

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

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Peachtree City, GA 30269

Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: STREETWORKS

Report Number: P1457802

Luminaire Tested: GLAN-SB8D-830-U-T2LG-HSS

Issue Date: 05/20/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1457802  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 5/22/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: STREETWORKS  
Catalog Number: GLAN-SB8D-830-U-T2LG-HSS  
Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 900mA 8xLight Square PACKAGE 80CRI 3000K FIXTURE w/ TYPE II LOW GLARE WITH HOUSE SIDE SHIELD  
Light Source: (208) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

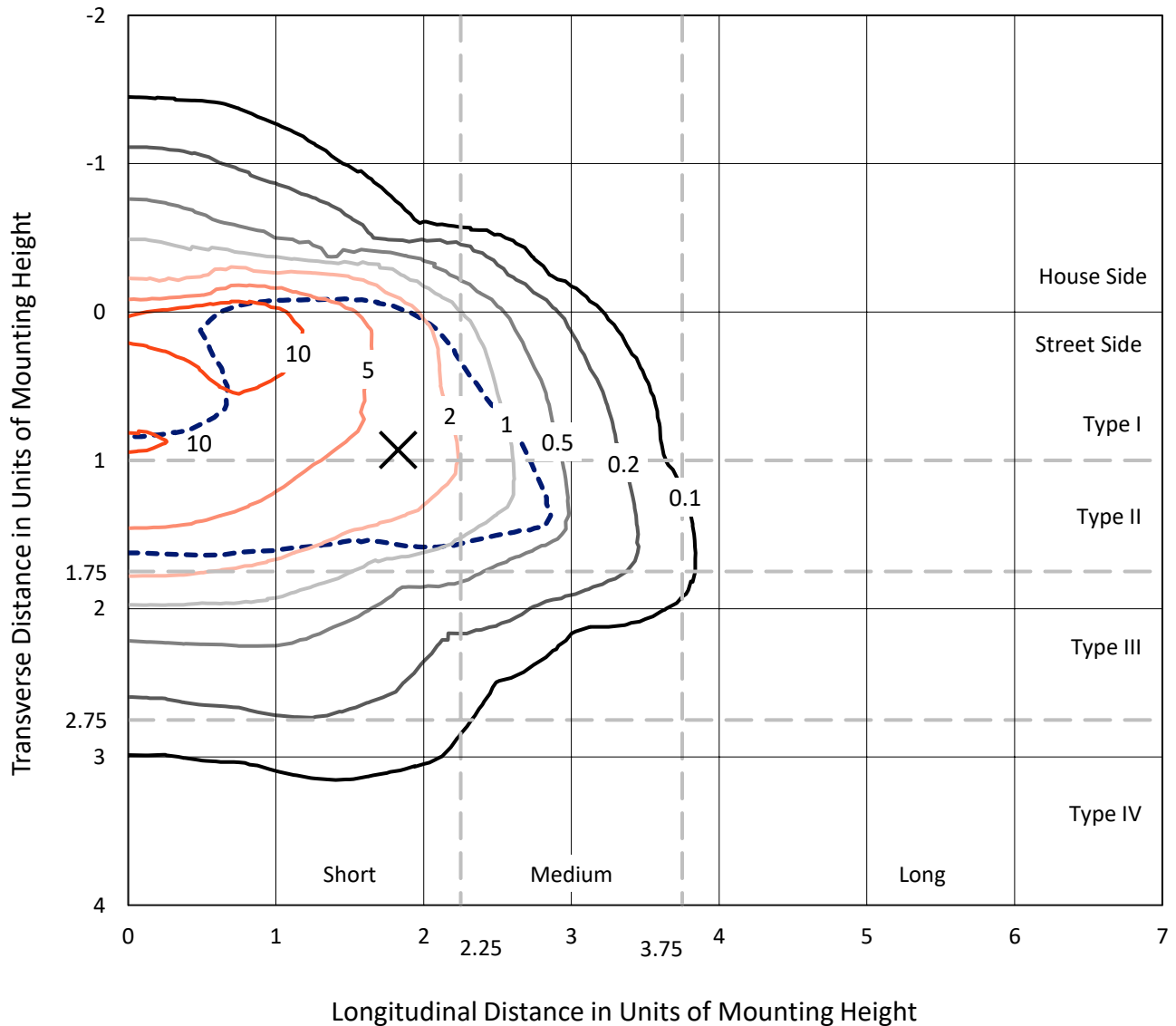
Lumens per Lamp: N/A  
Luminaire Lumens: 53536.7 lumens  
Efficiency: N/A  
Efficacy: 91.5 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B3 - U0 - G5

Input Watts (W): 584.9  
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: P1457802  
 CATALOG NUMBER: GLAN-SB8D-830-U-T2LG-HSS

### Iso-Footcandle Lines of Horizontal Illumination

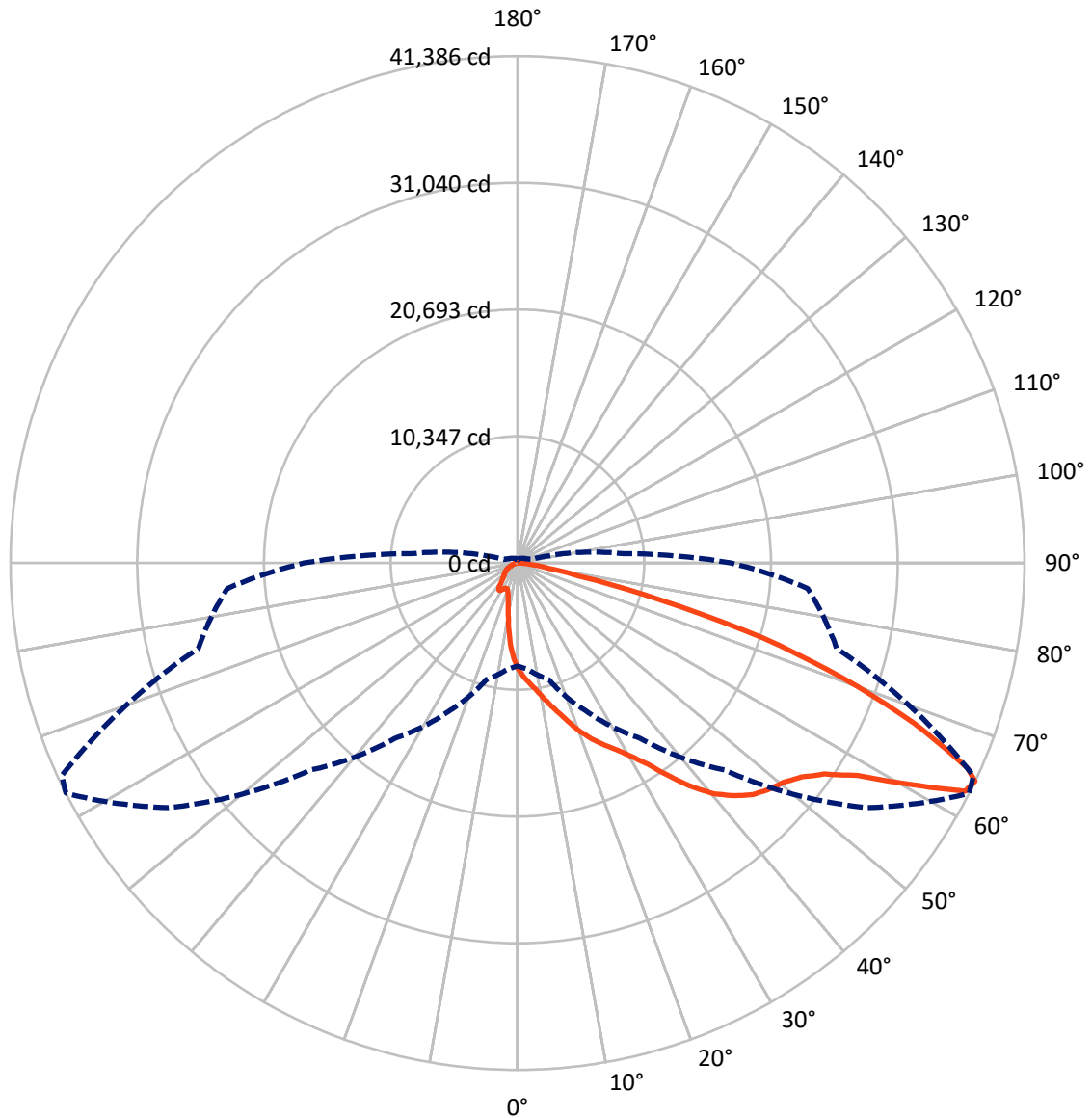
× Max cd  
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 17.1 fc  
 Type II - Short - N/A

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### Luminous Intensity Polar Plot



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

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 6353.1   | 0.0    | 6353.1  |
|                    | % Fixture | 11.9     | 0.0    | 11.9    |
| <b>Street Side</b> | Lumens    | 47183.6  | 0.0    | 47183.6 |
|                    | % Fixture | 88.1     | 0.0    | 88.1    |
| <b>Total</b>       | Lumens    | 53536.7  | 0.0    | 53536.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 728.9   | 1.4       |
| 10°-20°   | 2048.4  | 3.8       |
| 20°-30°   | 3648.3  | 6.8       |
| 30°-40°   | 6968.2  | 13.0      |
| 40°-50°   | 11550.2 | 21.6      |
| 50°-60°   | 14397.3 | 26.9      |
| 60°-70°   | 10735.6 | 20.1      |
| 70°-80°   | 3079.0  | 5.8       |
| 80°-90°   | 380.7   | 0.7       |
| 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°    | 53536.7 | 100.0     |
| 0°-180°   | 53536.7 | 100.0     |



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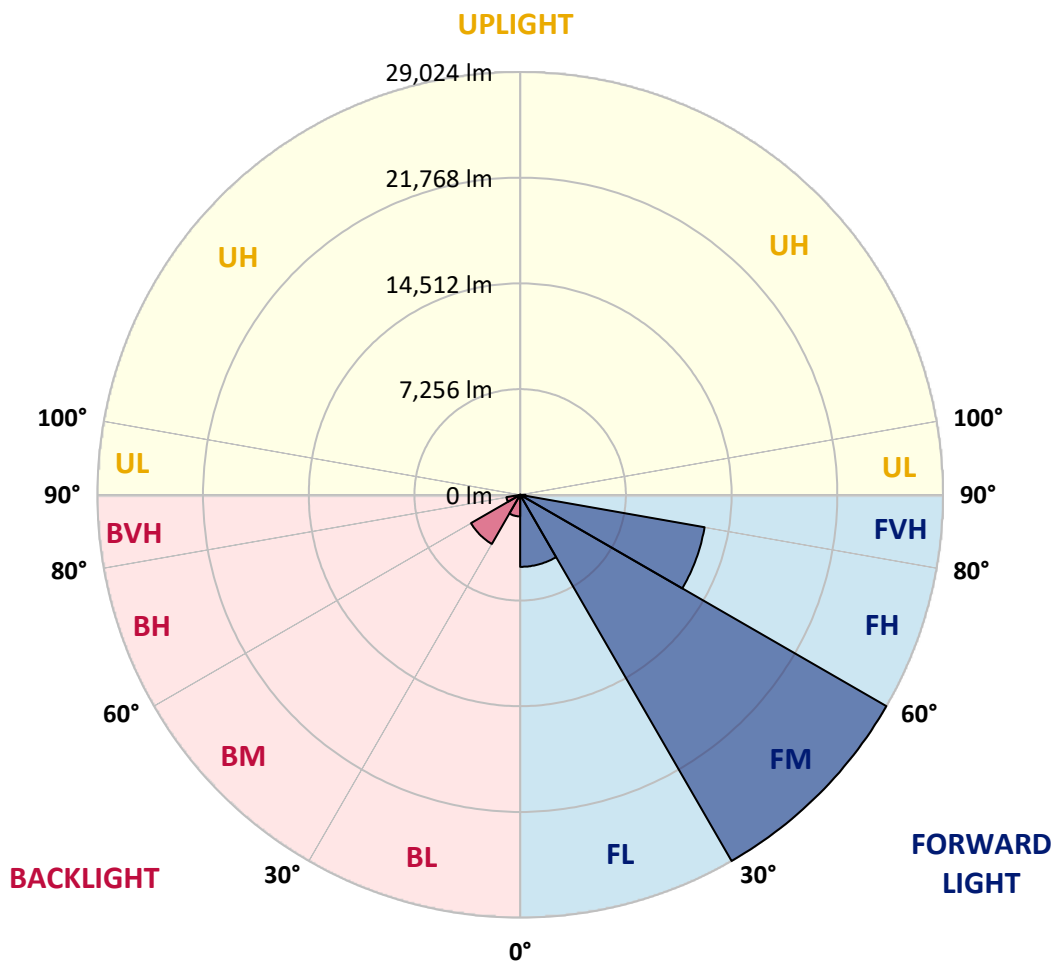
CATALOG NUMBER: GLAN-SB8D-830-U-T2LG-HSS

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

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|---------|-----------|-------------------------|------|---------|
|                |         |           | B                       | U    | G       |
| FL (0°-30°)    | 4943.4  | 9.2       |                         |      |         |
| FM (30°-60°)   | 29024.4 | 54.2      |                         |      |         |
| FH (60°-80°)   | 12853.7 | 24.0      |                         |      | G5      |
| FVH (80°-90°)  | 362.0   | 0.7       |                         |      | G3/500  |
| BL (0°-30°)    | 1482.2  | 2.8       | B3/2500                 |      |         |
| BM (30°-60°)   | 3891.3  | 7.3       | B3/5000                 |      |         |
| BH (60°-80°)   | 960.8   | 1.8       | B2/1000                 |      | G2/1000 |
| BVH (80°-90°)  | 18.7    | 0.0       |                         |      | G1/100  |
| UL (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0     | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G5**

Type II Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 63°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 8656.2  | 8656.2  | 8656.2  | 8656.2  | 8656.2  | 8656.2  | 8656.2  | 8656.2  | 8656.2  | 8656.2  | 8656.2  |
| 2.5°  | 9700.1  | 9668.0  | 9635.9  | 9587.7  | 9523.5  | 9459.2  | 9378.9  | 9266.5  | 9218.3  | 9057.7  | 8865.0  |
| 5°    | 10198.0 | 10198.0 | 10181.9 | 10149.8 | 10117.7 | 10053.4 | 9957.1  | 9812.5  | 9748.3  | 9523.5  | 9186.2  |
| 7.5°  | 10326.5 | 10342.5 | 10390.7 | 10454.9 | 10551.3 | 10535.2 | 10535.2 | 10374.6 | 10342.5 | 10101.6 | 9651.9  |
| 10°   | 10101.6 | 10117.7 | 10246.2 | 10422.8 | 10711.9 | 10984.9 | 11177.6 | 11081.3 | 11033.1 | 10792.2 | 10230.1 |
| 12.5° | 9780.4  | 9780.4  | 9989.2  | 10262.2 | 10711.9 | 11225.8 | 11787.9 | 11884.3 | 11900.3 | 11627.3 | 10952.8 |
| 15°   | 8945.3  | 8977.4  | 9314.7  | 9860.7  | 10599.5 | 11402.5 | 12350.0 | 12719.4 | 12815.7 | 12639.1 | 11836.1 |
| 17.5° | 7837.2  | 7869.3  | 8206.6  | 8945.3  | 10053.4 | 11402.5 | 12831.8 | 13683.0 | 13811.4 | 13843.6 | 12960.3 |
| 20°   | 7371.5  | 7371.5  | 7564.2  | 8126.3  | 9282.6  | 11097.3 | 13120.9 | 14710.8 | 14999.9 | 15353.2 | 14196.9 |
| 22.5° | 7435.7  | 7435.7  | 7548.1  | 7869.3  | 8800.8  | 10679.8 | 13297.5 | 15626.2 | 16220.4 | 17119.8 | 15786.8 |
| 25°   | 7789.0  | 7789.0  | 7885.4  | 8094.1  | 8849.0  | 10615.5 | 13634.8 | 16445.2 | 17392.8 | 19095.1 | 17601.5 |
| 27.5° | 8351.1  | 8335.0  | 8415.3  | 8624.1  | 9314.7  | 10920.7 | 14196.9 | 17264.3 | 18324.2 | 21311.4 | 19689.3 |
| 30°   | 9170.1  | 9122.0  | 9154.1  | 9395.0  | 10069.5 | 11627.3 | 15015.9 | 18308.2 | 19384.2 | 23736.4 | 22001.9 |
| 32.5° | 11065.2 | 11049.1 | 10583.4 | 10454.9 | 11177.6 | 12767.5 | 16140.1 | 19609.0 | 20813.5 | 26306.0 | 24378.8 |
| 35°   | 14485.9 | 14710.8 | 14052.3 | 12366.1 | 12510.6 | 14293.2 | 17746.1 | 21375.6 | 22483.7 | 29036.1 | 26964.4 |
| 37.5° | 17954.9 | 17954.9 | 17681.8 | 15690.4 | 14678.7 | 15979.5 | 19480.5 | 23190.4 | 24346.7 | 31236.3 | 29453.7 |
| 40°   | 20701.1 | 20845.6 | 20524.4 | 19030.9 | 17714.0 | 17906.7 | 21215.0 | 24780.3 | 25840.2 | 32585.3 | 31220.3 |
| 42.5° | 22740.7 | 22708.6 | 22580.1 | 21600.4 | 20861.7 | 20428.1 | 22788.9 | 25968.7 | 26980.5 | 33275.9 | 32328.4 |
| 45°   | 24940.9 | 24940.9 | 24764.2 | 23961.2 | 23351.0 | 22981.6 | 23961.2 | 26964.4 | 28024.4 | 33693.5 | 33019.0 |
| 47.5° | 27237.4 | 27205.3 | 27028.7 | 26145.4 | 25486.9 | 24940.9 | 25149.7 | 27606.8 | 28666.8 | 33420.5 | 33131.4 |
| 50°   | 27799.5 | 27767.4 | 28168.9 | 28201.0 | 27606.8 | 26562.9 | 26097.2 | 28152.8 | 29084.3 | 33436.5 | 33484.7 |
| 52.5° | 27141.1 | 27333.8 | 27928.0 | 28650.7 | 29325.2 | 28233.1 | 27109.0 | 29020.1 | 29983.7 | 33886.2 | 34368.0 |
| 55°   | 25503.0 | 25583.3 | 26723.5 | 27879.8 | 29453.7 | 29839.1 | 28731.0 | 30401.2 | 31252.4 | 34319.8 | 35154.9 |
| 57.5° | 22451.6 | 22756.7 | 23977.3 | 25984.8 | 28377.7 | 29983.7 | 31557.5 | 32713.8 | 33356.2 | 34496.5 | 34721.3 |
| 60°   | 16943.1 | 17103.7 | 19753.6 | 22355.3 | 26145.4 | 28827.4 | 34191.3 | 36632.4 | 36552.1 | 32505.0 | 31686.0 |
| 62.5° | 10310.4 | 10454.9 | 12350.0 | 16477.4 | 21247.1 | 26418.4 | 35074.6 | 41016.7 | 40583.1 | 29148.5 | 26675.3 |
| 64°   | 8399.3  | 8672.3  | 9844.7  | 13377.8 | 17473.1 | 23897.0 | 34817.7 | 41386.1 | 41048.9 | 26980.5 | 23768.5 |
| 65°   | 7178.7  | 7548.1  | 8752.6  | 11611.2 | 14855.3 | 21182.9 | 34111.0 | 40358.3 | 40133.5 | 25663.6 | 21359.5 |
| 67.5° | 4512.8  | 4689.5  | 6472.1  | 9025.6  | 10230.1 | 13554.5 | 29325.2 | 34898.0 | 35299.5 | 22869.2 | 15754.7 |
| 70°   | 3356.5  | 3436.8  | 4448.6  | 6986.0  | 7981.7  | 7885.4  | 20139.0 | 28265.3 | 28361.6 | 18292.1 | 9507.4  |
| 72.5° | 2441.1  | 2457.2  | 3115.6  | 5171.3  | 6247.3  | 5380.0  | 10615.5 | 21006.2 | 20315.7 | 10711.9 | 5187.3  |
| 75°   | 1622.0  | 1686.3  | 2184.1  | 3645.6  | 4866.1  | 3950.7  | 4834.0  | 11964.6 | 11755.8 | 5235.5  | 2971.1  |
| 77.5° | 1188.4  | 1204.5  | 1477.5  | 2441.1  | 3822.2  | 2906.8  | 2922.9  | 5155.2  | 5315.8  | 3115.6  | 1879.0  |
| 80°   | 674.5   | 706.6   | 963.6   | 1493.6  | 2489.3  | 1991.4  | 1638.1  | 2489.3  | 2858.6  | 2119.9  | 1252.7  |
| 82.5° | 401.5   | 433.6   | 690.6   | 979.6   | 1702.3  | 819.1   | 835.1   | 1365.1  | 1702.3  | 1525.7  | 674.5   |
| 85°   | 240.9   | 257.0   | 433.6   | 530.0   | 1011.8  | 546.0   | 305.1   | 674.5   | 883.3   | 899.3   | 369.4   |
| 87.5° | 160.6   | 160.6   | 240.9   | 224.8   | 289.1   | 257.0   | 128.5   | 176.7   | 224.8   | 305.1   | 144.5   |
| 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: P1457802

CATALOG NUMBER: GLAN-SB8D-830-U-T2LG-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 8656.2  | 8656.2  | 8656.2 | 8656.2 | 8656.2 | 8656.2 | 8656.2 | 8656.2 | 8656.2 | 8656.2 | 8656.2 |
| 2.5°  | 8704.4  | 8608.1  | 8319.0 | 7933.5 | 7580.2 | 7307.2 | 6970.0 | 6745.1 | 6536.3 | 6536.3 | 6359.7 |
| 5°    | 8913.2  | 8656.2  | 7949.6 | 7066.3 | 6118.8 | 5219.4 | 4641.3 | 3998.9 | 3790.1 | 3613.5 | 3645.6 |
| 7.5°  | 9266.5  | 8800.8  | 7548.1 | 5958.2 | 4448.6 | 3485.0 | 2842.6 | 2553.5 | 2425.0 | 2344.7 | 2360.8 |
| 10°   | 9700.1  | 9057.7  | 7066.3 | 4834.0 | 3276.2 | 2553.5 | 2248.4 | 2136.0 | 2087.8 | 2071.7 | 2071.7 |
| 12.5° | 10294.3 | 9362.9  | 6584.5 | 3886.5 | 2585.6 | 2200.2 | 2039.6 | 1975.4 | 1927.2 | 1895.1 | 1895.1 |
| 15°   | 11001.0 | 9748.3  | 6022.4 | 3195.9 | 2264.4 | 2023.5 | 1895.1 | 1830.8 | 1766.6 | 1750.5 | 1750.5 |
| 17.5° | 11900.3 | 10149.8 | 5524.6 | 2746.2 | 2103.8 | 1895.1 | 1766.6 | 1686.3 | 1638.1 | 1622.0 | 1622.0 |
| 20°   | 12896.0 | 10647.7 | 5026.7 | 2489.3 | 1991.4 | 1766.6 | 1638.1 | 1573.9 | 1525.7 | 1493.6 | 1509.6 |
| 22.5° | 14164.7 | 11274.0 | 4705.5 | 2360.8 | 1895.1 | 1654.2 | 1525.7 | 1461.4 | 1413.3 | 1381.1 | 1397.2 |
| 25°   | 15562.0 | 12060.9 | 4528.9 | 2360.8 | 1830.8 | 1573.9 | 1429.3 | 1365.1 | 1316.9 | 1284.8 | 1284.8 |
| 27.5° | 17264.3 | 12944.2 | 4544.9 | 2457.2 | 1814.8 | 1509.6 | 1349.0 | 1284.8 | 1236.6 | 1188.4 | 1188.4 |
| 30°   | 19143.3 | 13988.1 | 4721.6 | 2633.8 | 1846.9 | 1445.4 | 1284.8 | 1188.4 | 1156.3 | 1108.1 | 1108.1 |
| 32.5° | 21134.7 | 15192.6 | 5171.3 | 2858.6 | 1814.8 | 1365.1 | 1188.4 | 1108.1 | 1059.9 | 1027.8 | 1027.8 |
| 35°   | 23238.5 | 16557.7 | 5733.4 | 2955.0 | 1654.2 | 1252.7 | 1108.1 | 1027.8 | 995.7  | 979.6  | 963.6  |
| 37.5° | 25246.0 | 17746.1 | 6038.5 | 2762.3 | 1445.4 | 1156.3 | 1011.8 | 931.5  | 915.4  | 883.3  | 883.3  |
| 40°   | 26803.8 | 18725.7 | 5861.8 | 2360.8 | 1333.0 | 1059.9 | 931.5  | 851.2  | 819.1  | 786.9  | 786.9  |
| 42.5° | 27719.2 | 19079.0 | 5219.4 | 2007.5 | 1252.7 | 963.6  | 851.2  | 770.9  | 738.8  | 722.7  | 722.7  |
| 45°   | 28249.2 | 19030.9 | 4464.6 | 1798.7 | 1172.4 | 883.3  | 770.9  | 722.7  | 674.5  | 658.5  | 642.4  |
| 47.5° | 28233.1 | 18533.0 | 3918.6 | 1622.0 | 1092.1 | 819.1  | 722.7  | 674.5  | 626.3  | 610.3  | 610.3  |
| 50°   | 28120.7 | 17794.3 | 3308.3 | 1493.6 | 1027.8 | 770.9  | 674.5  | 642.4  | 594.2  | 578.2  | 562.1  |
| 52.5° | 28393.7 | 17376.7 | 2762.3 | 1413.3 | 947.5  | 738.8  | 658.5  | 610.3  | 546.0  | 530.0  | 530.0  |
| 55°   | 28731.0 | 17135.8 | 2216.3 | 1333.0 | 883.3  | 722.7  | 626.3  | 578.2  | 513.9  | 497.9  | 497.9  |
| 57.5° | 27751.3 | 16220.4 | 1830.8 | 1204.5 | 803.0  | 690.6  | 594.2  | 562.1  | 497.9  | 449.7  | 449.7  |
| 60°   | 24667.9 | 13409.9 | 1509.6 | 1059.9 | 738.8  | 642.4  | 562.1  | 513.9  | 449.7  | 385.4  | 385.4  |
| 62.5° | 20058.7 | 10230.1 | 1252.7 | 899.3  | 690.6  | 594.2  | 513.9  | 465.7  | 385.4  | 305.1  | 305.1  |
| 64°   | 17424.9 | 8688.4  | 1124.2 | 786.9  | 658.5  | 546.0  | 465.7  | 417.6  | 337.3  | 257.0  | 240.9  |
| 65°   | 15626.2 | 7676.6  | 1043.9 | 738.8  | 642.4  | 513.9  | 449.7  | 401.5  | 305.1  | 240.9  | 224.8  |
| 67.5° | 11001.0 | 5155.2  | 835.1  | 610.3  | 562.1  | 433.6  | 385.4  | 337.3  | 273.0  | 208.8  | 192.7  |
| 70°   | 6407.9  | 2922.9  | 658.5  | 513.9  | 433.6  | 337.3  | 321.2  | 305.1  | 240.9  | 160.6  | 160.6  |
| 72.5° | 3485.0  | 1461.4  | 497.9  | 417.6  | 337.3  | 240.9  | 273.0  | 240.9  | 192.7  | 128.5  | 112.4  |
| 75°   | 2136.0  | 899.3   | 369.4  | 305.1  | 224.8  | 176.7  | 208.8  | 176.7  | 112.4  | 80.3   | 64.2   |
| 77.5° | 1429.3  | 578.2   | 273.0  | 208.8  | 144.5  | 112.4  | 144.5  | 96.4   | 48.2   | 16.1   | 16.1   |
| 80°   | 883.3   | 401.5   | 176.7  | 128.5  | 80.3   | 48.2   | 32.1   | 16.1   | 16.1   | 0.0    | 0.0    |
| 82.5° | 385.4   | 257.0   | 96.4   | 64.2   | 32.1   | 16.1   | 16.1   | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 208.8   | 80.3    | 32.1   | 16.1   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 64.2    | 32.1    | 16.1   | 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: SP1-2407-184-9

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-830-U-5WQ

Data in this report applies to families of products including GSS-SB1A-830-U-5WQ

**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-9  
 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-830-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI 3000K CCT 26 LEDS

**Spectral Parameters**

CCT (K): 3055  
 CIE u': 0.2475  
 CIE v': 0.5247  
 Duv: 0.0032  
 CIE x: 0.4377  
 CIE y: 0.4124  
 CIE z: 0.1499  
 Peak Wavelength (nm): 604  
 Dominant Wavelength (nm): 581  
 Purity: 55.16339  
 Rf: 81.5  
 Rg: 99.2

|           |      |      |      |
|-----------|------|------|------|
| CRI (Ra): | 80.9 |      |      |
| R1:       | 79.5 | R9:  | 6.8  |
| R2:       | 85.6 | R10: | 67.1 |
| R3:       | 92.1 | R11: | 82.5 |
| R4:       | 82.4 | R12: | 63.4 |
| R5:       | 78.9 | R13: | 80.2 |
| R6:       | 81.7 | R14: | 95.1 |
| R7:       | 85.1 | R15: | 71.7 |
| R8:       | 61.9 |      |      |



**Test Conditions**

Stabilization Time: 20M  
 Operation Time: 1H 20M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-9

| 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 3000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

| $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | $\lambda$ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|----------------|--------------------------|---------------|----------------|--------------------------|---------------|----------------|--------------------------|---------------|----------------|--------------------------|---------------|----------------|--------------------------|---------------|
| 360            | 0                        | NR            | 490            | 170                      | NR            | 620            | 938                      | NR            | 750            | 35                       | NR            | 880            | 1                        | NR            |
| 365            | 0                        | NR            | 495            | 234                      | NR            | 625            | 894                      | NR            | 755            | 30                       | NR            | 885            | 1                        | NR            |
| 370            | 0                        | NR            | 500            | 302                      | NR            | 630            | 847                      | NR            | 760            | 26                       | NR            | 890            | 1                        | NR            |
| 375            | 0                        | NR            | 505            | 371                      | NR            | 635            | 788                      | NR            | 765            | 22                       | NR            | 895            | 1                        | NR            |
| 380            | 0                        | NR            | 510            | 431                      | NR            | 640            | 728                      | NR            | 770            | 19                       | NR            | 900            | 1                        | NR            |
| 385            | 0                        | NR            | 515            | 482                      | NR            | 645            | 665                      | NR            | 775            | 16                       | NR            | 905            | 1                        | NR            |
| 390            | 0                        | NR            | 520            | 523                      | NR            | 650            | 603                      | NR            | 780            | 14                       | NR            | 910            | 0                        | NR            |
| 395            | 2                        | NR            | 525            | 553                      | NR            | 655            | 542                      | NR            | 785            | 12                       | NR            | 915            | 0                        | NR            |
| 400            | 4                        | NR            | 530            | 580                      | NR            | 660            | 484                      | NR            | 790            | 11                       | NR            | 920            | 0                        | NR            |
| 405            | 8                        | NR            | 535            | 603                      | NR            | 665            | 430                      | NR            | 795            | 9                        | NR            | 925            | 0                        | NR            |
| 410            | 18                       | NR            | 540            | 622                      | NR            | 670            | 377                      | NR            | 800            | 8                        | NR            | 930            | 0                        | NR            |
| 415            | 36                       | NR            | 545            | 644                      | NR            | 675            | 330                      | NR            | 805            | 7                        | NR            | 935            | 0                        | NR            |
| 420            | 71                       | NR            | 550            | 668                      | NR            | 680            | 289                      | NR            | 810            | 6                        | NR            | 940            | 0                        | NR            |
| 425            | 131                      | NR            | 555            | 693                      | NR            | 685            | 250                      | NR            | 815            | 5                        | NR            | 945            | 0                        | NR            |
| 430            | 215                      | NR            | 560            | 720                      | NR            | 690            | 218                      | NR            | 820            | 4                        | NR            | 950            | 0                        | NR            |
| 435            | 341                      | NR            | 565            | 754                      | NR            | 695            | 188                      | NR            | 825            | 4                        | NR            | 955            | 0                        | NR            |
| 440            | 514                      | NR            | 570            | 792                      | NR            | 700            | 161                      | NR            | 830            | 3                        | NR            | 960            | 0                        | NR            |
| 445            | 576                      | NR            | 575            | 832                      | NR            | 705            | 139                      | NR            | 835            | 3                        | NR            | 965            | 0                        | NR            |
| 450            | 358                      | NR            | 580            | 875                      | NR            | 710            | 119                      | NR            | 840            | 3                        | NR            | 970            | 0                        | NR            |
| 455            | 222                      | NR            | 585            | 913                      | NR            | 715            | 102                      | NR            | 845            | 2                        | NR            | 975            | 0                        | NR            |
| 460            | 170                      | NR            | 590            | 950                      | NR            | 720            | 88                       | NR            | 850            | 2                        | NR            | 980            | 0                        | NR            |
| 465            | 115                      | NR            | 595            | 977                      | NR            | 725            | 76                       | NR            | 855            | 2                        | NR            | 985            | 0                        | NR            |
| 470            | 88                       | NR            | 600            | 994                      | NR            | 730            | 65                       | NR            | 860            | 1                        | NR            | 990            | 0                        | NR            |
| 475            | 87                       | NR            | 605            | 997                      | NR            | 735            | 56                       | NR            | 865            | 1                        | NR            | 995            | 0                        | NR            |
| 480            | 96                       | NR            | 610            | 990                      | NR            | 740            | 47                       | NR            | 870            | 1                        | NR            | 1000           | 0                        | NR            |
| 485            | 122                      | NR            | 615            | 971                      | NR            | 745            | 41                       | NR            | 875            | 1                        | NR            |                |                          |               |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.28**

| $\lambda$ (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            | 170                      | NR                   | 620            | 938                      | NR                   | 750            | 35                       | NR                   | 880            | 1                        | NR                   |
| 365            | 0                        | NR                   | 495            | 234                      | NR                   | 625            | 894                      | NR                   | 755            | 30                       | NR                   | 885            | 1                        | NR                   |
| 370            | 0                        | NR                   | 500            | 302                      | NR                   | 630            | 847                      | NR                   | 760            | 26                       | NR                   | 890            | 1                        | NR                   |
| 375            | 0                        | NR                   | 505            | 371                      | NR                   | 635            | 788                      | NR                   | 765            | 22                       | NR                   | 895            | 1                        | NR                   |
| 380            | 0                        | NR                   | 510            | 431                      | NR                   | 640            | 728                      | NR                   | 770            | 19                       | NR                   | 900            | 1                        | NR                   |
| 385            | 0                        | NR                   | 515            | 482                      | NR                   | 645            | 665                      | NR                   | 775            | 16                       | NR                   | 905            | 1                        | NR                   |
| 390            | 0                        | NR                   | 520            | 523                      | NR                   | 650            | 603                      | NR                   | 780            | 14                       | NR                   | 910            | 0                        | NR                   |
| 395            | 2                        | NR                   | 525            | 553                      | NR                   | 655            | 542                      | NR                   | 785            | 12                       | NR                   | 915            | 0                        | NR                   |
| 400            | 4                        | NR                   | 530            | 580                      | NR                   | 660            | 484                      | NR                   | 790            | 11                       | NR                   | 920            | 0                        | NR                   |
| 405            | 8                        | NR                   | 535            | 603                      | NR                   | 665            | 430                      | NR                   | 795            | 9                        | NR                   | 925            | 0                        | NR                   |
| 410            | 18                       | NR                   | 540            | 622                      | NR                   | 670            | 377                      | NR                   | 800            | 8                        | NR                   | 930            | 0                        | NR                   |
| 415            | 36                       | NR                   | 545            | 644                      | NR                   | 675            | 330                      | NR                   | 805            | 7                        | NR                   | 935            | 0                        | NR                   |
| 420            | 71                       | NR                   | 550            | 668                      | NR                   | 680            | 289                      | NR                   | 810            | 6                        | NR                   | 940            | 0                        | NR                   |
| 425            | 131                      | NR                   | 555            | 693                      | NR                   | 685            | 250                      | NR                   | 815            | 5                        | NR                   | 945            | 0                        | NR                   |
| 430            | 215                      | NR                   | 560            | 720                      | NR                   | 690            | 218                      | NR                   | 820            | 4                        | NR                   | 950            | 0                        | NR                   |
| 435            | 341                      | NR                   | 565            | 754                      | NR                   | 695            | 188                      | NR                   | 825            | 4                        | NR                   | 955            | 0                        | NR                   |
| 440            | 514                      | NR                   | 570            | 792                      | NR                   | 700            | 161                      | NR                   | 830            | 3                        | NR                   | 960            | 0                        | NR                   |
| 445            | 576                      | NR                   | 575            | 832                      | NR                   | 705            | 139                      | NR                   | 835            | 3                        | NR                   | 965            | 0                        | NR                   |
| 450            | 358                      | NR                   | 580            | 875                      | NR                   | 710            | 119                      | NR                   | 840            | 3                        | NR                   | 970            | 0                        | NR                   |
| 455            | 222                      | NR                   | 585            | 913                      | NR                   | 715            | 102                      | NR                   | 845            | 2                        | NR                   | 975            | 0                        | NR                   |
| 460            | 170                      | NR                   | 590            | 950                      | NR                   | 720            | 88                       | NR                   | 850            | 2                        | NR                   | 980            | 0                        | NR                   |
| 465            | 115                      | NR                   | 595            | 977                      | NR                   | 725            | 76                       | NR                   | 855            | 2                        | NR                   | 985            | 0                        | NR                   |
| 470            | 88                       | NR                   | 600            | 994                      | NR                   | 730            | 65                       | NR                   | 860            | 1                        | NR                   | 990            | 0                        | NR                   |
| 475            | 87                       | NR                   | 605            | 997                      | NR                   | 735            | 56                       | NR                   | 865            | 1                        | NR                   | 995            | 0                        | NR                   |
| 480            | 96                       | NR                   | 610            | 990                      | NR                   | 740            | 47                       | NR                   | 870            | 1                        | NR                   | 1000           | 0                        | NR                   |
| 485            | 122                      | NR                   | 615            | 971                      | NR                   | 745            | 41                       | NR                   | 875            | 1                        | NR                   |                |                          |                      |

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.33

| 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    | 170                      | NR            | 620    | 938                      | NR            | 750    | 35                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 234                      | NR            | 625    | 894                      | NR            | 755    | 30                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 302                      | NR            | 630    | 847                      | NR            | 760    | 26                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 371                      | NR            | 635    | 788                      | NR            | 765    | 22                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 431                      | NR            | 640    | 728                      | NR            | 770    | 19                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 482                      | NR            | 645    | 665                      | NR            | 775    | 16                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 523                      | NR            | 650    | 603                      | NR            | 780    | 14                       | NR            | 910    | 0                        | NR            |
| 395    | 2                        | NR            | 525    | 553                      | NR            | 655    | 542                      | NR            | 785    | 12                       | NR            | 915    | 0                        | NR            |
| 400    | 4                        | NR            | 530    | 580                      | NR            | 660    | 484                      | NR            | 790    | 11                       | NR            | 920    | 0                        | NR            |
| 405    | 8                        | NR            | 535    | 603                      | NR            | 665    | 430                      | NR            | 795    | 9                        | NR            | 925    | 0                        | NR            |
| 410    | 18                       | NR            | 540    | 622                      | NR            | 670    | 377                      | NR            | 800    | 8                        | NR            | 930    | 0                        | NR            |
| 415    | 36                       | NR            | 545    | 644                      | NR            | 675    | 330                      | NR            | 805    | 7                        | NR            | 935    | 0                        | NR            |
| 420    | 71                       | NR            | 550    | 668                      | NR            | 680    | 289                      | NR            | 810    | 6                        | NR            | 940    | 0                        | NR            |
| 425    | 131                      | NR            | 555    | 693                      | NR            | 685    | 250                      | NR            | 815    | 5                        | NR            | 945    | 0                        | NR            |
| 430    | 215                      | NR            | 560    | 720                      | NR            | 690    | 218                      | NR            | 820    | 4                        | NR            | 950    | 0                        | NR            |
| 435    | 341                      | NR            | 565    | 754                      | NR            | 695    | 188                      | NR            | 825    | 4                        | NR            | 955    | 0                        | NR            |
| 440    | 514                      | NR            | 570    | 792                      | NR            | 700    | 161                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 576                      | NR            | 575    | 832                      | NR            | 705    | 139                      | NR            | 835    | 3                        | NR            | 965    | 0                        | NR            |
| 450    | 358                      | NR            | 580    | 875                      | NR            | 710    | 119                      | NR            | 840    | 3                        | NR            | 970    | 0                        | NR            |
| 455    | 222                      | NR            | 585    | 913                      | NR            | 715    | 102                      | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 170                      | NR            | 590    | 950                      | NR            | 720    | 88                       | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 115                      | NR            | 595    | 977                      | NR            | 725    | 76                       | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 88                       | NR            | 600    | 994                      | NR            | 730    | 65                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 87                       | NR            | 605    | 997                      | NR            | 735    | 56                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 96                       | NR            | 610    | 990                      | NR            | 740    | 47                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 122                      | NR            | 615    | 971                      | NR            | 745    | 41                       | NR            | 875    | 1                        | NR            |        |                          |               |

**Summary**

$R_f = 81.5$   
 $R_g = 99.2$   
 $CIE R_a = 80.9$   
 $R_9 = 6.8$

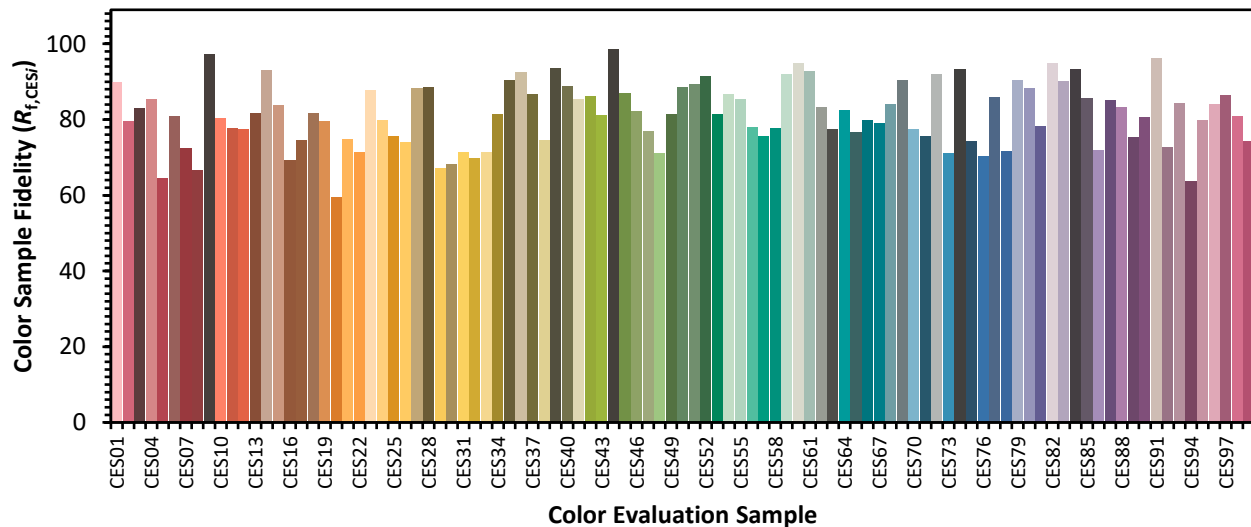


**Color Vector Graphics**



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 91 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 93 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 90 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 77 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)