

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: P1064374

Luminaire Tested: **GLAN-SA9B-930-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1064374  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA9B-930-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 9xLight Square PACKAGE  
90CRI 3000K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (126) 3000K CCT, 90 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 27762.7 lumens  
Efficiency: N/A  
Efficacy: 88.8 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G5

Input Watts (W): 312.7  
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

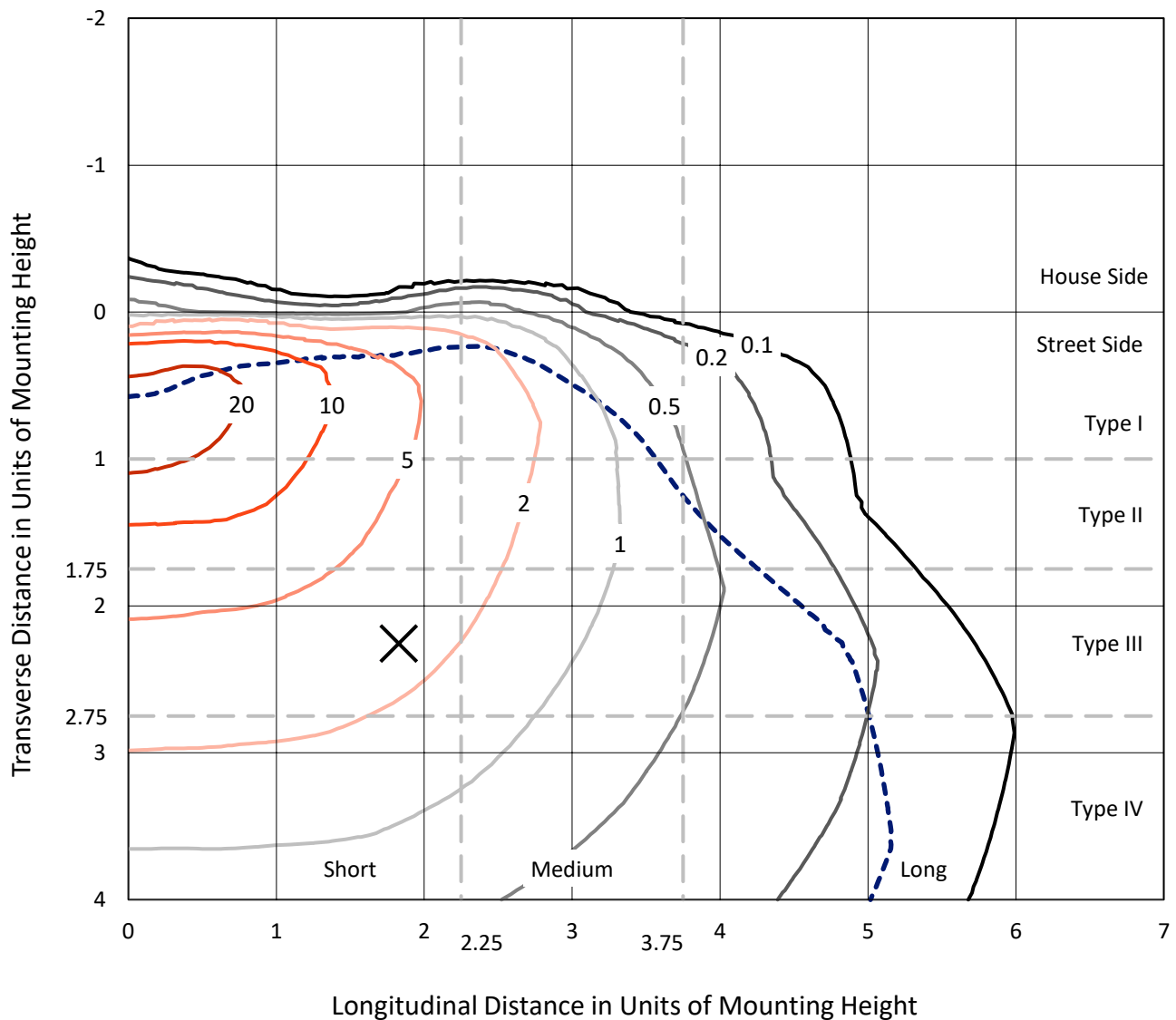


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
- - - 1/2 Max cd

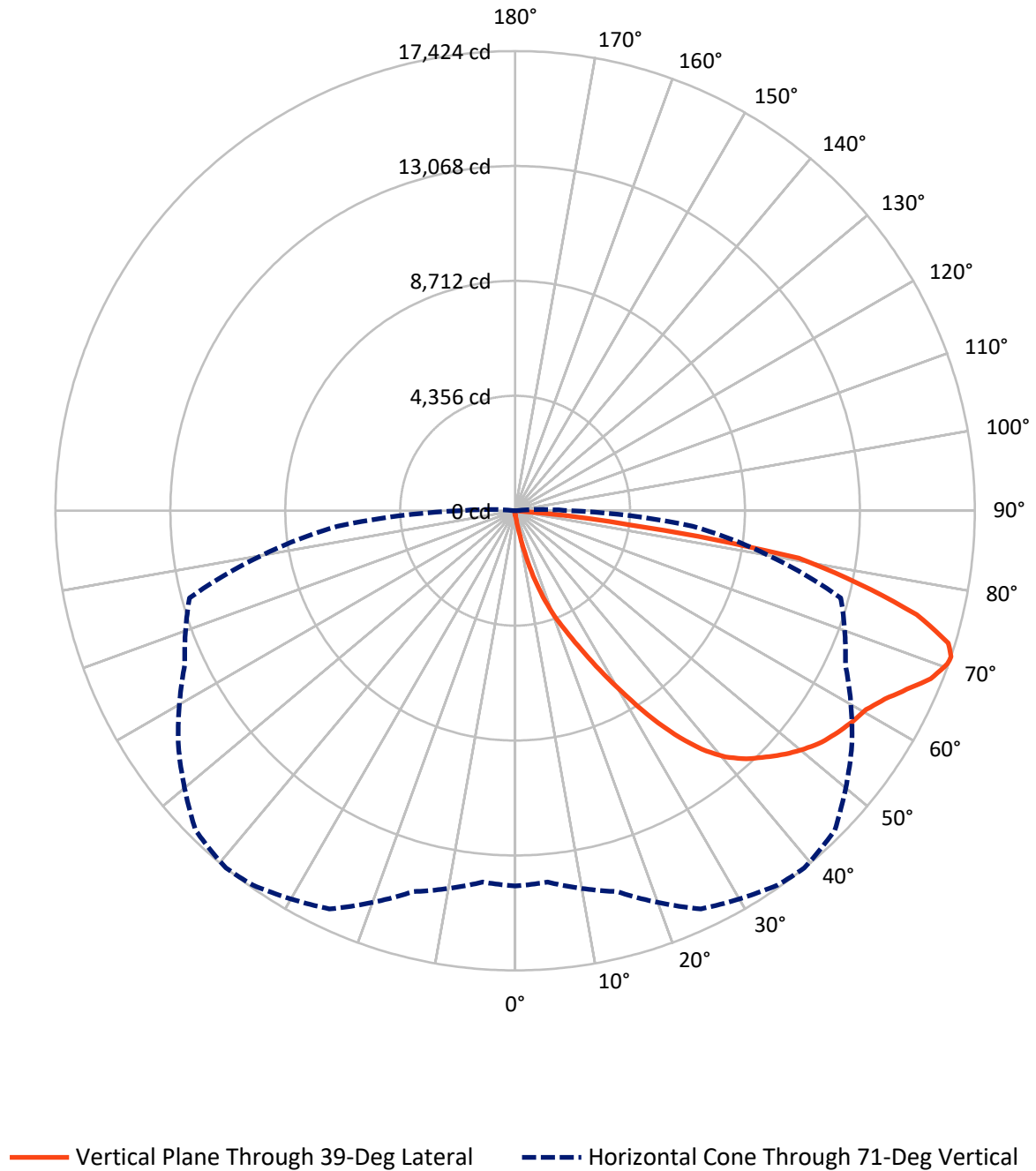


Based on 15 foot mounting height. Maximum calculated value = 28.5 fc  
Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 98.7     | 0.0    | 98.7    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 27664.0  | 0.0    | 27664.0 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 27762.7  | 0.0    | 27762.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 23.2    | 0.1       |
| 10°-20°   | 296.7   | 1.1       |
| 20°-30°   | 1056.7  | 3.8       |
| 30°-40°   | 2546.8  | 9.2       |
| 40°-50°   | 4262.3  | 15.4      |
| 50°-60°   | 5474.3  | 19.7      |
| 60°-70°   | 6927.8  | 25.0      |
| 70°-80°   | 6176.4  | 22.2      |
| 80°-90°   | 998.4   | 3.6       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 27762.7 | 100.0     |
| 0°-180°   | 27762.7 | 100.0     |



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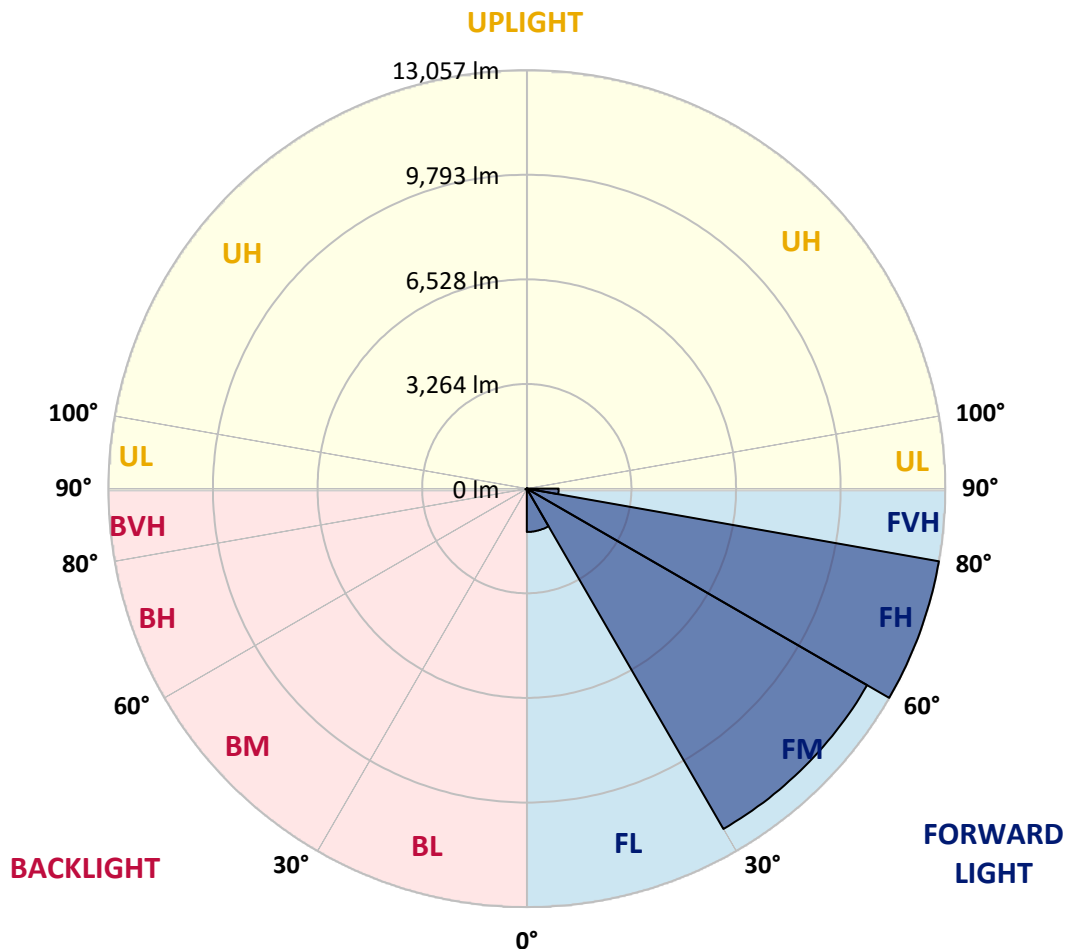
CATALOG NUMBER: GLAN-SA9B-930-U-T4BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|---------|-----------|-------------------------|------|--------|
|      |             |         |           | B                       | U    | G      |
| FL   | (0°-30°)    | 1352.8  | 4.9       |                         |      |        |
| FM   | (30°-60°)   | 12260.5 | 44.2      |                         |      |        |
| FH   | (60°-80°)   | 13056.8 | 47.0      |                         |      | G5     |
| FVH  | (80°-90°)   | 993.9   | 3.6       |                         |      | G5     |
| BL   | (0°-30°)    | 23.9    | 0.1       | B0/110                  |      |        |
| BM   | (30°-60°)   | 22.8    | 0.1       | B0/220                  |      |        |
| BH   | (60°-80°)   | 47.4    | 0.2       | B0/110                  |      | G0/110 |
| BVH  | (80°-90°)   | 4.5     | 0.0       |                         |      | G0/10  |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |        |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |        |

**BUG Rating: B0-U0-G5**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 39°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 152.2   | 152.2   | 152.2   | 152.2   | 152.2   | 152.2   | 152.2   | 152.2   | 152.2   | 152.2   | 152.2  |
| 2.5°  | 174.8   | 174.8   | 174.8   | 169.1   | 169.1   | 167.3   | 165.4   | 165.4   | 161.6   | 159.7   | 156.0  |
| 5°    | 265.0   | 259.4   | 246.2   | 238.7   | 223.6   | 214.2   | 204.9   | 191.7   | 178.5   | 169.1   | 157.9  |
| 7.5°  | 599.5   | 612.7   | 569.5   | 488.6   | 405.9   | 370.2   | 310.1   | 250.0   | 206.7   | 178.5   | 159.7  |
| 10°   | 1527.9  | 1520.4  | 1373.8  | 1212.2  | 935.9   | 825.0   | 646.5   | 407.8   | 266.9   | 195.5   | 161.6  |
| 12.5° | 2599.2  | 2591.7  | 2418.8  | 2198.9  | 1834.3  | 1603.1  | 1264.8  | 761.2   | 383.4   | 221.8   | 161.6  |
| 15°   | 3499.4  | 3469.3  | 3414.8  | 3196.8  | 2770.2  | 2576.6  | 2129.3  | 1345.6  | 620.2   | 266.9   | 165.4  |
| 17.5° | 4095.2  | 4068.9  | 4018.1  | 3939.2  | 3668.6  | 3439.3  | 3080.3  | 2114.3  | 1003.6  | 345.8   | 172.9  |
| 20°   | 4642.1  | 4623.3  | 4581.9  | 4566.9  | 4392.1  | 4270.0  | 3973.0  | 2997.6  | 1563.6  | 469.8   | 184.2  |
| 22.5° | 5393.8  | 5354.4  | 5371.3  | 5281.1  | 5110.0  | 4963.5  | 4781.2  | 3922.3  | 2247.7  | 676.6   | 204.9  |
| 25°   | 6314.7  | 6295.9  | 6249.0  | 6185.1  | 5948.2  | 5820.5  | 5540.4  | 4794.3  | 3012.7  | 947.2   | 227.4  |
| 27.5° | 7427.3  | 7406.7  | 7395.4  | 7248.8  | 6976.3  | 6837.2  | 6446.3  | 5617.5  | 3873.4  | 1326.8  | 257.5  |
| 30°   | 8709.1  | 8718.5  | 8645.2  | 8457.2  | 8139.6  | 7944.2  | 7542.0  | 6480.1  | 4754.8  | 1772.3  | 289.4  |
| 32.5° | 10035.9 | 10017.1 | 9904.4  | 9682.6  | 9398.8  | 9216.5  | 8705.3  | 7425.4  | 5679.5  | 2360.5  | 327.0  |
| 35°   | 11466.1 | 11430.4 | 11133.5 | 10879.8 | 10637.3 | 10408.0 | 9941.9  | 8523.0  | 6604.2  | 3020.2  | 377.8  |
| 37.5° | 12909.5 | 12742.2 | 12146.5 | 11825.1 | 11657.8 | 11469.9 | 11035.7 | 9693.9  | 7523.2  | 3756.9  | 439.8  |
| 40°   | 13999.5 | 13869.9 | 13163.2 | 12571.2 | 12437.8 | 12278.0 | 11954.8 | 10705.0 | 8500.5  | 4548.1  | 515.0  |
| 42.5° | 14602.8 | 14531.4 | 13896.2 | 13311.7 | 12997.8 | 12856.9 | 12580.6 | 11588.3 | 9466.5  | 5422.0  | 624.0  |
| 45°   | 14860.3 | 14749.4 | 14324.7 | 14052.2 | 13552.2 | 13319.2 | 12990.3 | 12255.5 | 10475.7 | 6414.3  | 776.2  |
| 47.5° | 14781.4 | 14717.5 | 14413.0 | 14512.6 | 14149.9 | 13787.2 | 13304.2 | 12766.7 | 11338.3 | 7553.2  | 984.8  |
| 50°   | 14285.2 | 14230.7 | 14136.7 | 14676.1 | 14631.0 | 14202.5 | 13710.1 | 13170.7 | 12043.1 | 8727.9  | 1308.1 |
| 52.5° | 13341.7 | 13319.2 | 13559.8 | 14548.3 | 14903.5 | 14569.0 | 14101.0 | 13527.8 | 12700.9 | 9955.1  | 1770.4 |
| 55°   | 12125.8 | 12217.9 | 12905.7 | 14349.1 | 15042.6 | 14839.6 | 14446.8 | 13862.3 | 13229.0 | 11052.7 | 2452.6 |
| 57.5° | 11625.9 | 11650.3 | 12509.2 | 14208.1 | 15104.6 | 15078.3 | 14783.2 | 14181.8 | 13713.9 | 11930.3 | 3493.8 |
| 60°   | 12210.4 | 12172.8 | 12625.7 | 14315.3 | 15228.6 | 15292.5 | 15082.1 | 14478.8 | 14134.8 | 12684.0 | 4880.8 |
| 62.5° | 13266.6 | 13245.9 | 13390.6 | 14772.0 | 15591.4 | 15721.0 | 15497.4 | 14693.0 | 14507.0 | 13180.1 | 6463.2 |
| 65°   | 14210.0 | 14166.8 | 14435.5 | 15582.0 | 16228.5 | 16320.6 | 16125.1 | 15059.5 | 14670.5 | 13541.0 | 7949.8 |
| 67.5° | 14617.8 | 14608.4 | 15040.7 | 16352.5 | 16897.5 | 16997.1 | 16826.1 | 15565.1 | 14632.9 | 13655.6 | 8605.7 |
| 70°   | 14431.8 | 14396.1 | 15087.7 | 16679.5 | 17275.3 | 17388.1 | 17222.7 | 15753.0 | 14225.1 | 13292.9 | 7634.1 |
| 71°   | 14226.9 | 14131.1 | 14946.7 | 16657.0 | 17327.9 | 17423.8 | 17134.3 | 15582.0 | 13815.4 | 12777.9 | 6752.6 |
| 72.5° | 13591.7 | 13608.6 | 14559.6 | 16422.1 | 17202.0 | 17173.8 | 16634.4 | 14969.3 | 13321.1 | 11609.0 | 5423.9 |
| 75°   | 12028.1 | 12127.7 | 13306.0 | 15435.4 | 16078.1 | 15719.2 | 14894.1 | 13798.4 | 12328.8 | 8323.8  | 3766.3 |
| 77.5° | 9829.2  | 9977.6  | 11272.5 | 13537.2 | 13354.9 | 13319.2 | 13285.4 | 12157.7 | 10528.3 | 4471.1  | 2619.9 |
| 80°   | 4692.8  | 5014.2  | 6799.6  | 9663.8  | 10498.2 | 10902.3 | 10648.6 | 9797.2  | 8141.5  | 2129.3  | 1565.5 |
| 82.5° | 306.3   | 302.6   | 428.5   | 811.9   | 3422.4  | 4424.1  | 7028.9  | 7002.6  | 5675.7  | 1037.4  | 639.0  |
| 85°   | 144.7   | 148.5   | 163.5   | 186.1   | 216.1   | 236.8   | 327.0   | 1917.0  | 2715.7  | 494.3   | 139.1  |
| 87.5° | 84.6    | 86.5    | 101.5   | 129.7   | 169.1   | 187.9   | 223.6   | 287.5   | 353.3   | 272.5   | 30.1   |
| 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°    | 152.2  | 152.2 | 152.2 | 152.2 | 152.2 | 152.2 | 152.2 | 152.2 | 152.2 | 152.2 | 152.2 |
| 2.5°  | 154.1  | 152.2 | 146.6 | 141.0 | 135.3 | 131.6 | 129.7 | 131.6 | 131.6 | 133.4 | 133.4 |
| 5°    | 154.1  | 148.5 | 139.1 | 127.8 | 120.3 | 112.8 | 109.0 | 107.1 | 109.0 | 109.0 | 109.0 |
| 7.5°  | 152.2  | 142.8 | 129.7 | 116.5 | 107.1 | 97.7  | 94.0  | 92.1  | 92.1  | 94.0  | 94.0  |
| 10°   | 148.5  | 139.1 | 122.2 | 107.1 | 95.8  | 84.6  | 78.9  | 73.3  | 73.3  | 73.3  | 75.2  |
| 12.5° | 146.6  | 133.4 | 112.8 | 97.7  | 82.7  | 69.5  | 58.3  | 52.6  | 54.5  | 54.5  | 54.5  |
| 15°   | 142.8  | 127.8 | 107.1 | 88.3  | 69.5  | 52.6  | 43.2  | 37.6  | 39.5  | 41.3  | 39.5  |
| 17.5° | 142.8  | 125.9 | 99.6  | 77.1  | 54.5  | 39.5  | 31.9  | 28.2  | 28.2  | 30.1  | 30.1  |
| 20°   | 142.8  | 122.2 | 94.0  | 65.8  | 41.3  | 30.1  | 22.6  | 20.7  | 20.7  | 24.4  | 26.3  |
| 22.5° | 146.6  | 122.2 | 86.5  | 54.5  | 33.8  | 22.6  | 16.9  | 15.0  | 16.9  | 20.7  | 22.6  |
| 25°   | 152.2  | 120.3 | 78.9  | 48.9  | 28.2  | 16.9  | 13.2  | 9.4   | 11.3  | 15.0  | 16.9  |
| 27.5° | 157.9  | 118.4 | 71.4  | 43.2  | 22.6  | 13.2  | 9.4   | 7.5   | 5.6   | 7.5   | 7.5   |
| 30°   | 163.5  | 118.4 | 63.9  | 35.7  | 18.8  | 9.4   | 5.6   | 3.8   | 1.9   | 0.0   | 0.0   |
| 32.5° | 167.3  | 114.6 | 58.3  | 28.2  | 15.0  | 7.5   | 3.8   | 1.9   | 0.0   | 0.0   | 0.0   |
| 35°   | 171.0  | 110.9 | 50.7  | 22.6  | 11.3  | 5.6   | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 174.8  | 105.2 | 43.2  | 18.8  | 9.4   | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 178.5  | 97.7  | 35.7  | 16.9  | 5.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 182.3  | 92.1  | 30.1  | 13.2  | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 191.7  | 88.3  | 24.4  | 11.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 208.6  | 84.6  | 22.6  | 7.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 233.0  | 80.8  | 20.7  | 5.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 266.9  | 78.9  | 18.8  | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 327.0  | 77.1  | 16.9  | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 430.4  | 75.2  | 16.9  | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 659.7  | 71.4  | 16.9  | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 1178.4 | 69.5  | 15.0  | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 2054.2 | 71.4  | 15.0  | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2945.0 | 75.2  | 13.2  | 5.6   | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2520.3 | 65.8  | 13.2  | 7.5   | 3.8   | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 71°   | 2054.2 | 58.3  | 13.2  | 7.5   | 3.8   | 1.9   | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1321.2 | 45.1  | 11.3  | 7.5   | 3.8   | 3.8   | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 558.2  | 37.6  | 11.3  | 7.5   | 5.6   | 3.8   | 3.8   | 1.9   | 0.0   | 0.0   | 0.0   |
| 77.5° | 238.7  | 28.2  | 11.3  | 9.4   | 7.5   | 5.6   | 5.6   | 3.8   | 1.9   | 0.0   | 0.0   |
| 80°   | 90.2   | 22.6  | 13.2  | 11.3  | 9.4   | 9.4   | 7.5   | 3.8   | 1.9   | 0.0   | 0.0   |
| 82.5° | 41.3   | 18.8  | 13.2  | 11.3  | 11.3  | 9.4   | 7.5   | 5.6   | 3.8   | 0.0   | 0.0   |
| 85°   | 26.3   | 16.9  | 13.2  | 11.3  | 11.3  | 9.4   | 9.4   | 5.6   | 3.8   | 0.0   | 0.0   |
| 87.5° | 20.7   | 16.9  | 13.2  | 13.2  | 11.3  | 11.3  | 7.5   | 5.6   | 1.9   | 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: SP1-2407-184-14

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-930-U-5WQ

Data in this report applies to families of products including GSS-SB1A-930-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-14  
 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-930-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2993  
 CIE  $u'$ : 0.2501  
 CIE  $v'$ : 0.5245  
 Duv: 0.0021  
 CIE x: 0.4406  
 CIE y: 0.4107  
 CIE z: 0.1487  
 Peak Wavelength (nm): 621  
 Dominant Wavelength (nm): 582  
 Purity: 55.53327  
 R<sub>f</sub>: 92.6  
 R<sub>g</sub>: 98.5

CRI (Ra): 92.4  
 R1: 92.2  
 R2: 95.2  
 R3: 97.0  
 R4: 93.1  
 R5: 91.7  
 R6: 94.2  
 R7: 93.3  
 R8: 82.3  
 R9: 58.2  
 R10: 87.7  
 R11: 93.5  
 R12: 81.7  
 R13: 92.9  
 R14: 97.6  
 R15: 88.1



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-14

| 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               | 310                                    | NR                             | 620               | 998                                    | NR                             | 750               | 77                                     | NR                             | 880               | 2                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 347                                    | NR                             | 625               | 993                                    | NR                             | 755               | 66                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 379                                    | NR                             | 630               | 983                                    | NR                             | 760               | 56                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 412                                    | NR                             | 635               | 960                                    | NR                             | 765               | 48                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 442                                    | NR                             | 640               | 930                                    | NR                             | 770               | 41                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 475                                    | NR                             | 645               | 889                                    | NR                             | 775               | 35                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 506                                    | NR                             | 650               | 846                                    | NR                             | 780               | 30                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 0                                      | NR                             | 525               | 535                                    | NR                             | 655               | 794                                    | NR                             | 785               | 26                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 1                                      | NR                             | 530               | 565                                    | NR                             | 660               | 740                                    | NR                             | 790               | 22                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 2                                      | NR                             | 535               | 592                                    | NR                             | 665               | 684                                    | NR                             | 795               | 19                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 6                                      | NR                             | 540               | 615                                    | NR                             | 670               | 624                                    | NR                             | 800               | 16                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 10                                     | NR                             | 545               | 638                                    | NR                             | 675               | 567                                    | NR                             | 805               | 14                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 20                                     | NR                             | 550               | 658                                    | NR                             | 680               | 513                                    | NR                             | 810               | 12                                     | NR                             | 940               | 0                                      | NR                             |
| 425               | 38                                     | NR                             | 555               | 678                                    | NR                             | 685               | 459                                    | NR                             | 815               | 10                                     | NR                             | 945               | 0                                      | NR                             |
| 430               | 70                                     | NR                             | 560               | 695                                    | NR                             | 690               | 412                                    | NR                             | 820               | 9                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 136                                    | NR                             | 565               | 716                                    | NR                             | 695               | 363                                    | NR                             | 825               | 8                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 262                                    | NR                             | 570               | 740                                    | NR                             | 700               | 320                                    | NR                             | 830               | 7                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 424                                    | NR                             | 575               | 765                                    | NR                             | 705               | 281                                    | NR                             | 835               | 6                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 406                                    | NR                             | 580               | 796                                    | NR                             | 710               | 245                                    | NR                             | 840               | 5                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 313                                    | NR                             | 585               | 827                                    | NR                             | 715               | 215                                    | NR                             | 845               | 4                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 294                                    | NR                             | 590               | 861                                    | NR                             | 720               | 188                                    | NR                             | 850               | 4                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 250                                    | NR                             | 595               | 894                                    | NR                             | 725               | 162                                    | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 217                                    | NR                             | 600               | 927                                    | NR                             | 730               | 140                                    | NR                             | 860               | 3                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 228                                    | NR                             | 605               | 954                                    | NR                             | 735               | 121                                    | NR                             | 865               | 2                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 249                                    | NR                             | 610               | 976                                    | NR                             | 740               | 104                                    | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 276                                    | NR                             | 615               | 992                                    | NR                             | 745               | 89                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP1-2407-184-14

### Scotopic Flux vs. Wavelength



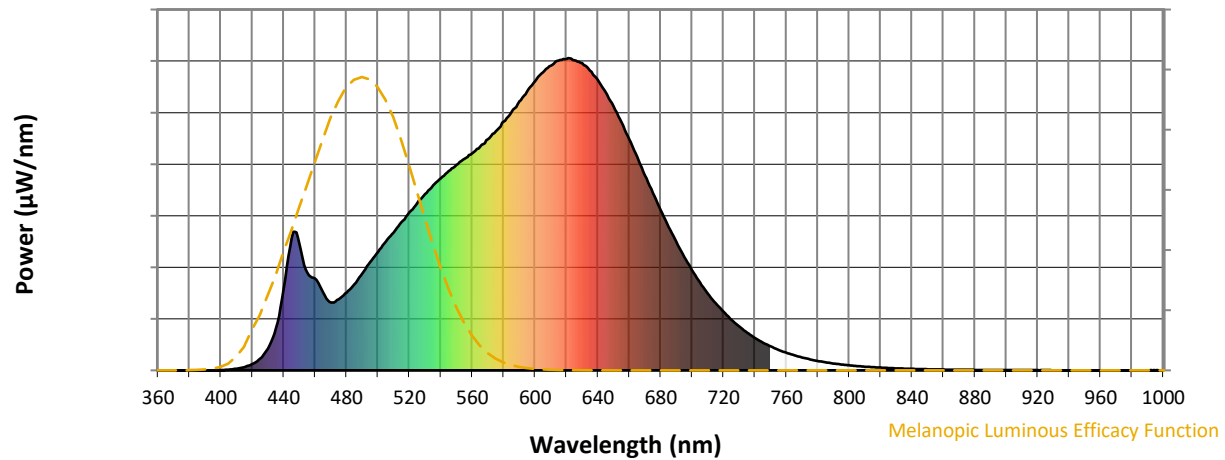
Scotopic Lumens: NR

S/P: 1.39

| $\lambda$<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               | 310                                  | NR                             | 620               | 998                                  | NR                             | 750               | 77                                   | NR                             | 880               | 2                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 347                                  | NR                             | 625               | 993                                  | NR                             | 755               | 66                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 379                                  | NR                             | 630               | 983                                  | NR                             | 760               | 56                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 412                                  | NR                             | 635               | 960                                  | NR                             | 765               | 48                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 442                                  | NR                             | 640               | 930                                  | NR                             | 770               | 41                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 475                                  | NR                             | 645               | 889                                  | NR                             | 775               | 35                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 506                                  | NR                             | 650               | 846                                  | NR                             | 780               | 30                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 535                                  | NR                             | 655               | 794                                  | NR                             | 785               | 26                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 1                                    | NR                             | 530               | 565                                  | NR                             | 660               | 740                                  | NR                             | 790               | 22                                   | NR                             | 920               | 1                                    | NR                             |
| 405               | 2                                    | NR                             | 535               | 592                                  | NR                             | 665               | 684                                  | NR                             | 795               | 19                                   | NR                             | 925               | 1                                    | NR                             |
| 410               | 6                                    | NR                             | 540               | 615                                  | NR                             | 670               | 624                                  | NR                             | 800               | 16                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 10                                   | NR                             | 545               | 638                                  | NR                             | 675               | 567                                  | NR                             | 805               | 14                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 20                                   | NR                             | 550               | 658                                  | NR                             | 680               | 513                                  | NR                             | 810               | 12                                   | NR                             | 940               | 0                                    | NR                             |
| 425               | 38                                   | NR                             | 555               | 678                                  | NR                             | 685               | 459                                  | NR                             | 815               | 10                                   | NR                             | 945               | 0                                    | NR                             |
| 430               | 70                                   | NR                             | 560               | 695                                  | NR                             | 690               | 412                                  | NR                             | 820               | 9                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 136                                  | NR                             | 565               | 716                                  | NR                             | 695               | 363                                  | NR                             | 825               | 8                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 262                                  | NR                             | 570               | 740                                  | NR                             | 700               | 320                                  | NR                             | 830               | 7                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 424                                  | NR                             | 575               | 765                                  | NR                             | 705               | 281                                  | NR                             | 835               | 6                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 406                                  | NR                             | 580               | 796                                  | NR                             | 710               | 245                                  | NR                             | 840               | 5                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 313                                  | NR                             | 585               | 827                                  | NR                             | 715               | 215                                  | NR                             | 845               | 4                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 294                                  | NR                             | 590               | 861                                  | NR                             | 720               | 188                                  | NR                             | 850               | 4                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 250                                  | NR                             | 595               | 894                                  | NR                             | 725               | 162                                  | NR                             | 855               | 3                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 217                                  | NR                             | 600               | 927                                  | NR                             | 730               | 140                                  | NR                             | 860               | 3                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 228                                  | NR                             | 605               | 954                                  | NR                             | 735               | 121                                  | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 249                                  | NR                             | 610               | 976                                  | NR                             | 740               | 104                                  | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 276                                  | NR                             | 615               | 992                                  | NR                             | 745               | 89                                   | NR                             | 875               | 2                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.69**

| $\lambda$<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               | 310                                    | NR                             | 620               | 998                                    | NR                             | 750               | 77                                     | NR                             | 880               | 2                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 347                                    | NR                             | 625               | 993                                    | NR                             | 755               | 66                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 379                                    | NR                             | 630               | 983                                    | NR                             | 760               | 56                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 412                                    | NR                             | 635               | 960                                    | NR                             | 765               | 48                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 442                                    | NR                             | 640               | 930                                    | NR                             | 770               | 41                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 475                                    | NR                             | 645               | 889                                    | NR                             | 775               | 35                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 506                                    | NR                             | 650               | 846                                    | NR                             | 780               | 30                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 0                                      | NR                             | 525               | 535                                    | NR                             | 655               | 794                                    | NR                             | 785               | 26                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 1                                      | NR                             | 530               | 565                                    | NR                             | 660               | 740                                    | NR                             | 790               | 22                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 2                                      | NR                             | 535               | 592                                    | NR                             | 665               | 684                                    | NR                             | 795               | 19                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 6                                      | NR                             | 540               | 615                                    | NR                             | 670               | 624                                    | NR                             | 800               | 16                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 10                                     | NR                             | 545               | 638                                    | NR                             | 675               | 567                                    | NR                             | 805               | 14                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 20                                     | NR                             | 550               | 658                                    | NR                             | 680               | 513                                    | NR                             | 810               | 12                                     | NR                             | 940               | 0                                      | NR                             |
| 425               | 38                                     | NR                             | 555               | 678                                    | NR                             | 685               | 459                                    | NR                             | 815               | 10                                     | NR                             | 945               | 0                                      | NR                             |
| 430               | 70                                     | NR                             | 560               | 695                                    | NR                             | 690               | 412                                    | NR                             | 820               | 9                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 136                                    | NR                             | 565               | 716                                    | NR                             | 695               | 363                                    | NR                             | 825               | 8                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 262                                    | NR                             | 570               | 740                                    | NR                             | 700               | 320                                    | NR                             | 830               | 7                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 424                                    | NR                             | 575               | 765                                    | NR                             | 705               | 281                                    | NR                             | 835               | 6                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 406                                    | NR                             | 580               | 796                                    | NR                             | 710               | 245                                    | NR                             | 840               | 5                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 313                                    | NR                             | 585               | 827                                    | NR                             | 715               | 215                                    | NR                             | 845               | 4                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 294                                    | NR                             | 590               | 861                                    | NR                             | 720               | 188                                    | NR                             | 850               | 4                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 250                                    | NR                             | 595               | 894                                    | NR                             | 725               | 162                                    | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 217                                    | NR                             | 600               | 927                                    | NR                             | 730               | 140                                    | NR                             | 860               | 3                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 228                                    | NR                             | 605               | 954                                    | NR                             | 735               | 121                                    | NR                             | 865               | 2                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 249                                    | NR                             | 610               | 976                                    | NR                             | 740               | 104                                    | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 276                                    | NR                             | 615               | 992                                    | NR                             | 745               | 89                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP1-2407-184-14

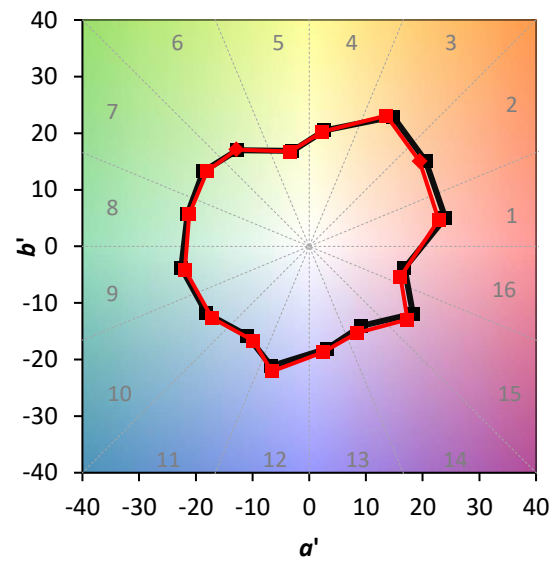
TM-30-18

### Summary

$R_f = 92.6$   
 $R_g = 98.5$   
 $CIE R_a = 92.4$   
 $R_9 = 58.2$



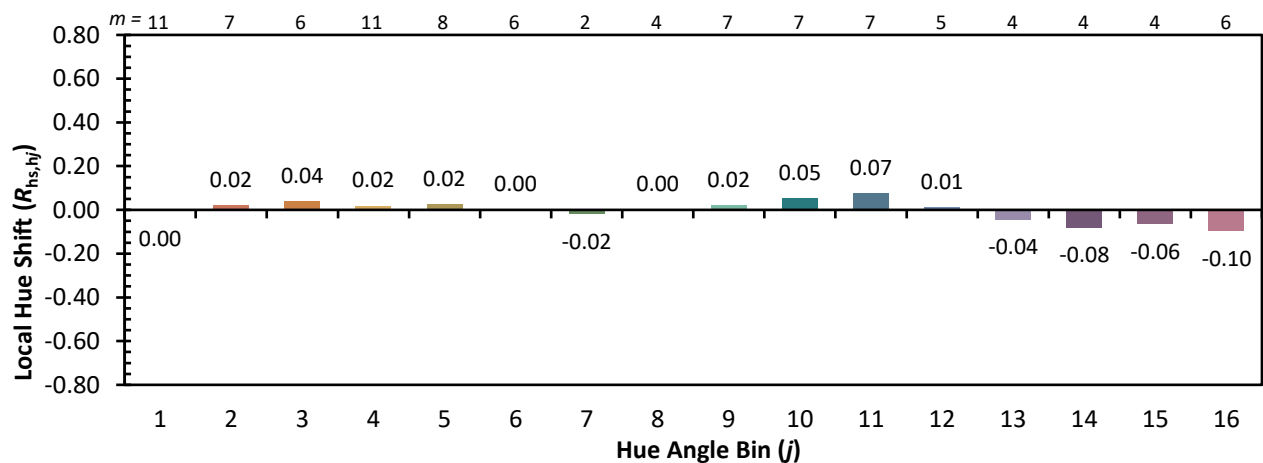
### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 94 | CES51 = 98 | CES76 = 90 |
| CES02 = 63 | CES27 = 94 | CES52 = 98 | CES77 = 91 |
| CES03 = 32 | CES28 = 97 | CES53 = 96 | CES78 = 88 |
| CES04 = 70 | CES29 = 95 | CES54 = 95 | CES79 = 94 |
| CES05 = 51 | CES30 = 97 | CES55 = 94 | CES80 = 94 |
| CES06 = 51 | CES31 = 96 | CES56 = 94 | CES81 = 84 |
| CES07 = 43 | CES32 = 91 | CES57 = 94 | CES82 = 97 |
| CES08 = 42 | CES33 = 98 | CES58 = 94 | CES83 = 97 |
| CES09 = 29 | CES34 = 96 | CES59 = 97 | CES84 = 95 |
| CES10 = 76 | CES35 = 97 | CES60 = 95 | CES85 = 85 |
| CES11 = 59 | CES36 = 87 | CES61 = 94 | CES86 = 84 |
| CES12 = 65 | CES37 = 95 | CES62 = 92 | CES87 = 92 |
| CES13 = 44 | CES38 = 93 | CES63 = 93 | CES88 = 95 |
| CES14 = 74 | CES39 = 99 | CES64 = 92 | CES89 = 86 |
| CES15 = 72 | CES40 = 98 | CES65 = 89 | CES90 = 96 |
| CES16 = 48 | CES41 = 98 | CES66 = 90 | CES91 = 82 |
| CES17 = 50 | CES42 = 97 | CES67 = 89 | CES92 = 81 |
| CES18 = 57 | CES43 = 97 | CES68 = 90 | CES93 = 89 |
| CES19 = 72 | CES44 = 99 | CES69 = 92 | CES94 = 80 |
| CES20 = 67 | CES45 = 99 | CES70 = 89 | CES95 = 86 |
| CES21 = 86 | CES46 = 96 | CES71 = 87 | CES96 = 92 |
| CES22 = 79 | CES47 = 95 | CES72 = 95 | CES97 = 96 |
| CES23 = 92 | CES48 = 93 | CES73 = 85 | CES98 = 94 |
| CES24 = 91 | CES49 = 97 | CES74 = 93 | CES99 = 91 |
| CES25 = 72 | CES50 = 98 | CES75 = 88 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)