

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: P1047765

Luminaire Tested: **GALN-SA9A-730-U-T2BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047765  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA9A-730-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 9xLight Square PACKAGE  
70CRI 3000K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (126) 3000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 31188.1 lumens  
Efficiency: N/A  
Efficacy: 127.5 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 244.6  
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

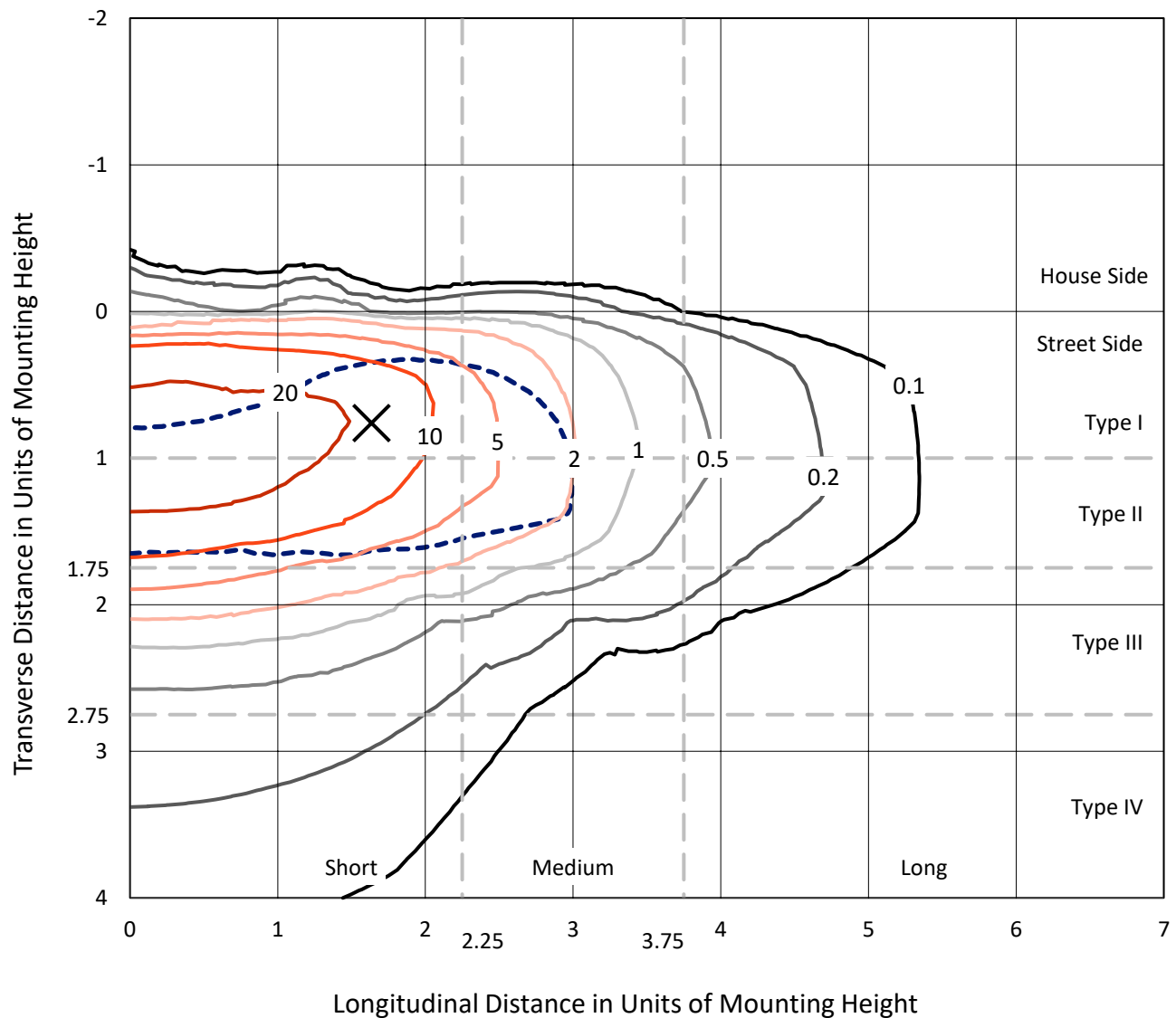


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

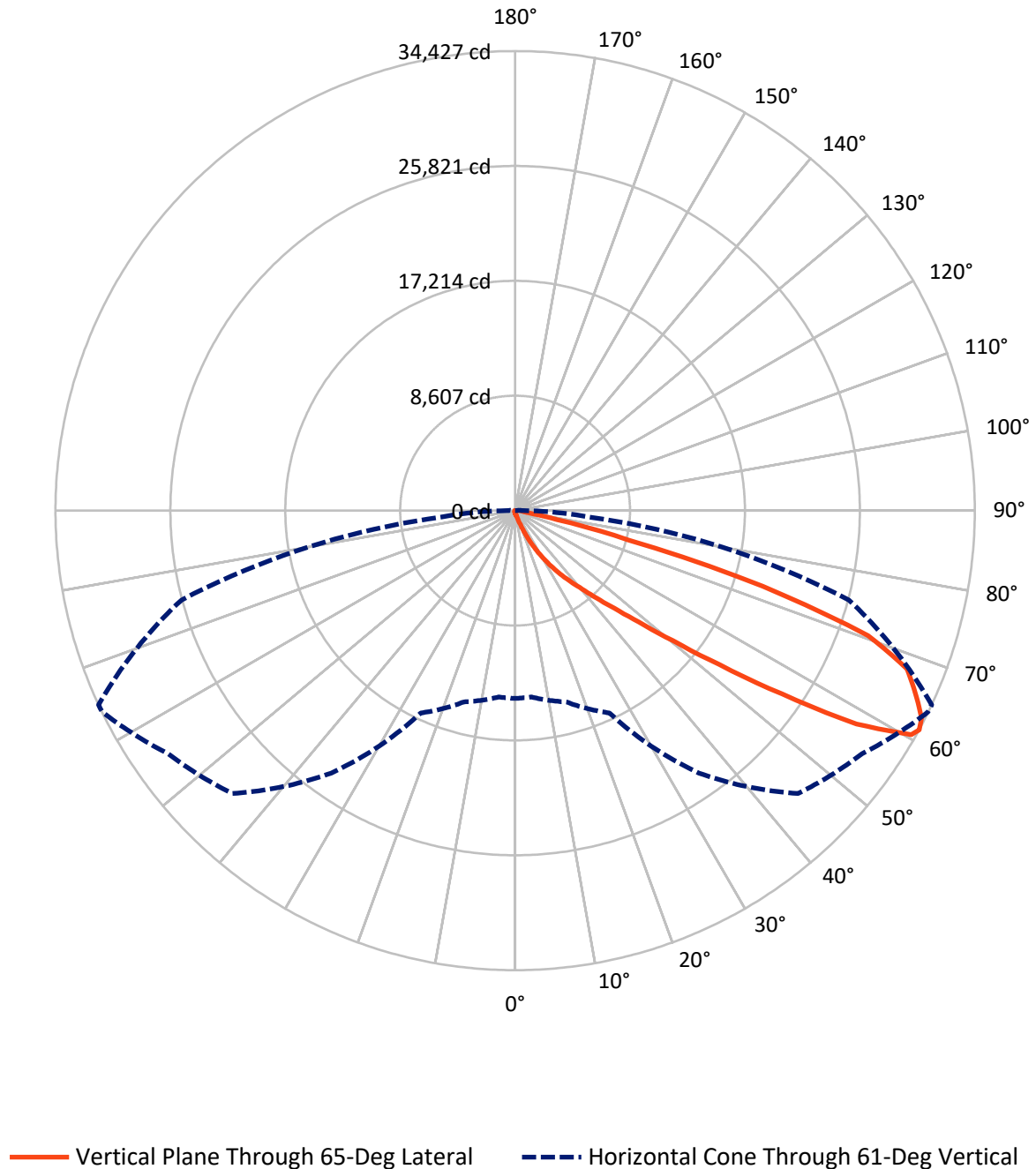


Based on 15 foot mounting height. Maximum calculated value = 41.3 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA9A-730-U-T2BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 133.1    | 0.0    | 133.1   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 31055.0  | 0.0    | 31055.0 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 31188.1  | 0.0    | 31188.1 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 24.3    | 0.1       |
| 10°-20°   | 256.5   | 0.8       |
| 20°-30°   | 920.4   | 3.0       |
| 30°-40°   | 2450.5  | 7.9       |
| 40°-50°   | 6437.4  | 20.6      |
| 50°-60°   | 9972.8  | 32.0      |
| 60°-70°   | 8362.0  | 26.8      |
| 70°-80°   | 2460.8  | 7.9       |
| 80°-90°   | 303.6   | 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°    | 31188.1 | 100.0     |
| 0°-180°   | 31188.1 | 100.0     |



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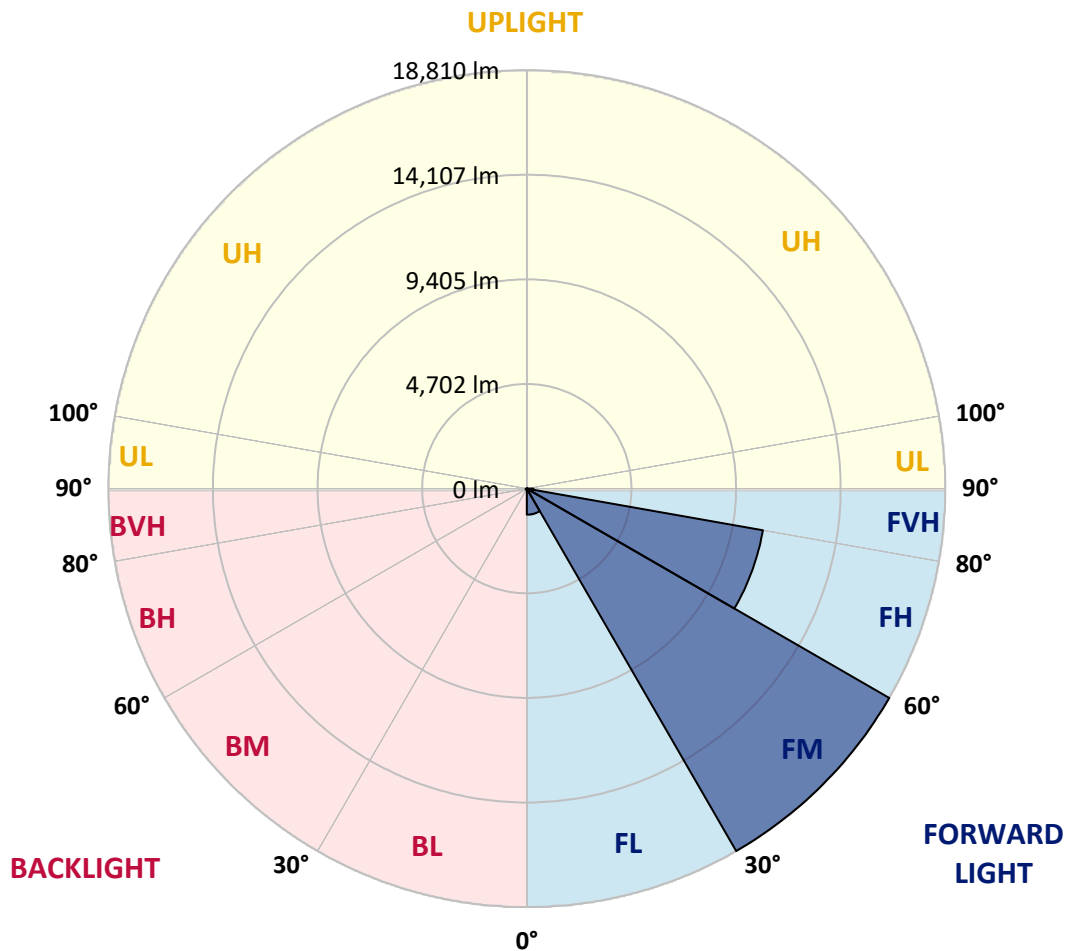
CATALOG NUMBER: GALN-SA9A-730-U-T2BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1171.3  | 3.8       |                         |      |          |
| FM   | (30°-60°)   | 18810.0 | 60.3      |                         |      |          |
| FH   | (60°-80°)   | 10775.8 | 34.6      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 297.9   | 1.0       |                         |      | G3/500   |
| BL   | (0°-30°)    | 29.9    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 50.7    | 0.2       | B0/220                  |      |          |
| BH   | (60°-80°)   | 47.0    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 5.6     | 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 II Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 190.9   | 190.9   | 190.9   | 190.9   | 190.9   | 190.9   | 190.9   | 190.9   | 190.9   | 190.9   | 190.9   |
| 2.5°  | 231.7   | 233.8   | 229.6   | 221.0   | 214.5   | 214.5   | 212.4   | 206.0   | 206.0   | 199.5   | 195.2   |
| 5°    | 324.0   | 319.7   | 311.1   | 293.9   | 278.9   | 263.9   | 248.9   | 233.8   | 231.7   | 212.4   | 199.5   |
| 7.5°  | 529.9   | 534.2   | 506.3   | 452.7   | 407.6   | 349.7   | 296.1   | 263.9   | 259.6   | 227.4   | 201.7   |
| 10°   | 1162.8  | 1130.6  | 1066.3  | 858.2   | 705.8   | 532.1   | 394.8   | 306.8   | 302.5   | 244.6   | 206.0   |
| 12.5° | 2119.7  | 2093.9  | 1975.9  | 1761.4  | 1368.8  | 952.6   | 577.1   | 379.7   | 366.9   | 259.6   | 208.1   |
| 15°   | 3055.1  | 3014.3  | 2949.9  | 2733.3  | 2274.1  | 1707.7  | 944.0   | 519.2   | 484.9   | 281.0   | 206.0   |
| 17.5° | 3651.5  | 3657.9  | 3600.0  | 3507.7  | 3211.7  | 2527.3  | 1630.5  | 774.5   | 708.0   | 319.7   | 201.7   |
| 20°   | 4172.8  | 4157.8  | 4190.0  | 4140.6  | 3932.5  | 3434.8  | 2372.8  | 1227.2  | 1113.5  | 381.9   | 203.8   |
| 22.5° | 4773.5  | 4810.0  | 4833.6  | 4822.9  | 4593.3  | 4168.5  | 3216.0  | 1836.5  | 1692.7  | 495.6   | 210.3   |
| 25°   | 5578.1  | 5573.8  | 5575.9  | 5548.0  | 5324.9  | 4852.9  | 4061.3  | 2593.8  | 2447.9  | 680.1   | 225.3   |
| 27.5° | 6421.2  | 6447.0  | 6457.7  | 6356.8  | 6065.1  | 5601.7  | 4844.3  | 3421.9  | 3250.3  | 976.2   | 244.6   |
| 30°   | 7573.3  | 7551.8  | 7502.5  | 7296.5  | 6942.5  | 6367.6  | 5616.7  | 4290.8  | 4110.6  | 1390.2  | 274.6   |
| 32.5° | 9126.6  | 9103.0  | 8854.1  | 8399.3  | 7869.4  | 7165.7  | 6393.3  | 5161.9  | 4943.0  | 1907.3  | 315.4   |
| 35°   | 11686.0 | 11722.5 | 11111.1 | 9933.2  | 8982.8  | 8124.7  | 7253.6  | 6028.6  | 5835.5  | 2544.5  | 371.2   |
| 37.5° | 15605.7 | 15406.2 | 14575.9 | 12494.9 | 10448.1 | 9321.8  | 8075.3  | 6903.9  | 6736.6  | 3329.7  | 444.1   |
| 40°   | 19413.8 | 19216.4 | 18976.1 | 17004.5 | 12994.7 | 10641.2 | 9225.3  | 7931.6  | 7714.9  | 4215.7  | 551.4   |
| 42.5° | 23417.1 | 23307.7 | 23297.0 | 21810.2 | 17641.7 | 12715.8 | 10609.0 | 9135.1  | 8950.6  | 5187.6  | 727.3   |
| 45°   | 26253.4 | 26143.9 | 26373.5 | 26633.1 | 23970.6 | 17161.1 | 13018.3 | 10699.2 | 10431.0 | 6367.6  | 1008.3  |
| 47.5° | 26635.2 | 26639.5 | 27253.1 | 28066.2 | 28673.4 | 24037.2 | 16227.9 | 12771.6 | 12445.5 | 8056.0  | 1480.3  |
| 50°   | 25365.2 | 25414.5 | 26390.7 | 27845.3 | 29480.1 | 29806.2 | 21887.5 | 15779.5 | 15296.8 | 10057.7 | 2149.7  |
| 52.5° | 22947.3 | 23003.1 | 24363.3 | 26755.4 | 28737.7 | 31192.1 | 28551.1 | 19714.2 | 19158.5 | 12554.9 | 3093.7  |
| 55°   | 20769.7 | 20804.0 | 22363.7 | 25386.6 | 27843.1 | 30439.1 | 32507.2 | 24968.3 | 24238.8 | 15627.2 | 4024.8  |
| 57.5° | 18613.6 | 18534.2 | 19549.0 | 23009.5 | 27690.8 | 29514.4 | 33090.8 | 30956.1 | 30151.6 | 18984.7 | 4749.9  |
| 60°   | 15730.1 | 15597.1 | 16412.4 | 18613.6 | 25687.0 | 30121.5 | 31998.8 | 34268.6 | 34086.2 | 23659.6 | 5309.9  |
| 61°   | 14071.7 | 14016.0 | 14835.5 | 16723.5 | 24000.7 | 29967.1 | 31737.0 | 34408.1 | 34427.4 | 25871.5 | 5560.9  |
| 62.5° | 10049.1 | 10207.9 | 11460.8 | 13915.1 | 20102.5 | 28965.2 | 31771.4 | 33976.8 | 34167.8 | 28810.7 | 6211.0  |
| 65°   | 4466.7  | 4722.0  | 5696.1  | 7693.4  | 11690.3 | 24095.1 | 31466.7 | 33030.7 | 32936.3 | 29617.4 | 8450.8  |
| 67.5° | 2649.6  | 2688.2  | 3173.1  | 4359.5  | 6191.6  | 12960.4 | 27768.0 | 31779.9 | 31653.4 | 25783.5 | 10514.6 |
| 70°   | 2087.5  | 2106.8  | 2261.3  | 2735.4  | 3593.6  | 4964.5  | 15848.1 | 27495.6 | 28046.9 | 20907.0 | 10293.7 |
| 72.5° | 1980.2  | 1975.9  | 1997.4  | 2081.0  | 2263.4  | 2462.9  | 6135.9  | 18276.7 | 19398.8 | 15056.5 | 8631.0  |
| 75°   | 1954.5  | 1945.9  | 1924.4  | 1892.3  | 1639.1  | 1450.3  | 1900.8  | 8083.9  | 8734.0  | 10287.2 | 6498.4  |
| 77.5° | 1896.5  | 1898.7  | 1903.0  | 1815.0  | 1405.2  | 1025.5  | 920.4   | 2593.8  | 3190.2  | 6528.5  | 4619.1  |
| 80°   | 1283.0  | 1302.3  | 1334.4  | 1300.1  | 1263.6  | 742.3   | 650.1   | 922.5   | 935.4   | 3664.4  | 3050.8  |
| 82.5° | 650.1   | 650.1   | 635.0   | 566.4   | 489.2   | 482.7   | 517.0   | 669.4   | 677.9   | 1853.6  | 1435.3  |
| 85°   | 392.6   | 414.1   | 422.6   | 384.0   | 351.8   | 324.0   | 394.8   | 532.1   | 551.4   | 718.7   | 334.7   |
| 87.5° | 88.0    | 90.1    | 98.7    | 130.9   | 190.9   | 259.6   | 366.9   | 487.0   | 495.6   | 461.3   | 40.8    |
| 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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**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 190.9  | 190.9 | 190.9 | 190.9 | 190.9 | 190.9 | 190.9 | 190.9 | 190.9 | 190.9 | 190.9 |
| 2.5°  | 193.1  | 188.8 | 186.7 | 180.2 | 173.8 | 167.3 | 163.1 | 160.9 | 163.1 | 165.2 | 165.2 |
| 5°    | 190.9  | 184.5 | 173.8 | 163.1 | 154.5 | 145.9 | 137.3 | 135.2 | 135.2 | 137.3 | 137.3 |
| 7.5°  | 190.9  | 180.2 | 165.2 | 152.3 | 139.5 | 126.6 | 120.1 | 115.9 | 118.0 | 118.0 | 118.0 |
| 10°   | 190.9  | 178.1 | 158.8 | 139.5 | 124.4 | 109.4 | 98.7  | 94.4  | 94.4  | 94.4  | 94.4  |
| 12.5° | 188.8  | 175.9 | 152.3 | 128.7 | 107.3 | 90.1  | 77.2  | 70.8  | 72.9  | 72.9  | 72.9  |
| 15°   | 184.5  | 169.5 | 143.7 | 109.4 | 85.8  | 68.7  | 55.8  | 49.3  | 51.5  | 55.8  | 57.9  |
| 17.5° | 178.1  | 163.1 | 128.7 | 92.3  | 68.7  | 51.5  | 38.6  | 34.3  | 36.5  | 42.9  | 42.9  |
| 20°   | 175.9  | 156.6 | 113.7 | 75.1  | 51.5  | 36.5  | 25.7  | 21.5  | 23.6  | 32.2  | 34.3  |
| 22.5° | 175.9  | 152.3 | 103.0 | 62.2  | 38.6  | 23.6  | 15.0  | 8.6   | 8.6   | 15.0  | 15.0  |
| 25°   | 178.1  | 150.2 | 94.4  | 51.5  | 27.9  | 17.2  | 8.6   | 4.3   | 8.6   | 23.6  | 27.9  |
| 27.5° | 182.4  | 148.0 | 90.1  | 42.9  | 21.5  | 15.0  | 6.4   | 15.0  | 25.7  | 25.7  | 25.7  |
| 30°   | 186.7  | 143.7 | 83.7  | 36.5  | 19.3  | 10.7  | 10.7  | 21.5  | 21.5  | 25.7  | 27.9  |
| 32.5° | 193.1  | 141.6 | 79.4  | 32.2  | 15.0  | 8.6   | 15.0  | 12.9  | 12.9  | 15.0  | 17.2  |
| 35°   | 206.0  | 143.7 | 75.1  | 32.2  | 15.0  | 10.7  | 12.9  | 6.4   | 4.3   | 4.3   | 4.3   |
| 37.5° | 223.1  | 145.9 | 68.7  | 27.9  | 12.9  | 12.9  | 6.4   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 251.0  | 152.3 | 64.4  | 25.7  | 10.7  | 10.7  | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 298.2  | 165.2 | 62.2  | 23.6  | 10.7  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 392.6  | 195.2 | 57.9  | 21.5  | 10.7  | 4.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 564.2  | 266.0 | 55.8  | 17.2  | 6.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 823.8  | 360.4 | 53.6  | 15.0  | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 1051.3 | 379.7 | 36.5  | 12.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 1077.0 | 261.7 | 27.9  | 8.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 858.2  | 169.5 | 23.6  | 6.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 650.1  | 128.7 | 21.5  | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 61°   | 624.3  | 115.9 | 21.5  | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 688.7  | 100.8 | 19.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1119.9 | 83.7  | 17.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1945.9 | 72.9  | 15.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2458.6 | 68.7  | 12.9  | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 2143.3 | 62.2  | 12.9  | 4.3   | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1289.4 | 53.6  | 12.9  | 8.6   | 4.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 675.8  | 40.8  | 12.9  | 10.7  | 6.4   | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 328.2  | 36.5  | 15.0  | 10.7  | 8.6   | 4.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 128.7  | 30.0  | 17.2  | 15.0  | 10.7  | 6.4   | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 57.9   | 25.7  | 19.3  | 17.2  | 15.0  | 8.6   | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 30.0   | 23.6  | 21.5  | 19.3  | 15.0  | 10.7  | 4.3   | 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   |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-4

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-730-U-5WQ

Data in this report applies to families of products including GSS-SB1A-730-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-4  
 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-730-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2985  
 CIE  $u'$ : 0.2504  
 CIE  $v'$ : 0.5243  
 Duv: 0.0019  
 CIE x: 0.4408  
 CIE y: 0.4101  
 CIE z: 0.1491  
 Peak Wavelength (nm): 595  
 Dominant Wavelength (nm): 582  
 Purity: 55.41818  
 R<sub>f</sub>: 73.8  
 R<sub>g</sub>: 94.4

CRI (Ra): 70.8  
 R1: 66.3  
 R2: 80.6  
 R3: 94.5  
 R4: 68.2  
 R5: 66.5  
 R6: 74.7  
 R7: 76.2  
 R8: 39.6  
 R9: -43.2  
 R10: 57.6  
 R11: 64.8  
 R12: 53.5  
 R13: 68.7  
 R14: 97.0  
 R15: 56.4



### Test Conditions

Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-4

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

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**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<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               | 142                                  | NR                             | 620               | 803                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 189                                  | NR                             | 625               | 734                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 240                                  | NR                             | 630               | 670                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 290                                  | NR                             | 635               | 600                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 335                                  | NR                             | 640               | 535                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 375                                  | NR                             | 645               | 473                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 408                                  | NR                             | 650               | 415                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 434                                  | NR                             | 655               | 362                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 461                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 486                                  | NR                             | 665               | 271                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 16                                   | NR                             | 540               | 514                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 33                                   | NR                             | 545               | 549                                  | NR                             | 675               | 198                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 69                                   | NR                             | 550               | 591                                  | NR                             | 680               | 169                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 640                                  | NR                             | 685               | 144                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 227                                  | NR                             | 560               | 695                                  | NR                             | 690               | 123                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 369                                  | NR                             | 565               | 757                                  | NR                             | 695               | 104                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 517                                  | NR                             | 570               | 822                                  | NR                             | 700               | 88                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 498                                  | NR                             | 575               | 882                                  | NR                             | 705               | 75                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 315                                  | NR                             | 580               | 935                                  | NR                             | 710               | 63                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 204                                  | NR                             | 585               | 972                                  | NR                             | 715               | 54                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 145                                  | NR                             | 590               | 996                                  | NR                             | 720               | 46                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 100                                  | NR                             | 595               | 1000                                 | NR                             | 725               | 39                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 78                                   | NR                             | 600               | 989                                  | NR                             | 730               | 33                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 76                                   | NR                             | 605               | 960                                  | NR                             | 735               | 28                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 83                                   | NR                             | 610               | 918                                  | NR                             | 740               | 24                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 105                                  | NR                             | 615               | 864                                  | NR                             | 745               | 20                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.19

| $\lambda$<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               | 142                                  | NR                             | 620               | 803                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 189                                  | NR                             | 625               | 734                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 240                                  | NR                             | 630               | 670                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 290                                  | NR                             | 635               | 600                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 335                                  | NR                             | 640               | 535                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 375                                  | NR                             | 645               | 473                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 408                                  | NR                             | 650               | 415                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 434                                  | NR                             | 655               | 362                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 461                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 486                                  | NR                             | 665               | 271                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 16                                   | NR                             | 540               | 514                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 33                                   | NR                             | 545               | 549                                  | NR                             | 675               | 198                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 69                                   | NR                             | 550               | 591                                  | NR                             | 680               | 169                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 640                                  | NR                             | 685               | 144                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 227                                  | NR                             | 560               | 695                                  | NR                             | 690               | 123                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 369                                  | NR                             | 565               | 757                                  | NR                             | 695               | 104                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 517                                  | NR                             | 570               | 822                                  | NR                             | 700               | 88                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 498                                  | NR                             | 575               | 882                                  | NR                             | 705               | 75                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 315                                  | NR                             | 580               | 935                                  | NR                             | 710               | 63                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 204                                  | NR                             | 585               | 972                                  | NR                             | 715               | 54                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 145                                  | NR                             | 590               | 996                                  | NR                             | 720               | 46                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 100                                  | NR                             | 595               | 1000                                 | NR                             | 725               | 39                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 78                                   | NR                             | 600               | 989                                  | NR                             | 730               | 33                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 76                                   | NR                             | 605               | 960                                  | NR                             | 735               | 28                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 83                                   | NR                             | 610               | 918                                  | NR                             | 740               | 24                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 105                                  | NR                             | 615               | 864                                  | NR                             | 745               | 20                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.13**

| $\lambda$<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               | 142                                  | NR                             | 620               | 803                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 189                                  | NR                             | 625               | 734                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 240                                  | NR                             | 630               | 670                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 290                                  | NR                             | 635               | 600                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 335                                  | NR                             | 640               | 535                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 375                                  | NR                             | 645               | 473                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 408                                  | NR                             | 650               | 415                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 434                                  | NR                             | 655               | 362                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 461                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 486                                  | NR                             | 665               | 271                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 16                                   | NR                             | 540               | 514                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 33                                   | NR                             | 545               | 549                                  | NR                             | 675               | 198                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 69                                   | NR                             | 550               | 591                                  | NR                             | 680               | 169                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 640                                  | NR                             | 685               | 144                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 227                                  | NR                             | 560               | 695                                  | NR                             | 690               | 123                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 369                                  | NR                             | 565               | 757                                  | NR                             | 695               | 104                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 517                                  | NR                             | 570               | 822                                  | NR                             | 700               | 88                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 498                                  | NR                             | 575               | 882                                  | NR                             | 705               | 75                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 315                                  | NR                             | 580               | 935                                  | NR                             | 710               | 63                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 204                                  | NR                             | 585               | 972                                  | NR                             | 715               | 54                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 145                                  | NR                             | 590               | 996                                  | NR                             | 720               | 46                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 100                                  | NR                             | 595               | 1000                                 | NR                             | 725               | 39                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 78                                   | NR                             | 600               | 989                                  | NR                             | 730               | 33                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 76                                   | NR                             | 605               | 960                                  | NR                             | 735               | 28                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 83                                   | NR                             | 610               | 918                                  | NR                             | 740               | 24                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 105                                  | NR                             | 615               | 864                                  | NR                             | 745               | 20                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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TM-30-18

### Summary

$R_f = 73.8$   
 $R_g = 94.4$   
 $CIE\ R_a = 70.8$   
 $R_g = -43.2$

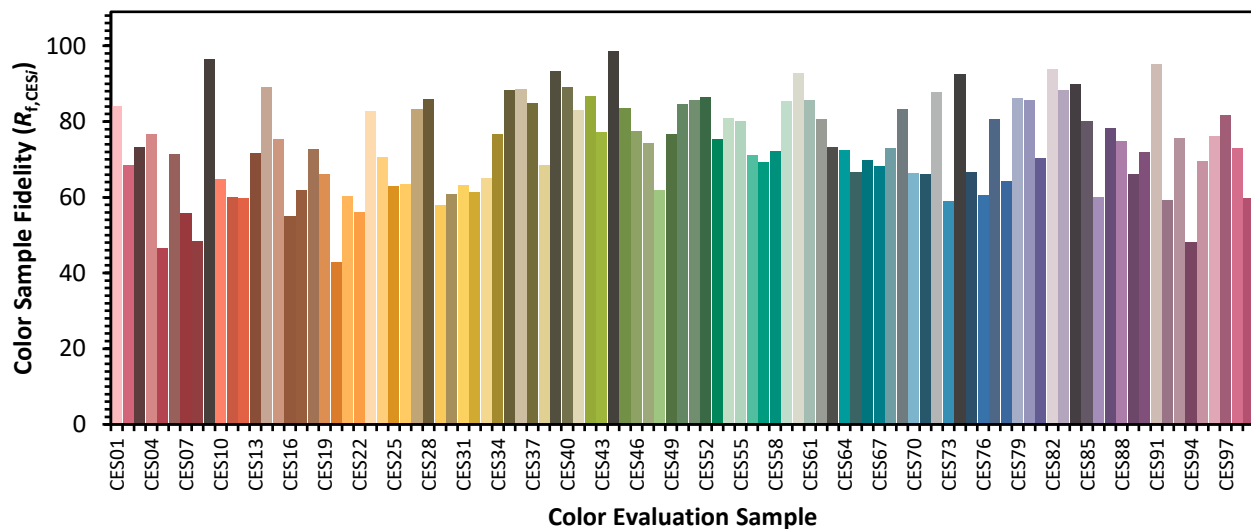


### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54 = 81 | CES79 = 86 |
| CES05 = 49 | CES30 = 61 | CES55 = 80 | CES80 = 86 |
| CES06 = 51 | CES31 = 63 | CES56 = 71 | CES81 = 70 |
| CES07 = 41 | CES32 = 61 | CES57 = 69 | CES82 = 94 |
| CES08 = 40 | CES33 = 65 | CES58 = 72 | CES83 = 88 |
| CES09 = 29 | CES34 = 77 | CES59 = 85 | CES84 = 90 |
| CES10 = 76 | CES35 = 88 | CES60 = 93 | CES85 = 80 |
| CES11 = 59 | CES36 = 89 | CES61 = 86 | CES86 = 60 |
| CES12 = 65 | CES37 = 85 | CES62 = 81 | CES87 = 78 |
| CES13 = 43 | CES38 = 69 | CES63 = 73 | CES88 = 75 |
| CES14 = 74 | CES39 = 93 | CES64 = 72 | CES89 = 66 |
| CES15 = 71 | CES40 = 89 | CES65 = 67 | CES90 = 72 |
| CES16 = 47 | CES41 = 83 | CES66 = 70 | CES91 = 95 |
| CES17 = 50 | CES42 = 87 | CES67 = 68 | CES92 = 59 |
| CES18 = 56 | CES43 = 77 | CES68 = 73 | CES93 = 76 |
| CES19 = 73 | CES44 = 99 | CES69 = 83 | CES94 = 48 |
| CES20 = 66 | CES45 = 83 | CES70 = 66 | CES95 = 70 |
| CES21 = 87 | CES46 = 77 | CES71 = 66 | CES96 = 76 |
| CES22 = 79 | CES47 = 74 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 62 | CES73 = 59 | CES98 = 73 |
| CES24 = 91 | CES49 = 77 | CES74 = 93 | CES99 = 60 |
| CES25 = 73 | CES50 = 85 | CES75 = 67 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)