

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: P1437669

Luminaire Tested: **GALN-SB8A-760-U-T3LG-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: P1437669  
 Test Lab: INNOVATION CENTER(G1)  
 Issue Date: 03/27/202  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: McGRAW-EDISON  
 Catalog Number: GALN-SB8A-760-U-T3LG-HSS  
 Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 350mA 8xLight  
 Square PACKAGE 70CRI 5700K FIXTURE w/ TYPE III LOW GLARE WITH HOUSE SIDE  
 SHIELD  
 Light Source: (208) 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               |

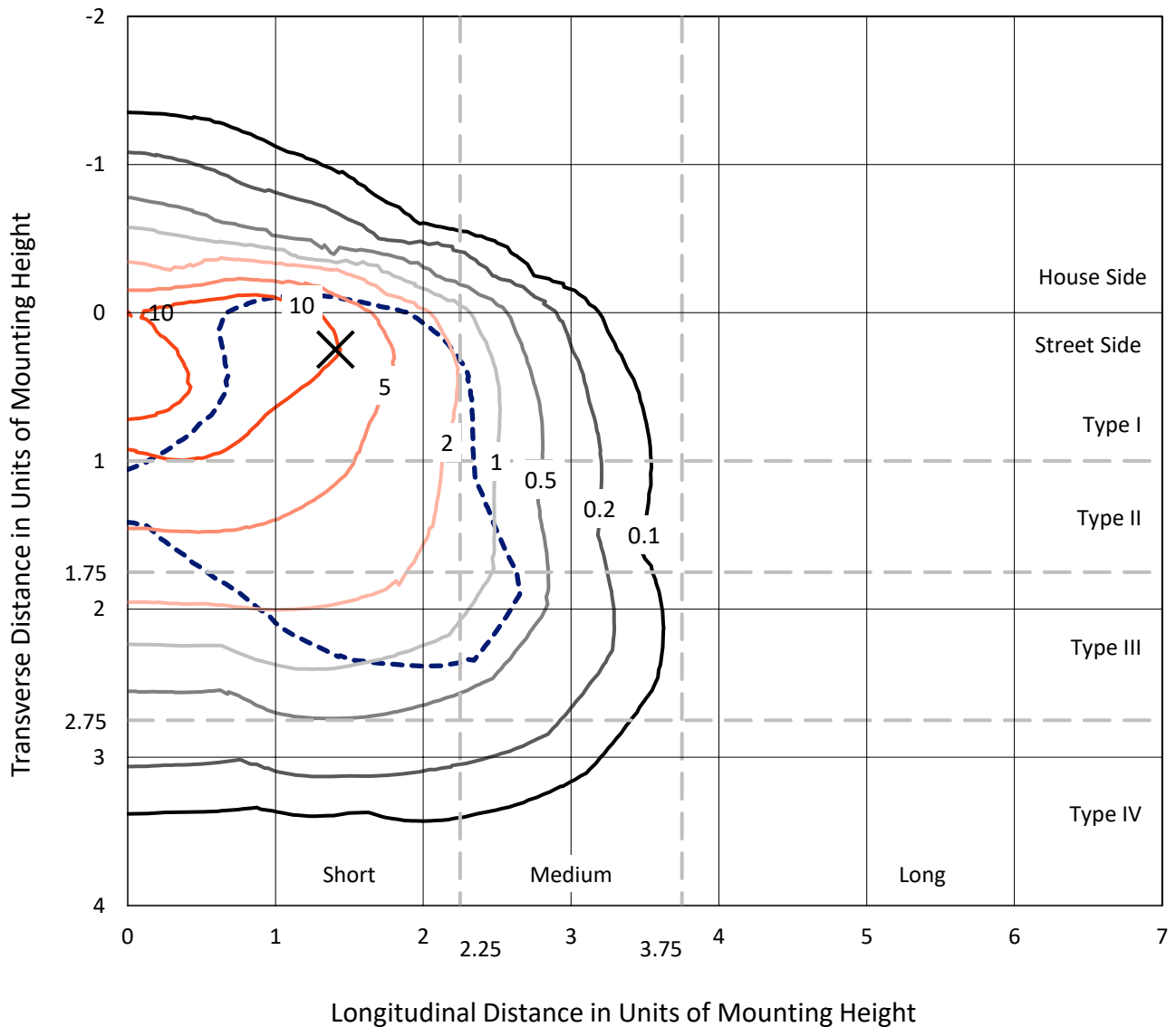
**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 29330.9 lumens  
 Efficiency: N/A  
 Efficacy: 129.2 lumens/watt  
 Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
 IES Classification: Type III - Short  
 BUG Rating: B2 - U0 - G4  
  
 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

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### Iso-Footcandle Lines of Horizontal Illumination

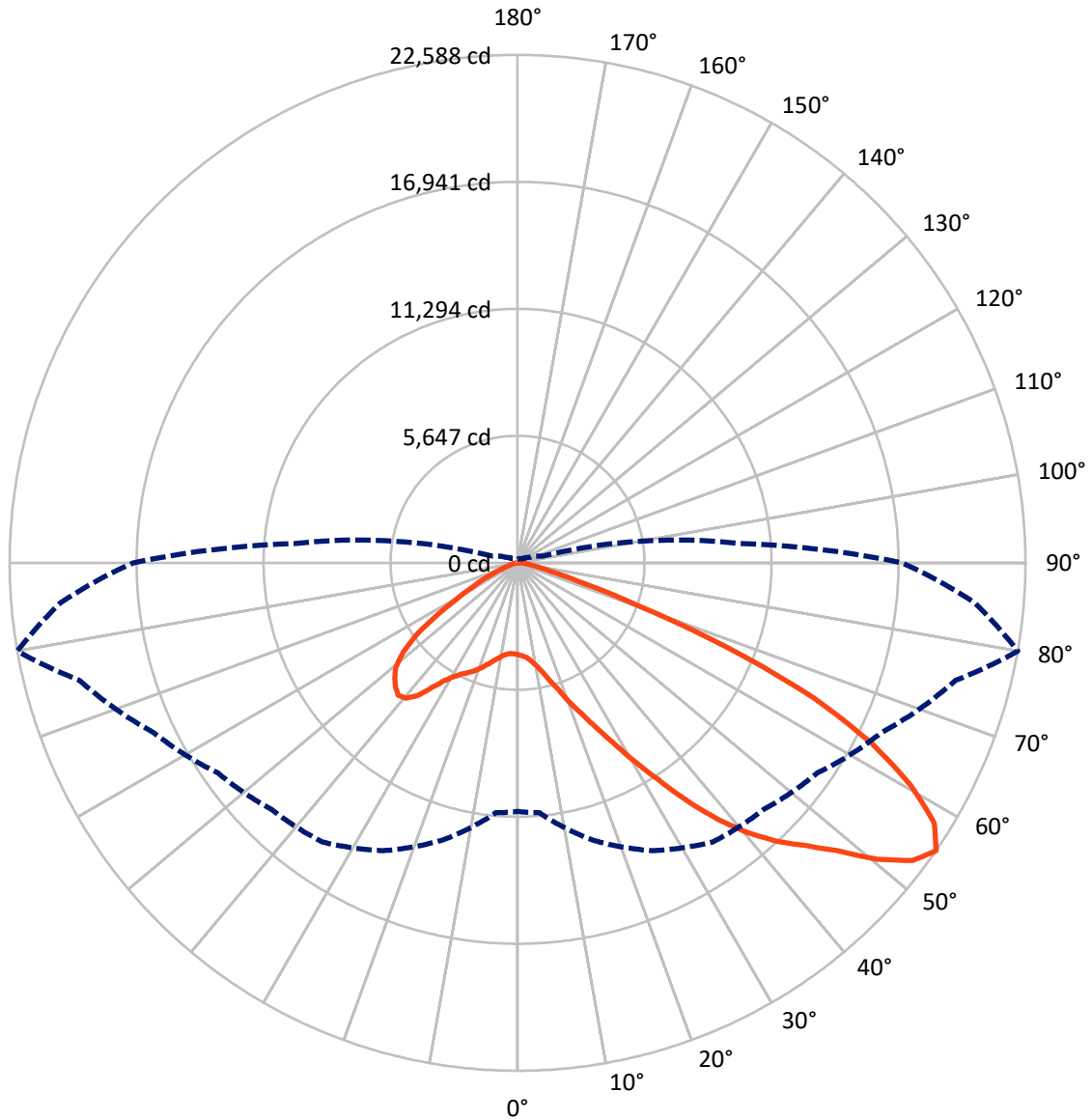
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 18.1 fc  
 Type III - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 80-Deg Lateral    - - - Horizontal Cone Through 55-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 3565.5   | 0.0    | 3565.5  |
|                    | % Fixture | 12.2     | 0.0    | 12.2    |
| <b>Street Side</b> | Lumens    | 25765.4  | 0.0    | 25765.4 |
|                    | % Fixture | 87.8     | 0.0    | 87.8    |
| <b>Total</b>       | Lumens    | 29330.9  | 0.0    | 29330.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 342.9   | 1.2       |
| 10°-20°   | 904.0   | 3.1       |
| 20°-30°   | 1769.7  | 6.0       |
| 30°-40°   | 3600.3  | 12.3      |
| 40°-50°   | 6069.5  | 20.7      |
| 50°-60°   | 7755.0  | 26.4      |
| 60°-70°   | 6621.0  | 22.6      |
| 70°-80°   | 2115.8  | 7.2       |
| 80°-90°   | 152.8   | 0.5       |
| 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°    | 29330.9 | 100.0     |
| 0°-180°   | 29330.9 | 100.0     |

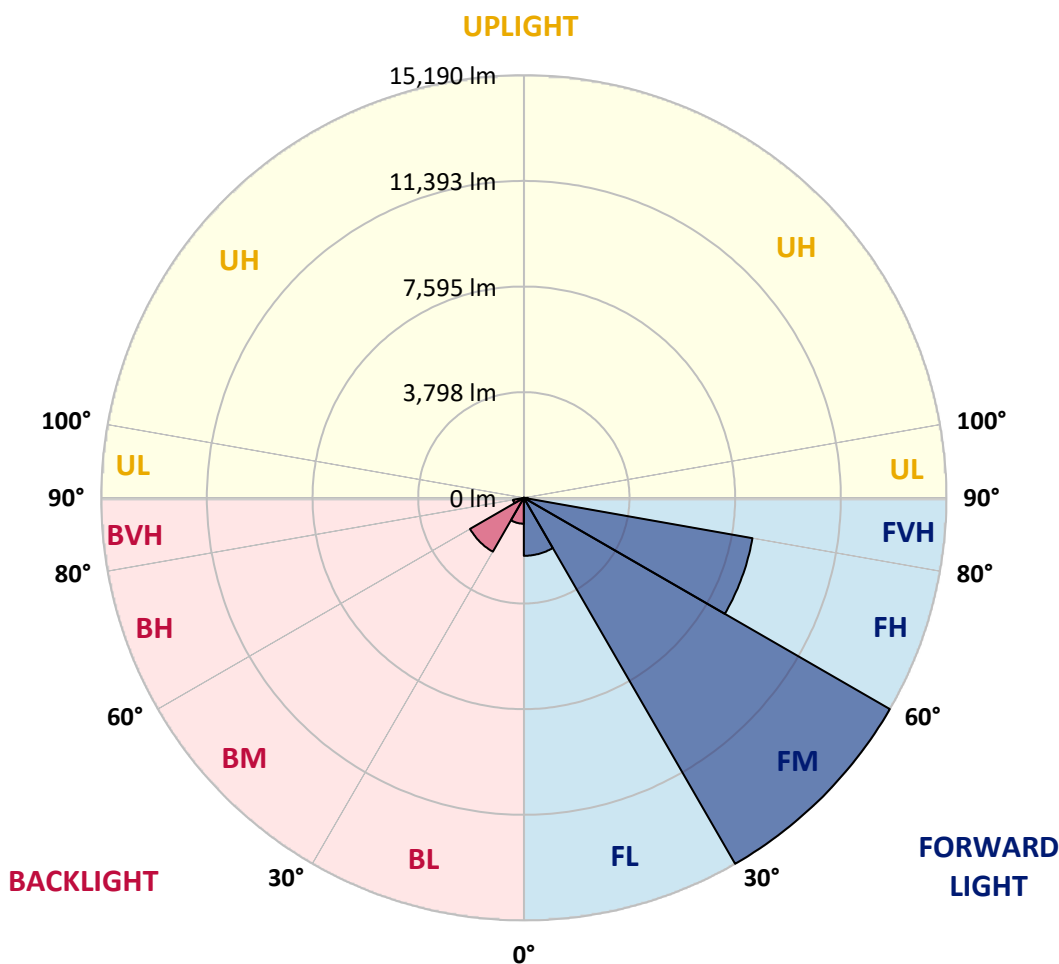


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|----------------|---------|-----------|-------------------------|------|----------|
|                |         |           | B                       | U    | G        |
| FL (0°-30°)    | 2085.5  | 7.1       |                         |      |          |
| FM (30°-60°)   | 15190.2 | 51.8      |                         |      |          |
| FH (60°-80°)   | 8344.9  | 28.5      |                         |      | G4/12000 |
| FVH (80°-90°)  | 144.8   | 0.5       |                         |      | G2/225   |
| BL (0°-30°)    | 931.0   | 3.2       | B2/1000                 |      |          |
| BM (30°-60°)   | 2234.6  | 7.6       | B2/2500                 |      |          |
| BH (60°-80°)   | 391.9   | 1.3       | B1/500                  |      | G1/500   |
| BVH (80°-90°)  | 8.0     | 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 III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 75°     | 80°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 4085.7  | 4085.7  | 4085.7  | 4085.7  | 4085.7  | 4085.7  | 4085.7  | 4085.7  | 4085.7  | 4085.7  | 4085.7  |
| 2.5°  | 4110.8  | 4119.1  | 4110.8  | 4119.1  | 4135.8  | 4127.4  | 4160.8  | 4152.5  | 4152.5  | 4144.1  | 4110.8  |
| 5°    | 3877.3  | 3885.6  | 3902.3  | 3944.0  | 4002.4  | 4060.7  | 4135.8  | 4185.8  | 4235.8  | 4227.5  | 4194.1  |
| 7.5°  | 3418.7  | 3435.4  | 3502.1  | 3585.5  | 3777.2  | 3952.3  | 4144.1  | 4269.2  | 4377.6  | 4410.9  | 4385.9  |
| 10°   | 3160.2  | 3176.9  | 3218.6  | 3302.0  | 3477.1  | 3768.9  | 4144.1  | 4402.6  | 4594.4  | 4661.1  | 4669.4  |
| 12.5° | 3135.2  | 3143.5  | 3176.9  | 3268.6  | 3418.7  | 3668.8  | 4135.8  | 4577.7  | 4902.9  | 5003.0  | 5036.3  |
| 15°   | 3151.9  | 3168.5  | 3201.9  | 3276.9  | 3452.0  | 3735.5  | 4202.5  | 4852.9  | 5311.5  | 5453.2  | 5461.6  |
| 17.5° | 3218.6  | 3235.2  | 3276.9  | 3360.3  | 3552.1  | 3910.6  | 4410.9  | 5136.4  | 5803.4  | 5961.9  | 6053.6  |
| 20°   | 3352.0  | 3360.3  | 3410.3  | 3518.7  | 3735.5  | 4127.4  | 4719.5  | 5519.9  | 6395.4  | 6628.9  | 6695.6  |
| 22.5° | 3527.1  | 3552.1  | 3618.8  | 3752.2  | 4027.4  | 4427.6  | 5144.7  | 5986.9  | 7045.8  | 7287.6  | 7404.4  |
| 25°   | 3718.9  | 3752.2  | 3852.3  | 4069.1  | 4419.3  | 4886.2  | 5670.0  | 6603.9  | 7813.0  | 8104.8  | 8263.2  |
| 27.5° | 4110.8  | 4119.1  | 4185.8  | 4461.0  | 4911.2  | 5486.6  | 6337.1  | 7396.0  | 8713.5  | 9055.4  | 9230.5  |
| 30°   | 4969.6  | 4977.9  | 4919.6  | 4994.6  | 5453.2  | 6195.3  | 7120.9  | 8321.6  | 9764.1  | 10239.4 | 10381.1 |
| 32.5° | 6020.2  | 6061.9  | 6053.6  | 6003.5  | 6212.0  | 6904.1  | 8054.8  | 9430.6  | 10998.2 | 11498.5 | 11631.9 |
| 35°   | 7212.6  | 7312.7  | 7287.6  | 7271.0  | 7296.0  | 7813.0  | 9122.1  | 10656.3 | 12399.0 | 13007.7 | 13116.1 |
| 37.5° | 8380.0  | 8405.0  | 8521.7  | 8663.5  | 8680.1  | 9038.7  | 10356.1 | 11957.1 | 13699.8 | 14475.2 | 14642.0 |
| 40°   | 9280.5  | 9363.9  | 9655.7  | 9939.2  | 10231.0 | 10514.5 | 11373.4 | 13007.7 | 14733.7 | 15776.0 | 15851.0 |
| 42.5° | 9980.9  | 10181.0 | 10606.3 | 11048.2 | 11640.2 | 11957.1 | 12340.6 | 13749.8 | 15575.9 | 16935.0 | 16901.7 |
| 45°   | 10831.4 | 10914.8 | 11515.1 | 12098.8 | 12699.2 | 13182.8 | 13174.5 | 14375.2 | 16234.6 | 17927.3 | 17718.8 |
| 47.5° | 11406.7 | 11506.8 | 12324.0 | 13007.7 | 13624.7 | 13866.5 | 13916.6 | 15050.6 | 17143.5 | 19128.0 | 18636.0 |
| 50°   | 11715.3 | 11890.4 | 12782.6 | 13649.7 | 14316.8 | 14391.8 | 14617.0 | 15934.4 | 18335.8 | 20720.6 | 19795.0 |
| 52.5° | 11748.6 | 11915.4 | 12941.0 | 14058.3 | 14783.7 | 14933.8 | 15317.4 | 16935.0 | 19494.9 | 21996.3 | 20462.1 |
| 55°   | 11056.5 | 11156.6 | 12749.2 | 14125.0 | 15150.6 | 15500.8 | 16284.6 | 17860.6 | 20170.3 | 22588.4 | 20403.7 |
| 57.5° | 10406.2 | 10506.2 | 11890.4 | 14008.3 | 15525.8 | 16242.9 | 17318.6 | 18494.3 | 19644.9 | 21854.6 | 19103.0 |
| 60°   | 9847.5  | 9897.5  | 11156.6 | 13466.3 | 15667.6 | 16968.4 | 18210.8 | 17868.9 | 18285.8 | 20095.2 | 16876.6 |
| 62.5° | 8796.9  | 8830.2  | 10322.8 | 12490.7 | 15384.1 | 17527.0 | 18519.3 | 16543.1 | 16793.3 | 17668.8 | 14258.4 |
| 65°   | 6645.6  | 6770.7  | 8138.1  | 11756.9 | 14917.2 | 17785.5 | 17802.2 | 14925.5 | 14667.0 | 14458.5 | 11215.0 |
| 67.5° | 4511.0  | 4652.8  | 5478.2  | 10572.9 | 14158.4 | 17893.9 | 16409.7 | 12832.6 | 11173.3 | 10097.6 | 7346.0  |
| 70°   | 3602.1  | 3602.1  | 3885.6  | 8496.7  | 12357.3 | 16509.8 | 14683.7 | 9689.1  | 7095.9  | 5578.3  | 3935.7  |
| 72.5° | 2368.1  | 2376.4  | 2643.2  | 5394.9  | 8763.5  | 12590.8 | 11973.7 | 5603.3  | 3685.5  | 2843.3  | 1942.8  |
| 75°   | 858.8   | 858.8   | 1159.0  | 2159.6  | 4636.1  | 7496.1  | 7296.0  | 2676.6  | 2001.2  | 1550.9  | 1175.7  |
| 77.5° | 458.6   | 475.3   | 558.7   | 892.2   | 1776.0  | 3051.8  | 2851.7  | 1367.5  | 1134.0  | 967.2   | 733.8   |
| 80°   | 308.5   | 316.9   | 375.2   | 550.3   | 858.8   | 1175.7  | 917.2   | 767.1   | 767.1   | 650.4   | 492.0   |
| 82.5° | 166.8   | 175.1   | 250.1   | 358.5   | 458.6   | 550.3   | 441.9   | 450.3   | 542.0   | 441.9   | 283.5   |
| 85°   | 116.7   | 116.7   | 191.8   | 258.5   | 258.5   | 266.8   | 191.8   | 283.5   | 316.9   | 275.2   | 191.8   |
| 87.5° | 66.7    | 66.7    | 108.4   | 125.1   | 125.1   | 116.7   | 58.4    | 100.1   | 125.1   | 141.8   | 83.4    |
| 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: P1437669

CATALOG NUMBER: GALN-SB8A-760-U-T3LG-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4085.7  | 4085.7  | 4085.7 | 4085.7 | 4085.7 | 4085.7 | 4085.7 | 4085.7 | 4085.7 | 4085.7 | 4085.7 |
| 2.5°  | 4102.4  | 4077.4  | 4027.4 | 3927.3 | 3877.3 | 3810.6 | 3752.2 | 3677.2 | 3660.5 | 3652.2 | 3618.8 |
| 5°    | 4169.1  | 4119.1  | 3969.0 | 3752.2 | 3568.8 | 3393.7 | 3218.6 | 3118.5 | 3035.1 | 2993.4 | 2985.1 |
| 7.5°  | 4335.9  | 4235.8  | 3960.7 | 3577.1 | 3235.2 | 2935.1 | 2676.6 | 2451.4 | 2334.7 | 2234.7 | 2243.0 |
| 10°   | 4586.0  | 4427.6  | 3977.4 | 3410.3 | 2901.7 | 2418.1 | 2042.9 | 1717.7 | 1484.2 | 1375.8 | 1367.5 |
| 12.5° | 4919.6  | 4694.4  | 4035.7 | 3243.6 | 2493.1 | 1817.7 | 1342.5 | 1150.7 | 1100.7 | 1092.3 | 1084.0 |
| 15°   | 5328.1  | 5011.3  | 4094.1 | 3026.8 | 1942.8 | 1259.1 | 1092.3 | 1050.6 | 1042.3 | 1033.9 | 1033.9 |
| 17.5° | 5820.1  | 5378.2  | 4127.4 | 2659.9 | 1417.5 | 1084.0 | 1025.6 | 1000.6 | 992.3  | 983.9  | 983.9  |
| 20°   | 6437.1  | 5786.8  | 4169.1 | 2193.0 | 1200.7 | 1042.3 | 975.6  | 942.2  | 933.9  | 933.9  | 925.5  |
| 22.5° | 7045.8  | 6245.4  | 4135.8 | 1784.4 | 1159.0 | 992.3  | 917.2  | 883.9  | 867.2  | 867.2  | 858.8  |
| 25°   | 7746.2  | 6712.3  | 4035.7 | 1609.3 | 1150.7 | 950.6  | 858.8  | 808.8  | 783.8  | 775.5  | 775.5  |
| 27.5° | 8546.7  | 7245.9  | 3877.3 | 1617.6 | 1150.7 | 917.2  | 783.8  | 717.1  | 700.4  | 683.7  | 683.7  |
| 30°   | 9463.9  | 7896.3  | 3760.6 | 1726.0 | 1167.4 | 883.9  | 717.1  | 633.7  | 608.7  | 592.0  | 600.4  |
| 32.5° | 10514.5 | 8621.8  | 3752.2 | 1901.1 | 1192.4 | 833.8  | 642.0  | 550.3  | 525.3  | 517.0  | 525.3  |
| 35°   | 11706.9 | 9522.3  | 3944.0 | 2034.5 | 1125.7 | 725.4  | 550.3  | 475.3  | 450.3  | 450.3  | 458.6  |
| 37.5° | 13032.7 | 10556.2 | 4202.5 | 2001.2 | 908.9  | 575.3  | 475.3  | 416.9  | 391.9  | 400.2  | 408.6  |
| 40°   | 14241.8 | 11365.1 | 4244.2 | 1709.3 | 683.7  | 492.0  | 408.6  | 366.9  | 350.2  | 358.5  | 366.9  |
| 42.5° | 15159.0 | 12015.4 | 3843.9 | 1325.8 | 575.3  | 416.9  | 350.2  | 316.9  | 308.5  | 325.2  | 325.2  |
| 45°   | 15901.1 | 12273.9 | 3210.2 | 983.9  | 508.6  | 358.5  | 308.5  | 291.8  | 275.2  | 283.5  | 283.5  |
| 47.5° | 16676.5 | 12315.6 | 2618.2 | 792.1  | 450.3  | 325.2  | 283.5  | 266.8  | 250.1  | 250.1  | 250.1  |
| 50°   | 17427.0 | 12215.6 | 2001.2 | 700.4  | 416.9  | 291.8  | 258.5  | 241.8  | 225.1  | 216.8  | 216.8  |
| 52.5° | 17610.4 | 11415.1 | 1467.5 | 650.4  | 383.6  | 275.2  | 241.8  | 225.1  | 208.5  | 200.1  | 200.1  |
| 55°   | 17101.8 | 9897.5  | 1150.7 | 583.7  | 350.2  | 250.1  | 225.1  | 208.5  | 183.4  | 175.1  | 175.1  |
| 57.5° | 15425.8 | 7546.1  | 917.2  | 500.3  | 316.9  | 241.8  | 208.5  | 191.8  | 166.8  | 158.4  | 158.4  |
| 60°   | 13249.5 | 5353.2  | 742.1  | 408.6  | 291.8  | 216.8  | 191.8  | 166.8  | 150.1  | 133.4  | 133.4  |
| 62.5° | 10839.7 | 3843.9  | 600.4  | 341.9  | 275.2  | 191.8  | 175.1  | 150.1  | 116.7  | 91.7   | 91.7   |
| 65°   | 8313.2  | 2760.0  | 466.9  | 275.2  | 250.1  | 166.8  | 150.1  | 125.1  | 91.7   | 66.7   | 66.7   |
| 67.5° | 5378.2  | 1784.4  | 350.2  | 241.8  | 191.8  | 141.8  | 116.7  | 100.1  | 83.4   | 58.4   | 50.0   |
| 70°   | 2835.0  | 1042.3  | 258.5  | 208.5  | 141.8  | 108.4  | 100.1  | 83.4   | 66.7   | 41.7   | 41.7   |
| 72.5° | 1467.5  | 683.7   | 191.8  | 183.4  | 108.4  | 75.0   | 83.4   | 66.7   | 50.0   | 25.0   | 25.0   |
| 75°   | 942.2   | 458.6   | 141.8  | 150.1  | 66.7   | 58.4   | 58.4   | 41.7   | 25.0   | 16.7   | 8.3    |
| 77.5° | 608.7   | 308.5   | 100.1  | 125.1  | 41.7   | 33.4   | 33.4   | 16.7   | 8.3    | 0.0    | 0.0    |
| 80°   | 358.5   | 191.8   | 66.7   | 83.4   | 16.7   | 16.7   | 8.3    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 183.4   | 100.1   | 33.4   | 33.4   | 8.3    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 116.7   | 50.0    | 8.3    | 8.3    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 58.4    | 16.7    | 8.3    | 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    |

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

REPORT NUMBER: SP1-2407-184-7

| 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**

| $\lambda$<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               | 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**

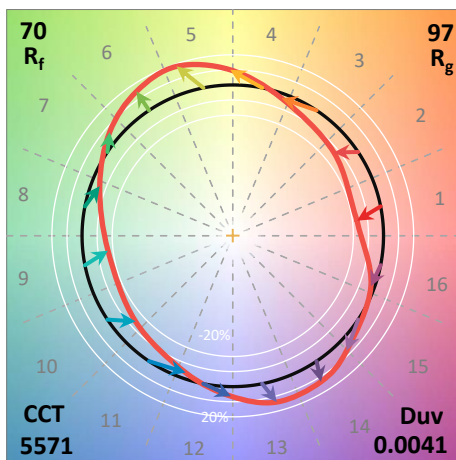
| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 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)