

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: P1380673

Luminaire Tested: **VAL-T-SB5C-722-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: P1380673  
 Test Lab: INNOVATION CENTER(G3)  
 Issue Date: 02/18/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: VAL-T-SB5C-722-U-T3  
 Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 55 SQUARE 252W 70CRI  
 2200K FIXTURE w/ TYPE III DISTRIBUTION OPTIC  
 Light Source: (130) 2200K 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               |

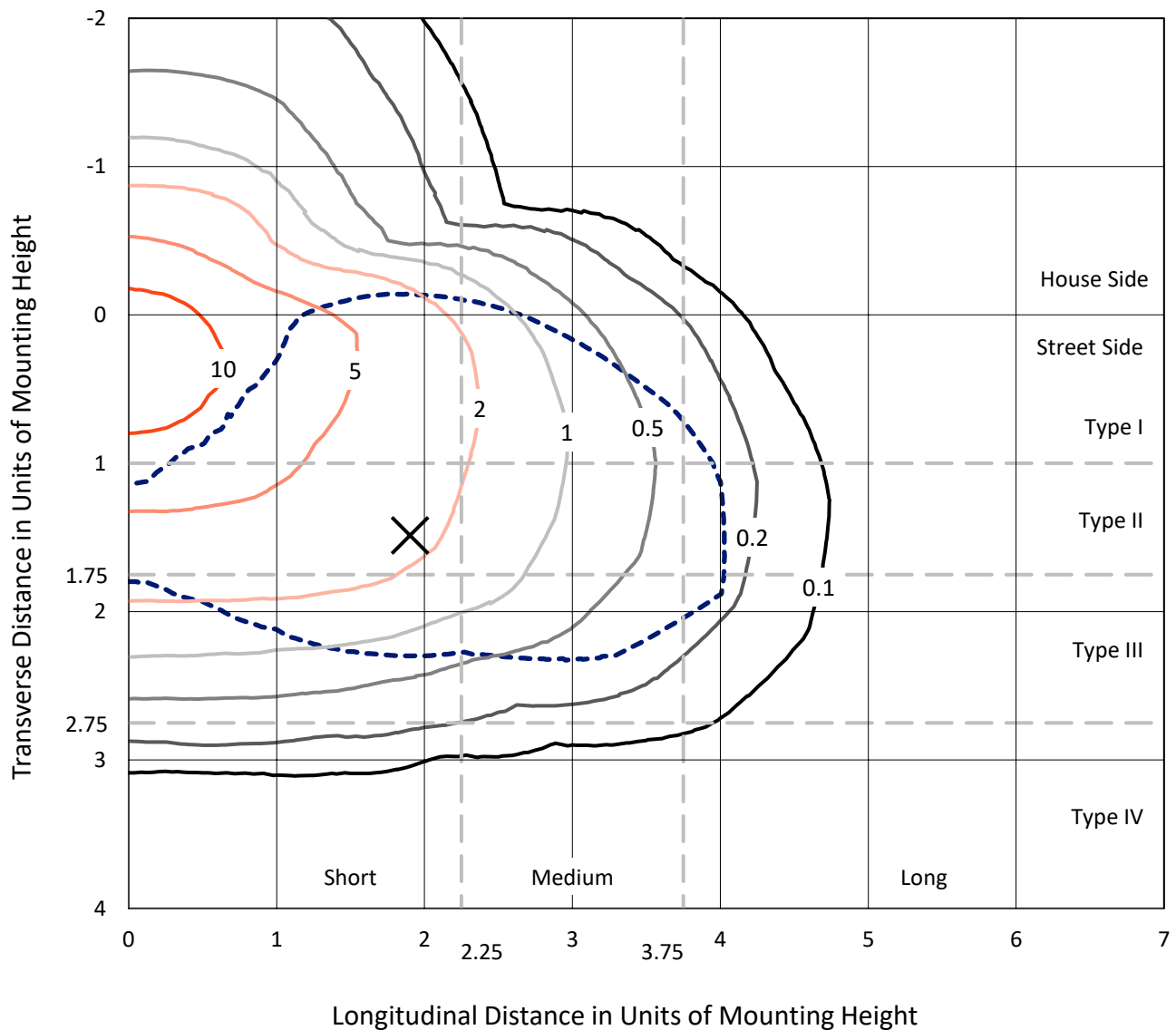
**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 29170.6 lumens  
 Efficiency: N/A  
 Efficacy: 115.8 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): 252  
 Input Voltage (V): 120  
 Input Current (A<sub>in</sub>): NR  
 Voltage Rise (V): NR  
 Power Factor: 0.98  
 Total Harmonic Distortion (THDi): 7.9%  
 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

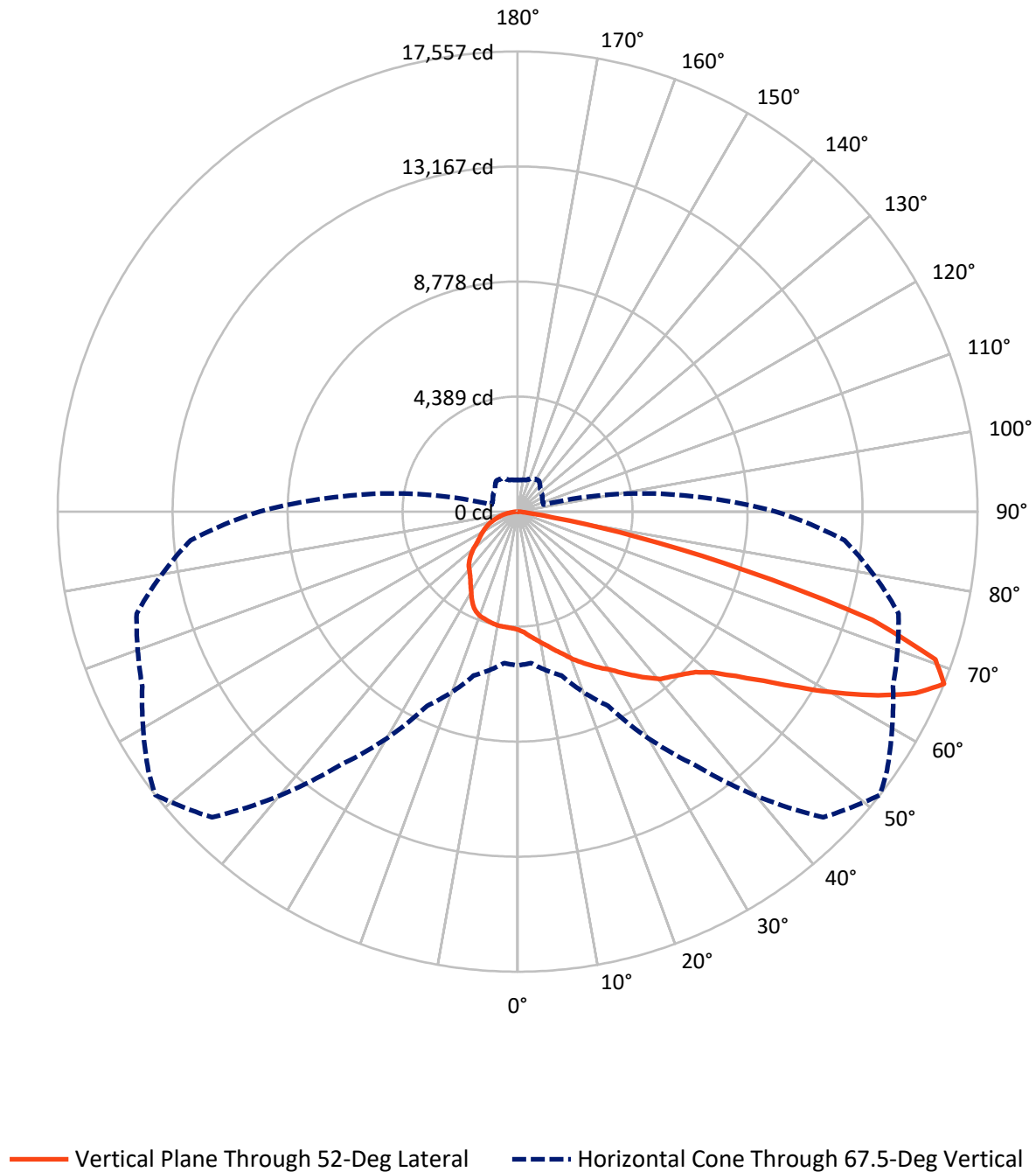
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 12.8 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



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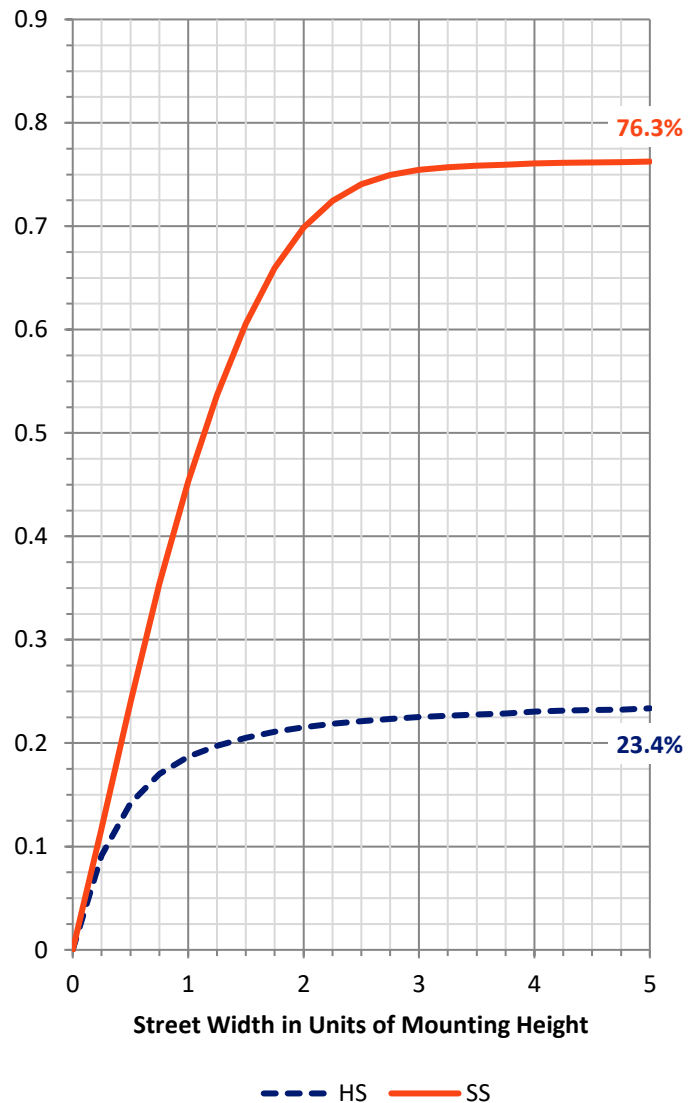
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 6901.3   | 0.0    | 6901.3  |
|                    | % Fixture | 23.7     | 0.0    | 23.7    |
| <b>Street Side</b> | Lumens    | 22269.3  | 0.0    | 22269.3 |
|                    | % Fixture | 76.3     | 0.0    | 76.3    |
| <b>Total</b>       | Lumens    | 29170.6  | 0.0    | 29170.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 442.6   | 1.5       |
| 10°-20°   | 1396.1  | 4.8       |
| 20°-30°   | 2387.0  | 8.2       |
| 30°-40°   | 3462.7  | 11.9      |
| 40°-50°   | 4498.0  | 15.4      |
| 50°-60°   | 6094.6  | 20.9      |
| 60°-70°   | 7109.2  | 24.4      |
| 70°-80°   | 3505.1  | 12.0      |
| 80°-90°   | 275.1   | 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°    | 29170.6 | 100.0     |
| 0°-180°   | 29170.6 | 100.0     |

**Coefficient of Utilization**



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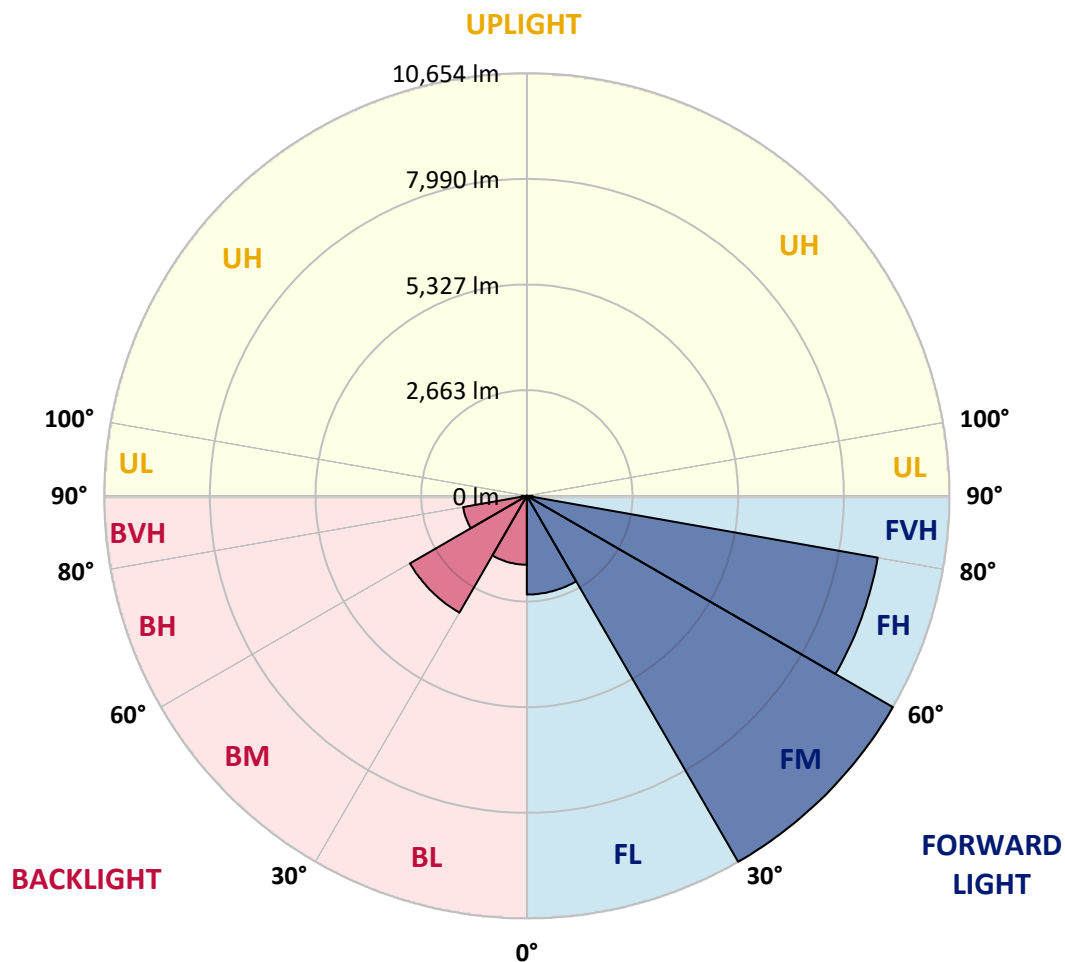
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 2488.5  | 8.5       |                         |      |          |
| FM   | (30°-60°)   | 10654.0 | 36.5      |                         |      |          |
| FH   | (60°-80°)   | 8982.4  | 30.8      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 144.4   | 0.5       |                         |      | G2/225   |
| BL   | (0°-30°)    | 1737.2  | 6.0       | B3/2500                 |      |          |
| BM   | (30°-60°)   | 3401.4  | 11.7      | B3/5000                 |      |          |
| BH   | (60°-80°)   | 1632.0  | 5.6       | B3/2500                 |      | G3/2500  |
| BVH  | (80°-90°)   | 130.7   | 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





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°     | 35°     | 45°     | 52°     | 55°     | 65°     | 75°     | 85°     |
|-------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 4514.2 | 4514.2 | 4514.2 | 4514.2  | 4514.2  | 4514.2  | 4514.2  | 4514.2  | 4514.2  | 4514.2  | 4514.2  |
| 2.5°  | 4650.6 | 4644.1 | 4637.6 | 4611.6  | 4611.6  | 4618.1  | 4605.1  | 4611.6  | 4605.1  | 4572.6  | 4546.6  |
| 5°    | 4910.4 | 4851.9 | 4838.9 | 4825.9  | 4838.9  | 4799.9  | 4767.5  | 4748.0  | 4676.5  | 4657.0  | 4579.1  |
| 7.5°  | 5020.8 | 5027.3 | 5020.8 | 4994.8  | 4975.3  | 4975.3  | 4923.3  | 4897.4  | 4851.9  | 4774.0  | 4644.1  |
| 10°   | 5176.7 | 5170.2 | 5150.7 | 5163.7  | 5202.6  | 5137.7  | 5098.7  | 5079.2  | 5001.3  | 4890.9  | 4767.5  |
| 12.5° | 5456.0 | 5410.5 | 5397.5 | 5378.0  | 5371.5  | 5332.5  | 5287.1  | 5293.6  | 5202.6  | 5033.8  | 4903.9  |
| 15°   | 5696.3 | 5644.3 | 5702.8 | 5663.8  | 5611.8  | 5553.4  | 5507.9  | 5468.9  | 5365.0  | 5209.1  | 5046.8  |
| 17.5° | 5923.6 | 5897.6 | 5923.6 | 5923.6  | 5917.1  | 5819.7  | 5728.8  | 5696.3  | 5572.9  | 5397.5  | 5183.2  |
| 20°   | 6099.0 | 6099.0 | 6144.4 | 6144.4  | 6125.0  | 6066.5  | 6008.0  | 5969.1  | 5793.7  | 5566.4  | 5319.6  |
| 22.5° | 6326.3 | 6222.4 | 6319.8 | 6326.3  | 6332.8  | 6287.3  | 6248.4  | 6196.4  | 6014.5  | 5741.7  | 5430.0  |
| 25°   | 6540.6 | 6456.2 | 6514.7 | 6475.7  | 6501.7  | 6521.2  | 6501.7  | 6482.2  | 6280.8  | 5969.1  | 5592.4  |
| 27.5° | 6878.4 | 6794.0 | 6832.9 | 6742.0  | 6742.0  | 6722.5  | 6755.0  | 6781.0  | 6560.1  | 6189.9  | 5735.2  |
| 30°   | 7385.0 | 7287.6 | 7255.1 | 7144.7  | 7034.3  | 6988.8  | 7001.8  | 7047.3  | 6897.9  | 6404.2  | 5878.1  |
| 32.5° | 7820.2 | 7768.2 | 7742.3 | 7651.3  | 7514.9  | 7307.1  | 7339.6  | 7339.6  | 7183.7  | 6560.1  | 5949.6  |
| 35°   | 8177.4 | 8164.4 | 8170.9 | 8047.5  | 8021.6  | 7683.8  | 7683.8  | 7670.8  | 7385.0  | 6768.0  | 6137.9  |
| 37.5° | 8411.3 | 8339.8 | 8372.3 | 8417.8  | 8333.3  | 8106.0  | 8047.5  | 8015.1  | 7664.3  | 6988.8  | 6384.8  |
| 40°   | 8359.3 | 8307.3 | 8430.7 | 8515.2  | 8450.2  | 8404.8  | 8398.3  | 8333.3  | 7943.6  | 7268.1  | 6748.5  |
| 42.5° | 8352.8 | 8307.3 | 8456.7 | 8547.7  | 8515.2  | 8586.6  | 8606.1  | 8651.6  | 8300.8  | 7709.8  | 7268.1  |
| 45°   | 8378.8 | 8359.3 | 8606.1 | 8723.0  | 8645.1  | 8742.5  | 8852.9  | 8891.9  | 8755.5  | 8248.9  | 7917.6  |
| 47.5° | 8593.1 | 8567.1 | 8852.9 | 8989.3  | 9054.3  | 9223.2  | 9151.7  | 9216.7  | 9294.6  | 9015.3  | 8664.6  |
| 50°   | 8801.0 | 8827.0 | 9210.2 | 9340.1  | 9658.3  | 9892.2  | 9645.3  | 9749.3  | 10009.1 | 9905.2  | 9664.8  |
| 52.5° | 9132.2 | 9138.7 | 9515.4 | 9840.2  | 10450.7 | 10671.6 | 10431.3 | 10444.3 | 10795.0 | 10989.8 | 10671.6 |
| 55°   | 9216.7 | 9288.1 | 9794.7 | 10470.2 | 11347.1 | 11503.0 | 11392.5 | 11347.1 | 11762.8 | 12029.1 | 11684.8 |
| 57.5° | 9210.2 | 9171.2 | 9801.2 | 10736.5 | 12029.1 | 12581.2 | 12646.1 | 12522.7 | 12873.5 | 12983.9 | 12795.5 |
| 60°   | 8969.8 | 9047.8 | 9736.3 | 10924.9 | 12665.6 | 13893.2 | 14049.1 | 13886.7 | 14055.6 | 14088.1 | 13561.9 |
| 62.5° | 8235.9 | 8261.9 | 9203.7 | 10931.4 | 13165.7 | 14984.4 | 15445.5 | 15263.7 | 15107.8 | 14705.1 | 13730.8 |
| 65°   | 7040.8 | 6995.3 | 7898.1 | 10028.6 | 13256.7 | 16036.6 | 16699.1 | 16699.1 | 15685.9 | 14912.9 | 13373.6 |
| 67.5° | 5871.6 | 5800.2 | 6475.7 | 8177.4  | 11801.7 | 16497.8 | 17556.5 | 17212.2 | 15809.3 | 15055.8 | 12522.7 |
| 70°   | 2831.9 | 3033.3 | 4066.0 | 5787.2  | 9021.8  | 13932.2 | 16920.0 | 17049.9 | 15711.8 | 14607.7 | 10872.9 |
| 72.5° | 1013.2 | 967.8  | 1461.4 | 2481.2  | 4994.8  | 9093.3  | 14166.0 | 15309.1 | 15029.9 | 13321.6 | 8904.9  |
| 75°   | 467.7  | 474.1  | 610.5  | 863.9   | 1617.3  | 4436.2  | 9008.8  | 10541.7 | 12873.5 | 11074.3 | 6664.1  |
| 77.5° | 363.7  | 363.7  | 415.7  | 493.6   | 669.0   | 1435.4  | 4605.1  | 5917.1  | 8320.3  | 6858.9  | 3176.1  |
| 80°   | 266.3  | 272.8  | 279.3  | 324.8   | 409.2   | 539.1   | 1370.5  | 2052.5  | 3033.3  | 2201.9  | 1032.7  |
| 82.5° | 188.4  | 188.4  | 181.9  | 181.9   | 220.8   | 240.3   | 370.2   | 519.6   | 889.8   | 604.1   | 272.8   |
| 85°   | 77.9   | 90.9   | 77.9   | 77.9    | 77.9    | 97.4    | 116.9   | 136.4   | 194.9   | 168.9   | 116.9   |
| 87.5° | 13.0   | 13.0   | 13.0   | 19.5    | 26.0    | 32.5    | 39.0    | 45.5    | 52.0    | 52.0    | 52.0    |
| 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-SB5C-722-U-T3

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4514.2  | 4514.2 | 4514.2 | 4514.2 | 4514.2 | 4514.2 | 4514.2 | 4514.2 | 4514.2 | 4514.2 | 4514.2 |
| 2.5°  | 4533.6  | 4533.6 | 4514.2 | 4481.7 | 4468.7 | 4449.2 | 4442.7 | 4436.2 | 4423.2 | 4449.2 | 4436.2 |
| 5°    | 4559.6  | 4533.6 | 4507.7 | 4455.7 | 4449.2 | 4416.7 | 4384.2 | 4377.8 | 4358.3 | 4377.8 | 4377.8 |
| 7.5°  | 4618.1  | 4579.1 | 4520.6 | 4468.7 | 4423.2 | 4416.7 | 4358.3 | 4306.3 | 4306.3 | 4312.8 | 4306.3 |
| 10°   | 4722.0  | 4676.5 | 4618.1 | 4520.6 | 4436.2 | 4358.3 | 4260.8 | 4195.9 | 4202.4 | 4202.4 | 4189.4 |
| 12.5° | 4858.4  | 4793.4 | 4689.5 | 4546.6 | 4416.7 | 4293.3 | 4176.4 | 4156.9 | 4150.4 | 4163.4 | 4124.4 |
| 15°   | 4962.3  | 4903.9 | 4735.0 | 4572.6 | 4371.3 | 4247.8 | 4124.4 | 4079.0 | 4085.5 | 4072.5 | 4040.0 |
| 17.5° | 5092.2  | 5001.3 | 4793.4 | 4553.1 | 4319.3 | 4202.4 | 4059.5 | 3962.1 | 3910.1 | 3916.6 | 3910.1 |
| 20°   | 5215.6  | 5085.7 | 4838.9 | 4553.1 | 4306.3 | 4098.5 | 3916.6 | 3786.7 | 3676.3 | 3656.8 | 3650.3 |
| 22.5° | 5306.6  | 5176.7 | 4890.9 | 4559.6 | 4228.4 | 3981.5 | 3715.2 | 3546.4 | 3384.0 | 3358.0 | 3351.5 |
| 25°   | 5436.5  | 5267.6 | 4949.3 | 4514.2 | 4124.4 | 3786.7 | 3455.4 | 3267.1 | 3124.2 | 3098.2 | 3098.2 |
| 27.5° | 5546.9  | 5365.0 | 5027.3 | 4468.7 | 3955.6 | 3520.4 | 3208.6 | 3020.3 | 2929.3 | 2883.9 | 2883.9 |
| 30°   | 5663.8  | 5462.4 | 5092.2 | 4332.3 | 3728.2 | 3254.1 | 3013.8 | 2890.4 | 2786.4 | 2741.0 | 2721.5 |
| 32.5° | 5793.7  | 5624.8 | 5105.2 | 4195.9 | 3500.9 | 3078.7 | 2877.4 | 2773.4 | 2663.0 | 2598.1 | 2591.6 |
| 35°   | 5956.1  | 5832.7 | 5059.7 | 3994.5 | 3273.6 | 2942.3 | 2747.5 | 2630.5 | 2520.1 | 2455.2 | 2468.2 |
| 37.5° | 6215.9  | 6073.0 | 4923.3 | 3708.7 | 3085.2 | 2857.9 | 2643.5 | 2474.7 | 2344.8 | 2240.8 | 2247.3 |
| 40°   | 6599.1  | 6365.3 | 4722.0 | 3364.5 | 2948.8 | 2760.5 | 2520.1 | 2325.3 | 2136.9 | 1981.0 | 1981.0 |
| 42.5° | 7034.3  | 6625.1 | 4475.2 | 3046.2 | 2844.9 | 2637.0 | 2390.2 | 2143.4 | 1877.1 | 1714.7 | 1708.2 |
| 45°   | 7521.4  | 6852.4 | 4189.4 | 2786.4 | 2676.0 | 2487.7 | 2221.4 | 1870.6 | 1695.2 | 1610.8 | 1604.3 |
| 47.5° | 8170.9  | 7099.2 | 3851.6 | 2559.1 | 2481.2 | 2338.3 | 1968.0 | 1714.7 | 1610.8 | 1545.9 | 1539.4 |
| 50°   | 8781.5  | 7365.5 | 3572.4 | 2338.3 | 2273.3 | 2162.9 | 1792.7 | 1649.8 | 1565.3 | 1513.4 | 1500.4 |
| 52.5° | 9489.5  | 7638.3 | 3260.6 | 2123.9 | 2039.5 | 1890.1 | 1753.7 | 1617.3 | 1539.4 | 1500.4 | 1487.4 |
| 55°   | 10190.9 | 8021.6 | 2916.3 | 1929.1 | 1831.6 | 1766.7 | 1714.7 | 1597.8 | 1519.9 | 1493.9 | 1474.4 |
| 57.5° | 10989.8 | 8391.8 | 2494.2 | 1721.2 | 1682.3 | 1675.8 | 1708.2 | 1591.3 | 1526.4 | 1480.9 | 1454.9 |
| 60°   | 11405.5 | 8554.2 | 2052.5 | 1532.9 | 1539.4 | 1578.3 | 1682.3 | 1591.3 | 1487.4 | 1409.5 | 1377.0 |
| 62.5° | 11262.6 | 8222.9 | 1623.8 | 1344.5 | 1403.0 | 1474.4 | 1636.8 | 1532.9 | 1403.0 | 1344.5 | 1305.5 |
| 65°   | 10691.1 | 7657.8 | 1266.6 | 1182.1 | 1279.6 | 1344.5 | 1526.4 | 1448.4 | 1318.5 | 1260.1 | 1253.6 |
| 67.5° | 9866.2  | 6677.0 | 1026.2 | 1039.2 | 1136.7 | 1221.1 | 1428.9 | 1396.5 | 1247.1 | 1208.1 | 1208.1 |
| 70°   | 8294.3  | 5365.0 | 844.4  | 909.3  | 993.8  | 1084.7 | 1357.5 | 1312.0 | 1156.1 | 1136.7 | 1136.7 |
| 72.5° | 6482.2  | 3786.7 | 721.0  | 798.9  | 824.9  | 954.8  | 1260.1 | 1214.6 | 1123.7 | 1169.1 | 1175.6 |
| 75°   | 4572.6  | 2305.8 | 617.0  | 675.5  | 701.5  | 785.9  | 1169.1 | 1188.6 | 1104.2 | 1253.6 | 1279.6 |
| 77.5° | 2078.5  | 1013.2 | 480.6  | 532.6  | 565.1  | 669.0  | 1006.8 | 1104.2 | 954.8  | 954.8  | 902.8  |
| 80°   | 727.5   | 428.7  | 383.2  | 383.2  | 409.2  | 519.6  | 837.9  | 909.3  | 766.4  | 675.5  | 649.5  |
| 82.5° | 266.3   | 233.8  | 285.8  | 285.8  | 259.8  | 318.3  | 558.6  | 604.1  | 552.1  | 480.6  | 474.1  |
| 85°   | 103.9   | 110.4  | 175.4  | 175.4  | 129.9  | 155.9  | 311.8  | 324.8  | 311.8  | 272.8  | 272.8  |
| 87.5° | 45.5    | 45.5   | 52.0   | 52.0   | 45.5   | 39.0   | 58.5   | 58.5   | 39.0   | 26.0   | 13.0   |
| 90°   | 0.0     | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-2

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-722-U-5WQ

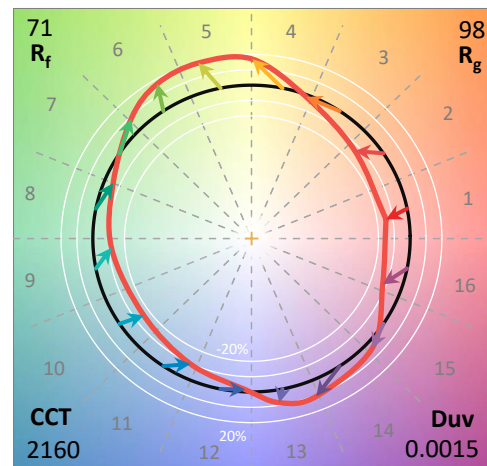
Data in this report applies to families of products including GSS-SB1A-722-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-2  
 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-722-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 2200K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 2160     | CRI (Ra): | 71.9 |      |       |
| CIE u':                   | 0.2927   | R1:       | 68.7 | R9:  | -17.8 |
| CIE v':                   | 0.5388   | R2:       | 82.6 | R10: | 60.5  |
| Duv:                      | 0.0015   | R3:       | 95.5 | R11: | 60.2  |
| CIE x:                    | 0.5130   | R4:       | 66.4 | R12: | 48.2  |
| CIE y:                    | 0.4197   | R5:       | 65.4 | R13: | 70.7  |
| CIE z:                    | 0.0674   | R6:       | 75.9 | R14: | 96.8  |
| Peak Wavelength (nm):     | 609      | R7:       | 77.2 | R15: | 61.8  |
| Dominant Wavelength (nm): | 587      | R8:       | 43.5 |      |       |
| Purity:                   | 79.96089 |           |      |      |       |
| Rf:                       | 70.6     |           |      |      |       |
| Rg:                       | 97.6     |           |      |      |       |



### Test Conditions

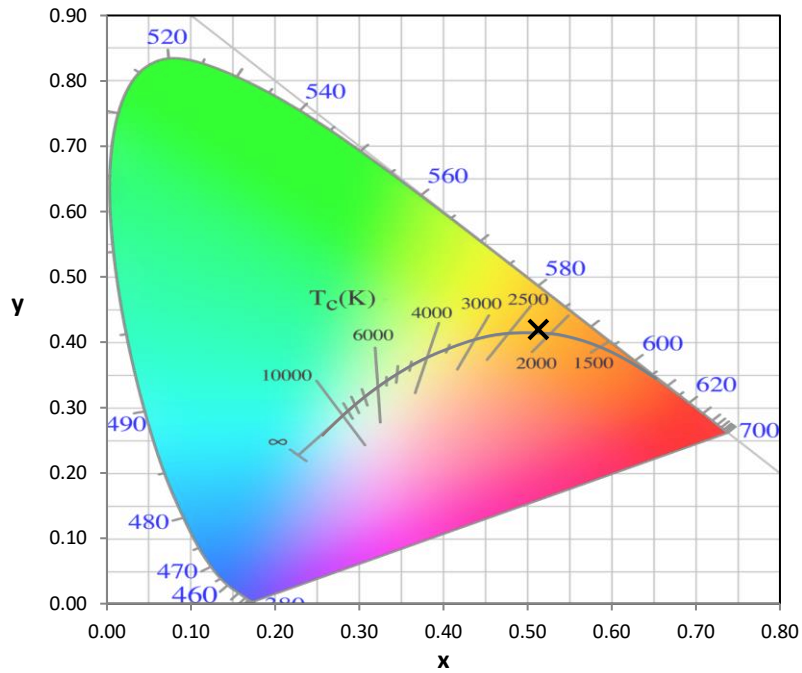
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

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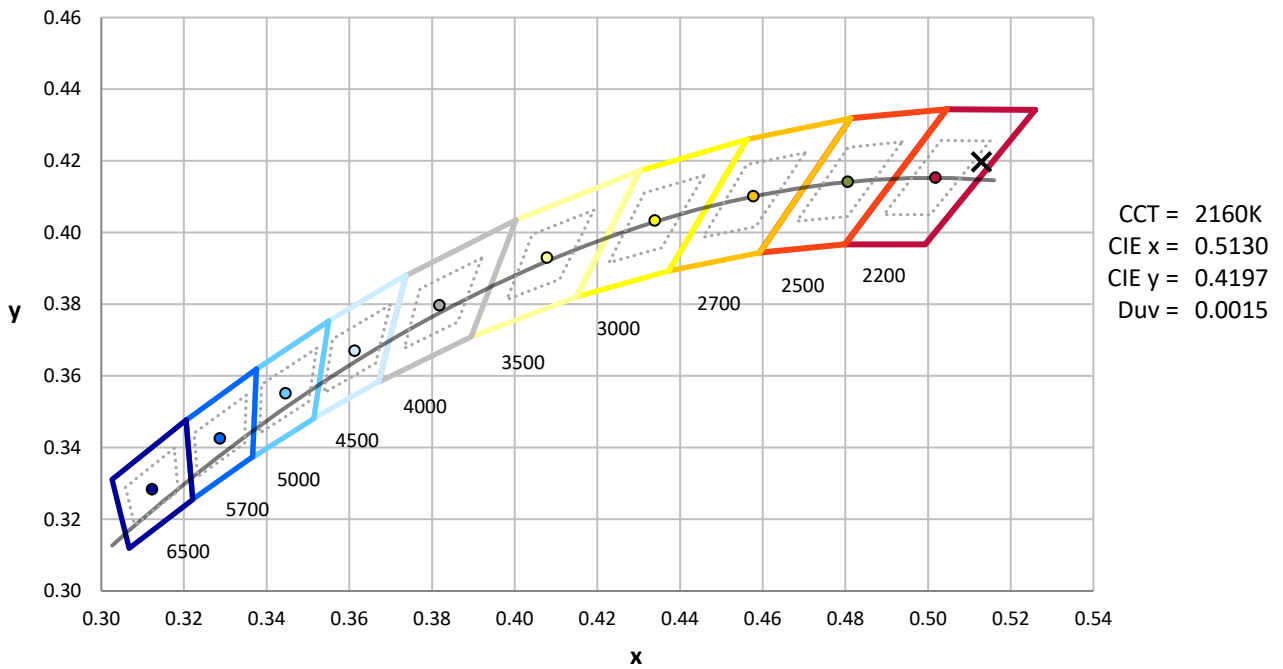
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

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**CIE 1931 Chromaticity Diagram**



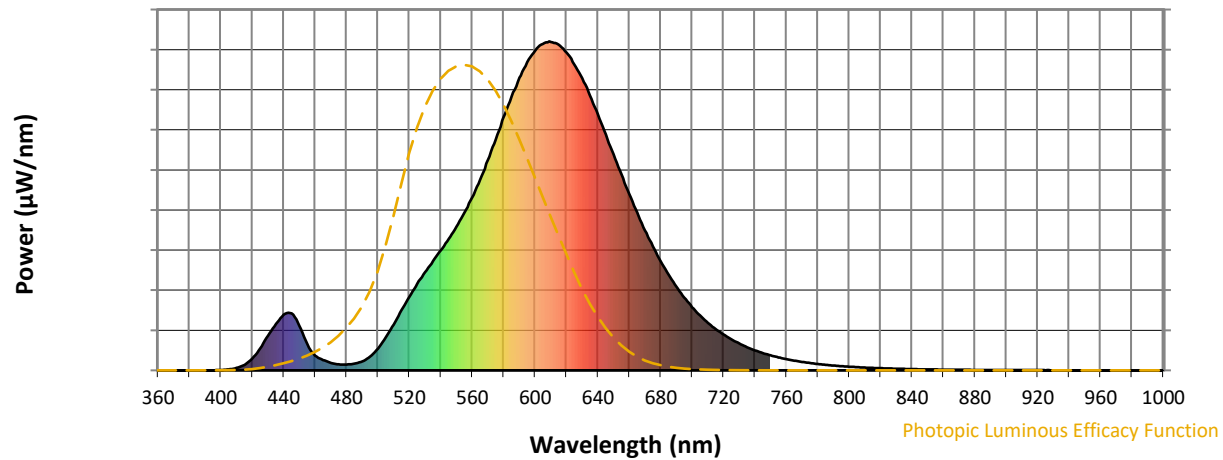
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 2200K 7-step quadrangle

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### Photopic Flux vs. Wavelength

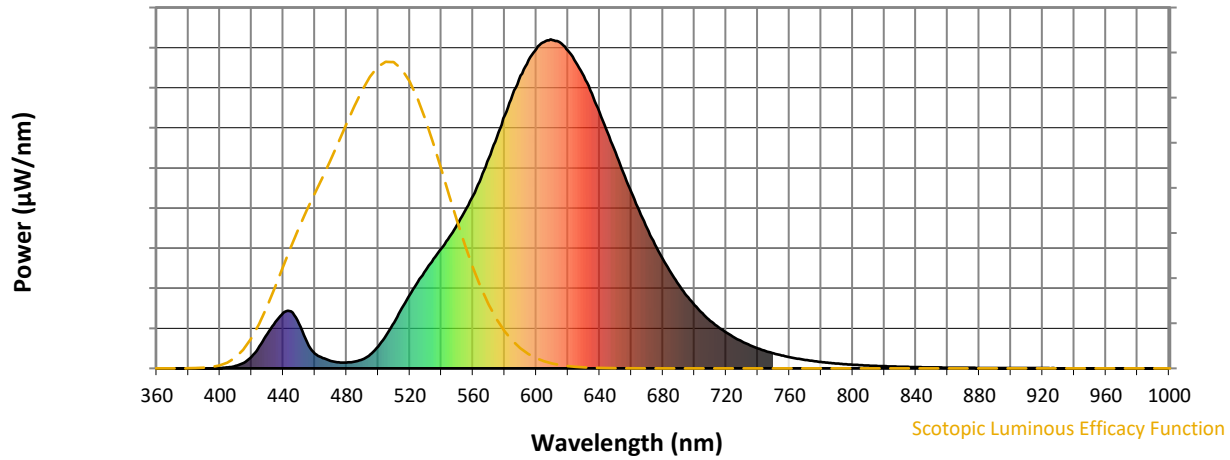


### Photopic Lumens: NR

| $\lambda$<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               | 27                                   | NR                             | 620               | 966                                  | NR                             | 750               | 46                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 42                                   | NR                             | 625               | 930                                  | NR                             | 755               | 39                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 67                                   | NR                             | 630               | 888                                  | NR                             | 760               | 34                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 101                                  | NR                             | 635               | 835                                  | NR                             | 765               | 30                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 139                                  | NR                             | 640               | 778                                  | NR                             | 770               | 26                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 183                                  | NR                             | 645               | 717                                  | NR                             | 775               | 22                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 224                                  | NR                             | 650               | 656                                  | NR                             | 780               | 19                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 262                                  | NR                             | 655               | 595                                  | NR                             | 785               | 17                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 1                                    | NR                             | 530               | 299                                  | NR                             | 660               | 536                                  | NR                             | 790               | 15                                   | NR                             | 920               | 1                                    | NR                             |
| 405               | 3                                    | NR                             | 535               | 332                                  | NR                             | 665               | 480                                  | NR                             | 795               | 13                                   | NR                             | 925               | 1                                    | NR                             |
| 410               | 7                                    | NR                             | 540               | 365                                  | NR                             | 670               | 425                                  | NR                             | 800               | 11                                   | NR                             | 930               | 1                                    | NR                             |
| 415               | 17                                   | NR                             | 545               | 400                                  | NR                             | 675               | 376                                  | NR                             | 805               | 10                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 36                                   | NR                             | 550               | 437                                  | NR                             | 680               | 332                                  | NR                             | 810               | 8                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 67                                   | NR                             | 555               | 479                                  | NR                             | 685               | 291                                  | NR                             | 815               | 8                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 105                                  | NR                             | 560               | 525                                  | NR                             | 690               | 255                                  | NR                             | 820               | 7                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 141                                  | NR                             | 565               | 579                                  | NR                             | 695               | 221                                  | NR                             | 825               | 6                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 169                                  | NR                             | 570               | 639                                  | NR                             | 700               | 192                                  | NR                             | 830               | 5                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 173                                  | NR                             | 575               | 703                                  | NR                             | 705               | 167                                  | NR                             | 835               | 4                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 136                                  | NR                             | 580               | 769                                  | NR                             | 710               | 144                                  | NR                             | 840               | 4                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 80                                   | NR                             | 585               | 832                                  | NR                             | 715               | 125                                  | NR                             | 845               | 3                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 45                                   | NR                             | 590               | 890                                  | NR                             | 720               | 109                                  | NR                             | 850               | 3                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 32                                   | NR                             | 595               | 937                                  | NR                             | 725               | 94                                   | NR                             | 855               | 3                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 23                                   | NR                             | 600               | 972                                  | NR                             | 730               | 81                                   | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 18                                   | NR                             | 605               | 992                                  | NR                             | 735               | 70                                   | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 18                                   | NR                             | 610               | 998                                  | NR                             | 740               | 61                                   | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 20                                   | NR                             | 615               | 990                                  | NR                             | 745               | 53                                   | NR                             | 875               | 2                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



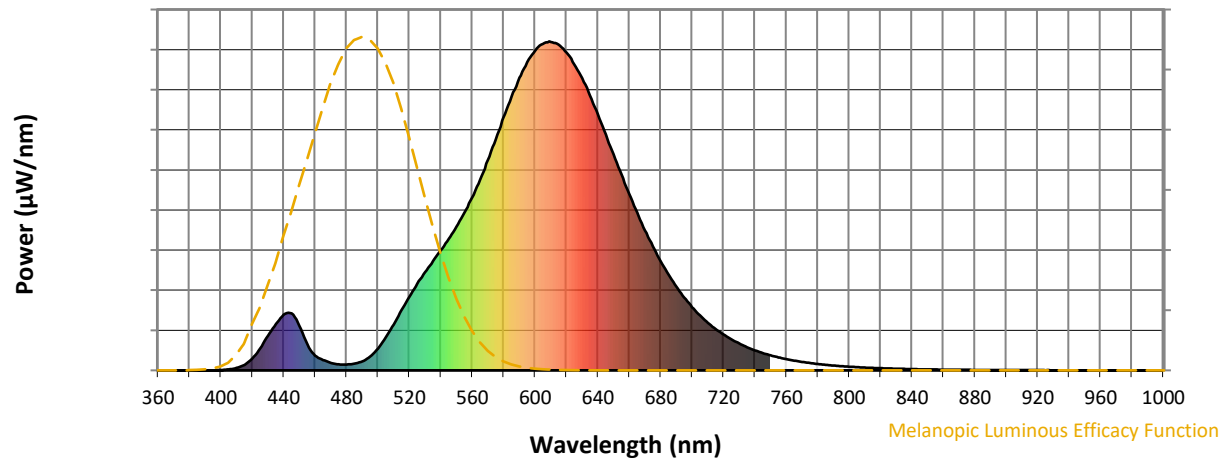
Scotopic Lumens: NR

S/P: 0.8

| $\lambda$<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               | 27                                   | NR                             | 620               | 966                                  | NR                             | 750               | 46                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 42                                   | NR                             | 625               | 930                                  | NR                             | 755               | 39                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 67                                   | NR                             | 630               | 888                                  | NR                             | 760               | 34                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 101                                  | NR                             | 635               | 835                                  | NR                             | 765               | 30                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 139                                  | NR                             | 640               | 778                                  | NR                             | 770               | 26                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 183                                  | NR                             | 645               | 717                                  | NR                             | 775               | 22                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 224                                  | NR                             | 650               | 656                                  | NR                             | 780               | 19                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 262                                  | NR                             | 655               | 595                                  | NR                             | 785               | 17                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 1                                    | NR                             | 530               | 299                                  | NR                             | 660               | 536                                  | NR                             | 790               | 15                                   | NR                             | 920               | 1                                    | NR                             |
| 405               | 3                                    | NR                             | 535               | 332                                  | NR                             | 665               | 480                                  | NR                             | 795               | 13                                   | NR                             | 925               | 1                                    | NR                             |
| 410               | 7                                    | NR                             | 540               | 365                                  | NR                             | 670               | 425                                  | NR                             | 800               | 11                                   | NR                             | 930               | 1                                    | NR                             |
| 415               | 17                                   | NR                             | 545               | 400                                  | NR                             | 675               | 376                                  | NR                             | 805               | 10                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 36                                   | NR                             | 550               | 437                                  | NR                             | 680               | 332                                  | NR                             | 810               | 8                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 67                                   | NR                             | 555               | 479                                  | NR                             | 685               | 291                                  | NR                             | 815               | 8                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 105                                  | NR                             | 560               | 525                                  | NR                             | 690               | 255                                  | NR                             | 820               | 7                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 141                                  | NR                             | 565               | 579                                  | NR                             | 695               | 221                                  | NR                             | 825               | 6                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 169                                  | NR                             | 570               | 639                                  | NR                             | 700               | 192                                  | NR                             | 830               | 5                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 173                                  | NR                             | 575               | 703                                  | NR                             | 705               | 167                                  | NR                             | 835               | 4                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 136                                  | NR                             | 580               | 769                                  | NR                             | 710               | 144                                  | NR                             | 840               | 4                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 80                                   | NR                             | 585               | 832                                  | NR                             | 715               | 125                                  | NR                             | 845               | 3                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 45                                   | NR                             | 590               | 890                                  | NR                             | 720               | 109                                  | NR                             | 850               | 3                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 32                                   | NR                             | 595               | 937                                  | NR                             | 725               | 94                                   | NR                             | 855               | 3                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 23                                   | NR                             | 600               | 972                                  | NR                             | 730               | 81                                   | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 18                                   | NR                             | 605               | 992                                  | NR                             | 735               | 70                                   | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 18                                   | NR                             | 610               | 998                                  | NR                             | 740               | 61                                   | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 20                                   | NR                             | 615               | 990                                  | NR                             | 745               | 53                                   | NR                             | 875               | 2                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 1.21**

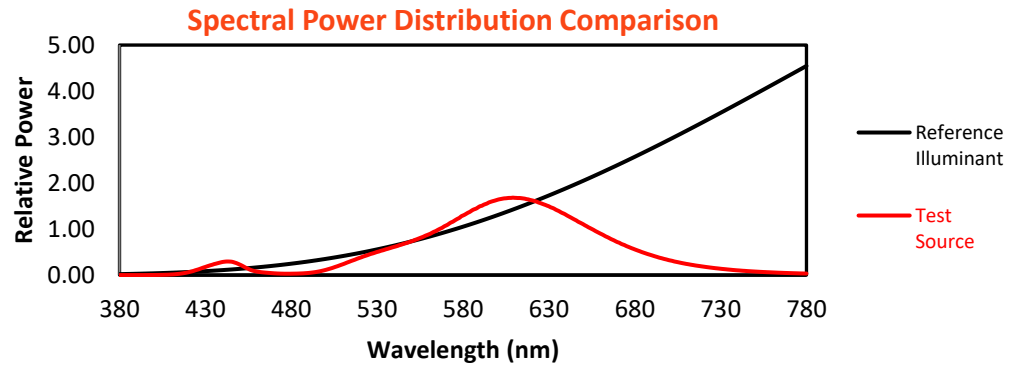
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 27                                   | NR                             | 620               | 966                                  | NR                             | 750               | 46                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 42                                   | NR                             | 625               | 930                                  | NR                             | 755               | 39                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 67                                   | NR                             | 630               | 888                                  | NR                             | 760               | 34                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 101                                  | NR                             | 635               | 835                                  | NR                             | 765               | 30                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 139                                  | NR                             | 640               | 778                                  | NR                             | 770               | 26                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 183                                  | NR                             | 645               | 717                                  | NR                             | 775               | 22                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 224                                  | NR                             | 650               | 656                                  | NR                             | 780               | 19                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 262                                  | NR                             | 655               | 595                                  | NR                             | 785               | 17                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 1                                    | NR                             | 530               | 299                                  | NR                             | 660               | 536                                  | NR                             | 790               | 15                                   | NR                             | 920               | 1                                    | NR                             |
| 405               | 3                                    | NR                             | 535               | 332                                  | NR                             | 665               | 480                                  | NR                             | 795               | 13                                   | NR                             | 925               | 1                                    | NR                             |
| 410               | 7                                    | NR                             | 540               | 365                                  | NR                             | 670               | 425                                  | NR                             | 800               | 11                                   | NR                             | 930               | 1                                    | NR                             |
| 415               | 17                                   | NR                             | 545               | 400                                  | NR                             | 675               | 376                                  | NR                             | 805               | 10                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 36                                   | NR                             | 550               | 437                                  | NR                             | 680               | 332                                  | NR                             | 810               | 8                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 67                                   | NR                             | 555               | 479                                  | NR                             | 685               | 291                                  | NR                             | 815               | 8                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 105                                  | NR                             | 560               | 525                                  | NR                             | 690               | 255                                  | NR                             | 820               | 7                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 141                                  | NR                             | 565               | 579                                  | NR                             | 695               | 221                                  | NR                             | 825               | 6                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 169                                  | NR                             | 570               | 639                                  | NR                             | 700               | 192                                  | NR                             | 830               | 5                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 173                                  | NR                             | 575               | 703                                  | NR                             | 705               | 167                                  | NR                             | 835               | 4                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 136                                  | NR                             | 580               | 769                                  | NR                             | 710               | 144                                  | NR                             | 840               | 4                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 80                                   | NR                             | 585               | 832                                  | NR                             | 715               | 125                                  | NR                             | 845               | 3                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 45                                   | NR                             | 590               | 890                                  | NR                             | 720               | 109                                  | NR                             | 850               | 3                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 32                                   | NR                             | 595               | 937                                  | NR                             | 725               | 94                                   | NR                             | 855               | 3                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 23                                   | NR                             | 600               | 972                                  | NR                             | 730               | 81                                   | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 18                                   | NR                             | 605               | 992                                  | NR                             | 735               | 70                                   | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 18                                   | NR                             | 610               | 998                                  | NR                             | 740               | 61                                   | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 20                                   | NR                             | 615               | 990                                  | NR                             | 745               | 53                                   | NR                             | 875               | 2                                    | NR                             |                   |                                      |                                |

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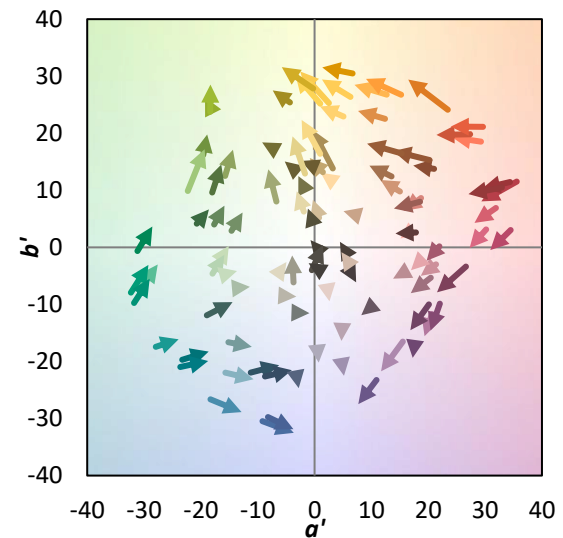
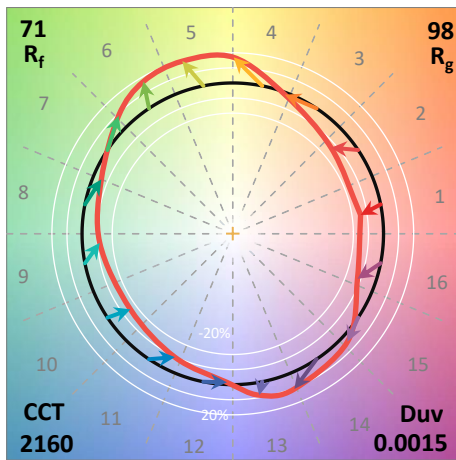
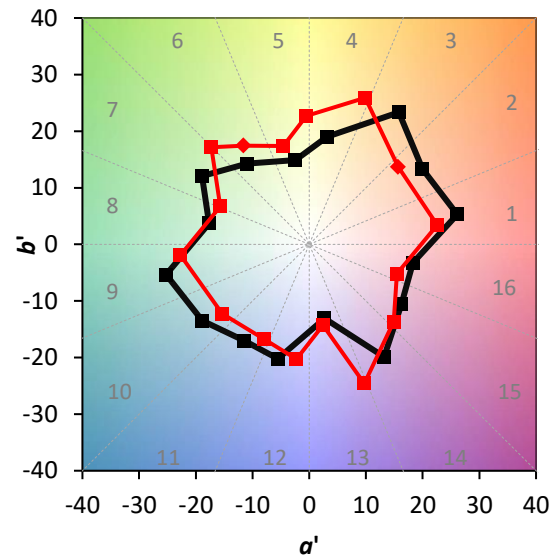
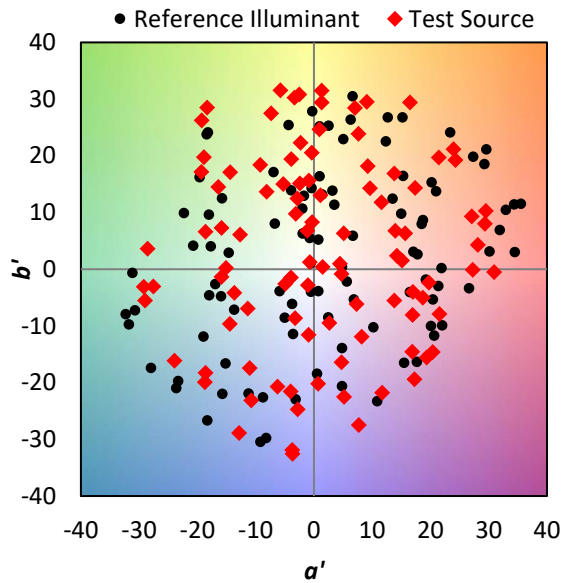
TM-30-18

### Summary

$R_f = 70.6$   
 $R_g = 97.6$   
 $CIE R_a = 71.9$   
 $R_g = -17.8$



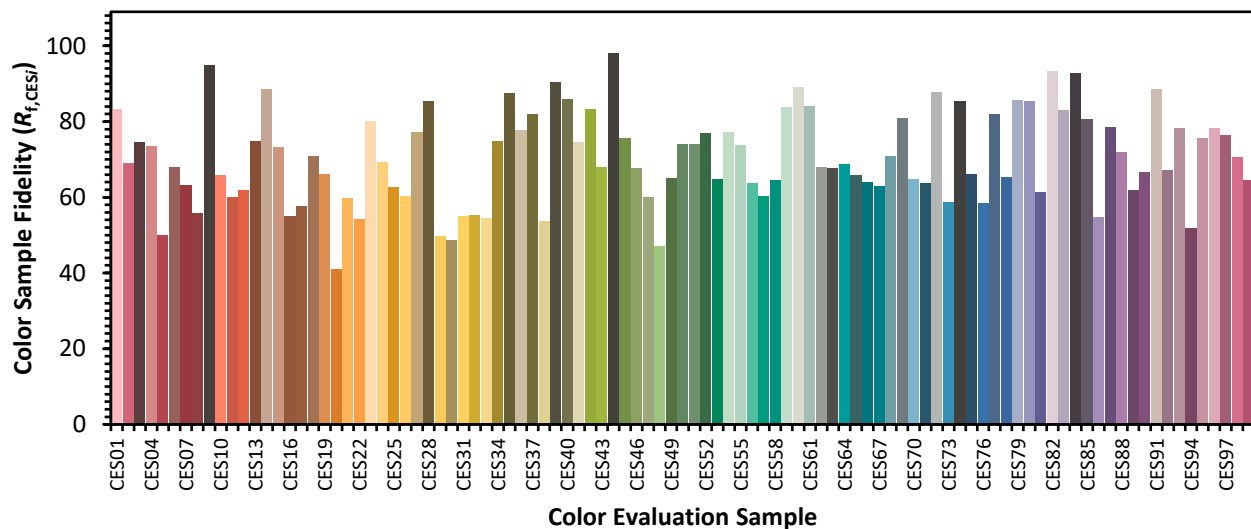
### Color Vector Graphics



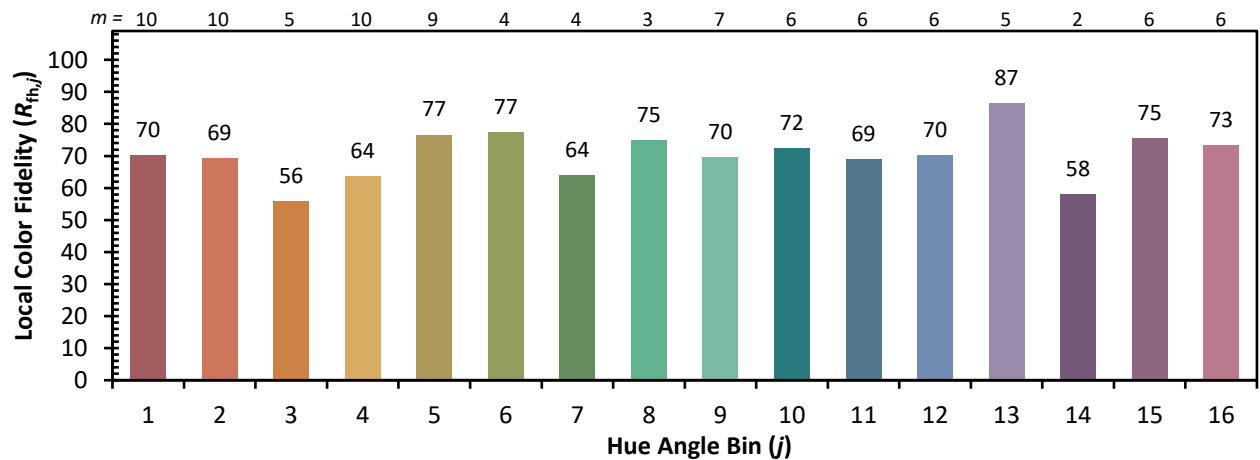
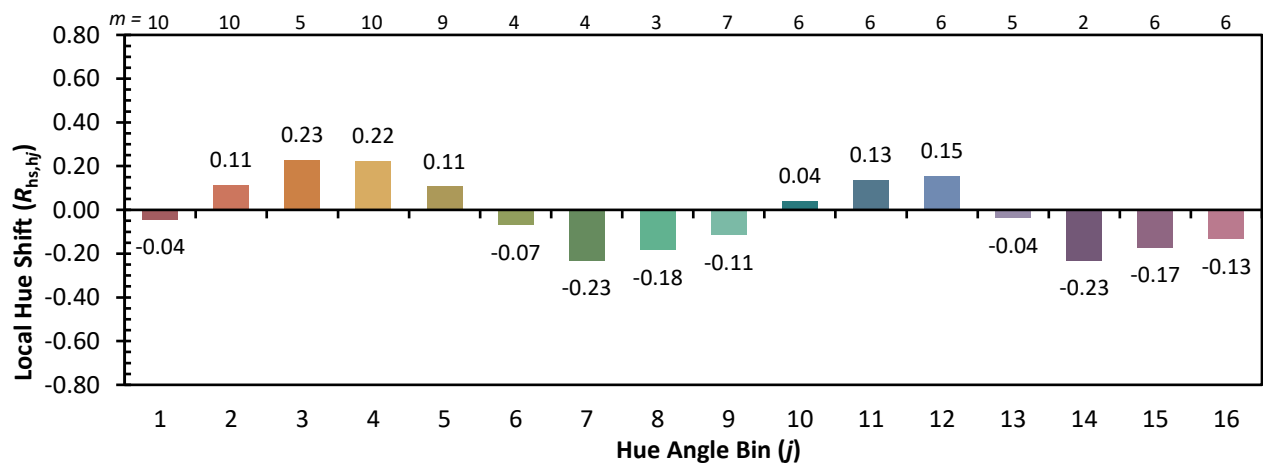
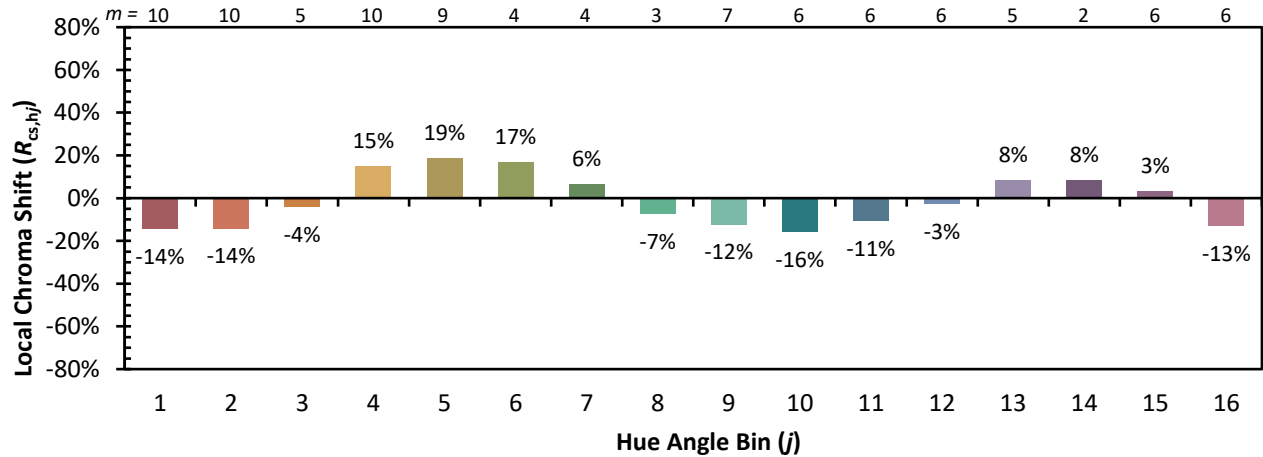


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

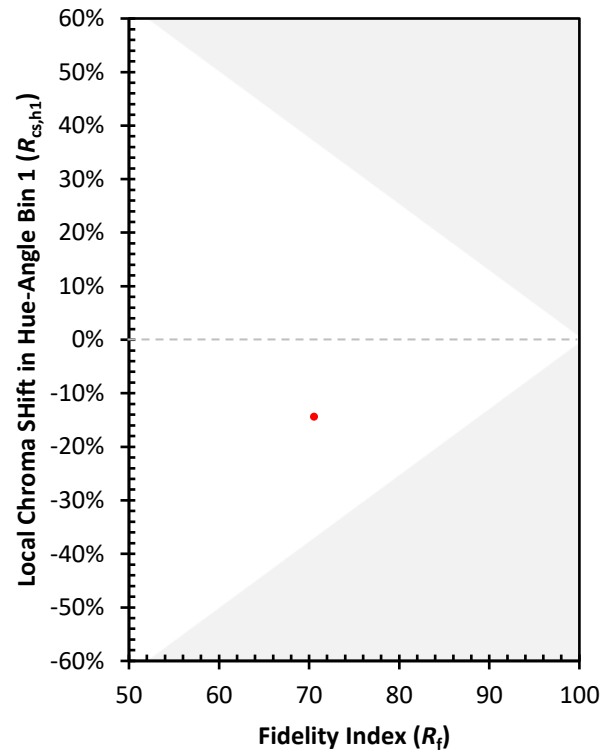
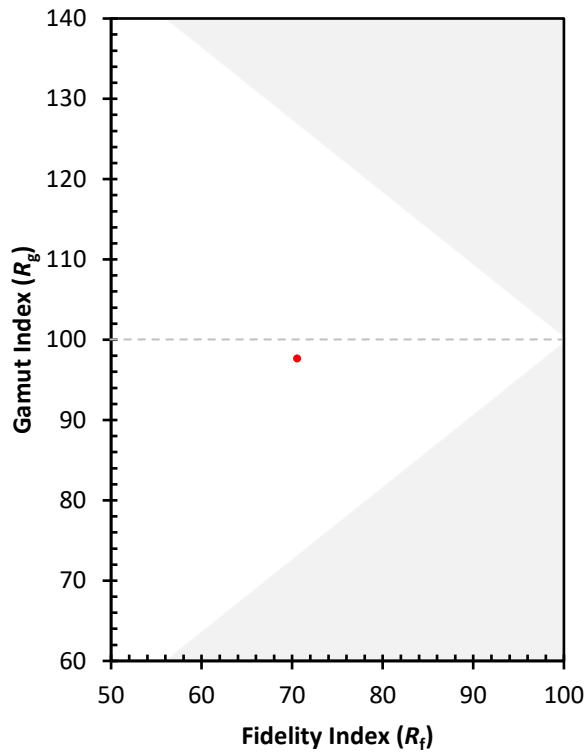
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 60 | CES51 = 74 | CES76 = 58 |
| CES02 = 65 | CES27 = 77 | CES52 = 77 | CES77 = 82 |
| CES03 = 32 | CES28 = 85 | CES53 = 65 | CES78 = 65 |
| CES04 = 72 | CES29 = 50 | CES54 = 77 | CES79 = 86 |
| CES05 = 52 | CES30 = 49 | CES55 = 74 | CES80 = 85 |
| CES06 = 53 | CES31 = 55 | CES56 = 64 | CES81 = 61 |
| CES07 = 44 | CES32 = 55 | CES57 = 60 | CES82 = 93 |
| CES08 = 43 | CES33 = 55 | CES58 = 64 | CES83 = 83 |
| CES09 = 29 | CES34 = 75 | CES59 = 84 | CES84 = 93 |
| CES10 = 79 | CES35 = 88 | CES60 = 89 | CES85 = 81 |
| CES11 = 62 | CES36 = 78 | CES61 = 84 | CES86 = 55 |
| CES12 = 68 | CES37 = 82 | CES62 = 68 | CES87 = 79 |
| CES13 = 45 | CES38 = 54 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 86 | CES65 = 66 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 89 |
| CES17 = 51 | CES42 = 83 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 68 | CES68 = 71 | CES93 = 78 |
| CES19 = 74 | CES44 = 98 | CES69 = 81 | CES94 = 52 |
| CES20 = 68 | CES45 = 76 | CES70 = 65 | CES95 = 76 |
| CES21 = 89 | CES46 = 68 | CES71 = 64 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 88 | CES97 = 76 |
| CES23 = 92 | CES48 = 47 | CES73 = 59 | CES98 = 71 |
| CES24 = 92 | CES49 = 65 | CES74 = 85 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)