

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



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

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: STREETWORKS

Report Number: P1057524

Luminaire Tested: **GAP-SA2A-730-U-T2BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1057524  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GAP-SA2A-730-U-T2BC  
Description: GALLEON PEDESTRAIAN COMPANION 615mA 2xLight Square PACKAGE 70CRI  
3000K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (28) 3000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6175.6 lumens  
Efficiency: N/A  
Efficacy: 111.1 lumens/watt  
Luminous Opening: Rectangular (W 1.33' x L: 0.67' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G2

Input Watts (W): 55.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



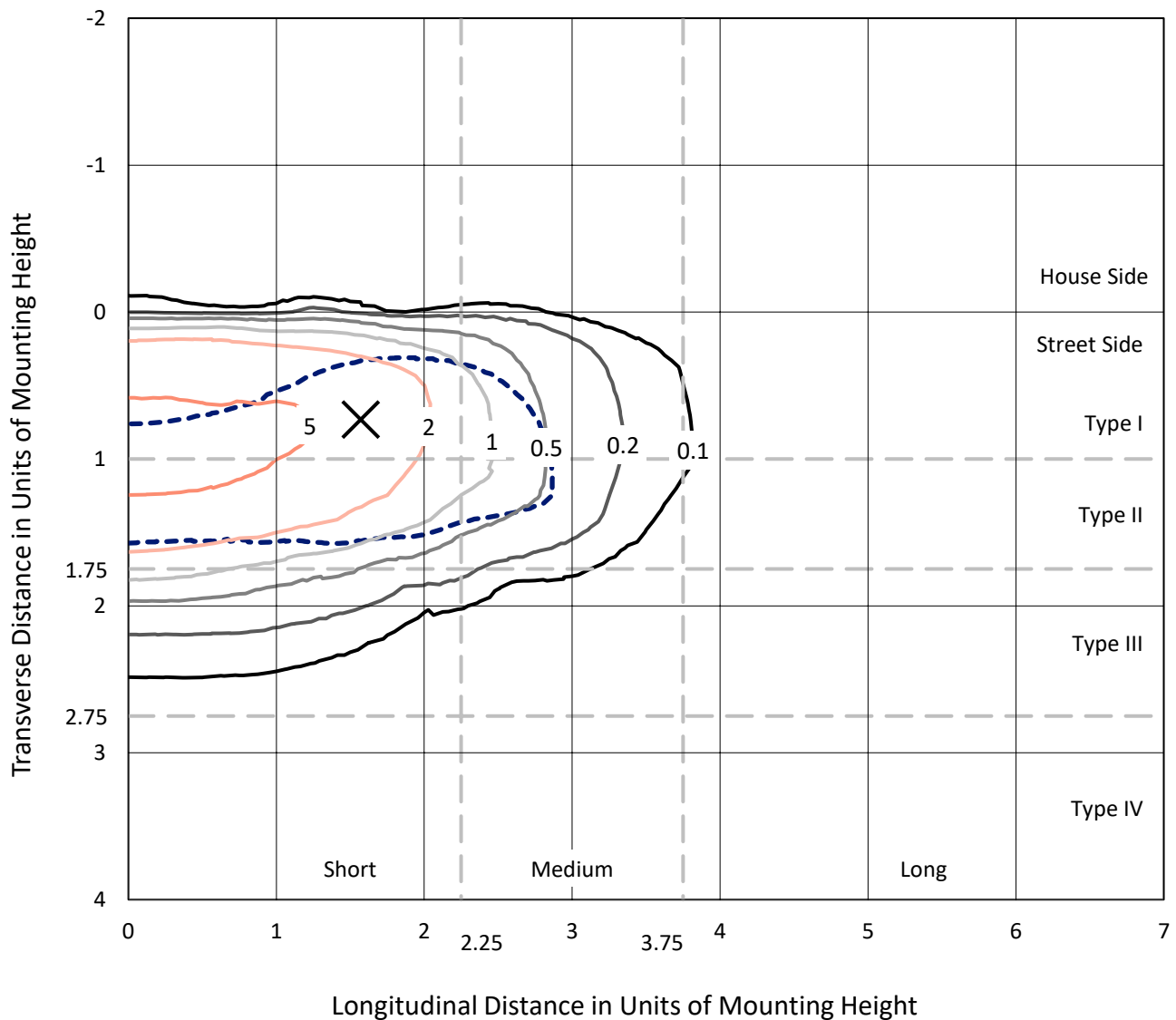
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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

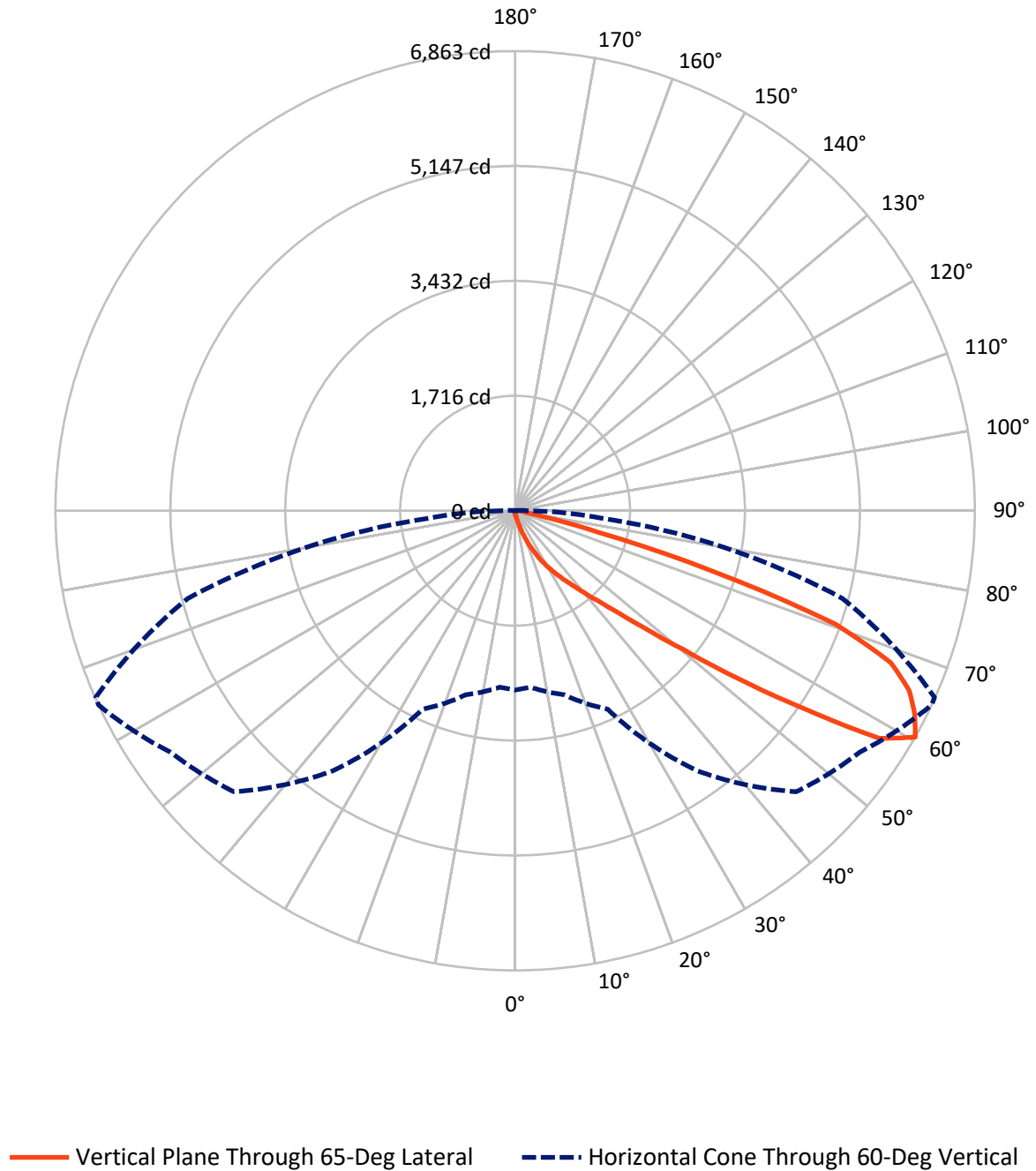


Based on 15 foot mounting height. Maximum calculated value = 8.9 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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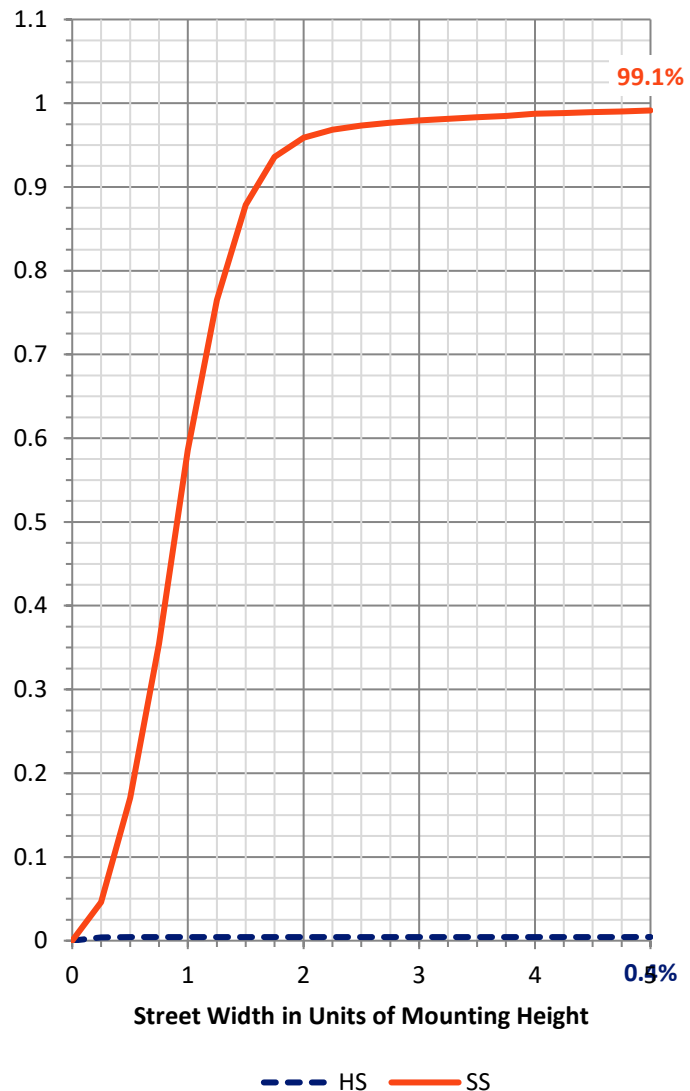
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 27.5     | 0.0    | 27.5   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 6148.1   | 0.0    | 6148.1 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 6175.6   | 0.0    | 6175.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 8.2    | 0.1       |
| 10°-20°   | 68.2   | 1.1       |
| 20°-30°   | 209.0  | 3.4       |
| 30°-40°   | 543.2  | 8.8       |
| 40°-50°   | 1367.6 | 22.1      |
| 50°-60°   | 1982.5 | 32.1      |
| 60°-70°   | 1529.0 | 24.8      |
| 70°-80°   | 421.8  | 6.8       |
| 80°-90°   | 46.0   | 0.7       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 6175.6 | 100.0     |
| 0°-180°   | 6175.6 | 100.0     |



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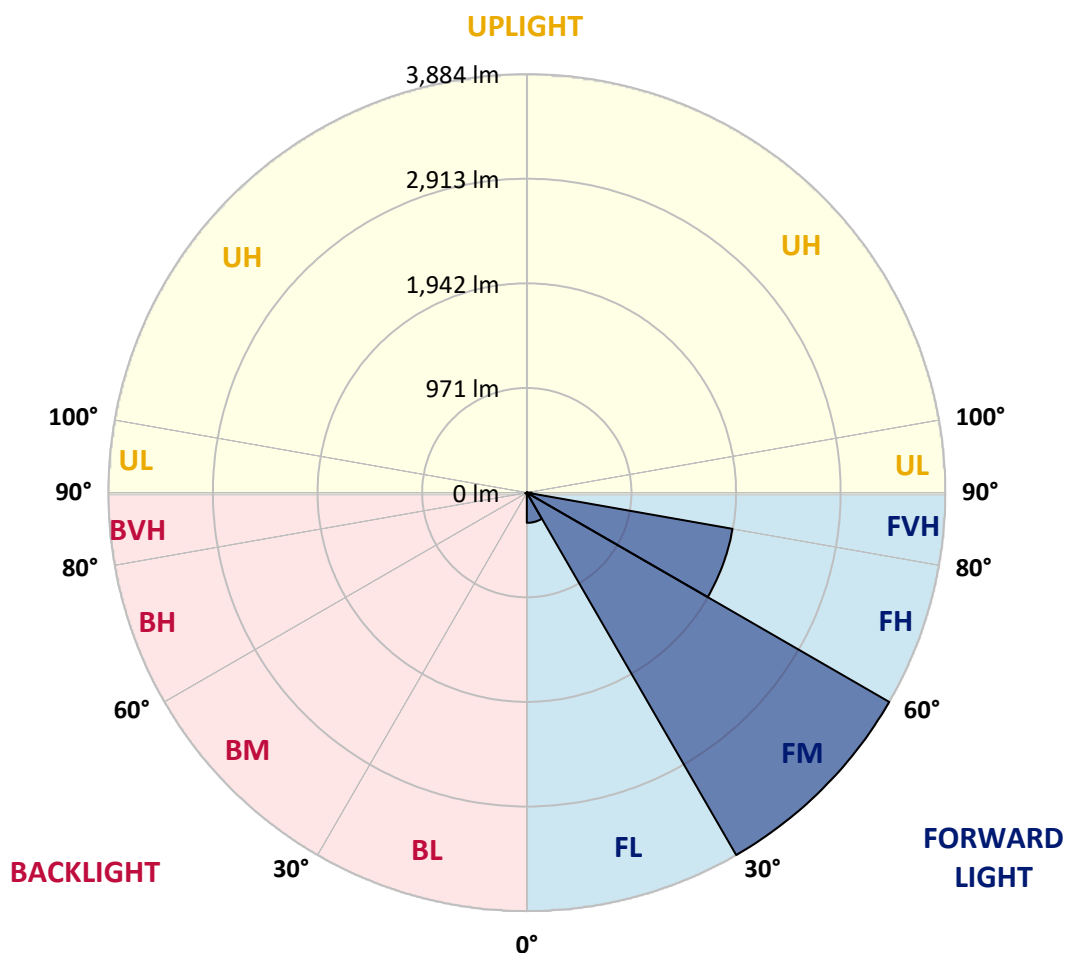
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 280.3  | 4.5       |                         |      |         |
| FM   | (30°-60°)   | 3884.3 | 62.9      |                         |      |         |
| FH   | (60°-80°)   | 1938.6 | 31.4      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 44.9   | 0.7       |                         |      | G1/100  |
| BL   | (0°-30°)    | 5.1    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 9.0    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 12.3   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 1.1    | 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-G2**

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 66°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 44.3   | 44.3   | 44.3   | 44.3   | 44.3   | 44.3   | 44.3   | 44.3   | 44.3   | 44.3   | 44.3   |
| 2.5°  | 71.2   | 71.2   | 70.0   | 67.7   | 61.9   | 58.4   | 54.8   | 51.3   | 50.2   | 47.8   | 45.5   |
| 5°    | 129.5  | 127.2  | 126.0  | 114.4  | 102.7  | 88.7   | 74.7   | 63.0   | 61.9   | 53.7   | 46.7   |
| 7.5°  | 271.9  | 271.9  | 248.6  | 220.6  | 189.1  | 145.9  | 107.4  | 82.9   | 79.4   | 61.9   | 47.8   |
| 10°   | 444.6  | 445.8  | 430.6  | 386.3  | 329.1  | 256.7  | 173.9  | 107.4  | 105.0  | 72.4   | 49.0   |
| 12.5° | 599.8  | 598.7  | 583.5  | 552.0  | 489.0  | 397.9  | 273.1  | 155.2  | 145.9  | 84.0   | 49.0   |
| 15°   | 699.0  | 699.0  | 696.7  | 680.4  | 636.0  | 542.7  | 405.0  | 227.6  | 217.1  | 101.5  | 50.2   |
| 17.5° | 795.9  | 801.7  | 793.6  | 786.6  | 753.9  | 683.9  | 542.7  | 327.9  | 306.9  | 129.5  | 52.5   |
| 20°   | 912.6  | 918.4  | 914.9  | 904.4  | 863.6  | 801.7  | 680.4  | 443.5  | 422.5  | 176.2  | 57.2   |
| 22.5° | 1048.0 | 1052.6 | 1045.6 | 1042.1 | 990.8  | 912.6  | 807.6  | 582.3  | 550.8  | 235.7  | 63.0   |
| 25°   | 1214.9 | 1211.3 | 1209.0 | 1189.2 | 1139.0 | 1053.8 | 927.8  | 710.7  | 686.2  | 315.1  | 71.2   |
| 27.5° | 1410.9 | 1406.2 | 1391.1 | 1365.4 | 1291.9 | 1198.5 | 1056.1 | 847.2  | 823.9  | 410.8  | 82.9   |
| 30°   | 1675.8 | 1647.8 | 1625.6 | 1568.5 | 1470.4 | 1346.7 | 1199.7 | 981.4  | 955.8  | 525.2  | 95.7   |
| 32.5° | 2049.3 | 2041.1 | 1954.7 | 1805.4 | 1664.1 | 1515.9 | 1359.6 | 1123.8 | 1097.0 | 643.0  | 113.2  |
| 35°   | 2719.1 | 2680.6 | 2530.1 | 2154.3 | 1889.4 | 1728.3 | 1521.8 | 1266.2 | 1238.2 | 779.6  | 136.5  |
| 37.5° | 3471.8 | 3438.0 | 3292.1 | 2839.3 | 2231.3 | 1947.7 | 1702.7 | 1427.2 | 1396.9 | 928.9  | 165.7  |
| 40°   | 4226.9 | 4216.4 | 4161.5 | 3799.8 | 2924.5 | 2240.6 | 1941.9 | 1632.6 | 1597.6 | 1079.5 | 206.6  |
| 42.5° | 5076.5 | 5046.1 | 5011.1 | 4888.6 | 4121.9 | 2827.6 | 2274.5 | 1867.2 | 1836.9 | 1265.0 | 264.9  |
| 45°   | 5346.0 | 5334.4 | 5376.4 | 5494.3 | 5376.4 | 4057.7 | 2790.3 | 2187.0 | 2156.6 | 1503.1 | 348.9  |
| 47.5° | 5255.0 | 5243.3 | 5358.9 | 5552.6 | 5822.2 | 5533.9 | 3589.7 | 2645.6 | 2589.6 | 1787.8 | 473.8  |
| 50°   | 4795.2 | 4799.9 | 5004.1 | 5391.6 | 5777.8 | 6122.1 | 4924.8 | 3255.9 | 3217.4 | 2192.8 | 641.9  |
| 52.5° | 4359.9 | 4368.1 | 4623.7 | 5119.6 | 5544.4 | 6144.3 | 6198.0 | 4144.0 | 3978.3 | 2688.8 | 849.6  |
| 55°   | 3936.3 | 3924.6 | 4118.4 | 4865.2 | 5502.4 | 5840.9 | 6598.2 | 5186.2 | 5077.6 | 3331.8 | 1053.8 |
| 57.5° | 3488.2 | 3474.2 | 3575.7 | 4131.2 | 5414.9 | 5882.9 | 6493.2 | 6412.7 | 6283.1 | 4070.5 | 1218.4 |
| 60°   | 2675.9 | 2644.4 | 2845.2 | 3269.9 | 4739.2 | 5934.2 | 6285.5 | 6863.1 | 6855.0 | 5060.1 | 1301.2 |
| 62.5° | 1282.5 | 1333.9 | 1605.8 | 2066.8 | 3168.4 | 5479.1 | 6366.0 | 6696.3 | 6712.6 | 5933.0 | 1492.6 |
| 65°   | 654.7  | 666.4  | 806.4  | 1128.5 | 1677.0 | 3938.6 | 6133.8 | 6465.2 | 6440.7 | 5762.7 | 1988.6 |
| 67.5° | 441.1  | 447.0  | 512.3  | 682.7  | 973.3  | 1650.1 | 4766.0 | 6049.7 | 6032.2 | 4911.9 | 2283.8 |
| 70°   | 390.9  | 393.3  | 409.6  | 464.5  | 583.5  | 727.0  | 2182.3 | 5076.5 | 5207.2 | 3751.9 | 2085.4 |
| 72.5° | 382.8  | 382.8  | 380.4  | 383.9  | 376.9  | 394.4  | 765.6  | 3056.4 | 3246.6 | 2621.1 | 1689.8 |
| 75°   | 374.6  | 375.8  | 372.3  | 360.6  | 292.9  | 246.2  | 280.1  | 1287.2 | 1427.2 | 1724.8 | 1266.2 |
| 77.5° | 350.1  | 352.4  | 362.9  | 333.8  | 266.1  | 173.9  | 159.9  | 408.5  | 477.3  | 1101.7 | 927.8  |
| 80°   | 131.9  | 131.9  | 131.9  | 121.4  | 177.4  | 131.9  | 115.5  | 166.9  | 177.4  | 620.8  | 570.7  |
| 82.5° | 96.9   | 95.7   | 91.0   | 84.0   | 71.2   | 66.5   | 94.5   | 126.0  | 126.0  | 290.6  | 217.1  |
| 85°   | 28.0   | 28.0   | 31.5   | 42.0   | 52.5   | 58.4   | 72.4   | 96.9   | 100.4  | 110.9  | 32.7   |
| 87.5° | 12.8   | 12.8   | 16.3   | 21.0   | 28.0   | 42.0   | 60.7   | 82.9   | 84.0   | 92.2   | 5.8    |
| 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°    | 44.3  | 44.3 | 44.3 | 44.3 | 44.3 | 44.3 | 44.3 | 44.3 | 44.3 | 44.3 | 44.3 |
| 2.5°  | 44.3  | 43.2 | 42.0 | 40.8 | 38.5 | 36.2 | 32.7 | 31.5 | 30.3 | 30.3 | 30.3 |
| 5°    | 44.3  | 42.0 | 38.5 | 35.0 | 32.7 | 29.2 | 26.8 | 25.7 | 24.5 | 23.3 | 23.3 |
| 7.5°  | 43.2  | 39.7 | 35.0 | 31.5 | 29.2 | 25.7 | 22.2 | 21.0 | 19.8 | 19.8 | 19.8 |
| 10°   | 43.2  | 38.5 | 32.7 | 29.2 | 25.7 | 21.0 | 17.5 | 16.3 | 15.2 | 14.0 | 14.0 |
| 12.5° | 40.8  | 36.2 | 30.3 | 25.7 | 21.0 | 16.3 | 12.8 | 10.5 | 9.3  | 9.3  | 9.3  |
| 15°   | 39.7  | 35.0 | 28.0 | 22.2 | 16.3 | 11.7 | 8.2  | 5.8  | 4.7  | 5.8  | 5.8  |
| 17.5° | 38.5  | 31.5 | 25.7 | 17.5 | 11.7 | 7.0  | 3.5  | 1.2  | 1.2  | 1.2  | 1.2  |
| 20°   | 38.5  | 30.3 | 22.2 | 14.0 | 8.2  | 3.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  |
| 22.5° | 39.7  | 30.3 | 19.8 | 11.7 | 4.7  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 25°   | 40.8  | 29.2 | 17.5 | 8.2  | 3.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 27.5° | 42.0  | 28.0 | 15.2 | 5.8  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 30°   | 44.3  | 26.8 | 12.8 | 4.7  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 32.5° | 47.8  | 25.7 | 10.5 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 35°   | 51.3  | 23.3 | 7.0  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 56.0  | 23.3 | 4.7  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 63.0  | 23.3 | 4.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 74.7  | 24.5 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 96.9  | 31.5 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 137.7 | 47.8 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 194.9 | 68.9 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 243.9 | 72.4 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 253.2 | 51.3 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 218.2 | 42.0 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 187.9 | 28.0 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 226.4 | 23.3 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 360.6 | 22.2 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 561.3 | 22.2 | 3.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 629.0 | 22.2 | 3.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 486.6 | 17.5 | 3.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 305.8 | 14.0 | 3.5  | 2.3  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 166.9 | 9.3  | 3.5  | 2.3  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 80°   | 63.0  | 7.0  | 3.5  | 2.3  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 82.5° | 22.2  | 5.8  | 4.7  | 3.5  | 2.3  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 85°   | 8.2   | 4.7  | 4.7  | 3.5  | 3.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 87.5° | 4.7   | 4.7  | 4.7  | 4.7  | 3.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 90°   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |

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           |



REPORT NUMBER: SP1-2407-184-4

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | 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)