

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



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

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P1047875

Luminaire Tested: **GALN-SA9C-760-U-T2BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047875  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA9C-760-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 9xLight Square PACKAGE  
70CRI 5700K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (126) 5700K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 49426.6 lumens  
Efficiency: N/A  
Efficacy: 118.5 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G5

Input Watts (W): 417.1  
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



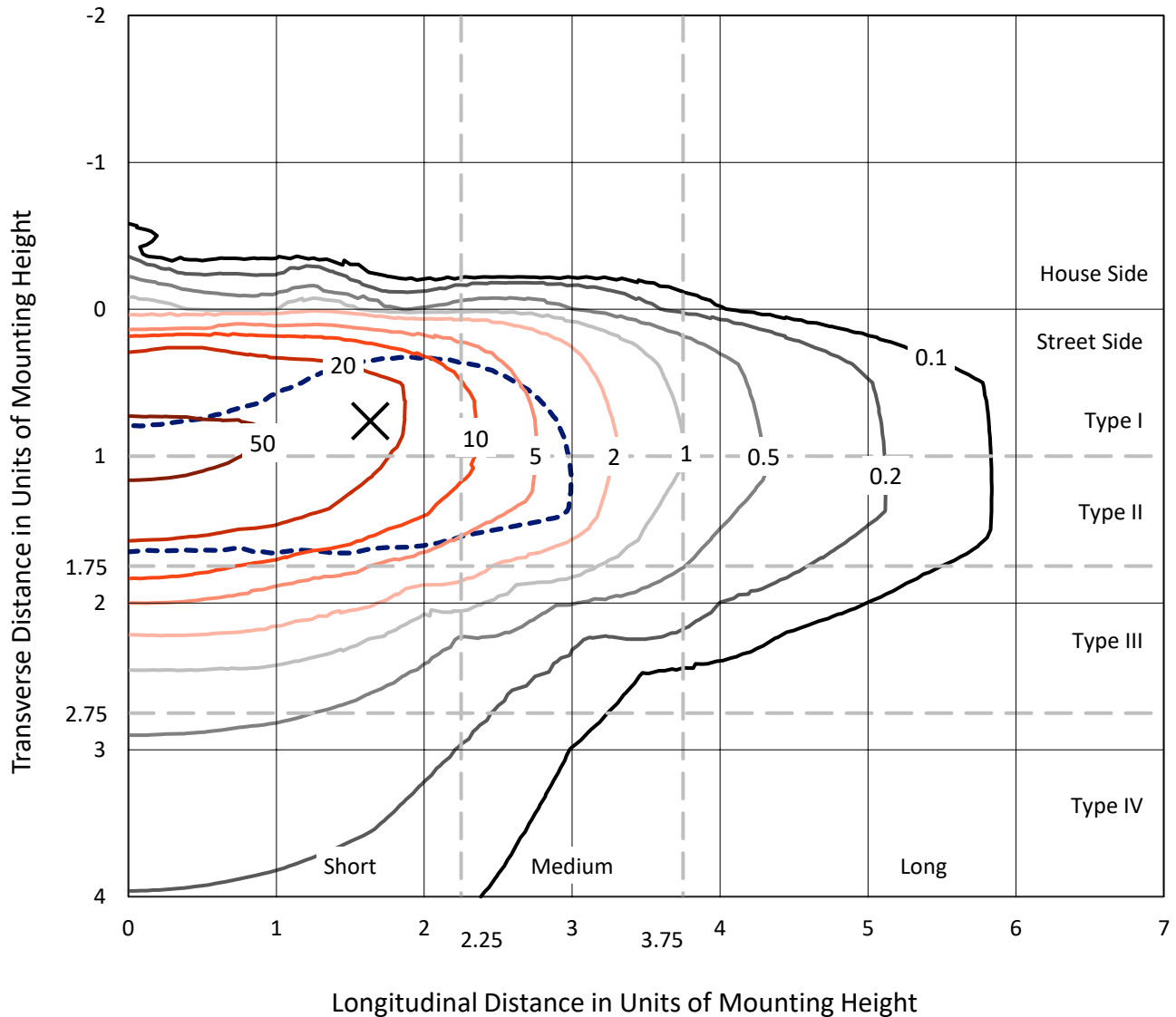
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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

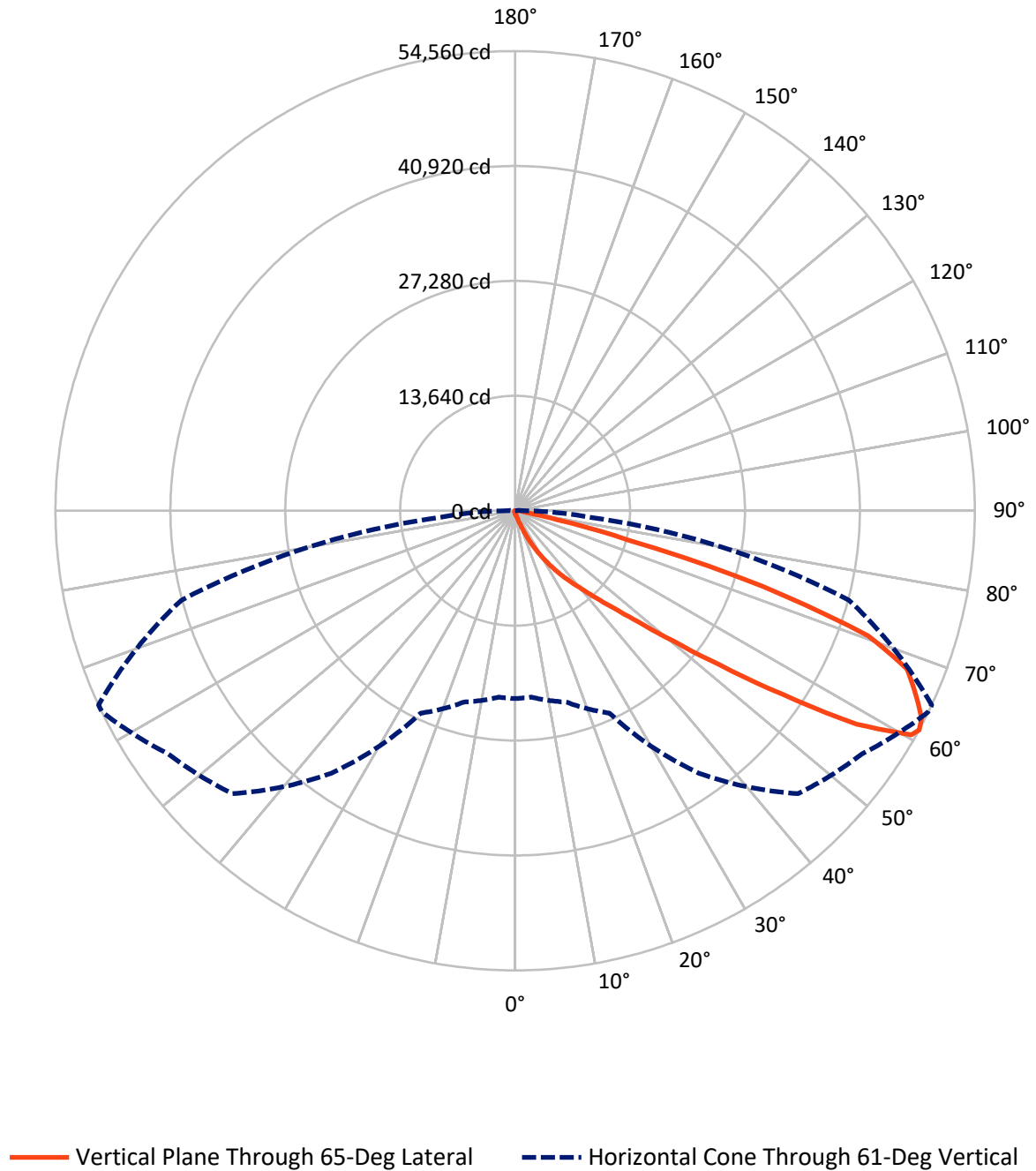


Based on 15 foot mounting height. Maximum calculated value = 65.4 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA9C-760-U-T2BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 211.0    | 0.0    | 211.0   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 49215.6  | 0.0    | 49215.6 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 49426.6  | 0.0    | 49426.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 38.5    | 0.1       |
| 10°-20°   | 406.4   | 0.8       |
| 20°-30°   | 1458.6  | 3.0       |
| 30°-40°   | 3883.5  | 7.9       |
| 40°-50°   | 10201.9 | 20.6      |
| 50°-60°   | 15804.7 | 32.0      |
| 60°-70°   | 13252.0 | 26.8      |
| 70°-80°   | 3899.8  | 7.9       |
| 80°-90°   | 481.1   | 1.0       |
| 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°    | 49426.6 | 100.0     |
| 0°-180°   | 49426.6 | 100.0     |



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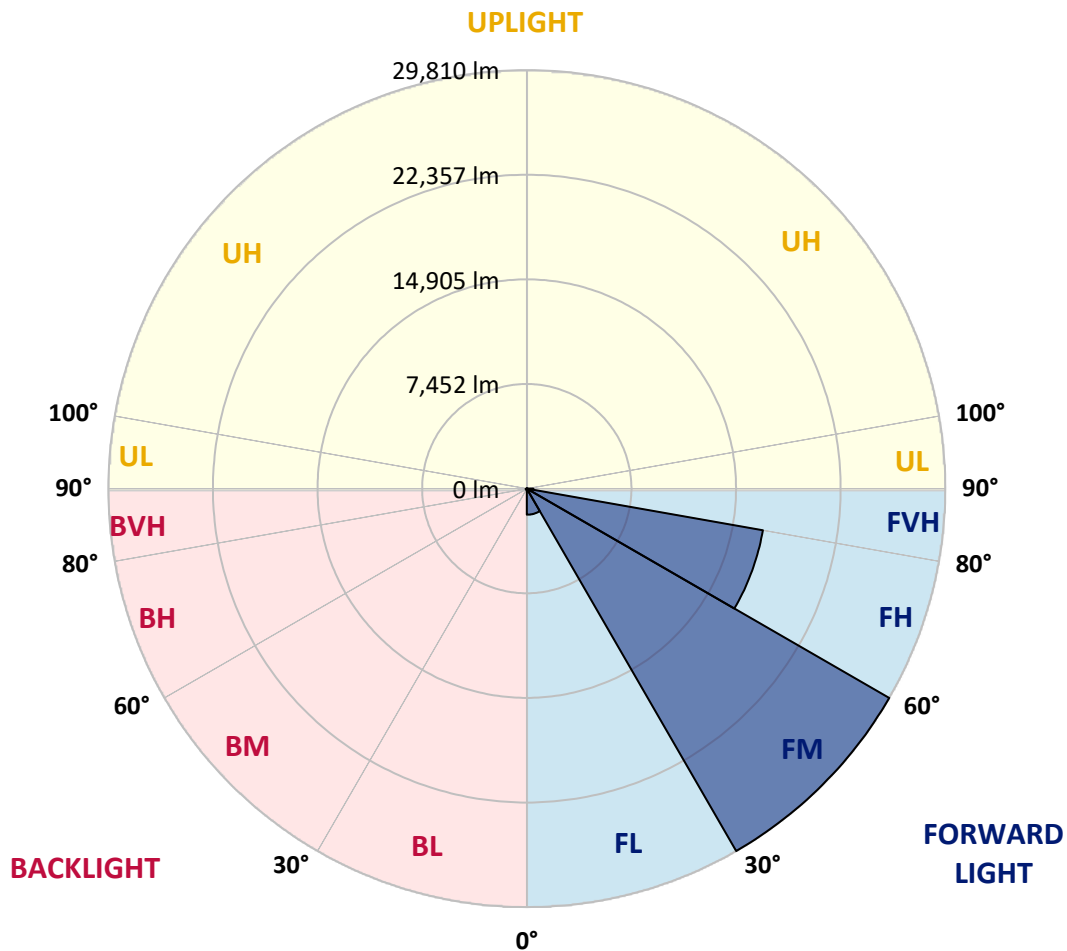
CATALOG NUMBER: GALN-SA9C-760-U-T2BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|---------|-----------|-------------------------|------|--------|
|      |             |         |           | B                       | U    | G      |
| FL   | (0°-30°)    | 1856.2  | 3.8       |                         |      |        |
| FM   | (30°-60°)   | 29809.8 | 60.3      |                         |      |        |
| FH   | (60°-80°)   | 17077.4 | 34.6      |                         |      | G5     |
| FVH  | (80°-90°)   | 472.1   | 1.0       |                         |      | G3/500 |
| BL   | (0°-30°)    | 47.3    | 0.1       | B0/110                  |      |        |
| BM   | (30°-60°)   | 80.3    | 0.2       | B0/220                  |      |        |
| BH   | (60°-80°)   | 74.4    | 0.2       | B0/110                  |      | G0/110 |
| BVH  | (80°-90°)   | 8.9     | 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-G5**

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 302.6   | 302.6   | 302.6   | 302.6   | 302.6   | 302.6   | 302.6   | 302.6   | 302.6   | 302.6   | 302.6   |
| 2.5°  | 367.2   | 370.6   | 363.8   | 350.2   | 340.0   | 340.0   | 336.6   | 326.4   | 326.4   | 316.2   | 309.4   |
| 5°    | 513.4   | 506.6   | 493.0   | 465.8   | 442.0   | 418.2   | 394.4   | 370.6   | 367.2   | 336.6   | 316.2   |
| 7.5°  | 839.8   | 846.6   | 802.4   | 717.4   | 646.0   | 554.2   | 469.2   | 418.2   | 411.4   | 360.4   | 319.6   |
| 10°   | 1842.8  | 1791.8  | 1689.8  | 1360.0  | 1118.6  | 843.2   | 625.6   | 486.2   | 479.4   | 387.6   | 326.4   |
| 12.5° | 3359.2  | 3318.4  | 3131.4  | 2791.4  | 2169.2  | 1509.6  | 914.6   | 601.8   | 581.4   | 411.4   | 329.8   |
| 15°   | 4841.6  | 4777.0  | 4675.0  | 4331.6  | 3604.0  | 2706.4  | 1496.0  | 822.8   | 768.4   | 445.4   | 326.4   |
| 17.5° | 5786.8  | 5797.0  | 5705.2  | 5559.0  | 5089.8  | 4005.2  | 2584.0  | 1227.4  | 1122.0  | 506.6   | 319.6   |
| 20°   | 6613.0  | 6589.2  | 6640.2  | 6562.0  | 6232.2  | 5443.4  | 3760.4  | 1944.8  | 1764.6  | 605.2   | 323.0   |
| 22.5° | 7565.0  | 7622.8  | 7660.2  | 7643.2  | 7279.4  | 6606.2  | 5096.6  | 2910.4  | 2682.6  | 785.4   | 333.2   |
| 25°   | 8840.1  | 8833.3  | 8836.7  | 8792.4  | 8438.8  | 7690.8  | 6436.2  | 4110.6  | 3879.4  | 1077.8  | 357.0   |
| 27.5° | 10176.3 | 10217.1 | 10234.1 | 10074.3 | 9611.9  | 8877.5  | 7677.2  | 5423.0  | 5151.0  | 1547.0  | 387.6   |
| 30°   | 12002.1 | 11968.1 | 11889.9 | 11563.5 | 11002.5 | 10091.3 | 8901.3  | 6800.0  | 6514.4  | 2203.2  | 435.2   |
| 32.5° | 14463.7 | 14426.3 | 14031.9 | 13311.1 | 12471.3 | 11356.1 | 10132.1 | 8180.4  | 7833.6  | 3022.6  | 499.8   |
| 35°   | 18519.9 | 18577.7 | 17608.7 | 15742.1 | 14235.9 | 12875.9 | 11495.5 | 9554.1  | 9248.1  | 4032.4  | 588.2   |
| 37.5° | 24731.7 | 24415.5 | 23099.7 | 19801.7 | 16558.1 | 14773.1 | 12797.7 | 10941.3 | 10676.1 | 5276.8  | 703.8   |
| 40°   | 30766.8 | 30454.0 | 30073.2 | 26948.6 | 20593.9 | 16864.1 | 14620.1 | 12569.9 | 12226.5 | 6681.0  | 873.8   |
| 42.5° | 37111.2 | 36937.8 | 36920.8 | 34564.6 | 27958.4 | 20151.9 | 16813.1 | 14477.3 | 14184.9 | 8221.2  | 1152.6  |
| 45°   | 41606.0 | 41432.6 | 41796.4 | 42207.8 | 37988.4 | 27196.8 | 20631.3 | 16955.9 | 16530.9 | 10091.3 | 1598.0  |
| 47.5° | 42211.2 | 42218.0 | 43190.4 | 44479.1 | 45441.3 | 38093.8 | 25717.7 | 20240.3 | 19723.5 | 12767.1 | 2346.0  |
| 50°   | 40198.4 | 40276.6 | 41823.6 | 44128.9 | 46719.7 | 47236.5 | 34687.0 | 25007.1 | 24242.1 | 15939.3 | 3406.8  |
| 52.5° | 36366.6 | 36455.0 | 38610.6 | 42401.6 | 45543.3 | 49432.9 | 45247.5 | 31242.8 | 30362.2 | 19896.9 | 4902.8  |
| 55°   | 32915.6 | 32970.0 | 35441.8 | 40232.4 | 44125.5 | 48239.5 | 51517.1 | 39569.4 | 38413.4 | 24765.7 | 6378.4  |
| 57.5° | 29498.6 | 29372.8 | 30981.0 | 36465.2 | 43884.0 | 46774.1 | 52441.9 | 49058.9 | 47783.9 | 30086.8 | 7527.6  |
| 60°   | 24928.9 | 24718.1 | 26010.1 | 29498.6 | 40708.4 | 47736.3 | 50711.3 | 54308.5 | 54019.5 | 37495.4 | 8415.0  |
| 61°   | 22300.7 | 22212.3 | 23511.1 | 26503.2 | 38036.0 | 47491.5 | 50296.5 | 54529.5 | 54560.1 | 41000.8 | 8812.9  |
| 62.5° | 15925.7 | 16177.3 | 18162.9 | 22052.5 | 31858.2 | 45903.7 | 50350.9 | 53846.1 | 54148.7 | 45658.9 | 9843.1  |
| 65°   | 7078.8  | 7483.4  | 9027.1  | 12192.5 | 18526.7 | 38185.6 | 49868.1 | 52346.7 | 52197.1 | 46937.3 | 13392.7 |
| 67.5° | 4199.0  | 4260.2  | 5028.6  | 6908.8  | 9812.5  | 20539.5 | 44006.5 | 50364.5 | 50163.9 | 40861.4 | 16663.5 |
| 70°   | 3308.2  | 3338.8  | 3583.6  | 4335.0  | 5695.0  | 7867.6  | 25115.9 | 43574.6 | 44448.5 | 33133.2 | 16313.3 |
| 72.5° | 3138.2  | 3131.4  | 3165.4  | 3298.0  | 3587.0  | 3903.2  | 9724.1  | 28964.8 | 30743.0 | 23861.3 | 13678.3 |
| 75°   | 3097.4  | 3083.8  | 3049.8  | 2998.8  | 2597.6  | 2298.4  | 3012.4  | 12811.3 | 13841.5 | 16303.1 | 10298.7 |
| 77.5° | 3005.6  | 3009.0  | 3015.8  | 2876.4  | 2227.0  | 1625.2  | 1458.6  | 4110.6  | 5055.8  | 10346.3 | 7320.2  |
| 80°   | 2033.2  | 2063.8  | 2114.8  | 2060.4  | 2002.6  | 1176.4  | 1030.2  | 1462.0  | 1482.4  | 5807.2  | 4834.8  |
| 82.5° | 1030.2  | 1030.2  | 1006.4  | 897.6   | 775.2   | 765.0   | 819.4   | 1060.8  | 1074.4  | 2937.6  | 2274.6  |
| 85°   | 622.2   | 656.2   | 669.8   | 608.6   | 557.6   | 513.4   | 625.6   | 843.2   | 873.8   | 1139.0  | 530.4   |
| 87.5° | 139.4   | 142.8   | 156.4   | 207.4   | 302.6   | 411.4   | 581.4   | 771.8   | 785.4   | 731.0   | 64.6    |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |

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CATALOG NUMBER: GALN-SA9C-760-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 302.6  | 302.6 | 302.6 | 302.6 | 302.6 | 302.6 | 302.6 | 302.6 | 302.6 | 302.6 | 302.6 |
| 2.5°  | 306.0  | 299.2 | 295.8 | 285.6 | 275.4 | 265.2 | 258.4 | 255.0 | 258.4 | 261.8 | 261.8 |
| 5°    | 302.6  | 292.4 | 275.4 | 258.4 | 244.8 | 231.2 | 217.6 | 214.2 | 214.2 | 217.6 | 217.6 |
| 7.5°  | 302.6  | 285.6 | 261.8 | 241.4 | 221.0 | 200.6 | 190.4 | 183.6 | 187.0 | 187.0 | 187.0 |
| 10°   | 302.6  | 282.2 | 251.6 | 221.0 | 197.2 | 173.4 | 156.4 | 149.6 | 149.6 | 149.6 | 149.6 |
| 12.5° | 299.2  | 278.8 | 241.4 | 204.0 | 170.0 | 142.8 | 122.4 | 112.2 | 115.6 | 115.6 | 115.6 |
| 15°   | 292.4  | 268.6 | 227.8 | 173.4 | 136.0 | 108.8 | 88.4  | 78.2  | 81.6  | 88.4  | 91.8  |
| 17.5° | 282.2  | 258.4 | 204.0 | 146.2 | 108.8 | 81.6  | 61.2  | 54.4  | 57.8  | 68.0  | 68.0  |
| 20°   | 278.8  | 248.2 | 180.2 | 119.0 | 81.6  | 57.8  | 40.8  | 34.0  | 37.4  | 51.0  | 54.4  |
| 22.5° | 278.8  | 241.4 | 163.2 | 98.6  | 61.2  | 37.4  | 23.8  | 13.6  | 13.6  | 23.8  | 23.8  |
| 25°   | 282.2  | 238.0 | 149.6 | 81.6  | 44.2  | 27.2  | 13.6  | 6.8   | 13.6  | 37.4  | 44.2  |
| 27.5° | 289.0  | 234.6 | 142.8 | 68.0  | 34.0  | 23.8  | 10.2  | 23.8  | 40.8  | 40.8  | 40.8  |
| 30°   | 295.8  | 227.8 | 132.6 | 57.8  | 30.6  | 17.0  | 17.0  | 34.0  | 34.0  | 40.8  | 44.2  |
| 32.5° | 306.0  | 224.4 | 125.8 | 51.0  | 23.8  | 13.6  | 23.8  | 20.4  | 20.4  | 23.8  | 27.2  |
| 35°   | 326.4  | 227.8 | 119.0 | 51.0  | 23.8  | 17.0  | 20.4  | 10.2  | 6.8   | 6.8   | 6.8   |
| 37.5° | 353.6  | 231.2 | 108.8 | 44.2  | 20.4  | 20.4  | 10.2  | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 397.8  | 241.4 | 102.0 | 40.8  | 17.0  | 17.0  | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 472.6  | 261.8 | 98.6  | 37.4  | 17.0  | 13.6  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 622.2  | 309.4 | 91.8  | 34.0  | 17.0  | 6.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 894.2  | 421.6 | 88.4  | 27.2  | 10.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 1305.6 | 571.2 | 85.0  | 23.8  | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 1666.0 | 601.8 | 57.8  | 20.4  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 1706.8 | 414.8 | 44.2  | 13.6  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 1360.0 | 268.6 | 37.4  | 10.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 1030.2 | 204.0 | 34.0  | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 61°   | 989.4  | 183.6 | 34.0  | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 1091.4 | 159.8 | 30.6  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1774.8 | 132.6 | 27.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 3083.8 | 115.6 | 23.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 3896.4 | 108.8 | 20.4  | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 3396.6 | 98.6  | 20.4  | 6.8   | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 2043.4 | 85.0  | 20.4  | 13.6  | 6.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 1071.0 | 64.6  | 20.4  | 17.0  | 10.2  | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 520.2  | 57.8  | 23.8  | 17.0  | 13.6  | 6.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 204.0  | 47.6  | 27.2  | 23.8  | 17.0  | 10.2  | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 91.8   | 40.8  | 30.6  | 27.2  | 23.8  | 13.6  | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 47.6   | 37.4  | 34.0  | 30.6  | 23.8  | 17.0  | 6.8   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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



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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-7

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-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

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

REPORT NUMBER: SP1-2407-184-7

**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>^</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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### 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)