

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: McGRAW-EDISON

Report Number: P1434159

Luminaire Tested: **GALN-SB8A-735-U-T2LG**

Issue Date: 03/24/202

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: P1434159  
 Test Lab: INNOVATION CENTER(G1)  
 Issue Date: 03/24/202  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: McGRAW-EDISON  
 Catalog Number: GALN-SB8A-735-U-T2LG  
 Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 350mA 8xLight  
 Square PACKAGE 70CRI 3500K FIXTURE w/ TYPE II LOW GLARE  
 Light Source: (208) 3500K 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               |

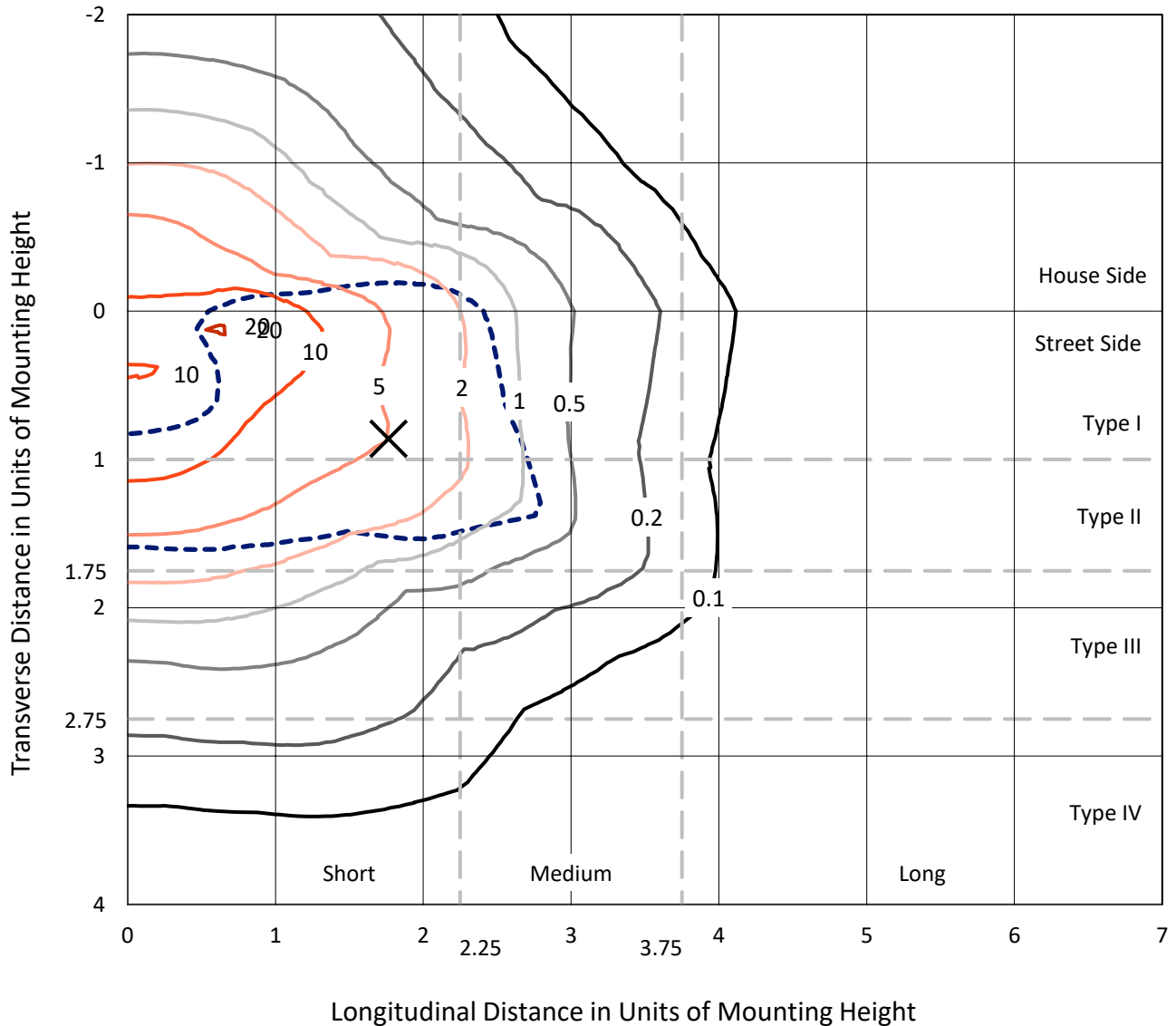
**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 35083.3 lumens  
 Efficiency: N/A  
 Efficacy: 154.5 lumens/watt  
 Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
 IES Classification: Type II - Short  
 BUG Rating: B3 - U0 - G3  
  
 Input Watts (W): 227.1  
 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

REPORT NUMBER: P1434159  
 CATALOG NUMBER: GALN-SB8A-735-U-T2LG

### Iso-Footcandle Lines of Horizontal Illumination

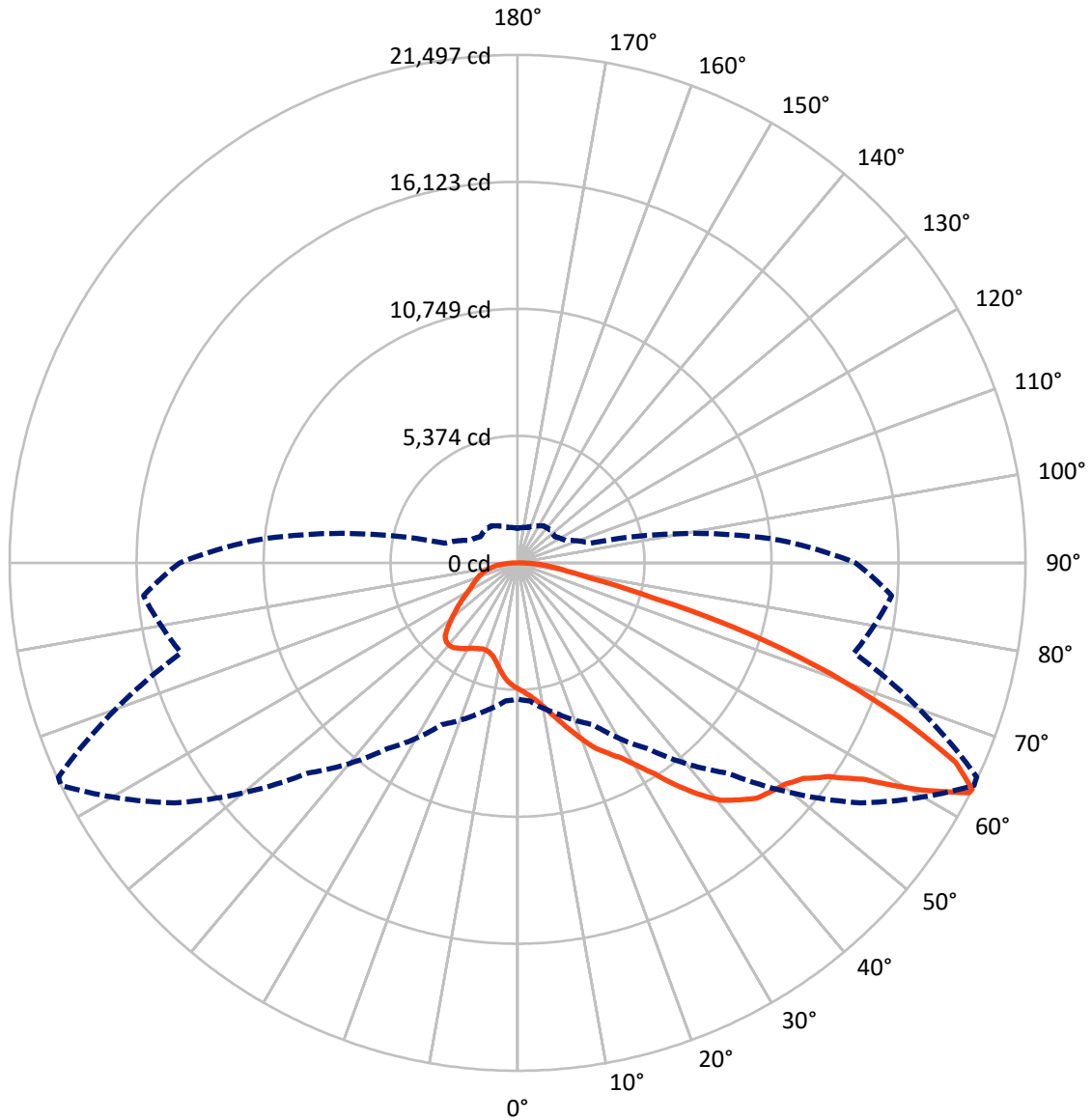
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 20.6 fc  
 Type II - Short - N/A

REPORT NUMBER: P1434159  
CATALOG NUMBER: GALN-SB8A-735-U-T2LG

### Luminous Intensity Polar Plot



— Vertical Plane Through 64-Deg Lateral    - - - Horizontal Cone Through 63-Deg Vertical

REPORT NUMBER: P1434159  
 CATALOG NUMBER: GALN-SB8A-735-U-T2LG

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 9425.9   | 0.0    | 9425.9  |
|                    | % Fixture | 26.9     | 0.0    | 26.9    |
| <b>Street Side</b> | Lumens    | 25657.4  | 0.0    | 25657.4 |
|                    | % Fixture | 73.1     | 0.0    | 73.1    |
| <b>Total</b>       | Lumens    | 35083.3  | 0.0    | 35083.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 490.5   | 1.4       |
| 10°-20°   | 1510.2  | 4.3       |
| 20°-30°   | 2761.5  | 7.9       |
| 30°-40°   | 4750.3  | 13.5      |
| 40°-50°   | 7005.4  | 20.0      |
| 50°-60°   | 8396.4  | 23.9      |
| 60°-70°   | 6738.9  | 19.2      |
| 70°-80°   | 2707.9  | 7.7       |
| 80°-90°   | 722.1   | 2.1       |
| 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°    | 35083.3 | 100.0     |
| 0°-180°   | 35083.3 | 100.0     |

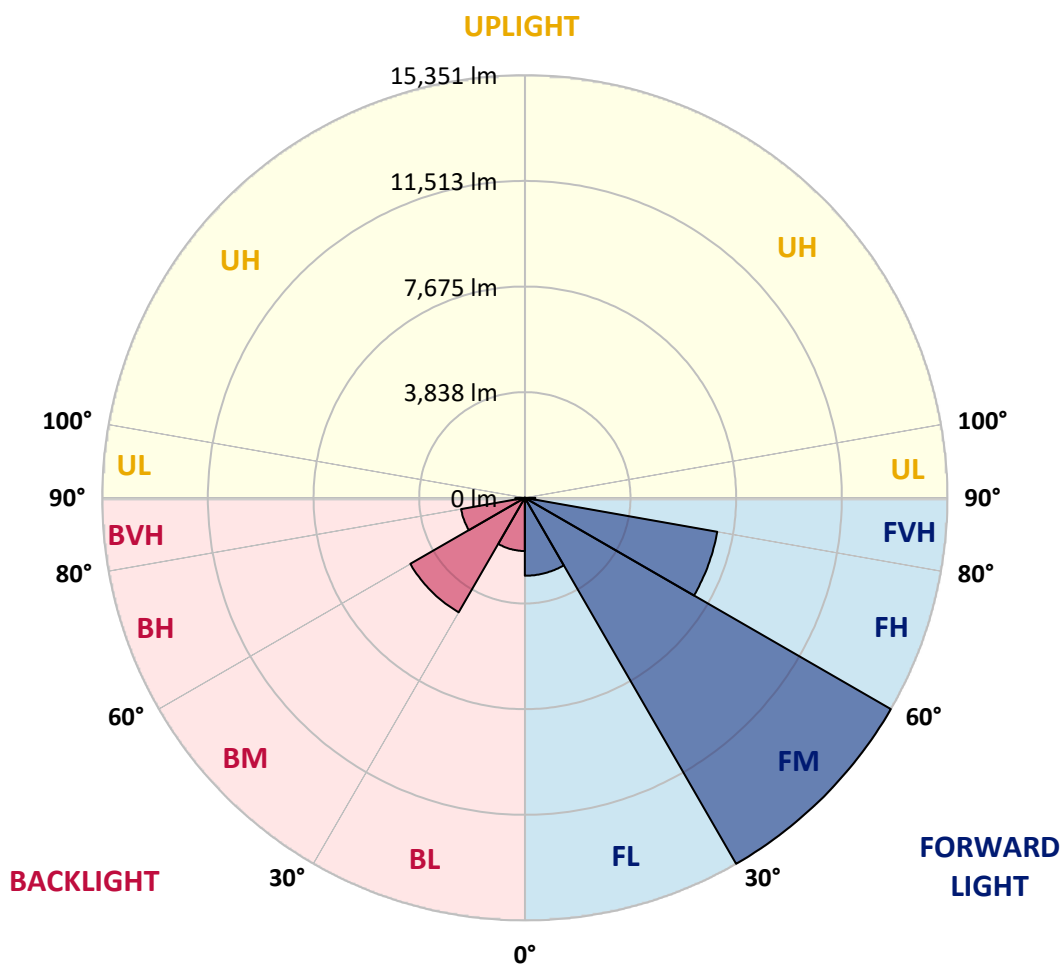


REPORT NUMBER: P1434159  
 CATALOG NUMBER: GALN-SB8A-735-U-T2LG

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

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|---------|-----------|-------------------------|------|---------|
|                |         |           | B                       | U    | G       |
| FL (0°-30°)    | 2830.6  | 8.1       |                         |      |         |
| FM (30°-60°)   | 15350.8 | 43.8      |                         |      |         |
| FH (60°-80°)   | 7096.7  | 20.2      |                         |      | G3/7500 |
| FVH (80°-90°)  | 379.4   | 1.1       |                         |      | G3/500  |
| BL (0°-30°)    | 1931.7  | 5.5       | B3/2500                 |      |         |
| BM (30°-60°)   | 4801.3  | 13.7      | B3/5000                 |      |         |
| BH (60°-80°)   | 2350.2  | 6.7       | B3/2500                 |      | G3/2500 |
| BVH (80°-90°)  | 342.7   | 1.0       |                         |      | G3/500  |
| UL (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0     | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G3**  
 Type II Short





REPORT NUMBER: P1434159

CATALOG NUMBER: GALN-SB8A-735-U-T2LG

**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 5342.8  | 5342.8  | 5342.8  | 5342.8  | 5342.8  | 5342.8  | 5342.8  | 5342.8  | 5342.8  | 5342.8  | 5342.8  |
| 2.5°  | 5563.4  | 5571.3  | 5547.7  | 5539.8  | 5555.6  | 5524.0  | 5516.2  | 5484.6  | 5468.9  | 5437.3  | 5397.9  |
| 5°    | 5721.0  | 5728.9  | 5713.2  | 5713.2  | 5728.9  | 5705.3  | 5697.4  | 5665.9  | 5650.1  | 5618.6  | 5539.8  |
| 7.5°  | 5713.2  | 5721.0  | 5736.8  | 5799.8  | 5878.6  | 5910.2  | 5933.8  | 5910.2  | 5902.3  | 5855.0  | 5776.2  |
| 10°   | 5587.1  | 5595.0  | 5634.4  | 5728.9  | 5925.9  | 6067.8  | 6217.5  | 6217.5  | 6233.3  | 6193.9  | 6052.0  |
| 12.5° | 5413.7  | 5421.6  | 5516.2  | 5665.9  | 5925.9  | 6170.2  | 6477.5  | 6603.6  | 6595.7  | 6572.1  | 6406.6  |
| 15°   | 4996.1  | 4996.1  | 5137.9  | 5421.6  | 5839.2  | 6241.1  | 6698.2  | 7037.0  | 7044.9  | 7068.6  | 6871.5  |
| 17.5° | 4641.4  | 4649.3  | 4767.5  | 5019.7  | 5563.4  | 6201.7  | 6934.6  | 7517.7  | 7541.4  | 7675.3  | 7391.6  |
| 20°   | 4673.0  | 4673.0  | 4712.4  | 4822.7  | 5264.0  | 6044.1  | 7068.6  | 8029.9  | 8108.7  | 8424.0  | 8069.3  |
| 22.5° | 4917.3  | 4917.3  | 4948.8  | 4940.9  | 5208.8  | 5941.7  | 7155.2  | 8542.2  | 8684.0  | 9338.1  | 8881.0  |
| 25°   | 5366.4  | 5358.5  | 5327.0  | 5279.7  | 5437.3  | 6052.0  | 7352.2  | 8936.2  | 9212.0  | 10346.7 | 9818.8  |
| 27.5° | 5918.0  | 5902.3  | 5855.0  | 5776.2  | 5886.5  | 6383.0  | 7691.1  | 9353.8  | 9653.3  | 11450.0 | 10811.7 |
| 30°   | 6603.6  | 6556.3  | 6509.1  | 6406.6  | 6524.8  | 6926.7  | 8195.4  | 9944.8  | 10228.5 | 12702.9 | 12009.5 |
| 32.5° | 7415.3  | 7470.4  | 7312.8  | 7171.0  | 7297.1  | 7667.5  | 8944.0  | 10646.2 | 10953.5 | 14011.0 | 13254.5 |
| 35°   | 8628.8  | 8794.3  | 8747.0  | 8029.9  | 8148.1  | 8557.9  | 9818.8  | 11552.4 | 11828.2 | 15200.9 | 14531.1 |
| 37.5° | 9826.6  | 9787.2  | 9826.6  | 9227.7  | 9038.6  | 9535.1  | 10756.5 | 12419.2 | 12687.1 | 16170.2 | 15658.0 |
| 40°   | 10788.0 | 10906.2 | 10906.2 | 10417.6 | 10173.4 | 10504.3 | 11607.6 | 13215.1 | 13475.2 | 16706.1 | 16469.7 |
| 42.5° | 11836.1 | 11851.8 | 11820.3 | 11394.8 | 11300.2 | 11386.9 | 12356.2 | 13719.5 | 13932.2 | 16981.9 | 17021.3 |
| 45°   | 13018.1 | 13010.2 | 12876.3 | 12521.7 | 12379.8 | 12301.0 | 12821.1 | 14208.0 | 14420.8 | 17108.0 | 17320.7 |
| 47.5° | 13995.3 | 14034.7 | 14042.5 | 13664.3 | 13427.9 | 13089.0 | 13223.0 | 14452.3 | 14696.6 | 16966.1 | 17383.8 |
| 50°   | 14050.4 | 14113.5 | 14412.9 | 14523.2 | 14476.0 | 13932.2 | 13593.4 | 14712.4 | 14956.7 | 16997.6 | 17612.3 |
| 52.5° | 13703.7 | 13766.7 | 14152.9 | 14609.9 | 15161.5 | 14901.5 | 14176.5 | 15161.5 | 15413.7 | 17305.0 | 18132.4 |
| 55°   | 12773.8 | 12876.3 | 13451.5 | 14089.8 | 15074.9 | 15445.2 | 15208.8 | 15973.2 | 16209.6 | 17549.2 | 18739.2 |
| 57.5° | 11119.0 | 11245.1 | 12041.0 | 13057.5 | 14405.0 | 15319.1 | 16706.1 | 17273.4 | 17470.4 | 17722.6 | 18747.0 |
| 60°   | 8313.6  | 8416.1  | 9661.1  | 11032.3 | 13057.5 | 14531.1 | 17596.5 | 19503.5 | 19613.9 | 16784.9 | 17683.2 |
| 62.5° | 6122.9  | 6225.4  | 7060.7  | 8045.7  | 10260.0 | 13081.2 | 17769.9 | 21434.2 | 21450.0 | 15090.6 | 16217.5 |
| 63°   | 5768.3  | 5870.8  | 6627.3  | 7549.2  | 9598.1  | 12592.6 | 17714.7 | 21497.2 | 21442.1 | 14743.9 | 15894.4 |
| 65°   | 4491.7  | 4673.0  | 5461.0  | 6162.3  | 7194.6  | 10023.6 | 17005.5 | 20378.2 | 20457.0 | 13719.5 | 14271.1 |
| 67.5° | 3057.5  | 3191.5  | 4192.3  | 5003.9  | 5437.3  | 6383.0  | 13948.0 | 17438.9 | 17565.0 | 12655.6 | 11386.9 |
| 70°   | 2364.1  | 2427.1  | 3010.2  | 3963.7  | 4397.2  | 4058.3  | 9093.8  | 14042.5 | 14042.5 | 9881.8  | 8069.3  |
| 72.5° | 1851.9  | 1875.5  | 2269.5  | 3096.9  | 3538.2  | 3120.6  | 5067.0  | 10212.8 | 9834.5  | 5862.9  | 5382.2  |
| 75°   | 1323.9  | 1355.4  | 1710.0  | 2308.9  | 2821.1  | 2458.6  | 3238.8  | 5949.6  | 5721.0  | 3372.7  | 3593.4  |
| 77.5° | 1048.1  | 1063.8  | 1276.6  | 1702.1  | 2285.3  | 1875.5  | 2466.5  | 3246.6  | 3215.1  | 2371.9  | 2308.9  |
| 80°   | 827.4   | 858.9   | 1000.8  | 1221.4  | 1765.2  | 1465.7  | 1836.1  | 2143.4  | 2080.4  | 1631.2  | 1481.5  |
| 82.5° | 591.0   | 646.2   | 772.3   | 929.9   | 1308.1  | 1048.1  | 1205.7  | 1513.0  | 1513.0  | 1229.3  | 977.1   |
| 85°   | 362.5   | 409.8   | 457.1   | 575.3   | 929.9   | 677.7   | 638.3   | 977.1   | 1000.8  | 922.0   | 630.4   |
| 87.5° | 173.4   | 189.1   | 220.6   | 244.3   | 338.8   | 307.3   | 252.2   | 370.4   | 378.3   | 409.8   | 260.0   |
| 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: P1434159  
 CATALOG NUMBER: GALN-SB8A-735-U-T2LG

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 5342.8  | 5342.8  | 5342.8 | 5342.8 | 5342.8 | 5342.8 | 5342.8 | 5342.8 | 5342.8 | 5342.8 | 5342.8 |
| 2.5°  | 5390.1  | 5374.3  | 5295.5 | 5216.7 | 5130.0 | 5051.2 | 4972.4 | 4909.4 | 4838.5 | 4854.2 | 4862.1 |
| 5°    | 5492.5  | 5453.1  | 5279.7 | 5074.9 | 4806.9 | 4554.8 | 4310.5 | 4137.1 | 4026.8 | 3995.3 | 3932.2 |
| 7.5°  | 5713.2  | 5618.6  | 5303.4 | 4870.0 | 4373.5 | 3979.5 | 3751.0 | 3648.5 | 3617.0 | 3624.9 | 3609.1 |
| 10°   | 5965.3  | 5823.5  | 5334.9 | 4625.7 | 3995.3 | 3727.3 | 3695.8 | 3758.9 | 3790.4 | 3821.9 | 3829.8 |
| 12.5° | 6296.3  | 6067.8  | 5319.1 | 4357.8 | 3814.0 | 3766.7 | 3884.9 | 4003.2 | 4074.1 | 4121.4 | 4113.5 |
| 15°   | 6682.4  | 6375.1  | 5271.9 | 4137.1 | 3790.4 | 3916.5 | 4066.2 | 4200.2 | 4286.8 | 4334.1 | 4310.5 |
| 17.5° | 7147.4  | 6737.6  | 5216.7 | 3995.3 | 3861.3 | 4011.0 | 4168.6 | 4302.6 | 4397.2 | 4428.7 | 4405.0 |
| 20°   | 7722.6  | 7147.4  | 5122.1 | 3932.2 | 3916.5 | 4050.4 | 4192.3 | 4318.4 | 4397.2 | 4428.7 | 4397.2 |
| 22.5° | 8400.3  | 7635.9  | 5043.3 | 3932.2 | 3940.1 | 4050.4 | 4152.9 | 4247.4 | 4318.4 | 4342.0 | 4302.6 |
| 25°   | 9267.1  | 8203.3  | 5011.8 | 3995.3 | 3948.0 | 4011.0 | 4066.2 | 4121.4 | 4160.8 | 4176.5 | 4160.8 |
| 27.5° | 10149.7 | 8857.4  | 5027.6 | 4074.1 | 3940.1 | 3955.9 | 3955.9 | 3963.7 | 3971.6 | 3979.5 | 3971.6 |
| 30°   | 11166.3 | 9519.3  | 5090.6 | 4176.5 | 3955.9 | 3877.1 | 3853.4 | 3806.1 | 3766.7 | 3735.2 | 3703.7 |
| 32.5° | 12151.3 | 10149.7 | 5200.9 | 4326.2 | 3940.1 | 3790.4 | 3743.1 | 3624.9 | 3514.6 | 3420.0 | 3420.0 |
| 35°   | 13215.1 | 10803.8 | 5397.9 | 4436.6 | 3924.3 | 3711.6 | 3577.6 | 3443.7 | 3325.5 | 3191.5 | 3191.5 |
| 37.5° | 14129.2 | 11363.3 | 5555.6 | 4562.6 | 3908.6 | 3617.0 | 3404.3 | 3254.5 | 3128.4 | 2994.5 | 2978.7 |
| 40°   | 14767.5 | 11686.4 | 5650.1 | 4609.9 | 3853.4 | 3490.9 | 3238.8 | 3049.6 | 2868.4 | 2687.2 | 2679.3 |
| 42.5° | 15074.9 | 11670.6 | 5595.0 | 4594.2 | 3751.0 | 3333.3 | 3096.9 | 2844.8 | 2600.5 | 2435.0 | 2419.2 |
| 45°   | 15240.3 | 11568.2 | 5382.2 | 4460.2 | 3585.5 | 3167.8 | 2915.7 | 2647.8 | 2403.5 | 2253.7 | 2222.2 |
| 47.5° | 15208.8 | 11316.0 | 5090.6 | 4129.2 | 3364.9 | 2986.6 | 2734.4 | 2458.6 | 2261.6 | 2174.9 | 2174.9 |
| 50°   | 15295.5 | 11119.0 | 4759.7 | 3751.0 | 3065.4 | 2773.8 | 2569.0 | 2316.8 | 2198.6 | 2088.3 | 2048.9 |
| 52.5° | 15681.6 | 11284.5 | 4476.0 | 3396.4 | 2781.7 | 2569.0 | 2427.1 | 2214.3 | 2064.6 | 1993.7 | 1970.1 |
| 55°   | 16193.8 | 11639.1 | 4208.0 | 3081.2 | 2505.9 | 2387.7 | 2316.8 | 2119.8 | 1946.4 | 1875.5 | 1836.1 |
| 57.5° | 16288.4 | 11883.4 | 3948.0 | 2773.8 | 2277.4 | 2245.9 | 2222.2 | 1954.3 | 1812.4 | 1757.3 | 1725.8 |
| 60°   | 15634.4 | 11702.1 | 3609.1 | 2498.0 | 2096.1 | 2111.9 | 2048.9 | 1851.9 | 1686.4 | 1631.2 | 1599.7 |
| 62.5° | 14523.2 | 11229.3 | 3270.3 | 2261.6 | 1954.3 | 1985.8 | 1922.8 | 1725.8 | 1560.3 | 1505.1 | 1489.4 |
| 63°   | 14302.6 | 11103.2 | 3191.5 | 2238.0 | 1922.8 | 1962.2 | 1907.0 | 1710.0 | 1544.5 | 1489.4 | 1465.7 |
| 65°   | 12986.6 | 10346.7 | 2915.7 | 2111.9 | 1820.3 | 1820.3 | 1828.2 | 1631.2 | 1489.4 | 1465.7 | 1450.0 |
| 67.5° | 10591.0 | 8636.7  | 2616.2 | 1962.2 | 1710.0 | 1733.6 | 1773.0 | 1662.7 | 1607.6 | 1591.8 | 1576.0 |
| 70°   | 8006.3  | 6501.2  | 2356.2 | 1820.3 | 1591.8 | 1670.6 | 1938.5 | 1891.3 | 1686.4 | 1544.5 | 1513.0 |
| 72.5° | 5673.8  | 4428.7  | 2127.7 | 1678.5 | 1450.0 | 1647.0 | 2009.5 | 1804.6 | 1520.9 | 1355.4 | 1323.9 |
| 75°   | 3798.3  | 2852.6  | 1899.1 | 1528.8 | 1292.4 | 1520.9 | 1899.1 | 1647.0 | 1323.9 | 1284.5 | 1237.2 |
| 77.5° | 2387.7  | 2033.1  | 1670.6 | 1355.4 | 1119.0 | 1355.4 | 1725.8 | 1465.7 | 1142.6 | 1158.4 | 1087.5 |
| 80°   | 1457.8  | 1450.0  | 1402.7 | 1150.5 | 898.3  | 1079.6 | 1450.0 | 1237.2 | 914.1  | 914.1  | 811.7  |
| 82.5° | 866.8   | 1048.1  | 1189.9 | 953.5  | 654.1  | 772.3  | 1048.1 | 929.9  | 764.4  | 740.7  | 693.5  |
| 85°   | 583.1   | 709.2   | 945.6  | 732.9  | 417.7  | 472.8  | 725.0  | 780.1  | 701.3  | 614.7  | 575.3  |
| 87.5° | 212.8   | 283.7   | 433.4  | 299.4  | 181.2  | 283.7  | 543.7  | 567.4  | 425.5  | 331.0  | 299.4  |
| 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: SP1-2407-184-5

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-735-U-5WQ

Data in this report applies to families of products including GSS-SB1A-735-U-5WQ

**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-5  
 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-735-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 3500K CCT 26 LEDS

**Spectral Parameters**

CCT (K): 3369  
 CIE u': 0.2386  
 CIE v': 0.5156  
 Duv: 0.0013  
 CIE x: 0.4143  
 CIE y: 0.3980  
 CIE z: 0.1877  
 Peak Wavelength (nm): 590  
 Dominant Wavelength (nm): 580  
 Purity: 43.80166  
 Rf: 71.4  
 Rg: 96

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 70.1 |      |       |
| R1:       | 66.6 | R9:  | -40.2 |
| R2:       | 77.6 | R10: | 49.1  |
| R3:       | 88.5 | R11: | 66.3  |
| R4:       | 69.5 | R12: | 45.7  |
| R5:       | 66.4 | R13: | 68.0  |
| R6:       | 69.6 | R14: | 93.4  |
| R7:       | 77.5 | R15: | 57.6  |
| R8:       | 44.9 |      |       |



**Test Conditions**

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

REPORT NUMBER: SP1-2407-184-5

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

REPORT NUMBER: SP1-2407-184-5

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-5

**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    | 119                      | NR            | 620    | 778                      | NR            | 750    | 19                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 173                      | NR            | 625    | 711                      | NR            | 755    | 16                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 239                      | NR            | 630    | 648                      | NR            | 760    | 14                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 313                      | NR            | 635    | 582                      | NR            | 765    | 12                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 383                      | NR            | 640    | 520                      | NR            | 770    | 11                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 448                      | NR            | 645    | 460                      | NR            | 775    | 9                        | NR            | 905    | 0                        | NR            |
| 390    | 2                        | NR            | 520    | 500                      | NR            | 650    | 406                      | NR            | 780    | 8                        | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 539                      | NR            | 655    | 355                      | NR            | 785    | 7                        | NR            | 915    | 0                        | NR            |
| 400    | 6                        | NR            | 530    | 575                      | NR            | 660    | 309                      | NR            | 790    | 6                        | NR            | 920    | 0                        | NR            |
| 405    | 11                       | NR            | 535    | 606                      | NR            | 665    | 269                      | NR            | 795    | 5                        | NR            | 925    | 0                        | NR            |
| 410    | 22                       | NR            | 540    | 633                      | NR            | 670    | 231                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 45                       | NR            | 545    | 666                      | NR            | 675    | 199                      | NR            | 805    | 4                        | NR            | 935    | 0                        | NR            |
| 420    | 96                       | NR            | 550    | 701                      | NR            | 680    | 171                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 193                      | NR            | 555    | 743                      | NR            | 685    | 147                      | NR            | 815    | 3                        | NR            | 945    | 0                        | NR            |
| 430    | 341                      | NR            | 560    | 788                      | NR            | 690    | 126                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 547                      | NR            | 565    | 837                      | NR            | 695    | 107                      | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 799                      | NR            | 570    | 887                      | NR            | 700    | 92                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 831                      | NR            | 575    | 931                      | NR            | 705    | 78                       | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 461                      | NR            | 580    | 967                      | NR            | 710    | 67                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 256                      | NR            | 585    | 990                      | NR            | 715    | 57                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 176                      | NR            | 590    | 1000                     | NR            | 720    | 49                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 107                      | NR            | 595    | 994                      | NR            | 725    | 42                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 74                       | NR            | 600    | 973                      | NR            | 730    | 36                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 67                       | NR            | 605    | 938                      | NR            | 735    | 31                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 68                       | NR            | 610    | 892                      | NR            | 740    | 26                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 84                       | NR            | 615    | 838                      | NR            | 745    | 22                       | NR            | 875    | 1                        | NR            |        |                          |               |

REPORT NUMBER: SP1-2407-184-5

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.29**

| $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens ( $\phi$ /nm) |
|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|
| 360            | 0                        | NR                   | 490            | 119                      | NR                   | 620            | 778                      | NR                   | 750            | 19                       | NR                   | 880            | 1                        | NR                   |
| 365            | 0                        | NR                   | 495            | 173                      | NR                   | 625            | 711                      | NR                   | 755            | 16                       | NR                   | 885            | 0                        | NR                   |
| 370            | 0                        | NR                   | 500            | 239                      | NR                   | 630            | 648                      | NR                   | 760            | 14                       | NR                   | 890            | 0                        | NR                   |
| 375            | 0                        | NR                   | 505            | 313                      | NR                   | 635            | 582                      | NR                   | 765            | 12                       | NR                   | 895            | 0                        | NR                   |
| 380            | 0                        | NR                   | 510            | 383                      | NR                   | 640            | 520                      | NR                   | 770            | 11                       | NR                   | 900            | 0                        | NR                   |
| 385            | 0                        | NR                   | 515            | 448                      | NR                   | 645            | 460                      | NR                   | 775            | 9                        | NR                   | 905            | 0                        | NR                   |
| 390            | 2                        | NR                   | 520            | 500                      | NR                   | 650            | 406                      | NR                   | 780            | 8                        | NR                   | 910            | 0                        | NR                   |
| 395            | 4                        | NR                   | 525            | 539                      | NR                   | 655            | 355                      | NR                   | 785            | 7                        | NR                   | 915            | 0                        | NR                   |
| 400            | 6                        | NR                   | 530            | 575                      | NR                   | 660            | 309                      | NR                   | 790            | 6                        | NR                   | 920            | 0                        | NR                   |
| 405            | 11                       | NR                   | 535            | 606                      | NR                   | 665            | 269                      | NR                   | 795            | 5                        | NR                   | 925            | 0                        | NR                   |
| 410            | 22                       | NR                   | 540            | 633                      | NR                   | 670            | 231                      | NR                   | 800            | 4                        | NR                   | 930            | 0                        | NR                   |
| 415            | 45                       | NR                   | 545            | 666                      | NR                   | 675            | 199                      | NR                   | 805            | 4                        | NR                   | 935            | 0                        | NR                   |
| 420            | 96                       | NR                   | 550            | 701                      | NR                   | 680            | 171                      | NR                   | 810            | 3                        | NR                   | 940            | 0                        | NR                   |
| 425            | 193                      | NR                   | 555            | 743                      | NR                   | 685            | 147                      | NR                   | 815            | 3                        | NR                   | 945            | 0                        | NR                   |
| 430            | 341                      | NR                   | 560            | 788                      | NR                   | 690            | 126                      | NR                   | 820            | 3                        | NR                   | 950            | 0                        | NR                   |
| 435            | 547                      | NR                   | 565            | 837                      | NR                   | 695            | 107                      | NR                   | 825            | 2                        | NR                   | 955            | 0                        | NR                   |
| 440            | 799                      | NR                   | 570            | 887                      | NR                   | 700            | 92                       | NR                   | 830            | 2                        | NR                   | 960            | 0                        | NR                   |
| 445            | 831                      | NR                   | 575            | 931                      | NR                   | 705            | 78                       | NR                   | 835            | 2                        | NR                   | 965            | 0                        | NR                   |
| 450            | 461                      | NR                   | 580            | 967                      | NR                   | 710            | 67                       | NR                   | 840            | 2                        | NR                   | 970            | 0                        | NR                   |
| 455            | 256                      | NR                   | 585            | 990                      | NR                   | 715            | 57                       | NR                   | 845            | 1                        | NR                   | 975            | 0                        | NR                   |
| 460            | 176                      | NR                   | 590            | 1000                     | NR                   | 720            | 49                       | NR                   | 850            | 1                        | NR                   | 980            | 0                        | NR                   |
| 465            | 107                      | NR                   | 595            | 994                      | NR                   | 725            | 42                       | NR                   | 855            | 1                        | NR                   | 985            | 0                        | NR                   |
| 470            | 74                       | NR                   | 600            | 973                      | NR                   | 730            | 36                       | NR                   | 860            | 1                        | NR                   | 990            | 0                        | NR                   |
| 475            | 67                       | NR                   | 605            | 938                      | NR                   | 735            | 31                       | NR                   | 865            | 1                        | NR                   | 995            | 0                        | NR                   |
| 480            | 68                       | NR                   | 610            | 892                      | NR                   | 740            | 26                       | NR                   | 870            | 1                        | NR                   | 1000           | 0                        | NR                   |
| 485            | 84                       | NR                   | 615            | 838                      | NR                   | 745            | 22                       | NR                   | 875            | 1                        | NR                   |                |                          |                      |

REPORT NUMBER: SP1-2407-184-5

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: NR**

**M/P: 2.36**

| 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    | 119                      | NR            | 620    | 778                      | NR            | 750    | 19                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 173                      | NR            | 625    | 711                      | NR            | 755    | 16                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 239                      | NR            | 630    | 648                      | NR            | 760    | 14                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 313                      | NR            | 635    | 582                      | NR            | 765    | 12                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 383                      | NR            | 640    | 520                      | NR            | 770    | 11                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 448                      | NR            | 645    | 460                      | NR            | 775    | 9                        | NR            | 905    | 0                        | NR            |
| 390    | 2                        | NR            | 520    | 500                      | NR            | 650    | 406                      | NR            | 780    | 8                        | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 539                      | NR            | 655    | 355                      | NR            | 785    | 7                        | NR            | 915    | 0                        | NR            |
| 400    | 6                        | NR            | 530    | 575                      | NR            | 660    | 309                      | NR            | 790    | 6                        | NR            | 920    | 0                        | NR            |
| 405    | 11                       | NR            | 535    | 606                      | NR            | 665    | 269                      | NR            | 795    | 5                        | NR            | 925    | 0                        | NR            |
| 410    | 22                       | NR            | 540    | 633                      | NR            | 670    | 231                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 45                       | NR            | 545    | 666                      | NR            | 675    | 199                      | NR            | 805    | 4                        | NR            | 935    | 0                        | NR            |
| 420    | 96                       | NR            | 550    | 701                      | NR            | 680    | 171                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 193                      | NR            | 555    | 743                      | NR            | 685    | 147                      | NR            | 815    | 3                        | NR            | 945    | 0                        | NR            |
| 430    | 341                      | NR            | 560    | 788                      | NR            | 690    | 126                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 547                      | NR            | 565    | 837                      | NR            | 695    | 107                      | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 799                      | NR            | 570    | 887                      | NR            | 700    | 92                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 831                      | NR            | 575    | 931                      | NR            | 705    | 78                       | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 461                      | NR            | 580    | 967                      | NR            | 710    | 67                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 256                      | NR            | 585    | 990                      | NR            | 715    | 57                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 176                      | NR            | 590    | 1000                     | NR            | 720    | 49                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 107                      | NR            | 595    | 994                      | NR            | 725    | 42                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 74                       | NR            | 600    | 973                      | NR            | 730    | 36                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 67                       | NR            | 605    | 938                      | NR            | 735    | 31                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 68                       | NR            | 610    | 892                      | NR            | 740    | 26                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 84                       | NR            | 615    | 838                      | NR            | 745    | 22                       | NR            | 875    | 1                        | NR            |        |                          |               |

**Summary**

$R_f = 71.4$   
 $R_g = 96$   
 $CIE R_a = 70.1$   
 $R_9 = -40.2$



**Color Vector Graphics**

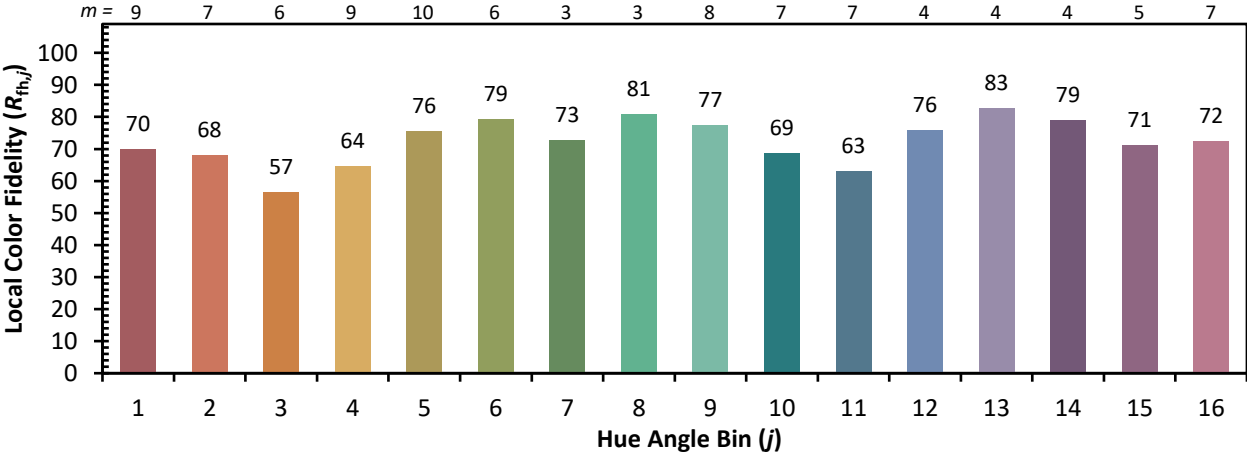


Individual Sample Fidelity Index ( $R_{f,i}$ )

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 57 | CES51 = 84 | CES76 = 50 |
| CES02 = 62 | CES27 = 80 | CES52 = 86 | CES77 = 74 |
| CES03 = 31 | CES28 = 81 | CES53 = 72 | CES78 = 54 |
| CES04 = 70 | CES29 = 50 | CES54 = 79 | CES79 = 81 |
| CES05 = 48 | CES30 = 55 | CES55 = 78 | CES80 = 79 |
| CES06 = 51 | CES31 = 56 | CES56 = 67 | CES81 = 74 |
| CES07 = 40 | CES32 = 54 | CES57 = 65 | CES82 = 91 |
| CES08 = 39 | CES33 = 60 | CES58 = 68 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 85 | CES84 = 89 |
| CES10 = 75 | CES35 = 83 | CES60 = 91 | CES85 = 83 |
| CES11 = 58 | CES36 = 88 | CES61 = 85 | CES86 = 66 |
| CES12 = 64 | CES37 = 78 | CES62 = 78 | CES87 = 77 |
| CES13 = 43 | CES38 = 64 | CES63 = 71 | CES88 = 75 |
| CES14 = 74 | CES39 = 92 | CES64 = 70 | CES89 = 68 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 72 |
| CES16 = 47 | CES41 = 81 | CES66 = 65 | CES91 = 95 |
| CES17 = 50 | CES42 = 79 | CES67 = 63 | CES92 = 62 |
| CES18 = 56 | CES43 = 71 | CES68 = 69 | CES93 = 78 |
| CES19 = 72 | CES44 = 98 | CES69 = 80 | CES94 = 51 |
| CES20 = 65 | CES45 = 80 | CES70 = 60 | CES95 = 70 |
| CES21 = 87 | CES46 = 75 | CES71 = 58 | CES96 = 76 |
| CES22 = 79 | CES47 = 71 | CES72 = 85 | CES97 = 82 |
| CES23 = 92 | CES48 = 61 | CES73 = 51 | CES98 = 72 |
| CES24 = 91 | CES49 = 74 | CES74 = 94 | CES99 = 60 |
| CES25 = 72 | CES50 = 83 | CES75 = 57 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)