

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: P1064102

Luminaire Tested: **GLAN-SA4B-760-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1064102  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA4B-760-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 4xLight Square PACKAGE  
70CRI 5700K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (56) 5700K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 18352.7 lumens  
Efficiency: N/A  
Efficacy: 127.4 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 144.1  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

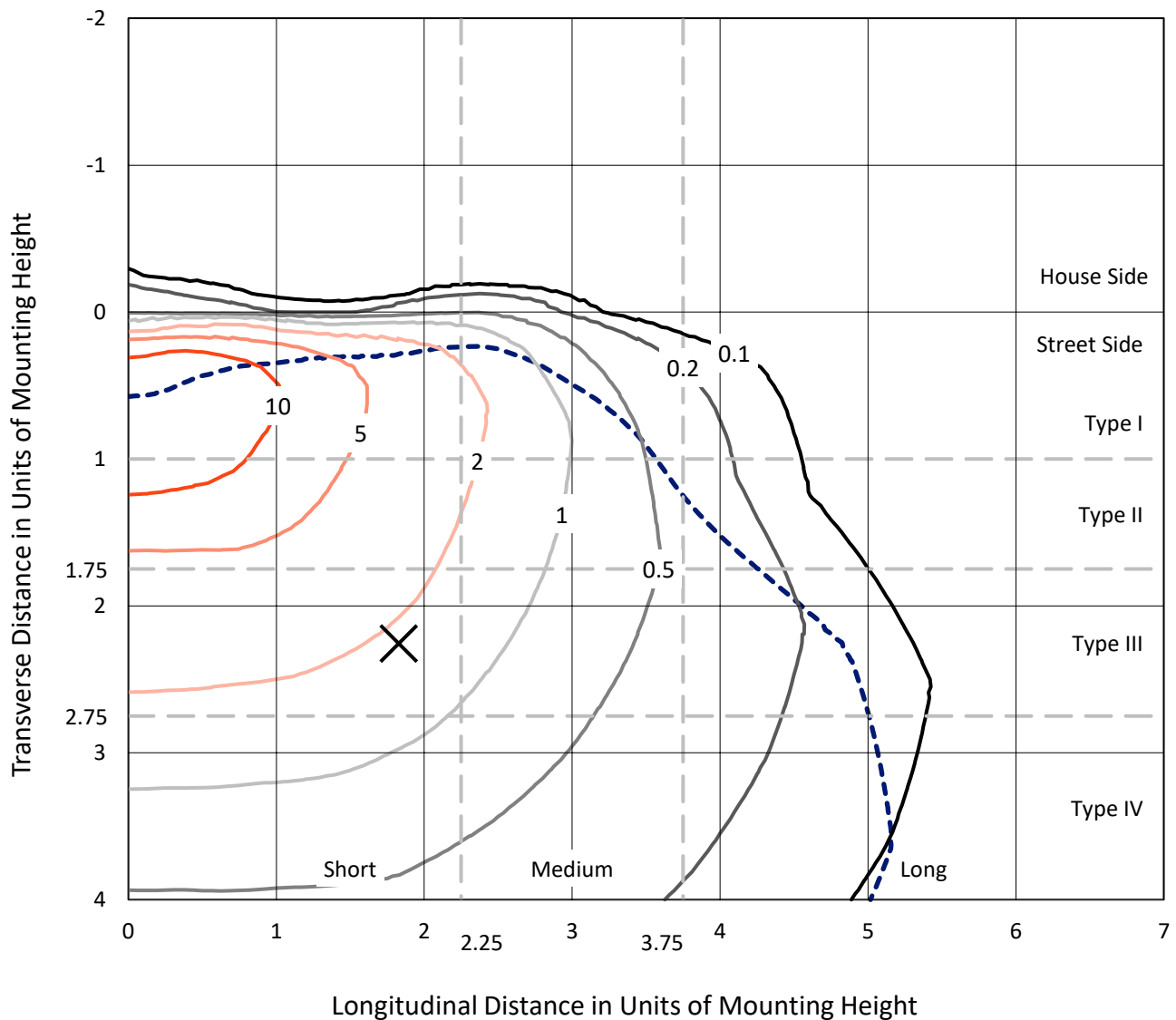


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

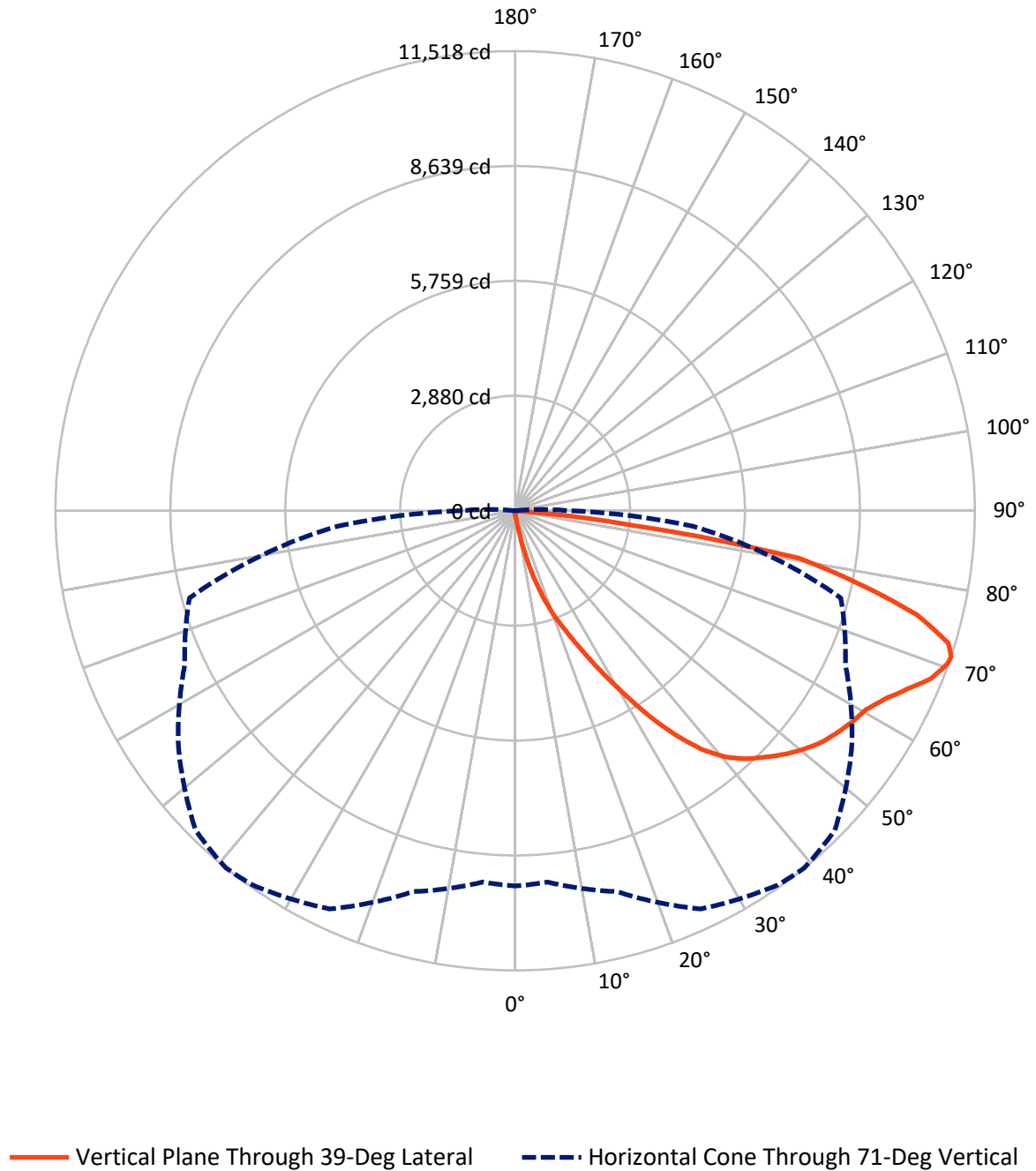


Based on 15 foot mounting height. Maximum calculated value = 18.9 fc  
 Type IV - Short - N/A

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CATALOG NUMBER: GLAN-SA4B-760-U-T4BC

## Luminous Intensity Polar Plot



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CATALOG NUMBER: GLAN-SA4B-760-U-T4BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 65.2     | 0.0    | 65.2    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 18287.5  | 0.0    | 18287.5 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 18352.7  | 0.0    | 18352.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 15.3    | 0.1       |
| 10°-20°   | 196.2   | 1.1       |
| 20°-30°   | 698.6   | 3.8       |
| 30°-40°   | 1683.6  | 9.2       |
| 40°-50°   | 2817.6  | 15.4      |
| 50°-60°   | 3618.9  | 19.7      |
| 60°-70°   | 4579.7  | 25.0      |
| 70°-80°   | 4083.0  | 22.2      |
| 80°-90°   | 660.0   | 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°    | 18352.7 | 100.0     |
| 0°-180°   | 18352.7 | 100.0     |



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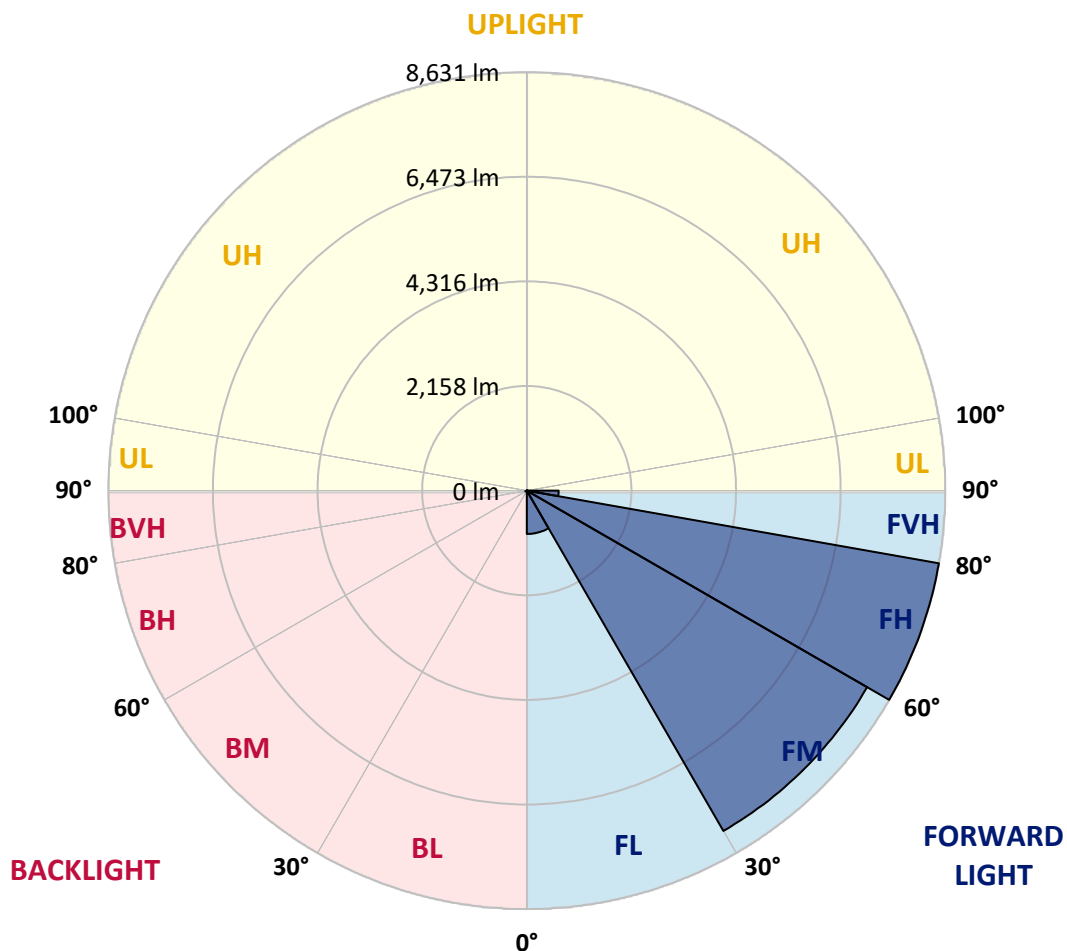
CATALOG NUMBER: GLAN-SA4B-760-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|--------|-----------|-------------------------|------|----------|
|      |             |        |           | B                       | U    | G        |
| FL   | (0°-30°)    | 894.3  | 4.9       |                         |      |          |
| FM   | (30°-60°)   | 8104.9 | 44.2      |                         |      |          |
| FH   | (60°-80°)   | 8631.3 | 47.0      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 657.0  | 3.6       |                         |      | G4/750   |
| BL   | (0°-30°)    | 15.8   | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 15.1   | 0.1       | B0/220                  |      |          |
| BH   | (60°-80°)   | 31.4   | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 3.0    | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |          |

**BUG Rating: 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°    | 100.6  | 100.6  | 100.6  | 100.6   | 100.6   | 100.6   | 100.6   | 100.6   | 100.6  | 100.6  | 100.6  |
| 2.5°  | 115.5  | 115.5  | 115.5  | 111.8   | 111.8   | 110.6   | 109.3   | 109.3   | 106.8  | 105.6  | 103.1  |
| 5°    | 175.2  | 171.4  | 162.8  | 157.8   | 147.8   | 141.6   | 135.4   | 126.7   | 118.0  | 111.8  | 104.4  |
| 7.5°  | 396.3  | 405.0  | 376.4  | 323.0   | 268.4   | 244.7   | 205.0   | 165.2   | 136.7  | 118.0  | 105.6  |
| 10°   | 1010.1 | 1005.1 | 908.2  | 801.3   | 618.7   | 545.4   | 427.4   | 269.6   | 176.4  | 129.2  | 106.8  |
| 12.5° | 1718.2 | 1713.2 | 1598.9 | 1453.6  | 1212.6  | 1059.8  | 836.1   | 503.2   | 253.4  | 146.6  | 106.8  |
| 15°   | 2313.3 | 2293.4 | 2257.4 | 2113.3  | 1831.3  | 1703.3  | 1407.6  | 889.5   | 410.0  | 176.4  | 109.3  |
| 17.5° | 2707.2 | 2689.8 | 2656.2 | 2604.0  | 2425.1  | 2273.6  | 2036.3  | 1397.7  | 663.4  | 228.6  | 114.3  |
| 20°   | 3068.7 | 3056.3 | 3028.9 | 3019.0  | 2903.4  | 2822.7  | 2626.4  | 1981.6  | 1033.7 | 310.6  | 121.8  |
| 22.5° | 3565.6 | 3539.5 | 3550.7 | 3491.1  | 3378.0  | 3281.1  | 3160.6  | 2592.9  | 1485.9 | 447.3  | 135.4  |
| 25°   | 4174.4 | 4162.0 | 4130.9 | 4088.7  | 3932.1  | 3847.7  | 3662.5  | 3169.3  | 1991.5 | 626.2  | 150.3  |
| 27.5° | 4909.9 | 4896.2 | 4888.8 | 4791.9  | 4611.7  | 4519.8  | 4261.4  | 3713.5  | 2560.6 | 877.1  | 170.2  |
| 30°   | 5757.2 | 5763.4 | 5715.0 | 5590.7  | 5380.8  | 5251.6  | 4985.7  | 4283.7  | 3143.2 | 1171.6 | 191.3  |
| 32.5° | 6634.3 | 6621.9 | 6547.4 | 6400.8  | 6213.2  | 6092.6  | 5754.7  | 4908.7  | 3754.5 | 1560.4 | 216.2  |
| 35°   | 7579.8 | 7556.2 | 7359.9 | 7192.2  | 7031.9  | 6880.3  | 6572.2  | 5634.2  | 4365.7 | 1996.5 | 249.7  |
| 37.5° | 8533.9 | 8423.4 | 8029.5 | 7817.1  | 7706.5  | 7582.3  | 7295.3  | 6408.2  | 4973.3 | 2483.5 | 290.7  |
| 40°   | 9254.5 | 9168.8 | 8701.7 | 8310.3  | 8222.1  | 8116.5  | 7902.8  | 7076.6  | 5619.3 | 3006.6 | 340.4  |
| 42.5° | 9653.3 | 9606.1 | 9186.2 | 8799.8  | 8592.3  | 8499.1  | 8316.5  | 7660.5  | 6257.9 | 3584.3 | 412.5  |
| 45°   | 9823.5 | 9750.2 | 9469.4 | 9289.3  | 8958.8  | 8804.8  | 8587.4  | 8101.6  | 6925.0 | 4240.3 | 513.1  |
| 47.5° | 9771.3 | 9729.1 | 9527.8 | 9593.7  | 9353.9  | 9114.1  | 8794.8  | 8439.5  | 7495.3 | 4993.1 | 651.0  |
| 50°   | 9443.4 | 9407.3 | 9345.2 | 9701.8  | 9672.0  | 9388.7  | 9063.2  | 8706.6  | 7961.2 | 5769.6 | 864.7  |
| 52.5° | 8819.7 | 8804.8 | 8963.8 | 9617.3  | 9852.1  | 9631.0  | 9321.6  | 8942.7  | 8396.0 | 6580.9 | 1170.3 |
| 55°   | 8015.9 | 8076.7 | 8531.4 | 9485.6  | 9944.0  | 9809.9  | 9550.2  | 9163.8  | 8745.1 | 7306.5 | 1621.3 |
| 57.5° | 7685.4 | 7701.5 | 8269.3 | 9392.4  | 9985.0  | 9967.6  | 9772.6  | 9375.0  | 9065.7 | 7886.6 | 2309.6 |
| 60°   | 8071.8 | 8046.9 | 8346.3 | 9463.2  | 10067.0 | 10109.3 | 9970.1  | 9571.3  | 9344.0 | 8384.8 | 3226.5 |
| 62.5° | 8770.0 | 8756.3 | 8852.0 | 9765.1  | 10306.8 | 10392.5 | 10244.7 | 9713.0  | 9590.0 | 8712.8 | 4272.6 |
| 65°   | 9393.7 | 9365.1 | 9542.7 | 10300.6 | 10728.0 | 10788.9 | 10659.6 | 9955.2  | 9698.0 | 8951.4 | 5255.3 |
| 67.5° | 9663.3 | 9657.0 | 9942.8 | 10810.0 | 11170.3 | 11236.1 | 11123.1 | 10289.4 | 9673.2 | 9027.2 | 5688.9 |
| 70°   | 9540.3 | 9516.7 | 9973.9 | 11026.2 | 11420.0 | 11494.5 | 11385.2 | 10413.7 | 9403.6 | 8787.4 | 5046.6 |
| 71°   | 9404.8 | 9341.5 | 9880.7 | 11011.2 | 11454.8 | 11518.1 | 11326.8 | 10300.6 | 9132.8 | 8447.0 | 4463.9 |
| 72.5° | 8984.9 | 8996.1 | 9624.7 | 10855.9 | 11371.5 | 11352.9 | 10996.3 | 9895.6  | 8806.0 | 7674.2 | 3585.5 |
| 75°   | 7951.3 | 8017.1 | 8796.1 | 10203.7 | 10628.6 | 10391.3 | 9845.9  | 9121.6  | 8150.0 | 5502.5 | 2489.7 |
| 77.5° | 6497.7 | 6595.8 | 7451.8 | 8948.9  | 8828.4  | 8804.8  | 8782.4  | 8037.0  | 6959.8 | 2955.6 | 1731.9 |
| 80°   | 3102.2 | 3314.7 | 4494.9 | 6388.3  | 6940.0  | 7207.1  | 7039.3  | 6476.5  | 5382.0 | 1407.6 | 1034.9 |
| 82.5° | 202.5  | 200.0  | 283.3  | 536.7   | 2262.4  | 2924.6  | 4646.5  | 4629.1  | 3752.0 | 685.8  | 422.4  |
| 85°   | 95.7   | 98.1   | 108.1  | 123.0   | 142.9   | 156.5   | 216.2   | 1267.2  | 1795.2 | 326.7  | 91.9   |
| 87.5° | 55.9   | 57.1   | 67.1   | 85.7    | 111.8   | 124.2   | 147.8   | 190.1   | 233.6  | 180.1  | 19.9   |
| 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-SA4B-760-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 100.6  | 100.6 | 100.6 | 100.6 | 100.6 | 100.6 | 100.6 | 100.6 | 100.6 | 100.6 | 100.6 |
| 2.5°  | 101.9  | 100.6 | 96.9  | 93.2  | 89.5  | 87.0  | 85.7  | 87.0  | 87.0  | 88.2  | 88.2  |
| 5°    | 101.9  | 98.1  | 91.9  | 84.5  | 79.5  | 74.5  | 72.1  | 70.8  | 72.1  | 72.1  | 72.1  |
| 7.5°  | 100.6  | 94.4  | 85.7  | 77.0  | 70.8  | 64.6  | 62.1  | 60.9  | 60.9  | 62.1  | 62.1  |
| 10°   | 98.1   | 91.9  | 80.8  | 70.8  | 63.4  | 55.9  | 52.2  | 48.5  | 48.5  | 48.5  | 49.7  |
| 12.5° | 96.9   | 88.2  | 74.5  | 64.6  | 54.7  | 46.0  | 38.5  | 34.8  | 36.0  | 36.0  | 36.0  |
| 15°   | 94.4   | 84.5  | 70.8  | 58.4  | 46.0  | 34.8  | 28.6  | 24.8  | 26.1  | 27.3  | 26.1  |
| 17.5° | 94.4   | 83.2  | 65.8  | 50.9  | 36.0  | 26.1  | 21.1  | 18.6  | 18.6  | 19.9  | 19.9  |
| 20°   | 94.4   | 80.8  | 62.1  | 43.5  | 27.3  | 19.9  | 14.9  | 13.7  | 13.7  | 16.2  | 17.4  |
| 22.5° | 96.9   | 80.8  | 57.1  | 36.0  | 22.4  | 14.9  | 11.2  | 9.9   | 11.2  | 13.7  | 14.9  |
| 25°   | 100.6  | 79.5  | 52.2  | 32.3  | 18.6  | 11.2  | 8.7   | 6.2   | 7.5   | 9.9   | 11.2  |
| 27.5° | 104.4  | 78.3  | 47.2  | 28.6  | 14.9  | 8.7   | 6.2   | 5.0   | 3.7   | 5.0   | 5.0   |
| 30°   | 108.1  | 78.3  | 42.2  | 23.6  | 12.4  | 6.2   | 3.7   | 2.5   | 1.2   | 0.0   | 0.0   |
| 32.5° | 110.6  | 75.8  | 38.5  | 18.6  | 9.9   | 5.0   | 2.5   | 1.2   | 0.0   | 0.0   | 0.0   |
| 35°   | 113.1  | 73.3  | 33.5  | 14.9  | 7.5   | 3.7   | 1.2   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 115.5  | 69.6  | 28.6  | 12.4  | 6.2   | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 118.0  | 64.6  | 23.6  | 11.2  | 3.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 120.5  | 60.9  | 19.9  | 8.7   | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 126.7  | 58.4  | 16.2  | 7.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 137.9  | 55.9  | 14.9  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 154.1  | 53.4  | 13.7  | 3.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 176.4  | 52.2  | 12.4  | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 216.2  | 50.9  | 11.2  | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 284.5  | 49.7  | 11.2  | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 436.1  | 47.2  | 11.2  | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 779.0  | 46.0  | 9.9   | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1357.9 | 47.2  | 9.9   | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1946.8 | 49.7  | 8.7   | 3.7   | 1.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 1666.0 | 43.5  | 8.7   | 5.0   | 2.5   | 1.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 71°   | 1357.9 | 38.5  | 8.7   | 5.0   | 2.5   | 1.2   | 1.2   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 873.4  | 29.8  | 7.5   | 5.0   | 2.5   | 2.5   | 1.2   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 369.0  | 24.8  | 7.5   | 5.0   | 3.7   | 2.5   | 2.5   | 1.2   | 0.0   | 0.0   | 0.0   |
| 77.5° | 157.8  | 18.6  | 7.5   | 6.2   | 5.0   | 3.7   | 3.7   | 2.5   | 1.2   | 0.0   | 0.0   |
| 80°   | 59.6   | 14.9  | 8.7   | 7.5   | 6.2   | 6.2   | 5.0   | 2.5   | 1.2   | 0.0   | 0.0   |
| 82.5° | 27.3   | 12.4  | 8.7   | 7.5   | 7.5   | 6.2   | 5.0   | 3.7   | 2.5   | 0.0   | 0.0   |
| 85°   | 17.4   | 11.2  | 8.7   | 7.5   | 7.5   | 6.2   | 6.2   | 3.7   | 2.5   | 0.0   | 0.0   |
| 87.5° | 13.7   | 11.2  | 8.7   | 8.7   | 7.5   | 7.5   | 5.0   | 3.7   | 1.2   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-7

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-760-U-5WQ

Data in this report applies to families of products including GSS-SB1A-760-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-7  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-70-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 5700K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 5571     | CRI (Ra): | 69.9 |      |       |
| CIE u':                   | 0.2033   | R1:       | 68.8 | R9:  | -35.4 |
| CIE v':                   | 0.4806   | R2:       | 72.5 | R10: | 36.7  |
| Duv:                      | 0.0041   | R3:       | 76.8 | R11: | 73.9  |
| CIE x:                    | 0.3308   | R4:       | 72.0 | R12: | 47.8  |
| CIE y:                    | 0.3476   | R5:       | 70.9 | R13: | 68.0  |
| CIE z:                    | 0.3216   | R6:       | 65.6 | R14: | 87.0  |
| Peak Wavelength (nm):     | 442      | R7:       | 75.5 | R15: | 59.8  |
| Dominant Wavelength (nm): | 544      | R8:       | 56.8 |      |       |
| Purity:                   | 3.635698 |           |      |      |       |
| Rf:                       | 70.4     |           |      |      |       |
| Rg:                       | 97.1     |           |      |      |       |



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-7

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

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**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 5700K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-7

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

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

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.84

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

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 3.71**

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

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TM-30-18

### Summary

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



### Color Vector Graphics



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

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



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)