

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: STREETWORKS

Report Number: P1458686

Luminaire Tested: **GLAN-SB4D-722-U-T4LG-HSS**

Issue Date: 05/20/2026

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

Report Generated By 670245763



**Test Information**

Test Method: LM-79-08  
 Report Number: P1458686  
 Test Lab: INNOVATION CENTER(G1)  
 Issue Date: 05/20/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: GLAN-SB4D-722-U-T4LG-HSS  
 Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 900mA 4xLight  
 Square PACKAGE 70CRI 2200K FIXTURE w/ TYPE IV LOW GLARE WITH HOUSE SIDE  
 SHIELD  
 Light Source: (104) 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               |

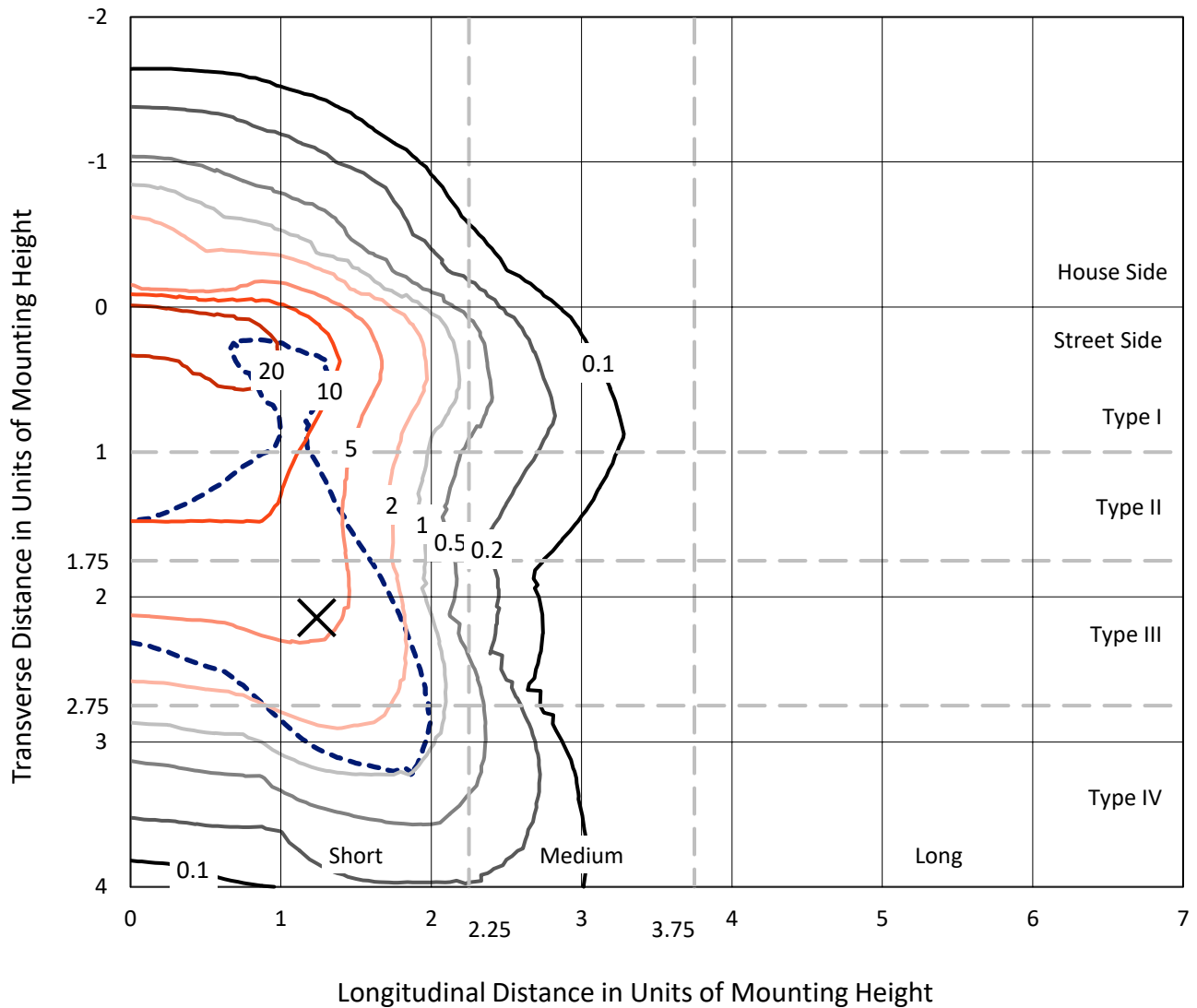
**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 24435.6 lumens  
 Efficiency: N/A  
 Efficacy: 83.2 lumens/watt  
 Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
 IES Classification: Type IV - Short  
 BUG Rating: B2 - U0 - G3  
  
 Input Watts (W): 293.6  
 Input Voltage (V): 120  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: 0.97  
 Total Harmonic Distortion (THDi): NR  
 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

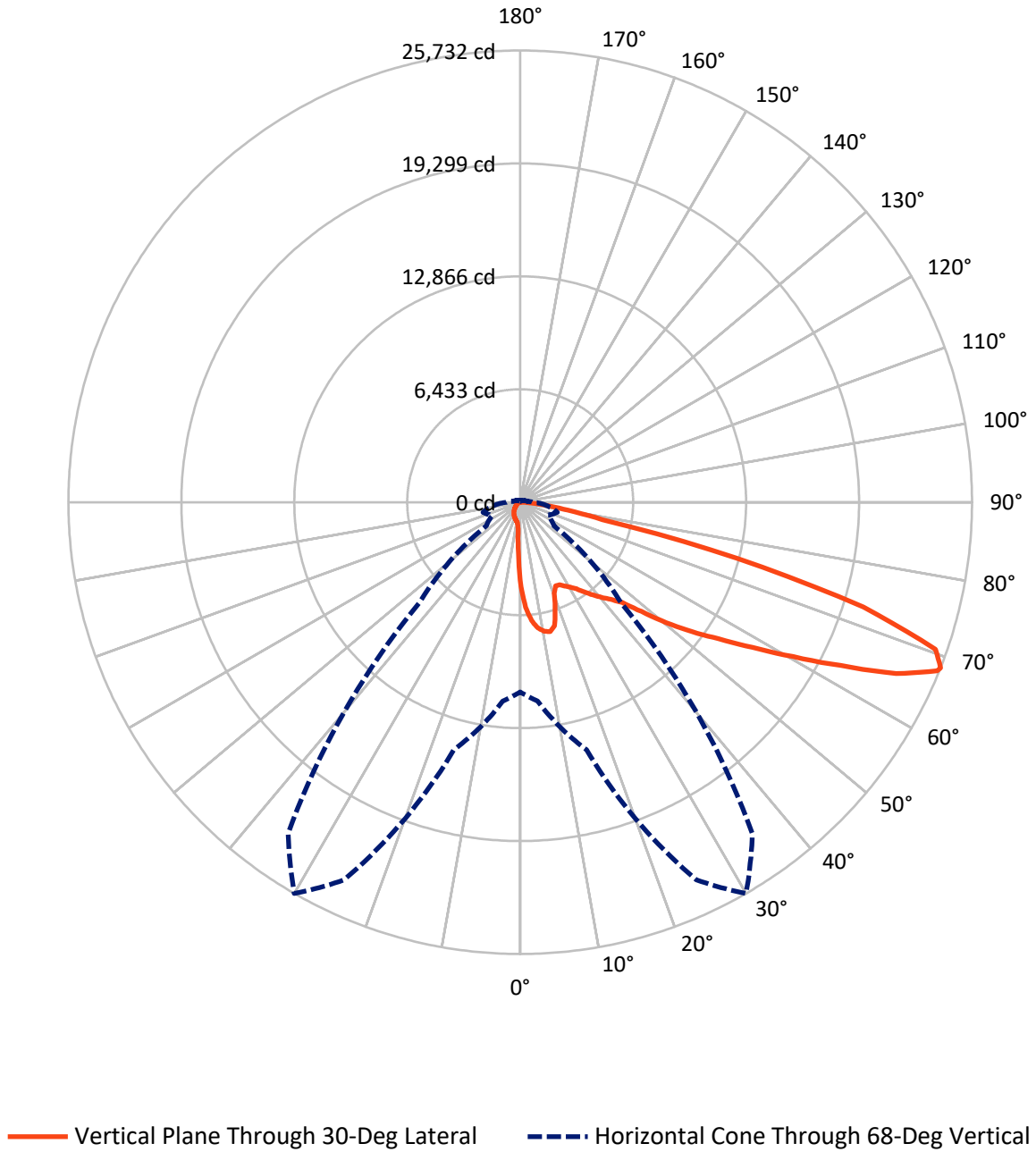
× Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 32.7 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



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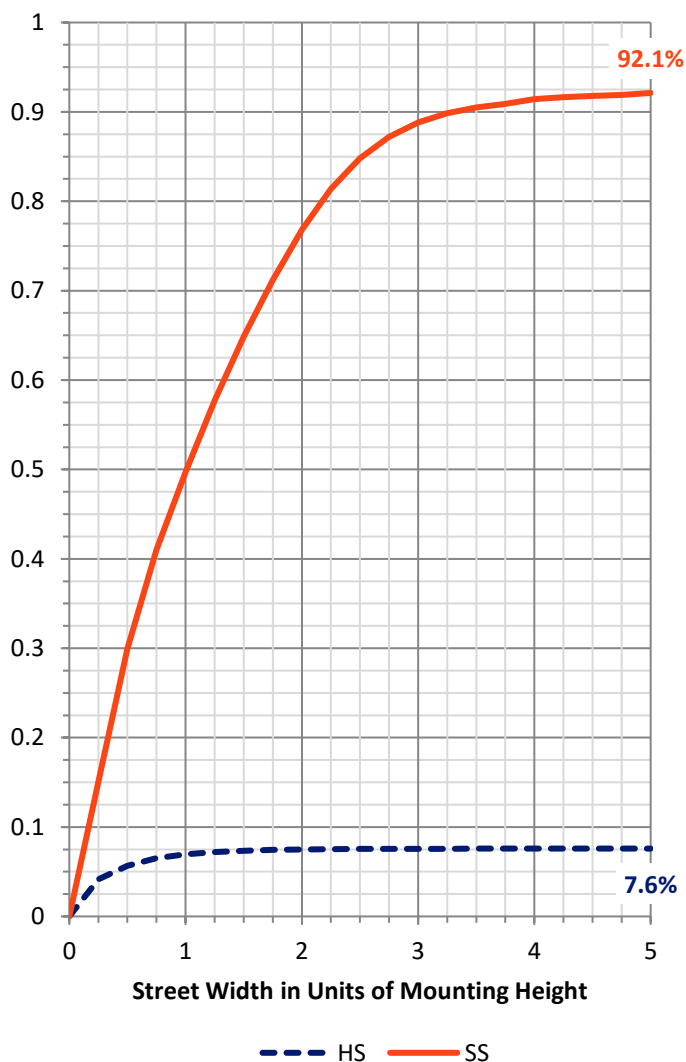
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 1865.1   | 0.0    | 1865.1  |
|                    | % Fixture | 7.6      | 0.0    | 7.6     |
| <b>Street Side</b> | Lumens    | 22570.5  | 0.0    | 22570.5 |
|                    | % Fixture | 92.4     | 0.0    | 92.4    |
| <b>Total</b>       | Lumens    | 24435.6  | 0.0    | 24435.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 415.8   | 1.7       |
| 10°-20°   | 1187.0  | 4.9       |
| 20°-30°   | 1865.3  | 7.6       |
| 30°-40°   | 2925.6  | 12.0      |
| 40°-50°   | 4373.0  | 17.9      |
| 50°-60°   | 5817.5  | 23.8      |
| 60°-70°   | 5623.7  | 23.0      |
| 70°-80°   | 2021.5  | 8.3       |
| 80°-90°   | 206.3   | 0.8       |
| 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°    | 24435.6 | 100.0     |
| 0°-180°   | 24435.6 | 100.0     |

**Coefficient of Utilization**

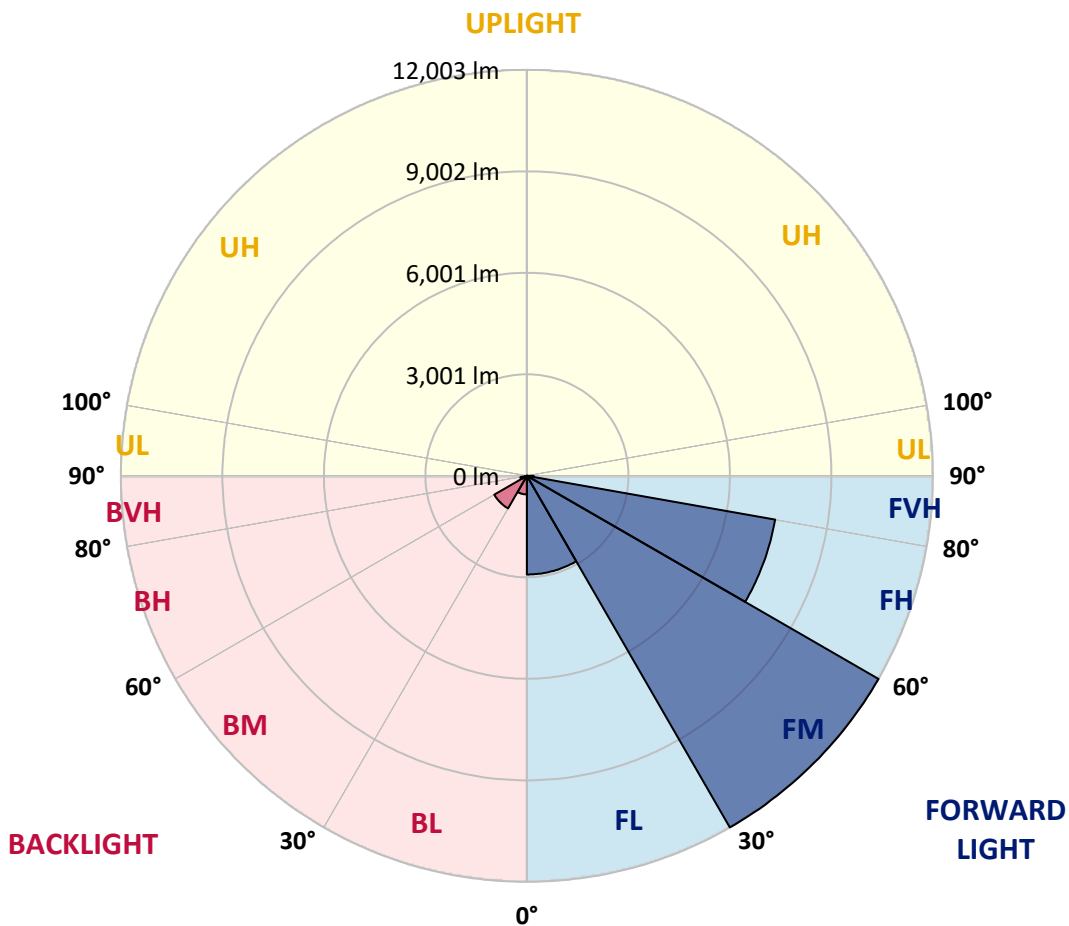


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|---------|-----------|-------------------------|------|---------|
|                |         |           | B                       | U    | G       |
| FL (0°-30°)    | 2917.6  | 11.9      |                         |      |         |
| FM (30°-60°)   | 12002.8 | 49.1      |                         |      |         |
| FH (60°-80°)   | 7451.2  | 30.5      |                         |      | G3/7500 |
| FVH (80°-90°)  | 199.0   | 0.8       |                         |      | G2/225  |
| BL (0°-30°)    | 550.5   | 2.3       | B2/1000                 |      |         |
| BM (30°-60°)   | 1113.3  | 4.6       | B2/2500                 |      |         |
| BH (60°-80°)   | 194.0   | 0.8       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 7.3     | 0.0       |                         |      | G0/10   |
| UL (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0     | 0.0       |                         | U0/0 |         |

**BUG Rating: B2-U0-G3**  
 Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 30°     | 35°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 4818.4  | 4818.4  | 4818.4  | 4818.4  | 4818.4  | 4818.4  | 4818.4  | 4818.4  | 4818.4  | 4818.4  | 4818.4 |
| 2.5°  | 6158.5  | 6158.5  | 6114.5  | 6056.0  | 5990.1  | 5968.1  | 5843.6  | 5667.9  | 5484.8  | 5272.4  | 4964.9 |
| 5°    | 6949.3  | 6942.0  | 6854.2  | 6854.2  | 6766.3  | 6685.7  | 6561.2  | 6304.9  | 6012.0  | 5631.2  | 5096.7 |
| 7.5°  | 7300.8  | 7315.5  | 7278.9  | 7278.9  | 7227.6  | 7169.0  | 7095.8  | 6846.8  | 6502.7  | 5990.1  | 5228.5 |
| 10°   | 7425.3  | 7432.7  | 7432.7  | 7483.9  | 7469.3  | 7461.9  | 7454.6  | 7315.5  | 6956.7  | 6356.2  | 5367.6 |
| 12.5° | 7125.1  | 7161.7  | 7264.2  | 7491.2  | 7564.5  | 7645.0  | 7754.9  | 7710.9  | 7461.9  | 6817.5  | 5580.0 |
| 15°   | 6158.5  | 6165.8  | 6451.4  | 7015.3  | 7315.5  | 7623.0  | 8047.8  | 8135.6  | 7974.5  | 7315.5  | 5799.7 |
| 17.5° | 5082.0  | 5104.0  | 5331.0  | 5960.8  | 6444.1  | 7154.4  | 8216.2  | 8575.0  | 8516.4  | 7806.1  | 6004.7 |
| 20°   | 4635.3  | 4664.6  | 4774.5  | 5169.9  | 5536.0  | 6195.1  | 8047.8  | 8992.4  | 9014.4  | 8296.7  | 6195.1 |
| 22.5° | 4532.8  | 4554.8  | 4642.7  | 4950.2  | 5177.2  | 5616.6  | 7476.6  | 9321.9  | 9578.2  | 8860.6  | 6422.1 |
| 25°   | 4503.5  | 4525.5  | 4657.3  | 4994.2  | 5206.5  | 5572.7  | 6956.7  | 9497.7  | 10244.6 | 9446.4  | 6641.8 |
| 27.5° | 4481.6  | 4510.9  | 4723.2  | 5155.3  | 5404.2  | 5755.7  | 6861.5  | 9534.3  | 10881.7 | 10068.9 | 7000.6 |
| 30°   | 4510.9  | 4554.8  | 4833.1  | 5323.7  | 5609.3  | 6004.7  | 7088.5  | 9570.9  | 11584.7 | 10779.2 | 7454.6 |
| 32.5° | 4628.0  | 4664.6  | 5001.5  | 5550.7  | 5880.2  | 6326.9  | 7476.6  | 9790.6  | 12251.1 | 11504.1 | 7886.7 |
| 35°   | 4759.8  | 4811.1  | 5213.8  | 5872.9  | 6268.3  | 6773.6  | 8003.8  | 10222.6 | 12888.2 | 12192.5 | 8333.4 |
| 37.5° | 4920.9  | 4979.5  | 5462.8  | 6239.0  | 6693.1  | 7264.2  | 8575.0  | 10823.1 | 13452.0 | 12756.3 | 8780.1 |
| 40°   | 5140.6  | 5206.5  | 5748.4  | 6627.1  | 7117.8  | 7689.0  | 9138.9  | 11416.3 | 13884.1 | 13093.2 | 9073.0 |
| 42.5° | 6004.7  | 6092.6  | 6319.6  | 7007.9  | 7557.1  | 8143.0  | 9695.4  | 11980.1 | 14045.2 | 13203.0 | 9131.5 |
| 45°   | 7615.7  | 7703.6  | 7645.0  | 7776.8  | 8143.0  | 8692.2  | 10303.2 | 12522.0 | 14067.1 | 13173.7 | 9102.3 |
| 47.5° | 9234.1  | 9336.6  | 9285.3  | 9212.1  | 9292.6  | 9556.3  | 10984.2 | 12866.2 | 13950.0 | 13159.1 | 9102.3 |
| 50°   | 10779.2 | 10720.6 | 10727.9 | 10706.0 | 10779.2 | 10918.3 | 11643.3 | 12932.1 | 13920.7 | 13298.2 | 9182.8 |
| 52.5° | 11606.7 | 11636.0 | 11819.0 | 12090.0 | 12251.1 | 12390.2 | 12397.5 | 13034.6 | 13708.3 | 13063.9 | 9087.6 |
| 55°   | 12419.5 | 12478.1 | 12902.8 | 13364.1 | 13723.0 | 13986.6 | 13151.8 | 12968.7 | 12441.5 | 12280.4 | 8589.7 |
| 57.5° | 13334.8 | 13415.4 | 14015.9 | 14967.8 | 15597.6 | 15736.7 | 13898.7 | 11738.5 | 10530.2 | 11160.0 | 7623.0 |
| 60°   | 14594.4 | 14689.6 | 15487.7 | 16915.7 | 17853.0 | 17567.4 | 13957.3 | 9783.3  | 8362.7  | 9263.4  | 6290.3 |
| 62.5° | 15582.9 | 15773.3 | 17215.9 | 19442.1 | 20474.6 | 19566.6 | 12866.2 | 7498.6  | 5843.6  | 6510.0  | 4591.4 |
| 65°   | 14528.5 | 14894.6 | 17245.2 | 22334.6 | 23528.2 | 21917.2 | 11152.6 | 5118.6  | 3295.3  | 4210.6  | 2936.4 |
| 67.5° | 11745.8 | 12258.4 | 15312.0 | 23740.6 | 25622.5 | 23154.7 | 8780.1  | 2716.8  | 1889.3  | 2445.8  | 1545.1 |
| 68°   | 10808.5 | 11365.0 | 14601.7 | 23740.6 | 25732.4 | 23044.9 | 8150.3  | 2350.6  | 1742.8  | 2196.8  | 1340.1 |
| 70°   | 7469.3  | 7864.7  | 11225.9 | 22407.8 | 25088.0 | 21009.2 | 5367.6  | 1347.4  | 1310.8  | 1508.5  | 886.1  |
| 72.5° | 3661.4  | 4086.1  | 6004.7  | 17757.8 | 20438.0 | 16146.8 | 2445.8  | 893.4   | 995.9   | 1105.7  | 695.7  |
| 75°   | 1457.2  | 1545.1  | 2365.3  | 8758.1  | 12771.0 | 10303.2 | 1281.5  | 673.7   | 856.8   | 864.1   | 549.2  |
| 77.5° | 834.8   | 886.1   | 1310.8  | 3222.0  | 4789.1  | 4606.0  | 827.5   | 483.3   | 681.0   | 622.4   | 358.8  |
| 80°   | 468.7   | 476.0   | 739.6   | 1698.9  | 2738.7  | 2453.1  | 563.9   | 351.5   | 519.9   | 439.4   | 241.7  |
| 82.5° | 234.3   | 263.6   | 468.7   | 937.3   | 1523.1  | 1559.8  | 300.2   | 249.0   | 417.4   | 314.9   | 197.7  |
| 85°   | 168.4   | 183.1   | 336.8   | 519.9   | 703.0   | 1054.5  | 183.1   | 124.5   | 314.9   | 212.4   | 139.1  |
| 87.5° | 87.9    | 109.8   | 212.4   | 256.3   | 285.6   | 358.8   | 87.9    | 58.6    | 175.7   | 124.5   | 73.2   |
| 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: P1458686

CATALOG NUMBER: GLAN-SB4D-722-U-T4LG-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4818.4 | 4818.4 | 4818.4 | 4818.4 | 4818.4 | 4818.4 | 4818.4 | 4818.4 | 4818.4 | 4818.4 | 4818.4 |
| 2.5°  | 4818.4 | 4650.0 | 4305.8 | 3903.1 | 3588.2 | 3266.0 | 3002.4 | 2753.4 | 2636.2 | 2621.6 | 2650.9 |
| 5°    | 4796.4 | 4430.3 | 3646.8 | 2877.9 | 2248.1 | 1808.7 | 1567.1 | 1442.6 | 1376.7 | 1347.4 | 1354.7 |
| 7.5°  | 4752.5 | 4196.0 | 2943.8 | 1947.9 | 1457.2 | 1266.8 | 1208.3 | 1186.3 | 1179.0 | 1179.0 | 1179.0 |
| 10°   | 4708.6 | 3881.1 | 2255.4 | 1427.9 | 1193.6 | 1142.4 | 1127.7 | 1127.7 | 1120.4 | 1120.4 | 1127.7 |
| 12.5° | 4686.6 | 3588.2 | 1750.2 | 1193.6 | 1113.1 | 1091.1 | 1076.5 | 1069.1 | 1069.1 | 1069.1 | 1076.5 |
| 15°   | 4635.3 | 3266.0 | 1413.3 | 1105.7 | 1061.8 | 1032.5 | 1025.2 | 1017.9 | 1017.9 | 1017.9 | 1017.9 |
| 17.5° | 4591.4 | 2951.1 | 1230.2 | 1047.2 | 1010.5 | 981.3  | 973.9  | 966.6  | 966.6  | 973.9  | 973.9  |
| 20°   | 4525.5 | 2650.9 | 1105.7 | 988.6  | 959.3  | 930.0  | 922.7  | 915.4  | 922.7  | 922.7  | 922.7  |
| 22.5° | 4444.9 | 2401.9 | 1032.5 | 944.6  | 908.0  | 878.7  | 878.7  | 878.7  | 878.7  | 878.7  | 886.1  |
| 25°   | 4393.7 | 2226.1 | 981.3  | 893.4  | 856.8  | 834.8  | 827.5  | 827.5  | 842.1  | 842.1  | 849.4  |
| 27.5° | 4474.2 | 2182.2 | 988.6  | 878.7  | 812.8  | 790.9  | 783.5  | 783.5  | 798.2  | 805.5  | 812.8  |
| 30°   | 4715.9 | 2262.7 | 1076.5 | 922.7  | 783.5  | 746.9  | 739.6  | 739.6  | 761.6  | 768.9  | 776.2  |
| 32.5° | 4994.2 | 2431.2 | 1208.3 | 981.3  | 761.6  | 703.0  | 688.3  | 688.3  | 710.3  | 717.6  | 725.0  |
| 35°   | 5374.9 | 2694.8 | 1384.0 | 1032.5 | 776.2  | 659.1  | 629.8  | 629.8  | 644.4  | 659.1  | 666.4  |
| 37.5° | 5865.6 | 3126.8 | 1589.1 | 1069.1 | 776.2  | 607.8  | 571.2  | 563.9  | 578.5  | 578.5  | 585.8  |
| 40°   | 6378.2 | 3690.7 | 1801.4 | 1069.1 | 739.6  | 556.5  | 519.9  | 498.0  | 505.3  | 498.0  | 505.3  |
| 42.5° | 6663.8 | 4144.7 | 1984.5 | 1003.2 | 695.7  | 505.3  | 468.7  | 439.4  | 432.0  | 417.4  | 424.7  |
| 45°   | 6824.9 | 4349.8 | 1933.2 | 930.0  | 651.7  | 468.7  | 424.7  | 388.1  | 373.5  | 351.5  | 351.5  |
| 47.5° | 6824.9 | 4371.7 | 1655.0 | 871.4  | 607.8  | 439.4  | 380.8  | 344.2  | 322.2  | 300.2  | 307.6  |
| 50°   | 6744.3 | 4174.0 | 1310.8 | 812.8  | 556.5  | 410.1  | 344.2  | 314.9  | 285.6  | 270.9  | 270.9  |
| 52.5° | 6407.5 | 3529.6 | 1003.2 | 739.6  | 498.0  | 373.5  | 307.6  | 278.3  | 249.0  | 241.7  | 241.7  |
| 55°   | 5829.0 | 2592.3 | 812.8  | 666.4  | 446.7  | 344.2  | 278.3  | 256.3  | 227.0  | 212.4  | 212.4  |
| 57.5° | 4737.9 | 1772.1 | 673.7  | 600.5  | 395.4  | 307.6  | 249.0  | 227.0  | 190.4  | 175.7  | 175.7  |
| 60°   | 3515.0 | 1157.0 | 571.2  | 527.2  | 336.8  | 278.3  | 219.7  | 190.4  | 161.1  | 146.5  | 139.1  |
| 62.5° | 2372.6 | 783.5  | 476.0  | 417.4  | 285.6  | 241.7  | 190.4  | 161.1  | 124.5  | 95.2   | 95.2   |
| 65°   | 1479.2 | 607.8  | 395.4  | 329.5  | 249.0  | 212.4  | 161.1  | 124.5  | 87.9   | 65.9   | 58.6   |
| 67.5° | 849.4  | 490.6  | 322.2  | 256.3  | 212.4  | 168.4  | 124.5  | 102.5  | 73.2   | 51.3   | 43.9   |
| 68°   | 783.5  | 468.7  | 300.2  | 241.7  | 197.7  | 161.1  | 117.2  | 95.2   | 65.9   | 43.9   | 43.9   |
| 70°   | 637.1  | 417.4  | 256.3  | 197.7  | 168.4  | 131.8  | 102.5  | 80.6   | 51.3   | 29.3   | 29.3   |
| 72.5° | 563.9  | 351.5  | 219.7  | 153.8  | 117.2  | 109.8  | 80.6   | 58.6   | 36.6   | 22.0   | 14.6   |
| 75°   | 461.3  | 278.3  | 175.7  | 117.2  | 80.6   | 80.6   | 58.6   | 36.6   | 14.6   | 0.0    | 0.0    |
| 77.5° | 300.2  | 205.0  | 139.1  | 73.2   | 43.9   | 51.3   | 36.6   | 14.6   | 0.0    | 0.0    | 0.0    |
| 80°   | 197.7  | 153.8  | 95.2   | 36.6   | 22.0   | 22.0   | 7.3    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 139.1  | 102.5  | 58.6   | 14.6   | 7.3    | 7.3    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 87.9   | 43.9   | 22.0   | 7.3    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 36.6   | 14.6   | 7.3    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 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: SP1-2407-184-2

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: 4π  
 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  
 CIE u': 0.2927  
 CIE v': 0.5388  
 Duv: 0.0015  
 CIE x: 0.5130  
 CIE y: 0.4197  
 CIE z: 0.0674  
 Peak Wavelength (nm): 609  
 Dominant Wavelength (nm): 587  
 Purity: 79.96089  
 Rf: 70.6  
 Rg: 97.6

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 71.9 |      |       |
| R1:       | 68.7 | R9:  | -17.8 |
| R2:       | 82.6 | R10: | 60.5  |
| R3:       | 95.5 | R11: | 60.2  |
| R4:       | 66.4 | R12: | 48.2  |
| R5:       | 65.4 | R13: | 70.7  |
| R6:       | 75.9 | R14: | 96.8  |
| R7:       | 77.2 | R15: | 61.8  |
| R8:       | 43.5 |      |       |



**Test Conditions**

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

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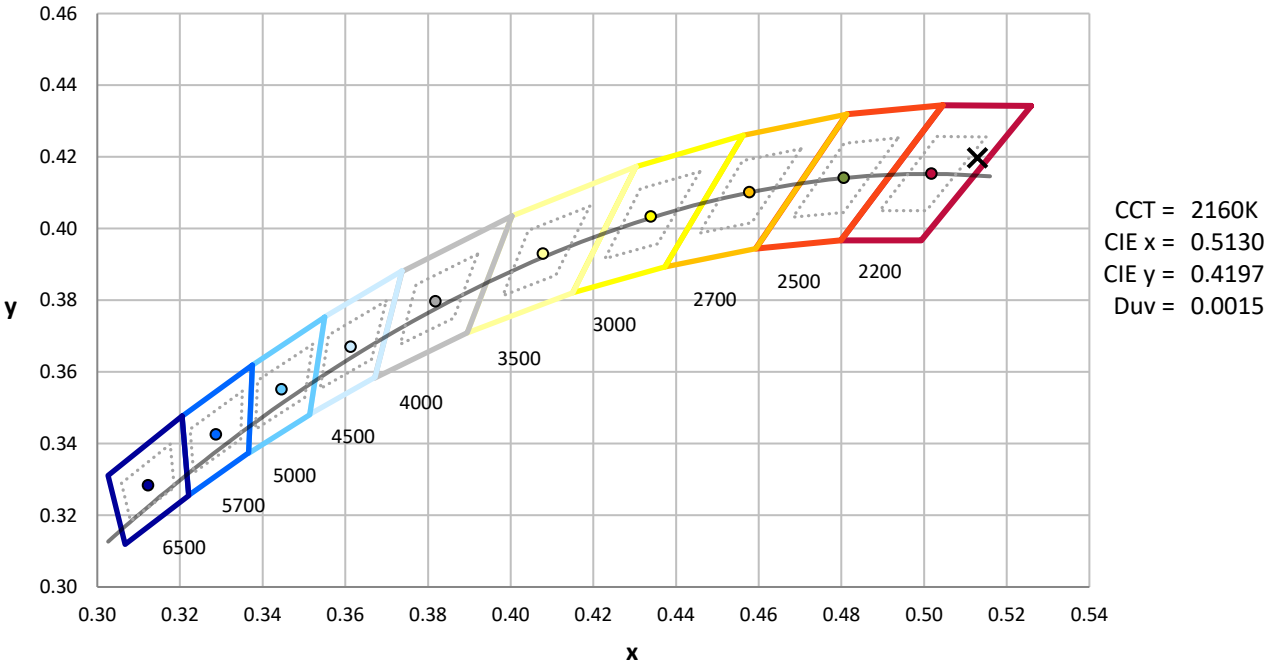
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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**

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

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

**Summary**

$R_f = 70.6$   
 $R_g = 97.6$   
 CIE  $R_a = 71.9$   
 $R_9 = -17.8$



**Color Vector Graphics**

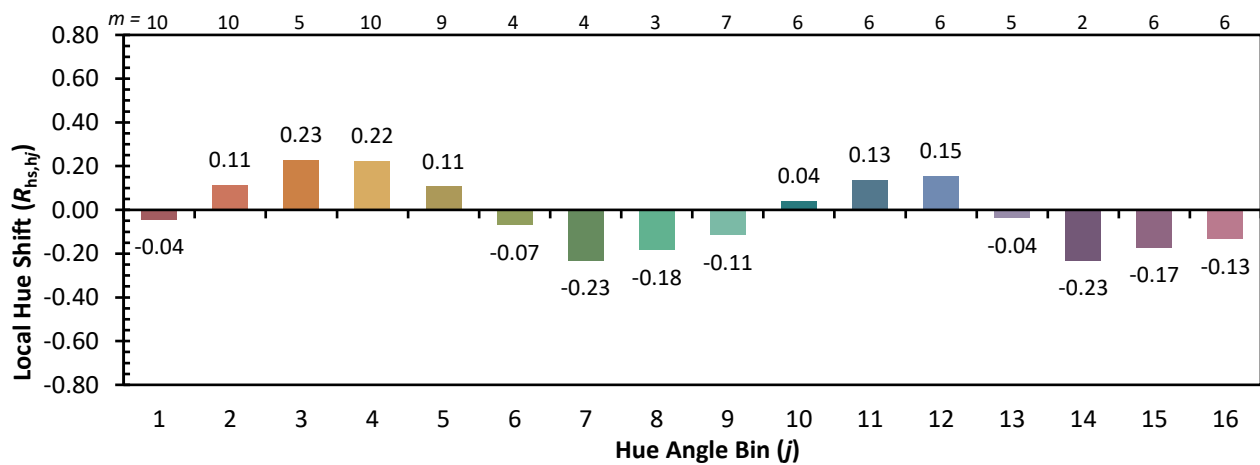
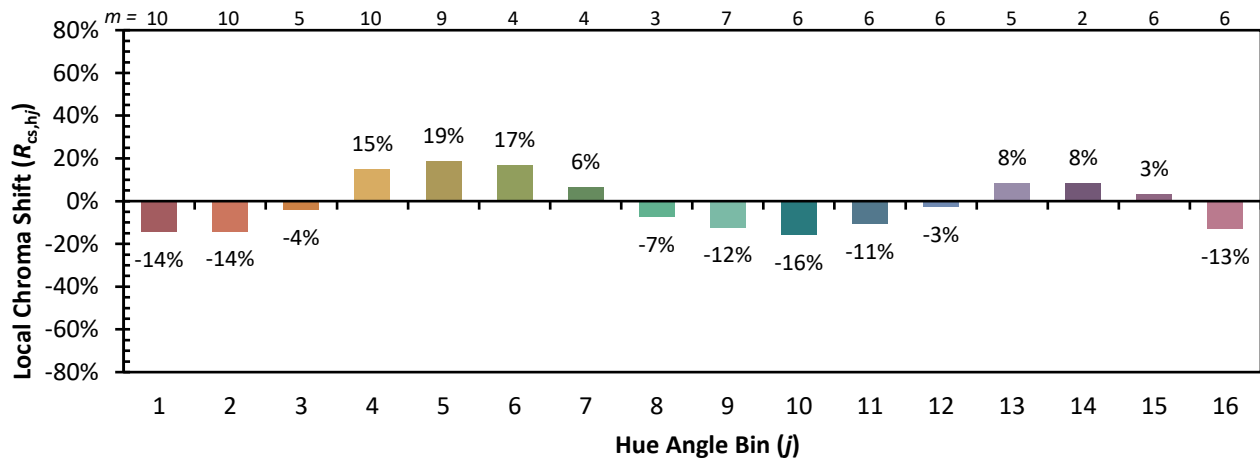


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

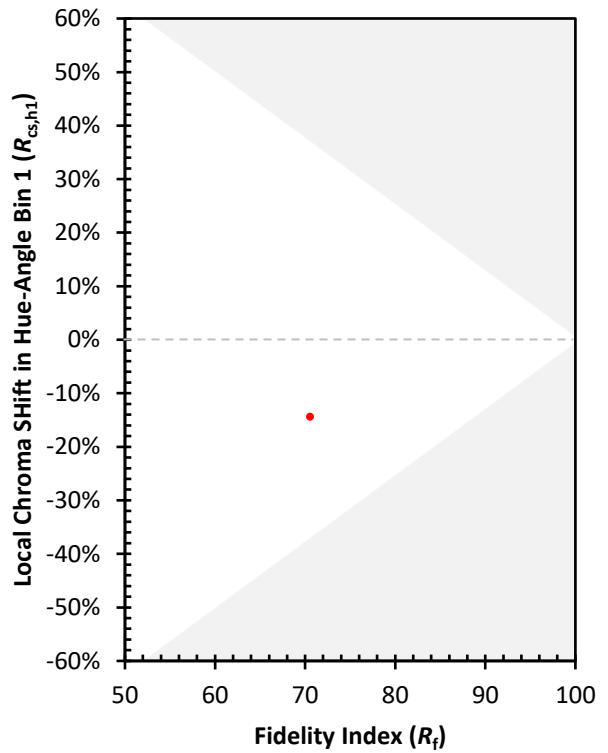
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 60 | CES51 = 74 | CES76 = 58 |
| CES02 = 65 | CES27 = 77 | CES52 = 77 | CES77 = 82 |
| CES03 = 32 | CES28 = 85 | CES53 = 65 | CES78 = 65 |
| CES04 = 72 | CES29 = 50 | CES54 = 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)