

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



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

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: STREETWORKS

Report Number: P1064181

Luminaire Tested: **GLAN-SA6A-830-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1064181  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA6A-830-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 6xLight Square PACKAGE  
80CRI 3000K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (84) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 19420.3 lumens  
Efficiency: N/A  
Efficacy: 119.2 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 162.9  
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

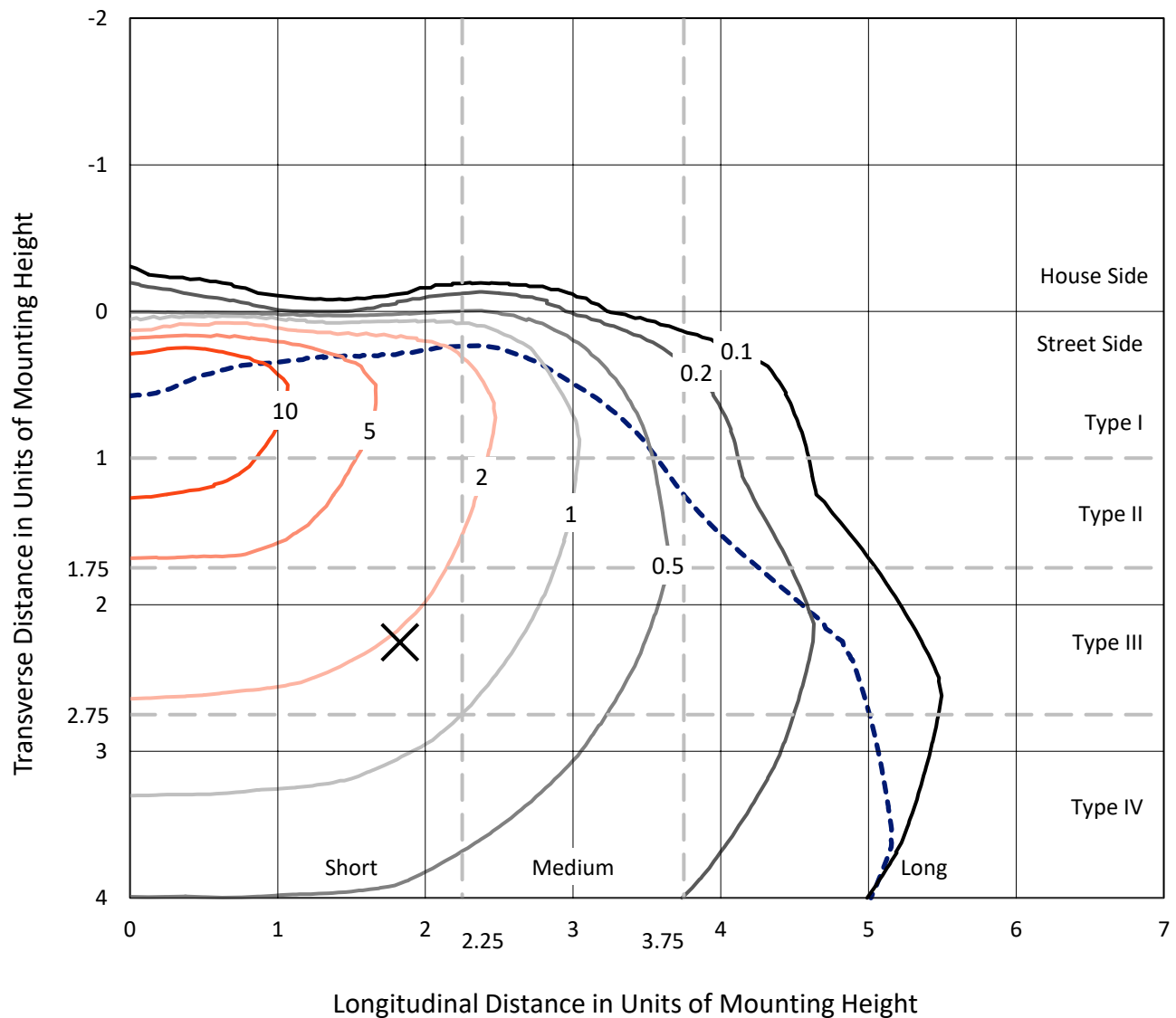


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

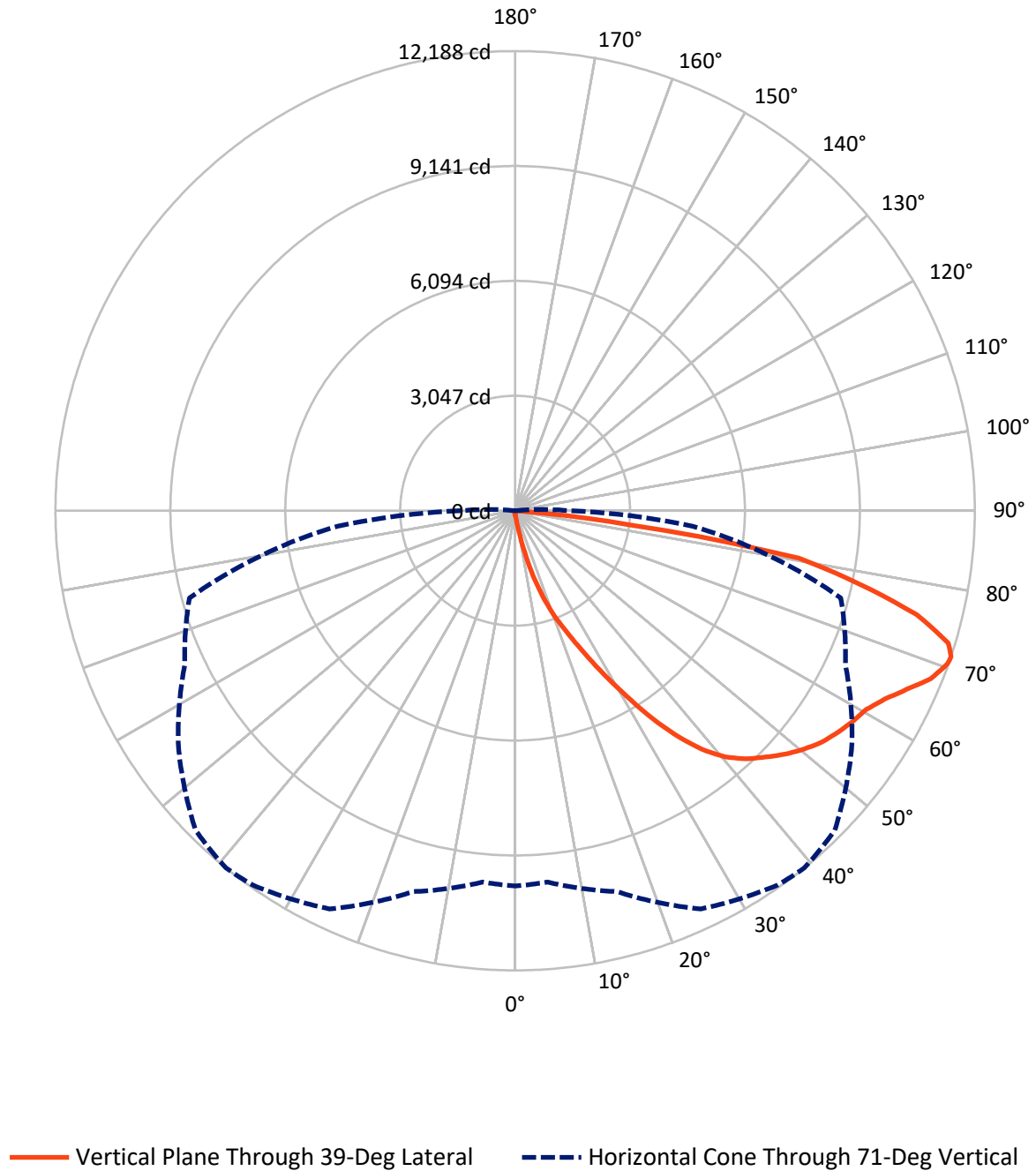


Based on 15 foot mounting height. Maximum calculated value = 20 fc  
 Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 69.0     | 0.0    | 69.0    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 19351.3  | 0.0    | 19351.3 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 19420.3  | 0.0    | 19420.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 16.2    | 0.1       |
| 10°-20°   | 207.6   | 1.1       |
| 20°-30°   | 739.2   | 3.8       |
| 30°-40°   | 1781.5  | 9.2       |
| 40°-50°   | 2981.5  | 15.4      |
| 50°-60°   | 3829.4  | 19.7      |
| 60°-70°   | 4846.1  | 25.0      |
| 70°-80°   | 4320.5  | 22.2      |
| 80°-90°   | 698.4   | 3.6       |
| 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°    | 19420.3 | 100.0     |
| 0°-180°   | 19420.3 | 100.0     |



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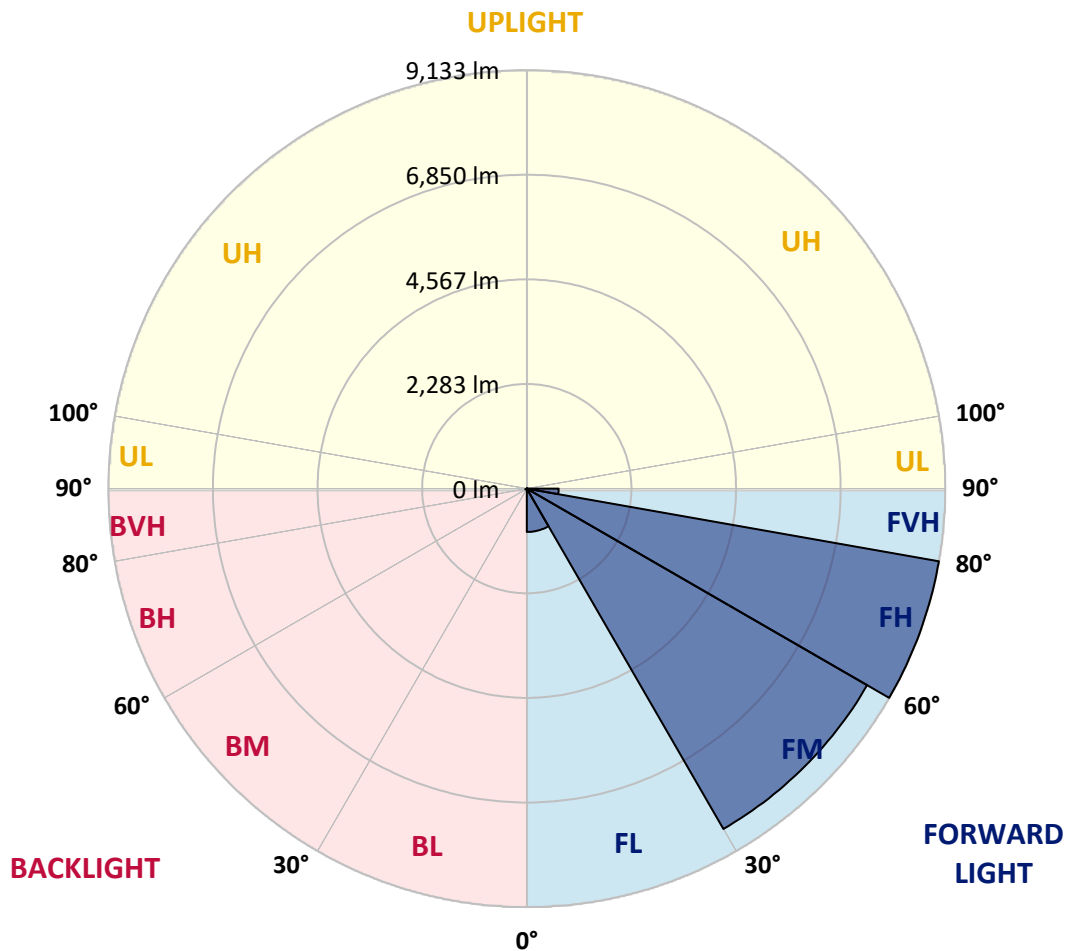
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|--------|-----------|-------------------------|------|----------|
|      |             |        |           | B                       | U    | G        |
| FL   | (0°-30°)    | 946.3  | 4.9       |                         |      |          |
| FM   | (30°-60°)   | 8576.4 | 44.2      |                         |      |          |
| FH   | (60°-80°)   | 9133.4 | 47.0      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 695.2  | 3.6       |                         |      | G4/750   |
| BL   | (0°-30°)    | 16.7   | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 16.0   | 0.1       | B0/220                  |      |          |
| BH   | (60°-80°)   | 33.2   | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 3.2    | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |          |

**BUG Rating: B0-U0-G4**

Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 39°     | 45°     | 55°     | 65°     | 75°    | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|--------|
| 0°    | 106.5   | 106.5   | 106.5   | 106.5   | 106.5   | 106.5   | 106.5   | 106.5   | 106.5   | 106.5  | 106.5  |
| 2.5°  | 122.3   | 122.3   | 122.3   | 118.3   | 118.3   | 117.0   | 115.7   | 115.7   | 113.1   | 111.7  | 109.1  |
| 5°    | 185.4   | 181.4   | 172.2   | 167.0   | 156.4   | 149.9   | 143.3   | 134.1   | 124.9   | 118.3  | 110.4  |
| 7.5°  | 419.4   | 428.6   | 398.3   | 341.8   | 284.0   | 259.0   | 216.9   | 174.8   | 144.6   | 124.9  | 111.7  |
| 10°   | 1068.8  | 1063.6  | 961.0   | 848.0   | 654.7   | 577.1   | 452.2   | 285.3   | 186.7   | 136.7  | 113.1  |
| 12.5° | 1818.2  | 1812.9  | 1692.0  | 1538.1  | 1283.1  | 1121.4  | 884.8   | 532.4   | 268.2   | 155.1  | 113.1  |
| 15°   | 2447.9  | 2426.8  | 2388.7  | 2236.2  | 1937.8  | 1802.4  | 1489.5  | 941.3   | 433.8   | 186.7  | 115.7  |
| 17.5° | 2864.6  | 2846.2  | 2810.7  | 2755.5  | 2566.2  | 2405.8  | 2154.7  | 1479.0  | 702.0   | 241.9  | 120.9  |
| 20°   | 3247.2  | 3234.0  | 3205.1  | 3194.6  | 3072.3  | 2986.9  | 2779.2  | 2096.9  | 1093.8  | 328.7  | 128.8  |
| 22.5° | 3773.1  | 3745.4  | 3757.3  | 3694.2  | 3574.5  | 3472.0  | 3344.5  | 2743.7  | 1572.3  | 473.3  | 143.3  |
| 25°   | 4417.2  | 4404.1  | 4371.2  | 4326.5  | 4160.9  | 4071.5  | 3875.6  | 3353.7  | 2107.4  | 662.6  | 159.1  |
| 27.5° | 5195.5  | 5181.0  | 5173.2  | 5070.6  | 4880.0  | 4782.7  | 4509.3  | 3929.5  | 2709.5  | 928.1  | 180.1  |
| 30°   | 6092.1  | 6098.7  | 6047.4  | 5915.9  | 5693.8  | 5557.0  | 5275.7  | 4532.9  | 3326.1  | 1239.7 | 202.5  |
| 32.5° | 7020.2  | 7007.1  | 6928.2  | 6773.1  | 6574.6  | 6447.1  | 6089.5  | 5194.2  | 3972.9  | 1651.2 | 228.7  |
| 35°   | 8020.7  | 7995.7  | 7788.0  | 7610.5  | 7440.9  | 7280.5  | 6954.5  | 5962.0  | 4619.7  | 2112.6 | 264.2  |
| 37.5° | 9030.4  | 8913.3  | 8496.6  | 8271.8  | 8154.8  | 8023.3  | 7719.6  | 6781.0  | 5262.6  | 2628.0 | 307.6  |
| 40°   | 9792.9  | 9702.1  | 9207.8  | 8793.7  | 8700.4  | 8588.6  | 8362.5  | 7488.3  | 5946.2  | 3181.5 | 360.2  |
| 42.5° | 10214.9 | 10164.9 | 9720.5  | 9311.7  | 9092.1  | 8993.5  | 8800.3  | 8106.2  | 6621.9  | 3792.8 | 436.5  |
| 45°   | 10395.0 | 10317.4 | 10020.3 | 9829.7  | 9480.0  | 9316.9  | 9086.9  | 8572.9  | 7327.9  | 4486.9 | 543.0  |
| 47.5° | 10339.7 | 10295.0 | 10082.1 | 10151.8 | 9898.0  | 9644.3  | 9306.4  | 8930.4  | 7931.3  | 5283.6 | 688.9  |
| 50°   | 9992.7  | 9954.6  | 9888.8  | 10266.1 | 10234.6 | 9934.8  | 9590.4  | 9213.1  | 8424.3  | 6105.2 | 915.0  |
| 52.5° | 9332.7  | 9316.9  | 9485.2  | 10176.7 | 10425.2 | 10191.2 | 9863.8  | 9462.9  | 8884.4  | 6963.7 | 1238.4 |
| 55°   | 8482.1  | 8546.6  | 9027.7  | 10037.4 | 10522.5 | 10380.5 | 10105.7 | 9696.9  | 9253.8  | 7731.5 | 1715.6 |
| 57.5° | 8132.4  | 8149.5  | 8750.3  | 9938.8  | 10565.9 | 10547.5 | 10341.1 | 9920.4  | 9593.0  | 8345.4 | 2443.9 |
| 60°   | 8541.3  | 8515.0  | 8831.8  | 10013.7 | 10652.6 | 10697.3 | 10550.1 | 10128.1 | 9887.5  | 8872.6 | 3414.2 |
| 62.5° | 9280.1  | 9265.7  | 9366.9  | 10333.2 | 10906.4 | 10997.1 | 10840.6 | 10278.0 | 10147.8 | 9219.7 | 4521.1 |
| 65°   | 9940.1  | 9909.9  | 10097.9 | 10899.8 | 11352.0 | 11416.4 | 11279.7 | 10534.3 | 10262.2 | 9472.1 | 5561.0 |
| 67.5° | 10225.4 | 10218.8 | 10521.2 | 11438.8 | 11820.0 | 11889.7 | 11770.1 | 10888.0 | 10235.9 | 9552.3 | 6019.8 |
| 70°   | 10095.2 | 10070.2 | 10554.0 | 11667.5 | 12084.3 | 12163.2 | 12047.5 | 11019.4 | 9950.6  | 9298.5 | 5340.1 |
| 71°   | 9951.9  | 9884.9  | 10455.4 | 11651.8 | 12121.1 | 12188.1 | 11985.7 | 10899.8 | 9664.0  | 8938.3 | 4723.5 |
| 72.5° | 9507.6  | 9519.4  | 10184.6 | 11487.4 | 12033.0 | 12013.3 | 11636.0 | 10471.2 | 9318.3  | 8120.6 | 3794.1 |
| 75°   | 8413.8  | 8483.5  | 9307.7  | 10797.2 | 11246.9 | 10995.8 | 10418.6 | 9652.2  | 8624.1  | 5822.6 | 2634.6 |
| 77.5° | 6875.6  | 6979.5  | 7885.3  | 9469.4  | 9341.9  | 9316.9  | 9293.3  | 8504.5  | 7364.7  | 3127.6 | 1832.6 |
| 80°   | 3282.7  | 3507.5  | 4756.4  | 6759.9  | 7343.7  | 7626.3  | 7448.8  | 6853.3  | 5695.1  | 1489.5 | 1095.1 |
| 82.5° | 214.3   | 211.7   | 299.7   | 567.9   | 2394.0  | 3094.7  | 4916.8  | 4898.4  | 3970.3  | 725.7  | 447.0  |
| 85°   | 101.2   | 103.9   | 114.4   | 130.2   | 151.2   | 165.6   | 228.7   | 1340.9  | 1899.7  | 345.8  | 97.3   |
| 87.5° | 59.2    | 60.5    | 71.0    | 90.7    | 118.3   | 131.5   | 156.4   | 201.1   | 247.2   | 190.6  | 21.0   |
| 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: GLAN-SA6A-830-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 106.5  | 106.5 | 106.5 | 106.5 | 106.5 | 106.5 | 106.5 | 106.5 | 106.5 | 106.5 | 106.5 |
| 2.5°  | 107.8  | 106.5 | 102.5 | 98.6  | 94.7  | 92.0  | 90.7  | 92.0  | 92.0  | 93.3  | 93.3  |
| 5°    | 107.8  | 103.9 | 97.3  | 89.4  | 84.1  | 78.9  | 76.2  | 74.9  | 76.2  | 76.2  | 76.2  |
| 7.5°  | 106.5  | 99.9  | 90.7  | 81.5  | 74.9  | 68.4  | 65.7  | 64.4  | 64.4  | 65.7  | 65.7  |
| 10°   | 103.9  | 97.3  | 85.5  | 74.9  | 67.0  | 59.2  | 55.2  | 51.3  | 51.3  | 51.3  | 52.6  |
| 12.5° | 102.5  | 93.3  | 78.9  | 68.4  | 57.8  | 48.6  | 40.8  | 36.8  | 38.1  | 38.1  | 38.1  |
| 15°   | 99.9   | 89.4  | 74.9  | 61.8  | 48.6  | 36.8  | 30.2  | 26.3  | 27.6  | 28.9  | 27.6  |
| 17.5° | 99.9   | 88.1  | 69.7  | 53.9  | 38.1  | 27.6  | 22.3  | 19.7  | 19.7  | 21.0  | 21.0  |
| 20°   | 99.9   | 85.5  | 65.7  | 46.0  | 28.9  | 21.0  | 15.8  | 14.5  | 14.5  | 17.1  | 18.4  |
| 22.5° | 102.5  | 85.5  | 60.5  | 38.1  | 23.7  | 15.8  | 11.8  | 10.5  | 11.8  | 14.5  | 15.8  |
| 25°   | 106.5  | 84.1  | 55.2  | 34.2  | 19.7  | 11.8  | 9.2   | 6.6   | 7.9   | 10.5  | 11.8  |
| 27.5° | 110.4  | 82.8  | 50.0  | 30.2  | 15.8  | 9.2   | 6.6   | 5.3   | 3.9   | 5.3   | 5.3   |
| 30°   | 114.4  | 82.8  | 44.7  | 25.0  | 13.1  | 6.6   | 3.9   | 2.6   | 1.3   | 0.0   | 0.0   |
| 32.5° | 117.0  | 80.2  | 40.8  | 19.7  | 10.5  | 5.3   | 2.6   | 1.3   | 0.0   | 0.0   | 0.0   |
| 35°   | 119.6  | 77.6  | 35.5  | 15.8  | 7.9   | 3.9   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 122.3  | 73.6  | 30.2  | 13.1  | 6.6   | 2.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 124.9  | 68.4  | 25.0  | 11.8  | 3.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 127.5  | 64.4  | 21.0  | 9.2   | 2.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 134.1  | 61.8  | 17.1  | 7.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 145.9  | 59.2  | 15.8  | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 163.0  | 56.5  | 14.5  | 3.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 186.7  | 55.2  | 13.1  | 2.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 228.7  | 53.9  | 11.8  | 2.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 301.1  | 52.6  | 11.8  | 2.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 461.4  | 50.0  | 11.8  | 2.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 824.3  | 48.6  | 10.5  | 2.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1436.9 | 50.0  | 10.5  | 2.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2060.1 | 52.6  | 9.2   | 3.9   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 1762.9 | 46.0  | 9.2   | 5.3   | 2.6   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 71°   | 1436.9 | 40.8  | 9.2   | 5.3   | 2.6   | 1.3   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 924.2  | 31.6  | 7.9   | 5.3   | 2.6   | 2.6   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 390.5  | 26.3  | 7.9   | 5.3   | 3.9   | 2.6   | 2.6   | 1.3   | 0.0   | 0.0   | 0.0   |
| 77.5° | 167.0  | 19.7  | 7.9   | 6.6   | 5.3   | 3.9   | 3.9   | 2.6   | 1.3   | 0.0   | 0.0   |
| 80°   | 63.1   | 15.8  | 9.2   | 7.9   | 6.6   | 6.6   | 5.3   | 2.6   | 1.3   | 0.0   | 0.0   |
| 82.5° | 28.9   | 13.1  | 9.2   | 7.9   | 7.9   | 6.6   | 5.3   | 3.9   | 2.6   | 0.0   | 0.0   |
| 85°   | 18.4   | 11.8  | 9.2   | 7.9   | 7.9   | 6.6   | 6.6   | 3.9   | 2.6   | 0.0   | 0.0   |
| 87.5° | 14.5   | 11.8  | 9.2   | 9.2   | 7.9   | 7.9   | 5.3   | 3.9   | 1.3   | 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:  $4\pi$   
 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  
 R<sub>f</sub>: 81.5  
 R<sub>g</sub>: 99.2

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



### 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

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

| 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            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.33

| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|
| 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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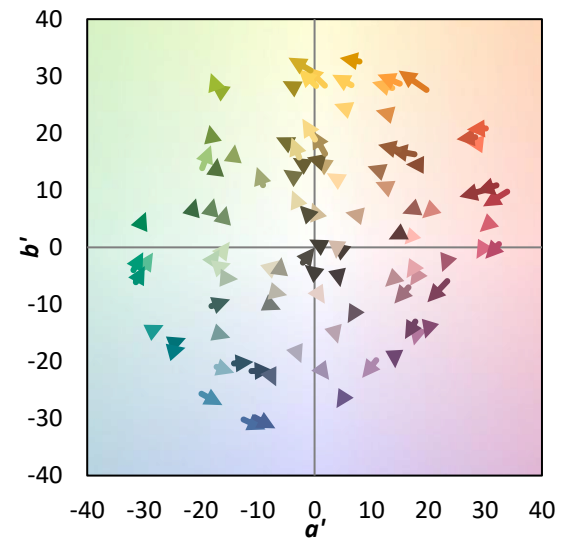
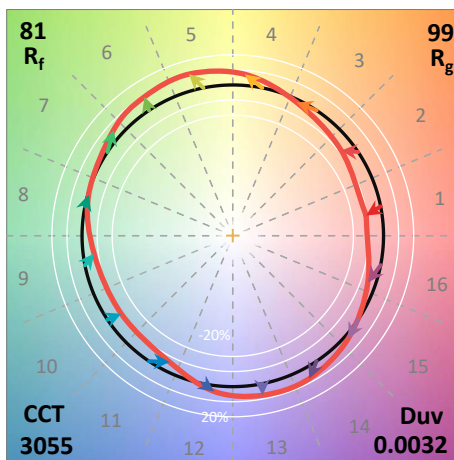
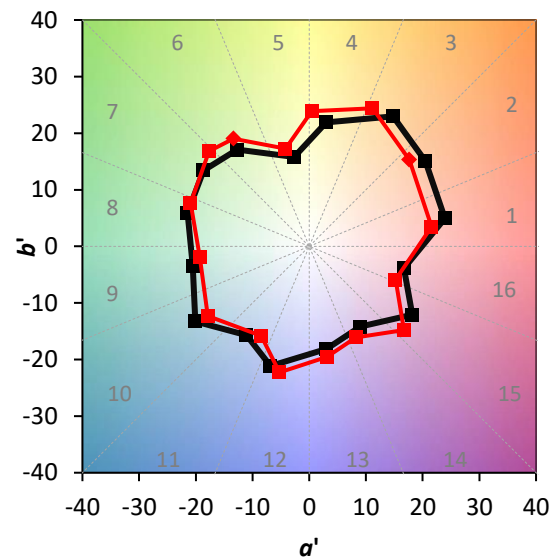
TM-30-18

### Summary

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



### 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)