

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: P1438235

Luminaire Tested: **GALN-SB5C-760-U-T4LG-HSS**

Issue Date: 03/27/202

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: P1438235  
 Test Lab: INNOVATION CENTER(G1)  
 Issue Date: 03/27/202  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: McGRAW-EDISON  
 Catalog Number: GALN-SB5C-760-U-T4LG-HSS  
 Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 615mA 5xLight Square PACKAGE 70CRI 5700K FIXTURE w/ TYPE IV LOW GLARE WITH HOUSE SIDE SHIELD  
 Light Source: (130) 5700K 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**

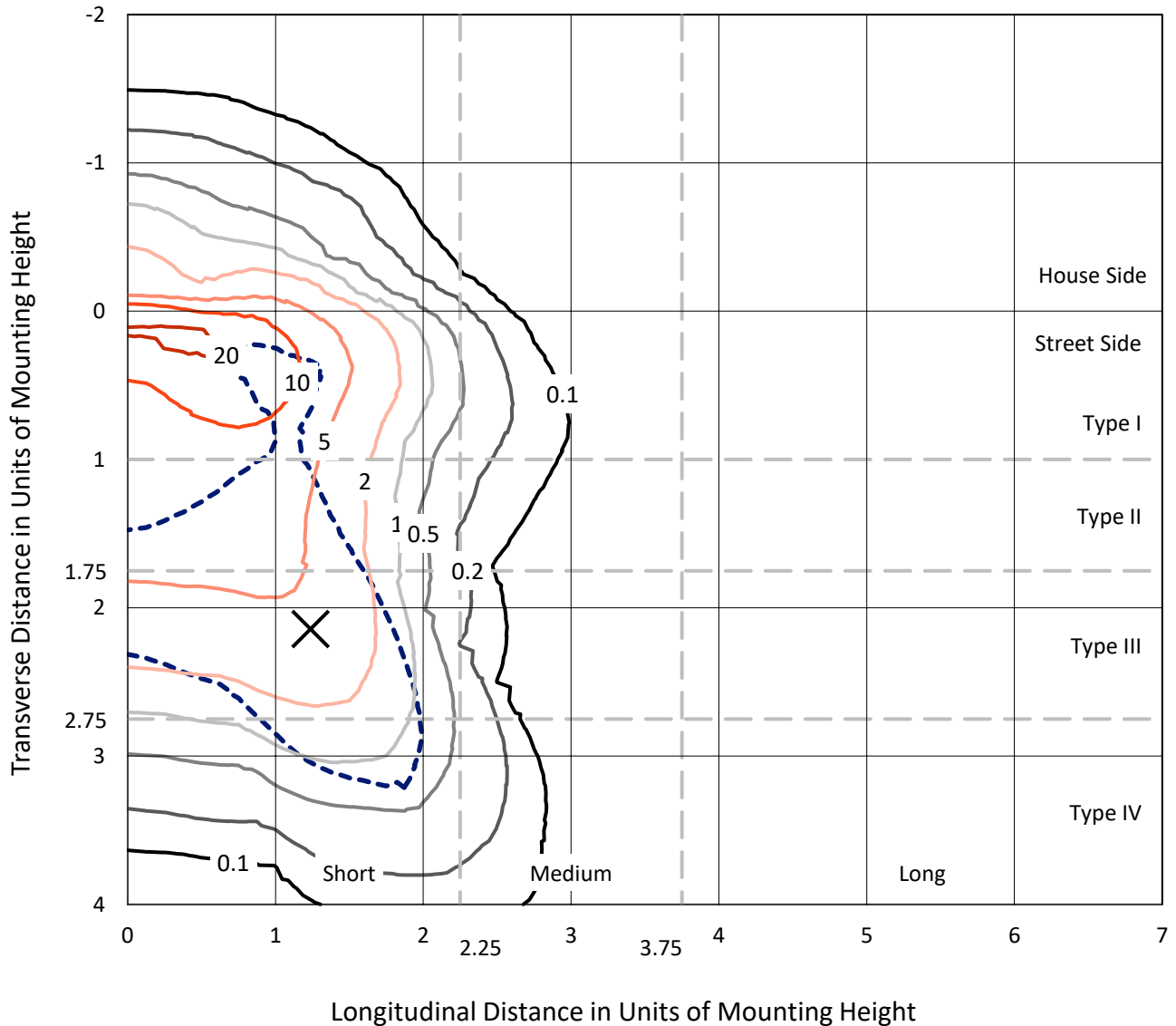
Lumens per Lamp: N/A  
 Luminaire Lumens: 29022.2 lumens  
 Efficiency: N/A  
 Efficacy: 116.3 lumens/watt  
 Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
 IES Classification: Type IV - Short  
 BUG Rating: B2 - U0 - G4

Input Watts (W): 249.5  
 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

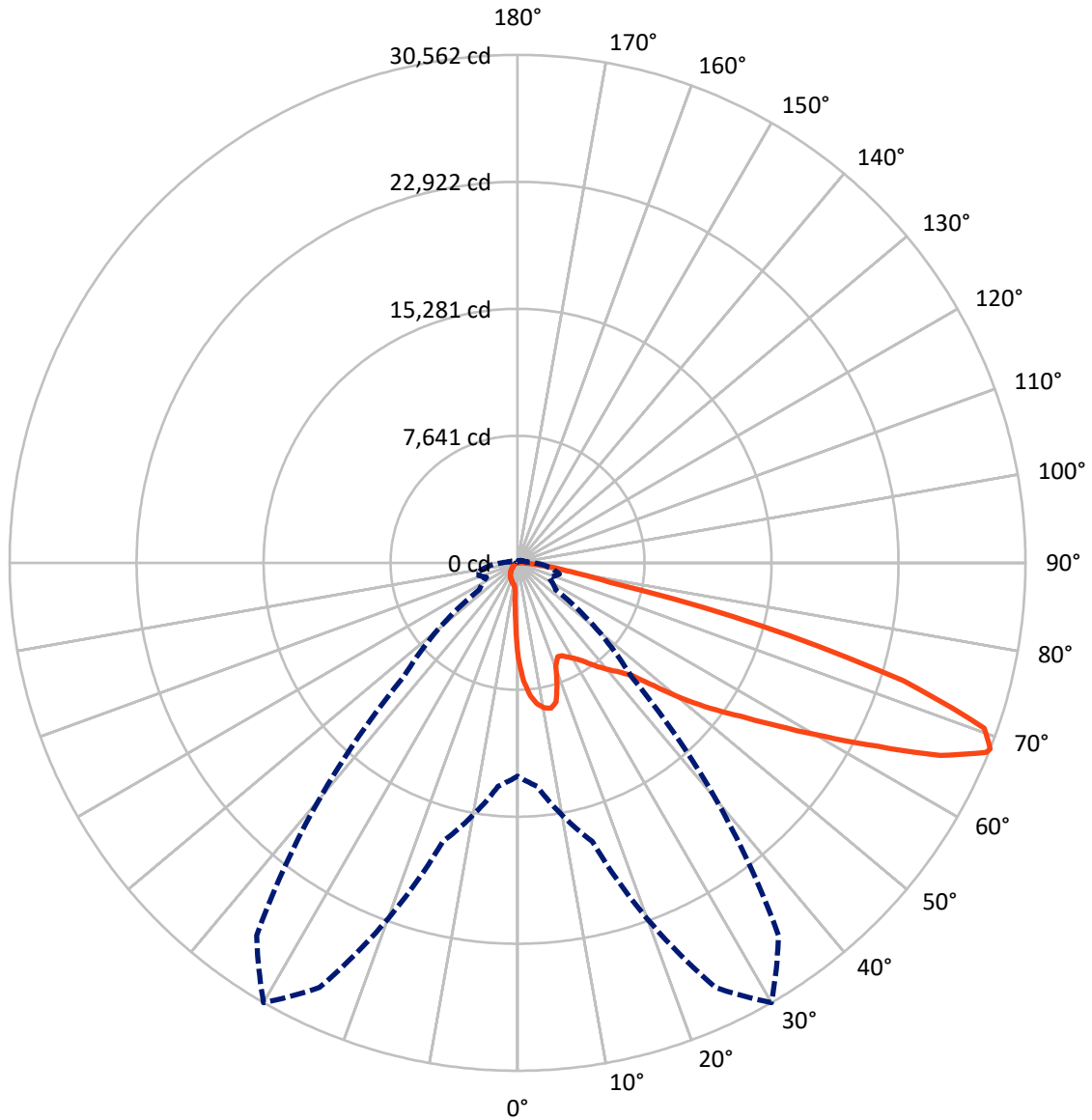
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 21.9 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 30-Deg Lateral      - - - Horizontal Cone Through 68-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 2215.2   | 0.0    | 2215.2  |
|                    | % Fixture | 7.6      | 0.0    | 7.6     |
| <b>Street Side</b> | Lumens    | 26807.1  | 0.0    | 26807.1 |
|                    | % Fixture | 92.4     | 0.0    | 92.4    |
| <b>Total</b>       | Lumens    | 29022.2  | 0.0    | 29022.2 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 493.8   | 1.7       |
| 10°-20°   | 1409.8  | 4.9       |
| 20°-30°   | 2215.5  | 7.6       |
| 30°-40°   | 3474.8  | 12.0      |
| 40°-50°   | 5193.8  | 17.9      |
| 50°-60°   | 6909.4  | 23.8      |
| 60°-70°   | 6679.2  | 23.0      |
| 70°-80°   | 2400.9  | 8.3       |
| 80°-90°   | 245.0   | 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°    | 29022.2 | 100.0     |
| 0°-180°   | 29022.2 | 100.0     |

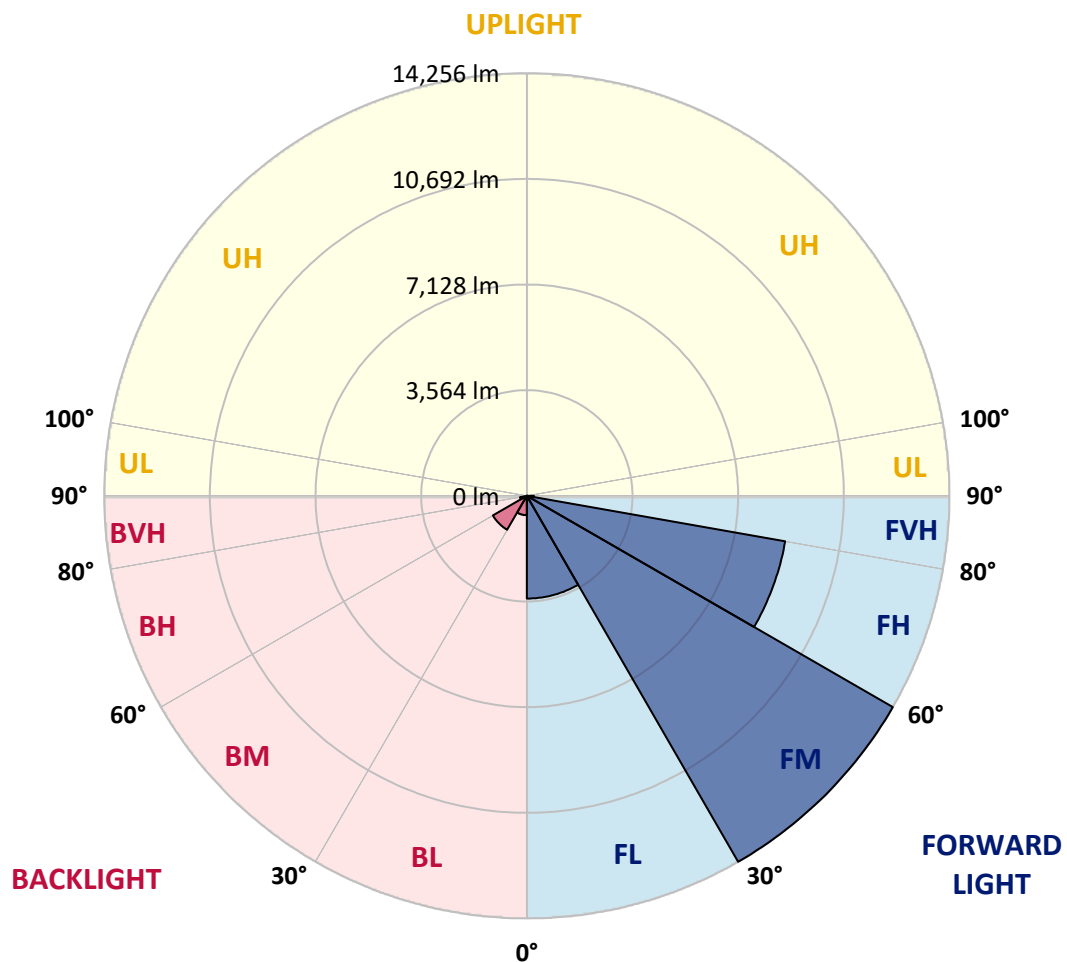


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|----------------|---------|-----------|-------------------------|------|----------|
|                |         |           | B                       | U    | G        |
| FL (0°-30°)    | 3465.3  | 11.9      |                         |      |          |
| FM (30°-60°)   | 14255.7 | 49.1      |                         |      |          |
| FH (60°-80°)   | 8849.8  | 30.5      |                         |      | G4/12000 |
| FVH (80°-90°)  | 236.3   | 0.8       |                         |      | G3/500   |
| BL (0°-30°)    | 653.8   | 2.3       | B2/1000                 |      |          |
| BM (30°-60°)   | 1322.2  | 4.6       | B2/2500                 |      |          |
| BH (60°-80°)   | 230.4   | 0.8       | B1/500                  |      | G1/500   |
| BVH (80°-90°)  | 8.7     | 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-G4**  
 Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 30°     | 35°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 5722.8  | 5722.8  | 5722.8  | 5722.8  | 5722.8  | 5722.8  | 5722.8  | 5722.8  | 5722.8  | 5722.8  | 5722.8  |
| 2.5°  | 7314.5  | 7314.5  | 7262.3  | 7192.7  | 7114.4  | 7088.3  | 6940.5  | 6731.7  | 6514.3  | 6262.1  | 5896.8  |
| 5°    | 8253.8  | 8245.1  | 8140.7  | 8140.7  | 8036.3  | 7940.7  | 7792.8  | 7488.4  | 7140.5  | 6688.2  | 6053.3  |
| 7.5°  | 8671.2  | 8688.6  | 8645.1  | 8645.1  | 8584.3  | 8514.7  | 8427.7  | 8132.0  | 7723.2  | 7114.4  | 6209.9  |
| 10°   | 8819.1  | 8827.8  | 8827.8  | 8888.7  | 8871.3  | 8862.6  | 8853.9  | 8688.6  | 8262.5  | 7549.3  | 6375.1  |
| 12.5° | 8462.5  | 8506.0  | 8627.7  | 8897.4  | 8984.3  | 9080.0  | 9210.5  | 9158.3  | 8862.6  | 8097.2  | 6627.4  |
| 15°   | 7314.5  | 7323.1  | 7662.3  | 8332.0  | 8688.6  | 9053.9  | 9558.4  | 9662.7  | 9471.4  | 8688.6  | 6888.3  |
| 17.5° | 6035.9  | 6062.0  | 6331.7  | 7079.6  | 7653.6  | 8497.3  | 9758.4  | 10184.6 | 10115.0 | 9271.4  | 7131.8  |
| 20°   | 5505.4  | 5540.2  | 5670.7  | 6140.3  | 6575.2  | 7357.9  | 9558.4  | 10680.3 | 10706.4 | 9854.1  | 7357.9  |
| 22.5° | 5383.6  | 5409.7  | 5514.1  | 5879.4  | 6149.0  | 6670.8  | 8880.0  | 11071.7 | 11376.1 | 10523.8 | 7627.6  |
| 25°   | 5348.9  | 5374.9  | 5531.5  | 5931.6  | 6183.8  | 6618.7  | 8262.5  | 11280.4 | 12167.6 | 11219.6 | 7888.5  |
| 27.5° | 5322.8  | 5357.6  | 5609.8  | 6122.9  | 6418.6  | 6836.1  | 8149.4  | 11323.9 | 12924.2 | 11958.8 | 8314.6  |
| 30°   | 5357.6  | 5409.7  | 5740.2  | 6323.0  | 6662.2  | 7131.8  | 8419.0  | 11367.4 | 13759.2 | 12802.5 | 8853.9  |
| 32.5° | 5496.7  | 5540.2  | 5940.3  | 6592.6  | 6984.0  | 7514.5  | 8880.0  | 11628.3 | 14550.6 | 13663.5 | 9367.0  |
| 35°   | 5653.3  | 5714.1  | 6192.5  | 6975.3  | 7444.9  | 8045.0  | 9506.2  | 12141.5 | 15307.3 | 14481.0 | 9897.6  |
| 37.5° | 5844.6  | 5914.2  | 6488.2  | 7410.1  | 7949.4  | 8627.7  | 10184.6 | 12854.6 | 15977.0 | 15150.7 | 10428.1 |
| 40°   | 6105.5  | 6183.8  | 6827.4  | 7871.1  | 8453.8  | 9132.2  | 10854.3 | 13559.1 | 16490.1 | 15550.8 | 10776.0 |
| 42.5° | 7131.8  | 7236.2  | 7505.8  | 8323.3  | 8975.6  | 9671.4  | 11515.3 | 14228.8 | 16681.5 | 15681.3 | 10845.6 |
| 45°   | 9045.2  | 9149.6  | 9080.0  | 9236.6  | 9671.4  | 10323.7 | 12237.1 | 14872.4 | 16707.6 | 15646.5 | 10810.8 |
| 47.5° | 10967.3 | 11089.1 | 11028.2 | 10941.2 | 11036.9 | 11350.0 | 13046.0 | 15281.2 | 16568.4 | 15629.1 | 10810.8 |
| 50°   | 12802.5 | 12732.9 | 12741.6 | 12715.5 | 12802.5 | 12967.7 | 13828.7 | 15359.5 | 16533.6 | 15794.3 | 10906.4 |
| 52.5° | 13785.3 | 13820.1 | 14037.5 | 14359.3 | 14550.6 | 14715.9 | 14724.6 | 15481.2 | 16281.4 | 15516.0 | 10793.4 |
| 55°   | 14750.7 | 14820.2 | 15324.7 | 15872.6 | 16298.8 | 16611.9 | 15620.4 | 15403.0 | 14776.8 | 14585.4 | 10202.0 |
| 57.5° | 15837.8 | 15933.5 | 16646.7 | 17777.3 | 18525.3 | 18690.6 | 16507.5 | 13941.8 | 12506.8 | 13254.7 | 9053.9  |
| 60°   | 17333.8 | 17446.8 | 18394.8 | 20090.8 | 21204.1 | 20864.9 | 16577.1 | 11619.6 | 9932.3  | 11002.1 | 7471.0  |
| 62.5° | 18507.9 | 18734.0 | 20447.4 | 23091.4 | 24317.7 | 23239.3 | 15281.2 | 8906.1  | 6940.5  | 7731.9  | 5453.2  |
| 65°   | 17255.5 | 17690.4 | 20482.2 | 26526.8 | 27944.5 | 26031.1 | 13246.0 | 6079.4  | 3913.8  | 5001.0  | 3487.6  |
| 67.5° | 13950.5 | 14559.3 | 18186.1 | 28196.7 | 30431.9 | 27500.9 | 10428.1 | 3226.7  | 2243.9  | 2904.9  | 1835.1  |
| 68°   | 12837.3 | 13498.3 | 17342.5 | 28196.7 | 30562.4 | 27370.5 | 9680.1  | 2791.8  | 2070.0  | 2609.2  | 1591.6  |
| 70°   | 8871.3  | 9340.9  | 13333.0 | 26613.8 | 29797.0 | 24952.6 | 6375.1  | 1600.3  | 1556.8  | 1791.6  | 1052.4  |
| 72.5° | 4348.7  | 4853.1  | 7131.8  | 21091.0 | 24274.2 | 19177.6 | 2904.9  | 1061.1  | 1182.8  | 1313.3  | 826.2   |
| 75°   | 1730.8  | 1835.1  | 2809.2  | 10402.0 | 15168.1 | 12237.1 | 1522.0  | 800.2   | 1017.6  | 1026.3  | 652.3   |
| 77.5° | 991.5   | 1052.4  | 1556.8  | 3826.8  | 5688.1  | 5470.6  | 982.8   | 574.0   | 808.9   | 739.3   | 426.2   |
| 80°   | 556.6   | 565.3   | 878.4   | 2017.8  | 3252.8  | 2913.6  | 669.7   | 417.5   | 617.5   | 521.8   | 287.0   |
| 82.5° | 278.3   | 313.1   | 556.6   | 1113.3  | 1809.0  | 1852.5  | 356.6   | 295.7   | 495.7   | 374.0   | 234.8   |
| 85°   | 200.0   | 217.4   | 400.1   | 617.5   | 834.9   | 1252.4  | 217.4   | 147.9   | 374.0   | 252.2   | 165.2   |
| 87.5° | 104.4   | 130.5   | 252.2   | 304.4   | 339.2   | 426.2   | 104.4   | 69.6    | 208.7   | 147.9   | 87.0    |
| 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: GALN-SB5C-760-U-T4LG-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 5722.8 | 5722.8 | 5722.8 | 5722.8 | 5722.8 | 5722.8 | 5722.8 | 5722.8 | 5722.8 | 5722.8 | 5722.8 |
| 2.5°  | 5722.8 | 5522.8 | 5114.0 | 4635.7 | 4261.7 | 3879.0 | 3565.9 | 3270.2 | 3131.0 | 3113.6 | 3148.4 |
| 5°    | 5696.7 | 5261.9 | 4331.3 | 3418.0 | 2670.1 | 2148.2 | 1861.2 | 1713.4 | 1635.1 | 1600.3 | 1609.0 |
| 7.5°  | 5644.6 | 4983.6 | 3496.3 | 2313.5 | 1730.8 | 1504.6 | 1435.1 | 1409.0 | 1400.3 | 1400.3 | 1400.3 |
| 10°   | 5592.4 | 4609.6 | 2678.8 | 1696.0 | 1417.7 | 1356.8 | 1339.4 | 1339.4 | 1330.7 | 1330.7 | 1339.4 |
| 12.5° | 5566.3 | 4261.7 | 2078.7 | 1417.7 | 1322.0 | 1295.9 | 1278.5 | 1269.8 | 1269.8 | 1269.8 | 1278.5 |
| 15°   | 5505.4 | 3879.0 | 1678.6 | 1313.3 | 1261.1 | 1226.3 | 1217.6 | 1208.9 | 1208.9 | 1208.9 | 1208.9 |
| 17.5° | 5453.2 | 3505.0 | 1461.2 | 1243.7 | 1200.2 | 1165.4 | 1156.7 | 1148.0 | 1148.0 | 1156.7 | 1156.7 |
| 20°   | 5374.9 | 3148.4 | 1313.3 | 1174.1 | 1139.3 | 1104.6 | 1095.9 | 1087.2 | 1095.9 | 1095.9 | 1095.9 |
| 22.5° | 5279.3 | 2852.7 | 1226.3 | 1122.0 | 1078.5 | 1043.7 | 1043.7 | 1043.7 | 1043.7 | 1043.7 | 1052.4 |
| 25°   | 5218.4 | 2644.0 | 1165.4 | 1061.1 | 1017.6 | 991.5  | 982.8  | 982.8  | 1000.2 | 1000.2 | 1008.9 |
| 27.5° | 5314.1 | 2591.8 | 1174.1 | 1043.7 | 965.4  | 939.3  | 930.6  | 930.6  | 948.0  | 956.7  | 965.4  |
| 30°   | 5601.1 | 2687.5 | 1278.5 | 1095.9 | 930.6  | 887.1  | 878.4  | 878.4  | 904.5  | 913.2  | 921.9  |
| 32.5° | 5931.6 | 2887.5 | 1435.1 | 1165.4 | 904.5  | 834.9  | 817.5  | 817.5  | 843.6  | 852.3  | 861.0  |
| 35°   | 6383.8 | 3200.6 | 1643.8 | 1226.3 | 921.9  | 782.8  | 748.0  | 748.0  | 765.4  | 782.8  | 791.5  |
| 37.5° | 6966.6 | 3713.8 | 1887.3 | 1269.8 | 921.9  | 721.9  | 678.4  | 669.7  | 687.1  | 687.1  | 695.8  |
| 40°   | 7575.4 | 4383.5 | 2139.5 | 1269.8 | 878.4  | 661.0  | 617.5  | 591.4  | 600.1  | 591.4  | 600.1  |
| 42.5° | 7914.6 | 4922.7 | 2357.0 | 1191.5 | 826.2  | 600.1  | 556.6  | 521.8  | 513.1  | 495.7  | 504.4  |
| 45°   | 8105.9 | 5166.2 | 2296.1 | 1104.6 | 774.1  | 556.6  | 504.4  | 461.0  | 443.6  | 417.5  | 417.5  |
| 47.5° | 8105.9 | 5192.3 | 1965.6 | 1035.0 | 721.9  | 521.8  | 452.3  | 408.8  | 382.7  | 356.6  | 365.3  |
| 50°   | 8010.2 | 4957.5 | 1556.8 | 965.4  | 661.0  | 487.1  | 408.8  | 374.0  | 339.2  | 321.8  | 321.8  |
| 52.5° | 7610.2 | 4192.1 | 1191.5 | 878.4  | 591.4  | 443.6  | 365.3  | 330.5  | 295.7  | 287.0  | 287.0  |
| 55°   | 6923.1 | 3078.9 | 965.4  | 791.5  | 530.5  | 408.8  | 330.5  | 304.4  | 269.6  | 252.2  | 252.2  |
| 57.5° | 5627.2 | 2104.8 | 800.2  | 713.2  | 469.7  | 365.3  | 295.7  | 269.6  | 226.1  | 208.7  | 208.7  |
| 60°   | 4174.7 | 1374.2 | 678.4  | 626.2  | 400.1  | 330.5  | 260.9  | 226.1  | 191.3  | 173.9  | 165.2  |
| 62.5° | 2817.9 | 930.6  | 565.3  | 495.7  | 339.2  | 287.0  | 226.1  | 191.3  | 147.9  | 113.1  | 113.1  |
| 65°   | 1756.9 | 721.9  | 469.7  | 391.4  | 295.7  | 252.2  | 191.3  | 147.9  | 104.4  | 78.3   | 69.6   |
| 67.5° | 1008.9 | 582.7  | 382.7  | 304.4  | 252.2  | 200.0  | 147.9  | 121.8  | 87.0   | 60.9   | 52.2   |
| 68°   | 930.6  | 556.6  | 356.6  | 287.0  | 234.8  | 191.3  | 139.2  | 113.1  | 78.3   | 52.2   | 52.2   |
| 70°   | 756.7  | 495.7  | 304.4  | 234.8  | 200.0  | 156.6  | 121.8  | 95.7   | 60.9   | 34.8   | 34.8   |
| 72.5° | 669.7  | 417.5  | 260.9  | 182.6  | 139.2  | 130.5  | 95.7   | 69.6   | 43.5   | 26.1   | 17.4   |
| 75°   | 547.9  | 330.5  | 208.7  | 139.2  | 95.7   | 95.7   | 69.6   | 43.5   | 17.4   | 0.0    | 0.0    |
| 77.5° | 356.6  | 243.5  | 165.2  | 87.0   | 52.2   | 60.9   | 43.5   | 17.4   | 0.0    | 0.0    | 0.0    |
| 80°   | 234.8  | 182.6  | 113.1  | 43.5   | 26.1   | 26.1   | 8.7    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 165.2  | 121.8  | 69.6   | 17.4   | 8.7    | 8.7    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 104.4  | 52.2   | 26.1   | 8.7    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 43.5   | 17.4   | 8.7    | 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    |

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: SP1-2407-184-7

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-757-U-5WQ

Data in this report applies to families of products including GSS-SB1A-757-U-5WQ

**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-7  
 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-757-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 5700K CCT 26 LEDS

**Spectral Parameters**

CCT (K): 5571  
 CIE u': 0.2033  
 CIE v': 0.4806  
 Duv: 0.0041  
 CIE x: 0.3308  
 CIE y: 0.3476  
 CIE z: 0.3216  
 Peak Wavelength (nm): 442  
 Dominant Wavelength (nm): 544  
 Purity: 3.635698  
 Rf: 70.4  
 Rg: 97.1

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 69.9 |      |       |
| R1:       | 68.8 | R9:  | -35.4 |
| R2:       | 72.5 | R10: | 36.7  |
| R3:       | 76.8 | R11: | 73.9  |
| R4:       | 72.0 | R12: | 47.8  |
| R5:       | 70.9 | R13: | 68.0  |
| R6:       | 65.6 | R14: | 87.0  |
| R7:       | 75.5 | R15: | 59.8  |
| R8:       | 56.8 |      |       |



**Test Conditions**

Stabilization Time: 20M  
 Operation Time: 1H 20M  
 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 5700K 4-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    | 120                      | NR            | 620    | 298                      | NR            | 750    | 9                        | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 167                      | NR            | 625    | 270                      | NR            | 755    | 7                        | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 222                      | NR            | 630    | 245                      | NR            | 760    | 6                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 279                      | NR            | 635    | 219                      | NR            | 765    | 6                        | NR            | 895    | 0                        | NR            |
| 380    | 1                        | NR            | 510    | 329                      | NR            | 640    | 196                      | NR            | 770    | 5                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 371                      | NR            | 645    | 173                      | NR            | 775    | 4                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 403                      | NR            | 650    | 153                      | NR            | 780    | 4                        | NR            | 910    | 0                        | NR            |
| 395    | 6                        | NR            | 525    | 424                      | NR            | 655    | 135                      | NR            | 785    | 3                        | NR            | 915    | 0                        | NR            |
| 400    | 9                        | NR            | 530    | 439                      | NR            | 660    | 117                      | NR            | 790    | 3                        | NR            | 920    | 0                        | NR            |
| 405    | 14                       | NR            | 535    | 449                      | NR            | 665    | 103                      | NR            | 795    | 2                        | NR            | 925    | 0                        | NR            |
| 410    | 28                       | NR            | 540    | 454                      | NR            | 670    | 89                       | NR            | 800    | 2                        | NR            | 930    | 0                        | NR            |
| 415    | 55                       | NR            | 545    | 459                      | NR            | 675    | 77                       | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 118                      | NR            | 550    | 463                      | NR            | 680    | 67                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 237                      | NR            | 555    | 466                      | NR            | 685    | 58                       | NR            | 815    | 1                        | NR            | 945    | 0                        | NR            |
| 430    | 420                      | NR            | 560    | 467                      | NR            | 690    | 50                       | NR            | 820    | 1                        | NR            | 950    | 0                        | NR            |
| 435    | 677                      | NR            | 565    | 469                      | NR            | 695    | 43                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 962                      | NR            | 570    | 469                      | NR            | 700    | 37                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 894                      | NR            | 575    | 466                      | NR            | 705    | 32                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 472                      | NR            | 580    | 461                      | NR            | 710    | 28                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 275                      | NR            | 585    | 450                      | NR            | 715    | 24                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 180                      | NR            | 590    | 437                      | NR            | 720    | 21                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 107                      | NR            | 595    | 420                      | NR            | 725    | 18                       | NR            | 855    | 0                        | NR            | 985    | 0                        | NR            |
| 470    | 76                       | NR            | 600    | 400                      | NR            | 730    | 15                       | NR            | 860    | 0                        | NR            | 990    | 0                        | NR            |
| 475    | 68                       | NR            | 605    | 376                      | NR            | 735    | 13                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 69                       | NR            | 610    | 352                      | NR            | 740    | 11                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 86                       | NR            | 615    | 325                      | NR            | 745    | 10                       | NR            | 875    | 0                        | NR            |        |                          |               |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.84**

| 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    | 120                      | NR            | 620    | 298                      | NR            | 750    | 9                        | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 167                      | NR            | 625    | 270                      | NR            | 755    | 7                        | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 222                      | NR            | 630    | 245                      | NR            | 760    | 6                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 279                      | NR            | 635    | 219                      | NR            | 765    | 6                        | NR            | 895    | 0                        | NR            |
| 380    | 1                        | NR            | 510    | 329                      | NR            | 640    | 196                      | NR            | 770    | 5                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 371                      | NR            | 645    | 173                      | NR            | 775    | 4                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 403                      | NR            | 650    | 153                      | NR            | 780    | 4                        | NR            | 910    | 0                        | NR            |
| 395    | 6                        | NR            | 525    | 424                      | NR            | 655    | 135                      | NR            | 785    | 3                        | NR            | 915    | 0                        | NR            |
| 400    | 9                        | NR            | 530    | 439                      | NR            | 660    | 117                      | NR            | 790    | 3                        | NR            | 920    | 0                        | NR            |
| 405    | 14                       | NR            | 535    | 449                      | NR            | 665    | 103                      | NR            | 795    | 2                        | NR            | 925    | 0                        | NR            |
| 410    | 28                       | NR            | 540    | 454                      | NR            | 670    | 89                       | NR            | 800    | 2                        | NR            | 930    | 0                        | NR            |
| 415    | 55                       | NR            | 545    | 459                      | NR            | 675    | 77                       | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 118                      | NR            | 550    | 463                      | NR            | 680    | 67                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 237                      | NR            | 555    | 466                      | NR            | 685    | 58                       | NR            | 815    | 1                        | NR            | 945    | 0                        | NR            |
| 430    | 420                      | NR            | 560    | 467                      | NR            | 690    | 50                       | NR            | 820    | 1                        | NR            | 950    | 0                        | NR            |
| 435    | 677                      | NR            | 565    | 469                      | NR            | 695    | 43                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 962                      | NR            | 570    | 469                      | NR            | 700    | 37                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 894                      | NR            | 575    | 466                      | NR            | 705    | 32                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 472                      | NR            | 580    | 461                      | NR            | 710    | 28                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 275                      | NR            | 585    | 450                      | NR            | 715    | 24                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 180                      | NR            | 590    | 437                      | NR            | 720    | 21                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 107                      | NR            | 595    | 420                      | NR            | 725    | 18                       | NR            | 855    | 0                        | NR            | 985    | 0                        | NR            |
| 470    | 76                       | NR            | 600    | 400                      | NR            | 730    | 15                       | NR            | 860    | 0                        | NR            | 990    | 0                        | NR            |
| 475    | 68                       | NR            | 605    | 376                      | NR            | 735    | 13                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 69                       | NR            | 610    | 352                      | NR            | 740    | 11                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 86                       | NR            | 615    | 325                      | NR            | 745    | 10                       | NR            | 875    | 0                        | NR            |        |                          |               |

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.71

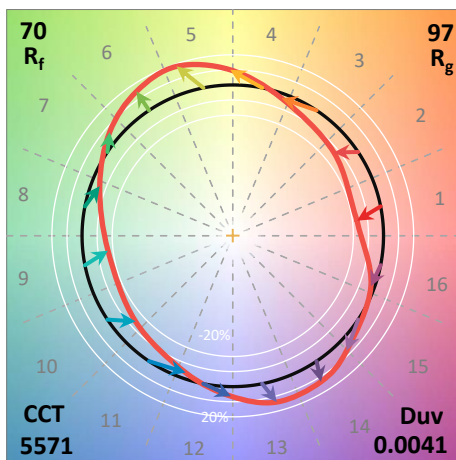
| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 120                      | NR            | 620    | 298                      | NR            | 750    | 9                        | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 167                      | NR            | 625    | 270                      | NR            | 755    | 7                        | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 222                      | NR            | 630    | 245                      | NR            | 760    | 6                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 279                      | NR            | 635    | 219                      | NR            | 765    | 6                        | NR            | 895    | 0                        | NR            |
| 380    | 1                        | NR            | 510    | 329                      | NR            | 640    | 196                      | NR            | 770    | 5                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 371                      | NR            | 645    | 173                      | NR            | 775    | 4                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 403                      | NR            | 650    | 153                      | NR            | 780    | 4                        | NR            | 910    | 0                        | NR            |
| 395    | 6                        | NR            | 525    | 424                      | NR            | 655    | 135                      | NR            | 785    | 3                        | NR            | 915    | 0                        | NR            |
| 400    | 9                        | NR            | 530    | 439                      | NR            | 660    | 117                      | NR            | 790    | 3                        | NR            | 920    | 0                        | NR            |
| 405    | 14                       | NR            | 535    | 449                      | NR            | 665    | 103                      | NR            | 795    | 2                        | NR            | 925    | 0                        | NR            |
| 410    | 28                       | NR            | 540    | 454                      | NR            | 670    | 89                       | NR            | 800    | 2                        | NR            | 930    | 0                        | NR            |
| 415    | 55                       | NR            | 545    | 459                      | NR            | 675    | 77                       | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 118                      | NR            | 550    | 463                      | NR            | 680    | 67                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 237                      | NR            | 555    | 466                      | NR            | 685    | 58                       | NR            | 815    | 1                        | NR            | 945    | 0                        | NR            |
| 430    | 420                      | NR            | 560    | 467                      | NR            | 690    | 50                       | NR            | 820    | 1                        | NR            | 950    | 0                        | NR            |
| 435    | 677                      | NR            | 565    | 469                      | NR            | 695    | 43                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 962                      | NR            | 570    | 469                      | NR            | 700    | 37                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 894                      | NR            | 575    | 466                      | NR            | 705    | 32                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 472                      | NR            | 580    | 461                      | NR            | 710    | 28                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 275                      | NR            | 585    | 450                      | NR            | 715    | 24                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 180                      | NR            | 590    | 437                      | NR            | 720    | 21                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 107                      | NR            | 595    | 420                      | NR            | 725    | 18                       | NR            | 855    | 0                        | NR            | 985    | 0                        | NR            |
| 470    | 76                       | NR            | 600    | 400                      | NR            | 730    | 15                       | NR            | 860    | 0                        | NR            | 990    | 0                        | NR            |
| 475    | 68                       | NR            | 605    | 376                      | NR            | 735    | 13                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 69                       | NR            | 610    | 352                      | NR            | 740    | 11                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 86                       | NR            | 615    | 325                      | NR            | 745    | 10                       | NR            | 875    | 0                        | NR            |        |                          |               |

**Summary**

$R_f = 70.4$   
 $R_g = 97.1$   
 CIE  $R_a = 69.9$   
 $R_g = -35.4$



**Color Vector Graphics**



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 52 | CES51 = 87 | CES76 = 40 |
| CES02 = 59 | CES27 = 77 | CES52 = 88 | CES77 = 62 |
| CES03 = 30 | CES28 = 76 | CES53 = 74 | CES78 = 43 |
| CES04 = 68 | CES29 = 46 | CES54 = 79 | CES79 = 72 |
| CES05 = 45 | CES30 = 54 | CES55 = 78 | CES80 = 68 |
| CES06 = 49 | CES31 = 52 | CES56 = 67 | CES81 = 70 |
| CES07 = 38 | CES32 = 49 | CES57 = 64 | CES82 = 87 |
| CES08 = 37 | CES33 = 59 | CES58 = 66 | CES83 = 81 |
| CES09 = 29 | CES34 = 61 | CES59 = 87 | CES84 = 87 |
| CES10 = 72 | CES35 = 78 | CES60 = 91 | CES85 = 83 |
| CES11 = 55 | CES36 = 88 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 71 | CES62 = 77 | CES87 = 74 |
| CES13 = 41 | CES38 = 64 | CES63 = 74 | CES88 = 76 |
| CES14 = 74 | CES39 = 90 | CES64 = 71 | CES89 = 75 |
| CES15 = 70 | CES40 = 81 | CES65 = 63 | CES90 = 73 |
| CES16 = 46 | CES41 = 82 | CES66 = 66 | CES91 = 93 |
| CES17 = 48 | CES42 = 69 | CES67 = 63 | CES92 = 69 |
| CES18 = 55 | CES43 = 67 | CES68 = 71 | CES93 = 82 |
| CES19 = 70 | CES44 = 98 | CES69 = 81 | CES94 = 58 |
| CES20 = 63 | CES45 = 77 | CES70 = 57 | CES95 = 72 |
| CES21 = 85 | CES46 = 76 | CES71 = 54 | CES96 = 78 |
| CES22 = 77 | CES47 = 73 | CES72 = 84 | CES97 = 82 |
| CES23 = 91 | CES48 = 65 | CES73 = 45 | CES98 = 70 |
| CES24 = 90 | CES49 = 77 | CES74 = 92 | CES99 = 59 |
| CES25 = 71 | CES50 = 85 | CES75 = 49 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)