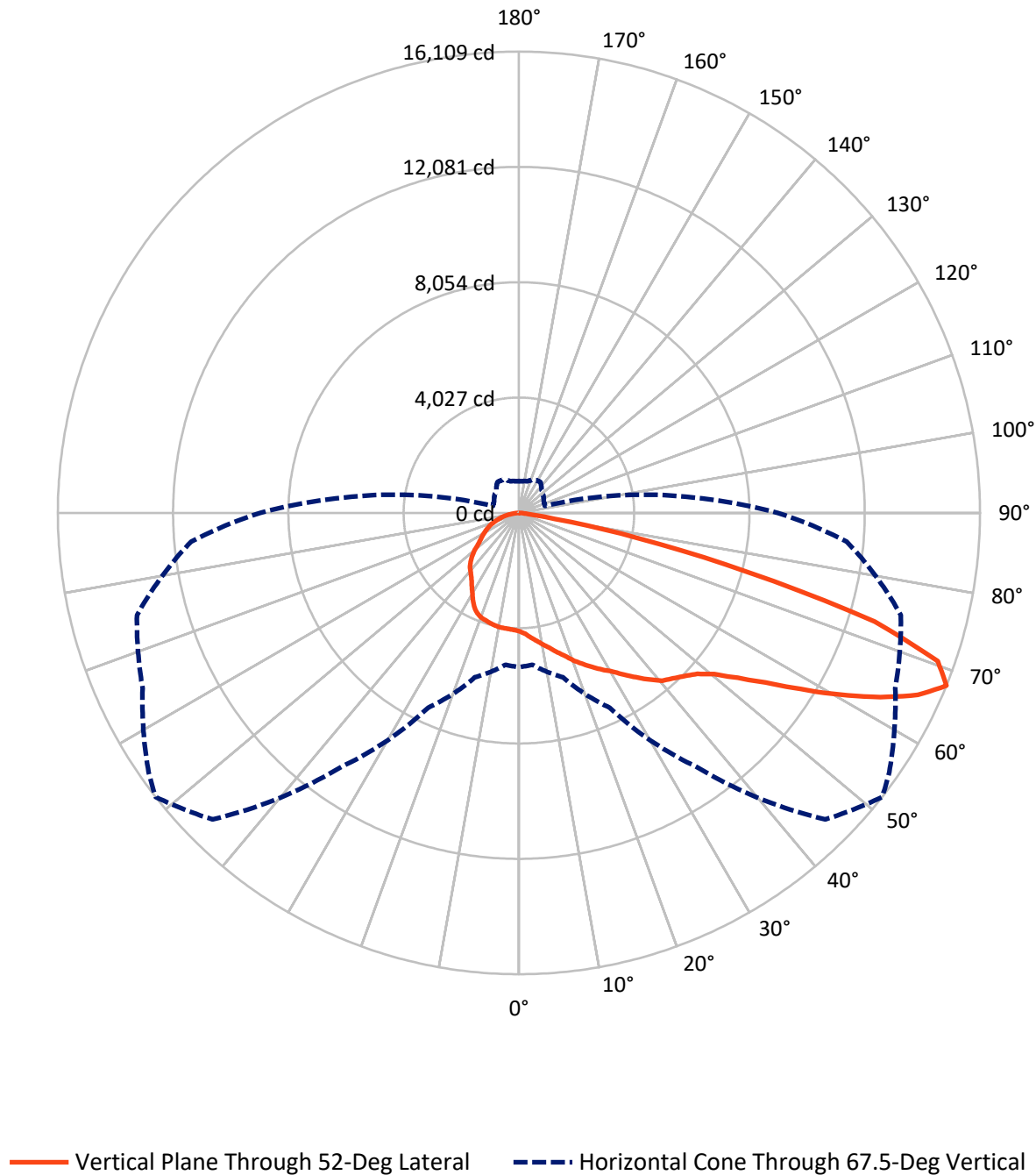
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 11.7 fc  
 Type III - Short - N/A

REPORT NUMBER: P1380720  
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## Luminous Intensity Polar Plot



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CATALOG NUMBER: VAL-T-SB5B-730-U-T3

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 6332.1   | 0.0    | 6332.1  |
|                    | % Fixture | 23.7     | 0.0    | 23.7    |
| <b>Street Side</b> | Lumens    | 20432.6  | 0.0    | 20432.6 |
|                    | % Fixture | 76.3     | 0.0    | 76.3    |
| <b>Total</b>       | Lumens    | 26764.7  | 0.0    | 26764.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 406.1   | 1.5       |
| 10°-20°   | 1281.0  | 4.8       |
| 20°-30°   | 2190.1  | 8.2       |
| 30°-40°   | 3177.1  | 11.9      |
| 40°-50°   | 4127.1  | 15.4      |
| 50°-60°   | 5591.9  | 20.9      |
| 60°-70°   | 6522.9  | 24.4      |
| 70°-80°   | 3216.1  | 12.0      |
| 80°-90°   | 252.4   | 0.9       |
| 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°    | 26764.7 | 100.0     |
| 0°-180°   | 26764.7 | 100.0     |



REPORT NUMBER: P1380720

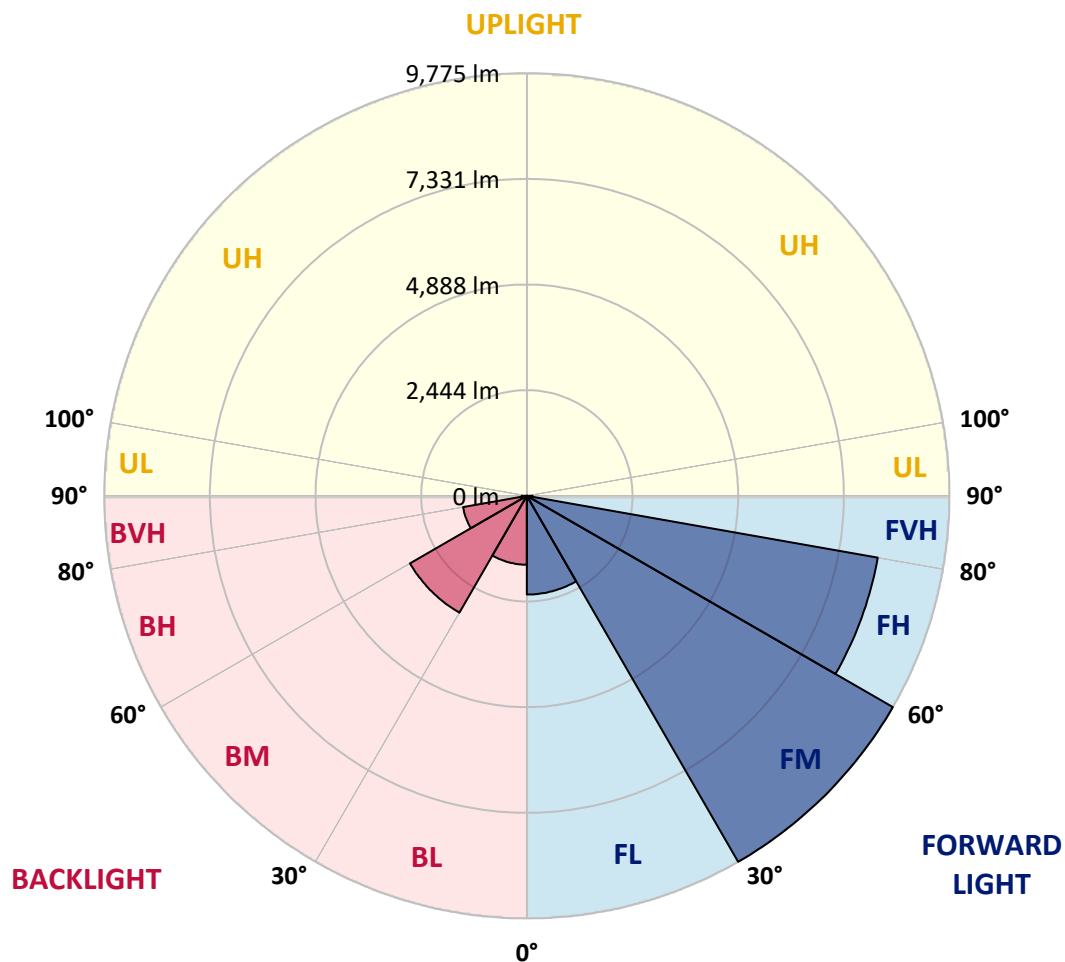
CATALOG NUMBER: VAL-T-SB5B-730-U-T3

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|--------|-----------|-------------------------|------|----------|
|      |             |        |           | B                       | U    | G        |
| FL   | (0°-30°)    | 2283.3 | 8.5       |                         |      |          |
| FM   | (30°-60°)   | 9775.3 | 36.5      |                         |      |          |
| FH   | (60°-80°)   | 8241.5 | 30.8      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 132.5  | 0.5       |                         |      | G2/225   |
| BL   | (0°-30°)    | 1593.9 | 6.0       | B3/2500                 |      |          |
| BM   | (30°-60°)   | 3120.8 | 11.7      | B3/5000                 |      |          |
| BH   | (60°-80°)   | 1497.4 | 5.6       | B3/2500                 |      | G3/2500  |
| BVH  | (80°-90°)   | 119.9  | 0.4       |                         |      | G2/225   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |          |

**BUG Rating: B3-U0-G4**

Type III Short





REPORT NUMBER: P1380720

CATALOG NUMBER: VAL-T-SB5B-730-U-T3

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°     | 35°     | 45°     | 52°     | 55°     | 65°     | 75°     | 85°     |
|-------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 4141.8 | 4141.8 | 4141.8 | 4141.8  | 4141.8  | 4141.8  | 4141.8  | 4141.8  | 4141.8  | 4141.8  | 4141.8  |
| 2.5°  | 4267.0 | 4261.0 | 4255.1 | 4231.2  | 4231.2  | 4237.2  | 4225.3  | 4231.2  | 4225.3  | 4195.5  | 4171.6  |
| 5°    | 4505.4 | 4451.7 | 4439.8 | 4427.9  | 4439.8  | 4404.1  | 4374.3  | 4356.4  | 4290.8  | 4273.0  | 4201.4  |
| 7.5°  | 4606.7 | 4612.6 | 4606.7 | 4582.9  | 4565.0  | 4565.0  | 4517.3  | 4493.5  | 4451.7  | 4380.2  | 4261.0  |
| 10°   | 4749.7 | 4743.8 | 4725.9 | 4737.8  | 4773.6  | 4714.0  | 4678.2  | 4660.3  | 4588.8  | 4487.5  | 4374.3  |
| 12.5° | 5006.0 | 4964.3 | 4952.3 | 4934.5  | 4928.5  | 4892.7  | 4851.0  | 4857.0  | 4773.6  | 4618.6  | 4499.4  |
| 15°   | 5226.5 | 5178.8 | 5232.4 | 5196.7  | 5149.0  | 5095.4  | 5053.7  | 5017.9  | 4922.5  | 4779.5  | 4630.5  |
| 17.5° | 5435.1 | 5411.2 | 5435.1 | 5435.1  | 5429.1  | 5339.7  | 5256.3  | 5226.5  | 5113.2  | 4952.3  | 4755.7  |
| 20°   | 5596.0 | 5596.0 | 5637.7 | 5637.7  | 5619.8  | 5566.2  | 5512.5  | 5476.8  | 5315.9  | 5107.3  | 4880.8  |
| 22.5° | 5804.5 | 5709.2 | 5798.6 | 5804.5  | 5810.5  | 5768.8  | 5733.0  | 5685.4  | 5518.5  | 5268.2  | 4982.1  |
| 25°   | 6001.2 | 5923.7 | 5977.4 | 5941.6  | 5965.5  | 5983.3  | 5965.5  | 5947.6  | 5762.8  | 5476.8  | 5131.1  |
| 27.5° | 6311.1 | 6233.6 | 6269.4 | 6186.0  | 6186.0  | 6168.1  | 6197.9  | 6221.7  | 6019.1  | 5679.4  | 5262.2  |
| 30°   | 6775.9 | 6686.6 | 6656.8 | 6555.4  | 6454.1  | 6412.4  | 6424.3  | 6466.1  | 6329.0  | 5876.1  | 5393.3  |
| 32.5° | 7175.2 | 7127.6 | 7103.7 | 7020.3  | 6895.1  | 6704.4  | 6734.2  | 6734.2  | 6591.2  | 6019.1  | 5458.9  |
| 35°   | 7503.0 | 7491.1 | 7497.0 | 7383.8  | 7360.0  | 7050.1  | 7050.1  | 7038.2  | 6775.9  | 6209.8  | 5631.7  |
| 37.5° | 7717.5 | 7652.0 | 7681.8 | 7723.5  | 7646.0  | 7437.4  | 7383.8  | 7354.0  | 7032.2  | 6412.4  | 5858.2  |
| 40°   | 7669.9 | 7622.2 | 7735.4 | 7812.9  | 7753.3  | 7711.6  | 7705.6  | 7646.0  | 7288.5  | 6668.7  | 6191.9  |
| 42.5° | 7663.9 | 7622.2 | 7759.3 | 7842.7  | 7812.9  | 7878.5  | 7896.3  | 7938.0  | 7616.2  | 7073.9  | 6668.7  |
| 45°   | 7687.7 | 7669.9 | 7896.3 | 8003.6  | 7932.1  | 8021.5  | 8122.8  | 8158.5  | 8033.4  | 7568.6  | 7264.6  |
| 47.5° | 7884.4 | 7860.6 | 8122.8 | 8247.9  | 8307.5  | 8462.5  | 8396.9  | 8456.5  | 8528.0  | 8271.8  | 7950.0  |
| 50°   | 8075.1 | 8099.0 | 8450.6 | 8569.8  | 8861.8  | 9076.3  | 8849.8  | 8945.2  | 9183.6  | 9088.2  | 8867.7  |
| 52.5° | 8379.0 | 8385.0 | 8730.7 | 9028.6  | 9588.8  | 9791.4  | 9570.9  | 9582.9  | 9904.7  | 10083.5 | 9791.4  |
| 55°   | 8456.5 | 8522.1 | 8986.9 | 9606.7  | 10411.2 | 10554.3 | 10453.0 | 10411.2 | 10792.6 | 11037.0 | 10721.1 |
| 57.5° | 8450.6 | 8414.8 | 8992.9 | 9851.0  | 11037.0 | 11543.5 | 11603.1 | 11489.9 | 11811.7 | 11913.0 | 11740.2 |
| 60°   | 8230.1 | 8301.6 | 8933.3 | 10023.9 | 11621.0 | 12747.4 | 12890.4 | 12741.4 | 12896.3 | 12926.1 | 12443.4 |
| 62.5° | 7556.6 | 7580.5 | 8444.6 | 10029.8 | 12079.9 | 13748.6 | 14171.7 | 14004.8 | 13861.8 | 13492.3 | 12598.4 |
| 65°   | 6460.1 | 6418.4 | 7246.7 | 9201.5  | 12163.3 | 14714.0 | 15321.9 | 15321.9 | 14392.2 | 13683.0 | 12270.6 |
| 67.5° | 5387.4 | 5321.8 | 5941.6 | 7503.0  | 10828.4 | 15137.1 | 16108.5 | 15792.7 | 14505.4 | 13814.1 | 11489.9 |
| 70°   | 2598.3 | 2783.1 | 3730.6 | 5309.9  | 8277.7  | 12783.1 | 15524.5 | 15643.7 | 14416.0 | 13402.9 | 9976.2  |
| 72.5° | 929.7  | 888.0  | 1340.9 | 2276.5  | 4582.9  | 8343.3  | 12997.7 | 14046.5 | 13790.3 | 12222.9 | 8170.5  |
| 75°   | 429.1  | 435.0  | 560.2  | 792.6   | 1483.9  | 4070.3  | 8265.8  | 9672.3  | 11811.7 | 10160.9 | 6114.4  |
| 77.5° | 333.7  | 333.7  | 381.4  | 452.9   | 613.8   | 1317.0  | 4225.3  | 5429.1  | 7634.1  | 6293.2  | 2914.2  |
| 80°   | 244.3  | 250.3  | 256.3  | 298.0   | 375.4   | 494.6   | 1257.5  | 1883.2  | 2783.1  | 2020.3  | 947.6   |
| 82.5° | 172.8  | 172.8  | 166.9  | 166.9   | 202.6   | 220.5   | 339.7   | 476.8   | 816.5   | 554.2   | 250.3   |
| 85°   | 71.5   | 83.4   | 71.5   | 71.5    | 71.5    | 89.4    | 107.3   | 125.1   | 178.8   | 154.9   | 107.3   |
| 87.5° | 11.9   | 11.9   | 11.9   | 17.9    | 23.8    | 29.8    | 35.8    | 41.7    | 47.7    | 47.7    | 47.7    |
| 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: P1380720

CATALOG NUMBER: VAL-T-SB5B-730-U-T3

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4141.8  | 4141.8 | 4141.8 | 4141.8 | 4141.8 | 4141.8 | 4141.8 | 4141.8 | 4141.8 | 4141.8 | 4141.8 |
| 2.5°  | 4159.7  | 4159.7 | 4141.8 | 4112.1 | 4100.1 | 4082.3 | 4076.3 | 4070.3 | 4058.4 | 4082.3 | 4070.3 |
| 5°    | 4183.6  | 4159.7 | 4135.9 | 4088.2 | 4082.3 | 4052.5 | 4022.7 | 4016.7 | 3998.8 | 4016.7 | 4016.7 |
| 7.5°  | 4237.2  | 4201.4 | 4147.8 | 4100.1 | 4058.4 | 4052.5 | 3998.8 | 3951.1 | 3951.1 | 3957.1 | 3951.1 |
| 10°   | 4332.6  | 4290.8 | 4237.2 | 4147.8 | 4070.3 | 3998.8 | 3909.4 | 3849.8 | 3855.8 | 3855.8 | 3843.9 |
| 12.5° | 4457.7  | 4398.1 | 4302.8 | 4171.6 | 4052.5 | 3939.2 | 3832.0 | 3814.1 | 3808.1 | 3820.0 | 3784.3 |
| 15°   | 4553.1  | 4499.4 | 4344.5 | 4195.5 | 4010.7 | 3897.5 | 3784.3 | 3742.6 | 3748.5 | 3736.6 | 3706.8 |
| 17.5° | 4672.2  | 4588.8 | 4398.1 | 4177.6 | 3963.1 | 3855.8 | 3724.7 | 3635.3 | 3587.6 | 3593.6 | 3587.6 |
| 20°   | 4785.5  | 4666.3 | 4439.8 | 4177.6 | 3951.1 | 3760.4 | 3593.6 | 3474.4 | 3373.1 | 3355.2 | 3349.2 |
| 22.5° | 4868.9  | 4749.7 | 4487.5 | 4183.6 | 3879.6 | 3653.2 | 3408.8 | 3253.9 | 3104.9 | 3081.1 | 3075.1 |
| 25°   | 4988.1  | 4833.1 | 4541.1 | 4141.8 | 3784.3 | 3474.4 | 3170.5 | 2997.6 | 2866.5 | 2842.7 | 2842.7 |
| 27.5° | 5089.4  | 4922.5 | 4612.6 | 4100.1 | 3629.3 | 3230.0 | 2944.0 | 2771.2 | 2687.7 | 2646.0 | 2646.0 |
| 30°   | 5196.7  | 5011.9 | 4672.2 | 3975.0 | 3420.7 | 2985.7 | 2765.2 | 2652.0 | 2556.6 | 2514.9 | 2497.0 |
| 32.5° | 5315.9  | 5160.9 | 4684.2 | 3849.8 | 3212.2 | 2824.8 | 2640.1 | 2544.7 | 2443.4 | 2383.8 | 2377.8 |
| 35°   | 5464.9  | 5351.6 | 4642.4 | 3665.1 | 3003.6 | 2699.7 | 2520.9 | 2413.6 | 2312.3 | 2252.7 | 2264.6 |
| 37.5° | 5703.2  | 5572.1 | 4517.3 | 3402.9 | 2830.8 | 2622.2 | 2425.5 | 2270.6 | 2151.4 | 2056.0 | 2062.0 |
| 40°   | 6054.8  | 5840.3 | 4332.6 | 3087.0 | 2705.6 | 2532.8 | 2312.3 | 2133.5 | 1960.7 | 1817.6 | 1817.6 |
| 42.5° | 6454.1  | 6078.7 | 4106.1 | 2795.0 | 2610.3 | 2419.6 | 2193.1 | 1966.6 | 1722.3 | 1573.3 | 1567.3 |
| 45°   | 6901.1  | 6287.3 | 3843.9 | 2556.6 | 2455.3 | 2282.5 | 2038.1 | 1716.3 | 1555.4 | 1478.0 | 1472.0 |
| 47.5° | 7497.0  | 6513.7 | 3534.0 | 2348.0 | 2276.5 | 2145.4 | 1805.7 | 1573.3 | 1478.0 | 1418.4 | 1412.4 |
| 50°   | 8057.2  | 6758.1 | 3277.7 | 2145.4 | 2085.8 | 1984.5 | 1644.8 | 1513.7 | 1436.2 | 1388.6 | 1376.6 |
| 52.5° | 8706.8  | 7008.4 | 2991.7 | 1948.8 | 1871.3 | 1734.2 | 1609.1 | 1483.9 | 1412.4 | 1376.6 | 1364.7 |
| 55°   | 9350.4  | 7360.0 | 2675.8 | 1770.0 | 1680.6 | 1621.0 | 1573.3 | 1466.0 | 1394.5 | 1370.7 | 1352.8 |
| 57.5° | 10083.5 | 7699.7 | 2288.4 | 1579.3 | 1543.5 | 1537.5 | 1567.3 | 1460.1 | 1400.5 | 1358.8 | 1334.9 |
| 60°   | 10464.9 | 7848.7 | 1883.2 | 1406.4 | 1412.4 | 1448.2 | 1543.5 | 1460.1 | 1364.7 | 1293.2 | 1263.4 |
| 62.5° | 10333.8 | 7544.7 | 1489.9 | 1233.6 | 1287.3 | 1352.8 | 1501.8 | 1406.4 | 1287.3 | 1233.6 | 1197.9 |
| 65°   | 9809.3  | 7026.2 | 1162.1 | 1084.6 | 1174.0 | 1233.6 | 1400.5 | 1329.0 | 1209.8 | 1156.1 | 1150.2 |
| 67.5° | 9052.5  | 6126.4 | 941.6  | 953.5  | 1042.9 | 1120.4 | 1311.1 | 1281.3 | 1144.2 | 1108.5 | 1108.5 |
| 70°   | 7610.3  | 4922.5 | 774.7  | 834.3  | 911.8  | 995.2  | 1245.5 | 1203.8 | 1060.8 | 1042.9 | 1042.9 |
| 72.5° | 5947.6  | 3474.4 | 661.5  | 733.0  | 756.9  | 876.0  | 1156.1 | 1114.4 | 1031.0 | 1072.7 | 1078.7 |
| 75°   | 4195.5  | 2115.6 | 566.2  | 619.8  | 643.6  | 721.1  | 1072.7 | 1090.6 | 1013.1 | 1150.2 | 1174.0 |
| 77.5° | 1907.0  | 929.7  | 441.0  | 488.7  | 518.5  | 613.8  | 923.7  | 1013.1 | 876.0  | 876.0  | 828.4  |
| 80°   | 667.5   | 393.3  | 351.6  | 351.6  | 375.4  | 476.8  | 768.8  | 834.3  | 703.2  | 619.8  | 595.9  |
| 82.5° | 244.3   | 214.5  | 262.2  | 262.2  | 238.4  | 292.0  | 512.5  | 554.2  | 506.6  | 441.0  | 435.0  |
| 85°   | 95.4    | 101.3  | 160.9  | 160.9  | 119.2  | 143.0  | 286.1  | 298.0  | 286.1  | 250.3  | 250.3  |
| 87.5° | 41.7    | 41.7   | 47.7   | 47.7   | 41.7   | 35.8   | 53.6   | 53.6   | 35.8   | 23.8   | 11.9   |
| 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: SP1-2407-184-4

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-730-U-5WQ

Data in this report applies to families of products including GSS-SB1A-730-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-730-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2985  
 CIE  $u'$ : 0.2504  
 CIE  $v'$ : 0.5243  
 Duv: 0.0019  
 CIE x: 0.4408  
 CIE y: 0.4101  
 CIE z: 0.1491  
 Peak Wavelength (nm): 595  
 Dominant Wavelength (nm): 582  
 Purity: 55.41818  
 R<sub>f</sub>: 73.8  
 R<sub>g</sub>: 94.4

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



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-4

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/18/2024        | 12/18/2024           |
| Power Meter                    | INXT2011004           | 2/8/2024         | 2/8/2025             |
| AC Power Source                | IN0063                | 10/24/2023       | 10/24/2024           |
| DC Power Source                | IN0208                | 10/24/2023       | 10/24/2024           |
| Sphere Thermometer             | IN0085                | 10/24/2023       | 10/24/2024           |
| Room Thermometer               | IN0046                | 10/24/2023       | 10/24/2024           |

REPORT NUMBER: SP1-2407-184-4

**CIE 1931 Chromaticity Diagram**



**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-4

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 0                             | NR                             | 490               | 142                           | NR                             | 620               | 803                           | NR                             | 750               | 17                            | NR                             | 880               | 0                             | NR                             |
| 365               | 0                             | NR                             | 495               | 189                           | NR                             | 625               | 734                           | NR                             | 755               | 15                            | NR                             | 885               | 0                             | NR                             |
| 370               | 0                             | NR                             | 500               | 240                           | NR                             | 630               | 670                           | NR                             | 760               | 13                            | NR                             | 890               | 0                             | NR                             |
| 375               | 0                             | NR                             | 505               | 290                           | NR                             | 635               | 600                           | NR                             | 765               | 11                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 335                           | NR                             | 640               | 535                           | NR                             | 770               | 9                             | NR                             | 900               | 0                             | NR                             |
| 385               | 0                             | NR                             | 515               | 375                           | NR                             | 645               | 473                           | NR                             | 775               | 8                             | NR                             | 905               | 0                             | NR                             |
| 390               | 1                             | NR                             | 520               | 408                           | NR                             | 650               | 415                           | NR                             | 780               | 7                             | NR                             | 910               | 0                             | NR                             |
| 395               | 2                             | NR                             | 525               | 434                           | NR                             | 655               | 362                           | NR                             | 785               | 6                             | NR                             | 915               | 0                             | NR                             |
| 400               | 4                             | NR                             | 530               | 461                           | NR                             | 660               | 313                           | NR                             | 790               | 5                             | NR                             | 920               | 0                             | NR                             |
| 405               | 8                             | NR                             | 535               | 486                           | NR                             | 665               | 271                           | NR                             | 795               | 4                             | NR                             | 925               | 0                             | NR                             |
| 410               | 16                            | NR                             | 540               | 514                           | NR                             | 670               | 231                           | NR                             | 800               | 4                             | NR                             | 930               | 0                             | NR                             |
| 415               | 33                            | NR                             | 545               | 549                           | NR                             | 675               | 198                           | NR                             | 805               | 3                             | NR                             | 935               | 0                             | NR                             |
| 420               | 69                            | NR                             | 550               | 591                           | NR                             | 680               | 169                           | NR                             | 810               | 3                             | NR                             | 940               | 0                             | NR                             |
| 425               | 131                           | NR                             | 555               | 640                           | NR                             | 685               | 144                           | NR                             | 815               | 2                             | NR                             | 945               | 0                             | NR                             |
| 430               | 227                           | NR                             | 560               | 695                           | NR                             | 690               | 123                           | NR                             | 820               | 2                             | NR                             | 950               | 0                             | NR                             |
| 435               | 369                           | NR                             | 565               | 757                           | NR                             | 695               | 104                           | NR                             | 825               | 2                             | NR                             | 955               | 0                             | NR                             |
| 440               | 517                           | NR                             | 570               | 822                           | NR                             | 700               | 88                            | NR                             | 830               | 2                             | NR                             | 960               | 0                             | NR                             |
| 445               | 498                           | NR                             | 575               | 882                           | NR                             | 705               | 75                            | NR                             | 835               | 1                             | NR                             | 965               | 0                             | NR                             |
| 450               | 315                           | NR                             | 580               | 935                           | NR                             | 710               | 63                            | NR                             | 840               | 1                             | NR                             | 970               | 0                             | NR                             |
| 455               | 204                           | NR                             | 585               | 972                           | NR                             | 715               | 54                            | NR                             | 845               | 1                             | NR                             | 975               | 0                             | NR                             |
| 460               | 145                           | NR                             | 590               | 996                           | NR                             | 720               | 46                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 100                           | NR                             | 595               | 1000                          | NR                             | 725               | 39                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 78                            | NR                             | 600               | 989                           | NR                             | 730               | 33                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 76                            | NR                             | 605               | 960                           | NR                             | 735               | 28                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 83                            | NR                             | 610               | 918                           | NR                             | 740               | 24                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 105                           | NR                             | 615               | 864                           | NR                             | 745               | 20                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

REPORT NUMBER: SP1-2407-184-4

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.19

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 142                                  | NR                             | 620               | 803                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 189                                  | NR                             | 625               | 734                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 240                                  | NR                             | 630               | 670                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 290                                  | NR                             | 635               | 600                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 335                                  | NR                             | 640               | 535                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 375                                  | NR                             | 645               | 473                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 408                                  | NR                             | 650               | 415                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 434                                  | NR                             | 655               | 362                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 461                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 486                                  | NR                             | 665               | 271                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 16                                   | NR                             | 540               | 514                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 33                                   | NR                             | 545               | 549                                  | NR                             | 675               | 198                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 69                                   | NR                             | 550               | 591                                  | NR                             | 680               | 169                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 640                                  | NR                             | 685               | 144                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 227                                  | NR                             | 560               | 695                                  | NR                             | 690               | 123                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 369                                  | NR                             | 565               | 757                                  | NR                             | 695               | 104                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 517                                  | NR                             | 570               | 822                                  | NR                             | 700               | 88                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 498                                  | NR                             | 575               | 882                                  | NR                             | 705               | 75                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 315                                  | NR                             | 580               | 935                                  | NR                             | 710               | 63                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 204                                  | NR                             | 585               | 972                                  | NR                             | 715               | 54                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 145                                  | NR                             | 590               | 996                                  | NR                             | 720               | 46                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 100                                  | NR                             | 595               | 1000                                 | NR                             | 725               | 39                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 78                                   | NR                             | 600               | 989                                  | NR                             | 730               | 33                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 76                                   | NR                             | 605               | 960                                  | NR                             | 735               | 28                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 83                                   | NR                             | 610               | 918                                  | NR                             | 740               | 24                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 105                                  | NR                             | 615               | 864                                  | NR                             | 745               | 20                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2407-184-4

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.13

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 142                                  | NR                             | 620               | 803                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 189                                  | NR                             | 625               | 734                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 240                                  | NR                             | 630               | 670                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 290                                  | NR                             | 635               | 600                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 335                                  | NR                             | 640               | 535                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 375                                  | NR                             | 645               | 473                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 408                                  | NR                             | 650               | 415                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 434                                  | NR                             | 655               | 362                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 461                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 486                                  | NR                             | 665               | 271                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 16                                   | NR                             | 540               | 514                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 33                                   | NR                             | 545               | 549                                  | NR                             | 675               | 198                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 69                                   | NR                             | 550               | 591                                  | NR                             | 680               | 169                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 640                                  | NR                             | 685               | 144                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 227                                  | NR                             | 560               | 695                                  | NR                             | 690               | 123                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 369                                  | NR                             | 565               | 757                                  | NR                             | 695               | 104                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 517                                  | NR                             | 570               | 822                                  | NR                             | 700               | 88                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 498                                  | NR                             | 575               | 882                                  | NR                             | 705               | 75                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 315                                  | NR                             | 580               | 935                                  | NR                             | 710               | 63                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 204                                  | NR                             | 585               | 972                                  | NR                             | 715               | 54                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 145                                  | NR                             | 590               | 996                                  | NR                             | 720               | 46                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 100                                  | NR                             | 595               | 1000                                 | NR                             | 725               | 39                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 78                                   | NR                             | 600               | 989                                  | NR                             | 730               | 33                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 76                                   | NR                             | 605               | 960                                  | NR                             | 735               | 28                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 83                                   | NR                             | 610               | 918                                  | NR                             | 740               | 24                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 105                                  | NR                             | 615               | 864                                  | NR                             | 745               | 20                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2407-184-4

TM-30-18

### Summary

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



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54 = 81 | CES79 = 86 |
| CES05 = 49 | CES30 = 61 | CES55 = 80 | CES80 = 86 |
| CES06 = 51 | CES31 = 63 | CES56 = 71 | CES81 = 70 |
| CES07 = 41 | CES32 = 61 | CES57 = 69 | CES82 = 94 |
| CES08 = 40 | CES33 = 65 | CES58 = 72 | CES83 = 88 |
| CES09 = 29 | CES34 = 77 | CES59 = 85 | CES84 = 90 |
| CES10 = 76 | CES35 = 88 | CES60 = 93 | CES85 = 80 |
| CES11 = 59 | CES36 = 89 | CES61 = 86 | CES86 = 60 |
| CES12 = 65 | CES37 = 85 | CES62 = 81 | CES87 = 78 |
| CES13 = 43 | CES38 = 69 | CES63 = 73 | CES88 = 75 |
| CES14 = 74 | CES39 = 93 | CES64 = 72 | CES89 = 66 |
| CES15 = 71 | CES40 = 89 | CES65 = 67 | CES90 = 72 |
| CES16 = 47 | CES41 = 83 | CES66 = 70 | CES91 = 95 |
| CES17 = 50 | CES42 = 87 | CES67 = 68 | CES92 = 59 |
| CES18 = 56 | CES43 = 77 | CES68 = 73 | CES93 = 76 |
| CES19 = 73 | CES44 = 99 | CES69 = 83 | CES94 = 48 |
| CES20 = 66 | CES45 = 83 | CES70 = 66 | CES95 = 70 |
| CES21 = 87 | CES46 = 77 | CES71 = 66 | CES96 = 76 |
| CES22 = 79 | CES47 = 74 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 62 | CES73 = 59 | CES98 = 73 |
| CES24 = 91 | CES49 = 77 | CES74 = 93 | CES99 = 60 |
| CES25 = 73 | CES50 = 85 | CES75 = 67 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)