

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: P1064050

Luminaire Tested: **GLAN-SA9B-735-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1064050  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA9B-735-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 9xLight Square PACKAGE  
70CRI 3500K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (126) 3500K CCT, 70 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 39529 lumens  
Efficiency: N/A  
Efficacy: 126.4 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

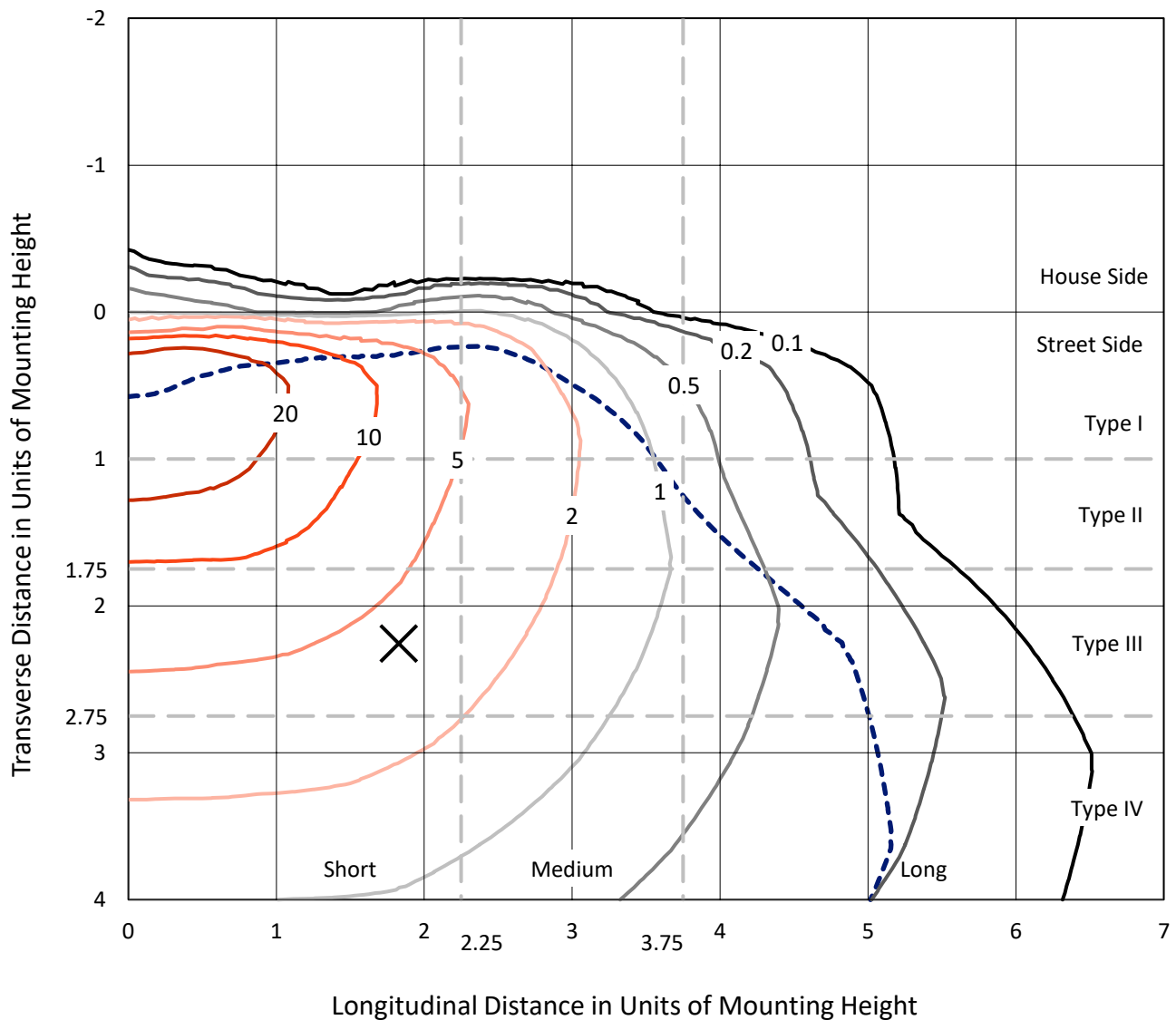


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
- - - 1/2 Max cd

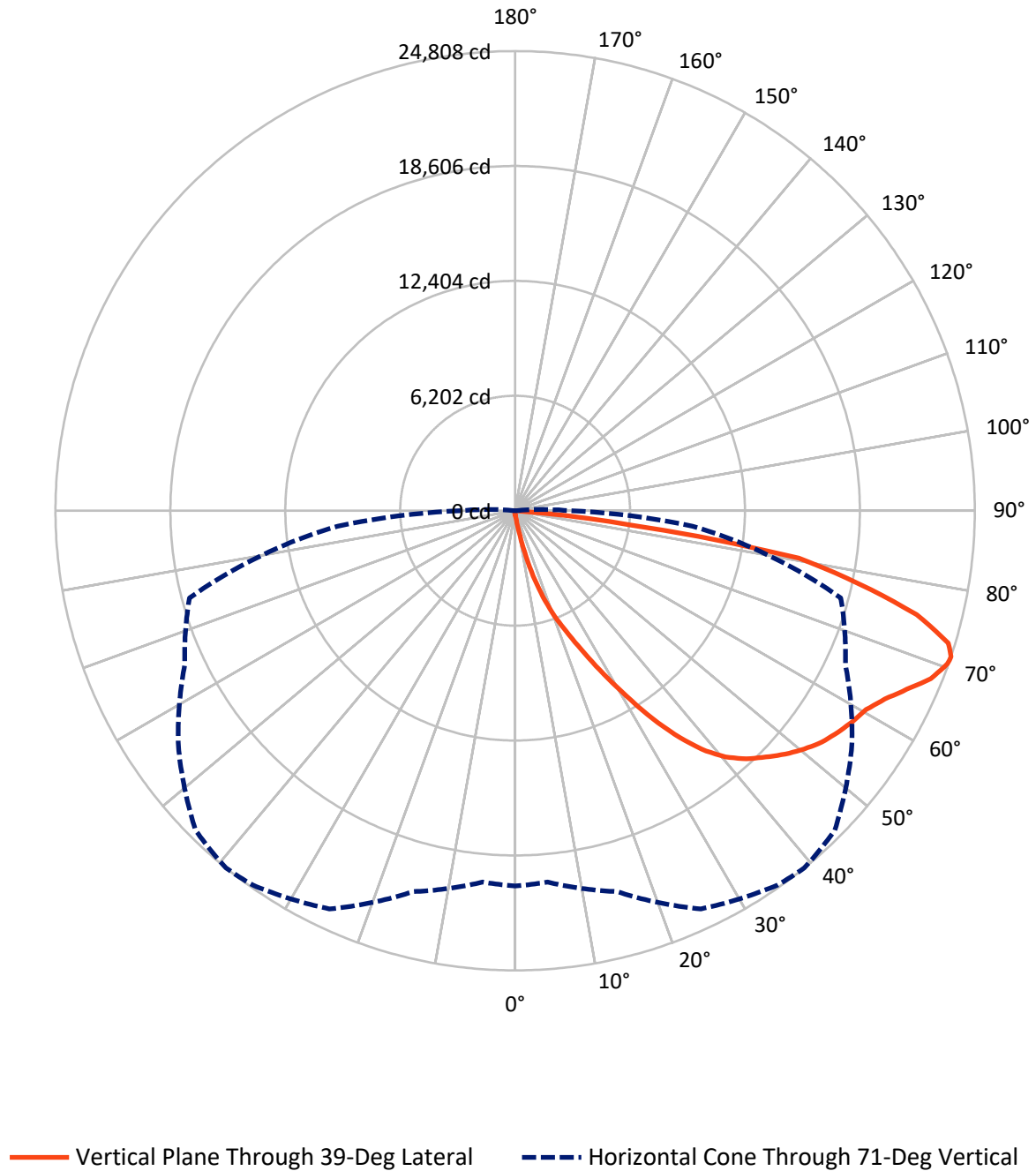


Based on 15 foot mounting height. Maximum calculated value = 40.6 fc  
Type IV - Short - N/A

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CATALOG NUMBER: GLAN-SA9B-735-U-T4BC

## Luminous Intensity Polar Plot



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CATALOG NUMBER: GLAN-SA9B-735-U-T4BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 140.5    | 0.0    | 140.5   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 39388.5  | 0.0    | 39388.5 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 39529.0  | 0.0    | 39529.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 33.0    | 0.1       |
| 10°-20°   | 422.5   | 1.1       |
| 20°-30°   | 1504.6  | 3.8       |
| 30°-40°   | 3626.2  | 9.2       |
| 40°-50°   | 6068.7  | 15.4      |
| 50°-60°   | 7794.5  | 19.7      |
| 60°-70°   | 9864.0  | 25.0      |
| 70°-80°   | 8794.1  | 22.2      |
| 80°-90°   | 1421.5  | 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°    | 39529.0 | 100.0     |
| 0°-180°   | 39529.0 | 100.0     |



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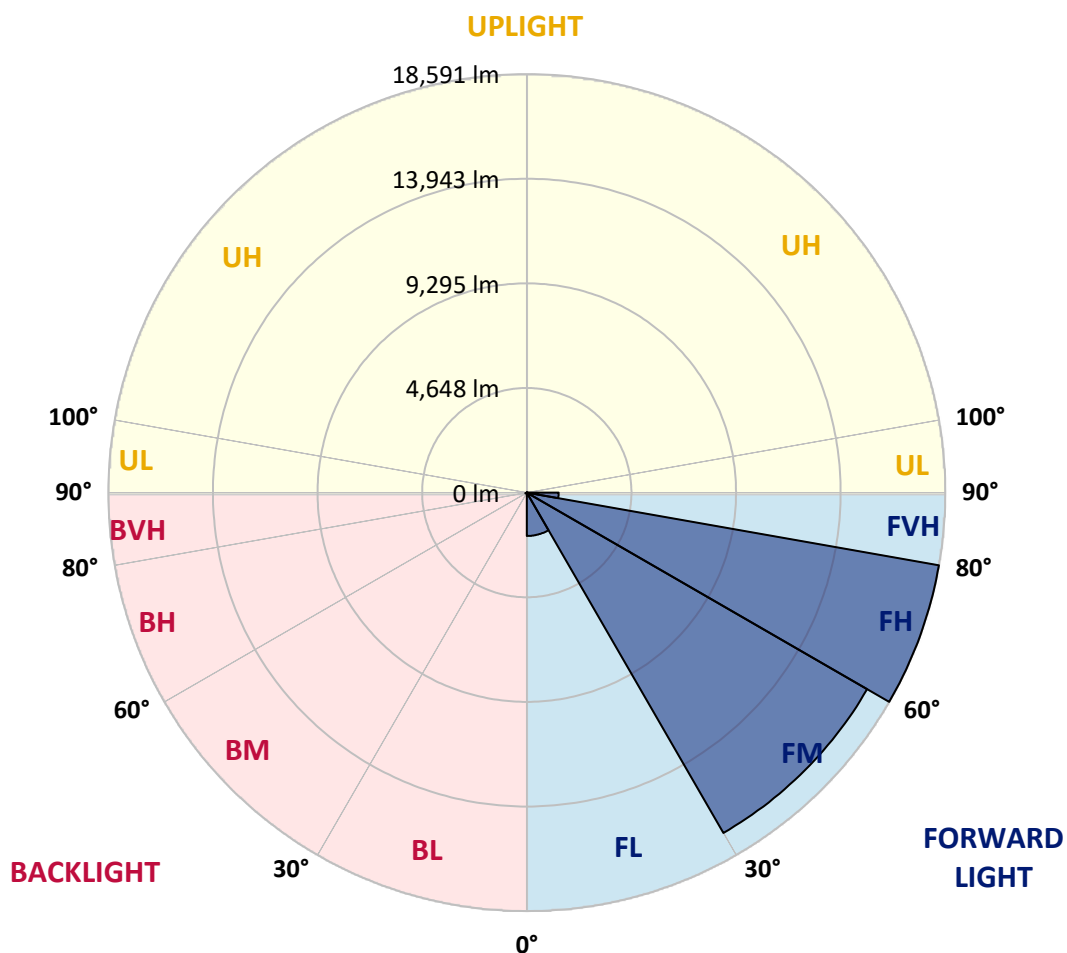
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|---------|-----------|-------------------------|------|--------|
|      |             |         |           | B                       | U    | G      |
| FL   | (0°-30°)    | 1926.1  | 4.9       |                         |      |        |
| FM   | (30°-60°)   | 17456.8 | 44.2      |                         |      |        |
| FH   | (60°-80°)   | 18590.5 | 47.0      |                         |      | G5     |
| FVH  | (80°-90°)   | 1415.1  | 3.6       |                         |      | G5     |
| BL   | (0°-30°)    | 34.0    | 0.1       | B0/110                  |      |        |
| BM   | (30°-60°)   | 32.5    | 0.1       | B0/220                  |      |        |
| BH   | (60°-80°)   | 67.6    | 0.2       | B0/110                  |      | G0/110 |
| BVH  | (80°-90°)   | 6.5     | 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°    | 216.7   | 216.7   | 216.7   | 216.7   | 216.7   | 216.7   | 216.7   | 216.7   | 216.7   | 216.7   | 216.7   |
| 2.5°  | 248.9   | 248.9   | 248.9   | 240.8   | 240.8   | 238.2   | 235.5   | 235.5   | 230.1   | 227.5   | 222.1   |
| 5°    | 377.3   | 369.3   | 350.5   | 339.8   | 318.4   | 305.1   | 291.7   | 272.9   | 254.2   | 240.8   | 224.8   |
| 7.5°  | 853.6   | 872.3   | 810.8   | 695.7   | 578.0   | 527.2   | 441.5   | 355.9   | 294.3   | 254.2   | 227.5   |
| 10°   | 2175.5  | 2164.8  | 1956.1  | 1726.0  | 1332.6  | 1174.7  | 920.5   | 580.7   | 380.0   | 278.3   | 230.1   |
| 12.5° | 3700.8  | 3690.1  | 3443.9  | 3130.8  | 2611.7  | 2282.5  | 1800.9  | 1083.7  | 545.9   | 315.8   | 230.1   |
| 15°   | 4982.5  | 4939.7  | 4862.1  | 4551.7  | 3944.3  | 3668.7  | 3031.8  | 1915.9  | 883.0   | 380.0   | 235.5   |
| 17.5° | 5830.8  | 5793.3  | 5721.1  | 5608.7  | 5223.4  | 4896.9  | 4385.8  | 3010.4  | 1428.9  | 492.4   | 246.2   |
| 20°   | 6609.5  | 6582.7  | 6523.8  | 6502.4  | 6253.6  | 6079.6  | 5656.8  | 4268.1  | 2226.3  | 669.0   | 262.2   |
| 22.5° | 7679.8  | 7623.6  | 7647.7  | 7519.3  | 7275.8  | 7067.0  | 6807.5  | 5584.6  | 3200.4  | 963.3   | 291.7   |
| 25°   | 8991.0  | 8964.3  | 8897.4  | 8806.4  | 8469.2  | 8287.3  | 7888.5  | 6826.2  | 4289.5  | 1348.7  | 323.8   |
| 27.5° | 10575.2 | 10545.7 | 10529.7 | 10320.9 | 9932.9  | 9734.9  | 9178.3  | 7998.3  | 5515.0  | 1889.2  | 366.6   |
| 30°   | 12400.1 | 12413.5 | 12309.1 | 12041.5 | 11589.3 | 11311.0 | 10738.4 | 9226.5  | 6770.0  | 2523.4  | 412.1   |
| 32.5° | 14289.3 | 14262.5 | 14102.0 | 13786.2 | 13382.2 | 13122.6 | 12394.8 | 10572.5 | 8086.6  | 3360.9  | 465.6   |
| 35°   | 16325.7 | 16274.8 | 15852.0 | 15490.8 | 15145.6 | 14819.1 | 14155.5 | 12135.2 | 9403.1  | 4300.2  | 537.9   |
| 37.5° | 18380.7 | 18142.6 | 17294.3 | 16836.8 | 16598.6 | 16331.0 | 15712.9 | 13802.3 | 10711.6 | 5349.1  | 626.2   |
| 40°   | 19932.8 | 19748.1 | 18742.0 | 17899.1 | 17709.1 | 17481.6 | 17021.4 | 15241.9 | 12103.1 | 6475.7  | 733.2   |
| 42.5° | 20791.7 | 20690.0 | 19785.6 | 18953.4 | 18506.5 | 18305.8 | 17912.5 | 16499.6 | 13478.5 | 7720.0  | 888.4   |
| 45°   | 21158.3 | 21000.5 | 20395.7 | 20007.7 | 19295.9 | 18964.1 | 18495.8 | 17449.5 | 14915.5 | 9132.8  | 1105.1  |
| 47.5° | 21045.9 | 20955.0 | 20521.5 | 20663.3 | 20146.8 | 19630.4 | 18942.7 | 18177.4 | 16143.7 | 10754.4 | 1402.2  |
| 50°   | 20339.5 | 20261.9 | 20128.1 | 20896.1 | 20831.9 | 20221.8 | 19520.7 | 18752.7 | 17147.2 | 12426.9 | 1862.4  |
| 52.5° | 18996.2 | 18964.1 | 19306.6 | 20714.1 | 21219.9 | 20743.6 | 20077.3 | 19261.1 | 18083.7 | 14174.2 | 2520.7  |
| 55°   | 17264.9 | 17396.0 | 18375.4 | 20430.5 | 21417.9 | 21128.9 | 20569.6 | 19737.4 | 18835.7 | 15737.0 | 3492.0  |
| 57.5° | 16553.1 | 16587.9 | 17810.8 | 20229.8 | 21506.2 | 21468.7 | 21048.6 | 20192.3 | 19526.0 | 16986.6 | 4974.5  |
| 60°   | 17385.3 | 17331.8 | 17976.7 | 20382.3 | 21682.8 | 21773.8 | 21474.1 | 20615.1 | 20125.4 | 18059.6 | 6949.3  |
| 62.5° | 18889.2 | 18859.7 | 19065.8 | 21032.6 | 22199.3 | 22383.9 | 22065.5 | 20920.2 | 20655.3 | 18766.1 | 9202.4  |
| 65°   | 20232.5 | 20170.9 | 20553.6 | 22185.9 | 23106.4 | 23237.5 | 22959.2 | 21442.0 | 20888.1 | 19279.9 | 11319.1 |
| 67.5° | 20813.1 | 20799.8 | 21415.2 | 23283.0 | 24059.0 | 24200.8 | 23957.3 | 22161.8 | 20834.5 | 19443.1 | 12252.9 |
| 70°   | 20548.2 | 20497.4 | 21482.1 | 23748.6 | 24596.9 | 24757.4 | 24521.9 | 22429.4 | 20253.9 | 18926.6 | 10869.5 |
| 71°   | 20256.6 | 20120.1 | 21281.4 | 23716.5 | 24671.8 | 24808.3 | 24396.2 | 22185.9 | 19670.5 | 18193.4 | 9614.5  |
| 72.5° | 19352.1 | 19376.2 | 20730.2 | 23382.0 | 24492.5 | 24452.4 | 23684.4 | 21313.5 | 18966.8 | 16529.0 | 7722.6  |
| 75°   | 17125.8 | 17267.6 | 18945.4 | 21977.2 | 22892.3 | 22381.2 | 21206.5 | 19646.4 | 17553.9 | 11851.6 | 5362.5  |
| 77.5° | 13995.0 | 14206.3 | 16050.0 | 19274.5 | 19014.9 | 18964.1 | 18915.9 | 17310.4 | 14990.4 | 6366.0  | 3730.2  |
| 80°   | 6681.7  | 7139.3  | 9681.4  | 13759.5 | 14947.6 | 15522.9 | 15161.6 | 13949.5 | 11592.0 | 3031.8  | 2229.0  |
| 82.5° | 436.2   | 430.8   | 610.1   | 1156.0  | 4872.8  | 6299.1  | 10007.9 | 9970.4  | 8081.2  | 1477.1  | 909.8   |
| 85°   | 206.0   | 211.4   | 232.8   | 264.9   | 307.7   | 337.2   | 465.6   | 2729.4  | 3866.7  | 703.8   | 198.0   |
| 87.5° | 120.4   | 123.1   | 144.5   | 184.6   | 240.8   | 267.6   | 318.4   | 409.4   | 503.1   | 388.0   | 42.8    |
| 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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CATALOG NUMBER: GLAN-SA9B-735-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 216.7  | 216.7 | 216.7 | 216.7 | 216.7 | 216.7 | 216.7 | 216.7 | 216.7 | 216.7 | 216.7 |
| 2.5°  | 219.4  | 216.7 | 208.7 | 200.7 | 192.7 | 187.3 | 184.6 | 187.3 | 187.3 | 190.0 | 190.0 |
| 5°    | 219.4  | 211.4 | 198.0 | 182.0 | 171.3 | 160.6 | 155.2 | 152.5 | 155.2 | 155.2 | 155.2 |
| 7.5°  | 216.7  | 203.4 | 184.6 | 165.9 | 152.5 | 139.1 | 133.8 | 131.1 | 131.1 | 133.8 | 133.8 |
| 10°   | 211.4  | 198.0 | 173.9 | 152.5 | 136.5 | 120.4 | 112.4 | 104.4 | 104.4 | 104.4 | 107.0 |
| 12.5° | 208.7  | 190.0 | 160.6 | 139.1 | 117.7 | 99.0  | 83.0  | 74.9  | 77.6  | 77.6  | 77.6  |
| 15°   | 203.4  | 182.0 | 152.5 | 125.8 | 99.0  | 74.9  | 61.5  | 53.5  | 56.2  | 58.9  | 56.2  |
| 17.5° | 203.4  | 179.3 | 141.8 | 109.7 | 77.6  | 56.2  | 45.5  | 40.1  | 40.1  | 42.8  | 42.8  |
| 20°   | 203.4  | 173.9 | 133.8 | 93.7  | 58.9  | 42.8  | 32.1  | 29.4  | 29.4  | 34.8  | 37.5  |
| 22.5° | 208.7  | 173.9 | 123.1 | 77.6  | 48.2  | 32.1  | 24.1  | 21.4  | 24.1  | 29.4  | 32.1  |
| 25°   | 216.7  | 171.3 | 112.4 | 69.6  | 40.1  | 24.1  | 18.7  | 13.4  | 16.1  | 21.4  | 24.1  |
| 27.5° | 224.8  | 168.6 | 101.7 | 61.5  | 32.1  | 18.7  | 13.4  | 10.7  | 8.0   | 10.7  | 10.7  |
| 30°   | 232.8  | 168.6 | 91.0  | 50.8  | 26.8  | 13.4  | 8.0   | 5.4   | 2.7   | 0.0   | 0.0   |
| 32.5° | 238.2  | 163.2 | 83.0  | 40.1  | 21.4  | 10.7  | 5.4   | 2.7   | 0.0   | 0.0   | 0.0   |
| 35°   | 243.5  | 157.9 | 72.2  | 32.1  | 16.1  | 8.0   | 2.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 248.9  | 149.9 | 61.5  | 26.8  | 13.4  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 254.2  | 139.1 | 50.8  | 24.1  | 8.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 259.6  | 131.1 | 42.8  | 18.7  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 272.9  | 125.8 | 34.8  | 16.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 297.0  | 120.4 | 32.1  | 10.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 331.8  | 115.1 | 29.4  | 8.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 380.0  | 112.4 | 26.8  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 465.6  | 109.7 | 24.1  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 612.8  | 107.0 | 24.1  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 939.2  | 101.7 | 24.1  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 1677.8 | 99.0  | 21.4  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 2924.8 | 101.7 | 21.4  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 4193.1 | 107.0 | 18.7  | 8.0   | 2.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 3588.4 | 93.7  | 18.7  | 10.7  | 5.4   | 2.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 71°   | 2924.8 | 83.0  | 18.7  | 10.7  | 5.4   | 2.7   | 2.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1881.2 | 64.2  | 16.1  | 10.7  | 5.4   | 5.4   | 2.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 794.7  | 53.5  | 16.1  | 10.7  | 8.0   | 5.4   | 5.4   | 2.7   | 0.0   | 0.0   | 0.0   |
| 77.5° | 339.8  | 40.1  | 16.1  | 13.4  | 10.7  | 8.0   | 8.0   | 5.4   | 2.7   | 0.0   | 0.0   |
| 80°   | 128.4  | 32.1  | 18.7  | 16.1  | 13.4  | 13.4  | 10.7  | 5.4   | 2.7   | 0.0   | 0.0   |
| 82.5° | 58.9   | 26.8  | 18.7  | 16.1  | 16.1  | 13.4  | 10.7  | 8.0   | 5.4   | 0.0   | 0.0   |
| 85°   | 37.5   | 24.1  | 18.7  | 16.1  | 16.1  | 13.4  | 13.4  | 8.0   | 5.4   | 0.0   | 0.0   |
| 87.5° | 29.4   | 24.1  | 18.7  | 18.7  | 16.1  | 16.1  | 10.7  | 8.0   | 2.7   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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



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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-5

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-735-U-5WQ

Data in this report applies to families of products including GSS-SB1A-735-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-5  
 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-735-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 3500K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 3369     | CRI (Ra): | 70.1 |      |       |
| CIE u':                   | 0.2386   | R1:       | 66.6 | R9:  | -40.2 |
| CIE v':                   | 0.5156   | R2:       | 77.6 | R10: | 49.1  |
| Duv:                      | 0.0013   | R3:       | 88.5 | R11: | 66.3  |
| CIE x:                    | 0.4143   | R4:       | 69.5 | R12: | 45.7  |
| CIE y:                    | 0.3980   | R5:       | 66.4 | R13: | 68.0  |
| CIE z:                    | 0.1877   | R6:       | 69.6 | R14: | 93.4  |
| Peak Wavelength (nm):     | 590      | R7:       | 77.5 | R15: | 57.6  |
| Dominant Wavelength (nm): | 580      | R8:       | 44.9 |      |       |
| Purity:                   | 43.80166 |           |      |      |       |
| Rf:                       | 71.4     |           |      |      |       |
| Rg:                       | 96       |           |      |      |       |



### Test Conditions

Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

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

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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 3500K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-5

### 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               | 119                           | NR                             | 620               | 778                           | NR                             | 750               | 19                            | NR                             | 880               | 1                             | NR                             |
| 365               | 0                             | NR                             | 495               | 173                           | NR                             | 625               | 711                           | NR                             | 755               | 16                            | NR                             | 885               | 0                             | NR                             |
| 370               | 0                             | NR                             | 500               | 239                           | NR                             | 630               | 648                           | NR                             | 760               | 14                            | NR                             | 890               | 0                             | NR                             |
| 375               | 0                             | NR                             | 505               | 313                           | NR                             | 635               | 582                           | NR                             | 765               | 12                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 383                           | NR                             | 640               | 520                           | NR                             | 770               | 11                            | NR                             | 900               | 0                             | NR                             |
| 385               | 0                             | NR                             | 515               | 448                           | NR                             | 645               | 460                           | NR                             | 775               | 9                             | NR                             | 905               | 0                             | NR                             |
| 390               | 2                             | NR                             | 520               | 500                           | NR                             | 650               | 406                           | NR                             | 780               | 8                             | NR                             | 910               | 0                             | NR                             |
| 395               | 4                             | NR                             | 525               | 539                           | NR                             | 655               | 355                           | NR                             | 785               | 7                             | NR                             | 915               | 0                             | NR                             |
| 400               | 6                             | NR                             | 530               | 575                           | NR                             | 660               | 309                           | NR                             | 790               | 6                             | NR                             | 920               | 0                             | NR                             |
| 405               | 11                            | NR                             | 535               | 606                           | NR                             | 665               | 269                           | NR                             | 795               | 5                             | NR                             | 925               | 0                             | NR                             |
| 410               | 22                            | NR                             | 540               | 633                           | NR                             | 670               | 231                           | NR                             | 800               | 4                             | NR                             | 930               | 0                             | NR                             |
| 415               | 45                            | NR                             | 545               | 666                           | NR                             | 675               | 199                           | NR                             | 805               | 4                             | NR                             | 935               | 0                             | NR                             |
| 420               | 96                            | NR                             | 550               | 701                           | NR                             | 680               | 171                           | NR                             | 810               | 3                             | NR                             | 940               | 0                             | NR                             |
| 425               | 193                           | NR                             | 555               | 743                           | NR                             | 685               | 147                           | NR                             | 815               | 3                             | NR                             | 945               | 0                             | NR                             |
| 430               | 341                           | NR                             | 560               | 788                           | NR                             | 690               | 126                           | NR                             | 820               | 3                             | NR                             | 950               | 0                             | NR                             |
| 435               | 547                           | NR                             | 565               | 837                           | NR                             | 695               | 107                           | NR                             | 825               | 2                             | NR                             | 955               | 0                             | NR                             |
| 440               | 799                           | NR                             | 570               | 887                           | NR                             | 700               | 92                            | NR                             | 830               | 2                             | NR                             | 960               | 0                             | NR                             |
| 445               | 831                           | NR                             | 575               | 931                           | NR                             | 705               | 78                            | NR                             | 835               | 2                             | NR                             | 965               | 0                             | NR                             |
| 450               | 461                           | NR                             | 580               | 967                           | NR                             | 710               | 67                            | NR                             | 840               | 2                             | NR                             | 970               | 0                             | NR                             |
| 455               | 256                           | NR                             | 585               | 990                           | NR                             | 715               | 57                            | NR                             | 845               | 1                             | NR                             | 975               | 0                             | NR                             |
| 460               | 176                           | NR                             | 590               | 1000                          | NR                             | 720               | 49                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 107                           | NR                             | 595               | 994                           | NR                             | 725               | 42                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 74                            | NR                             | 600               | 973                           | NR                             | 730               | 36                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 67                            | NR                             | 605               | 938                           | NR                             | 735               | 31                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 68                            | NR                             | 610               | 892                           | NR                             | 740               | 26                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 84                            | NR                             | 615               | 838                           | NR                             | 745               | 22                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.29

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 119                      | NR            | 620    | 778                      | NR            | 750    | 19                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 173                      | NR            | 625    | 711                      | NR            | 755    | 16                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 239                      | NR            | 630    | 648                      | NR            | 760    | 14                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 313                      | NR            | 635    | 582                      | NR            | 765    | 12                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 383                      | NR            | 640    | 520                      | NR            | 770    | 11                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 448                      | NR            | 645    | 460                      | NR            | 775    | 9                        | NR            | 905    | 0                        | NR            |
| 390    | 2                        | NR            | 520    | 500                      | NR            | 650    | 406                      | NR            | 780    | 8                        | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 539                      | NR            | 655    | 355                      | NR            | 785    | 7                        | NR            | 915    | 0                        | NR            |
| 400    | 6                        | NR            | 530    | 575                      | NR            | 660    | 309                      | NR            | 790    | 6                        | NR            | 920    | 0                        | NR            |
| 405    | 11                       | NR            | 535    | 606                      | NR            | 665    | 269                      | NR            | 795    | 5                        | NR            | 925    | 0                        | NR            |
| 410    | 22                       | NR            | 540    | 633                      | NR            | 670    | 231                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 45                       | NR            | 545    | 666                      | NR            | 675    | 199                      | NR            | 805    | 4                        | NR            | 935    | 0                        | NR            |
| 420    | 96                       | NR            | 550    | 701                      | NR            | 680    | 171                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 193                      | NR            | 555    | 743                      | NR            | 685    | 147                      | NR            | 815    | 3                        | NR            | 945    | 0                        | NR            |
| 430    | 341                      | NR            | 560    | 788                      | NR            | 690    | 126                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 547                      | NR            | 565    | 837                      | NR            | 695    | 107                      | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 799                      | NR            | 570    | 887                      | NR            | 700    | 92                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 831                      | NR            | 575    | 931                      | NR            | 705    | 78                       | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 461                      | NR            | 580    | 967                      | NR            | 710    | 67                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 256                      | NR            | 585    | 990                      | NR            | 715    | 57                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 176                      | NR            | 590    | 1000                     | NR            | 720    | 49                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 107                      | NR            | 595    | 994                      | NR            | 725    | 42                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 74                       | NR            | 600    | 973                      | NR            | 730    | 36                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 67                       | NR            | 605    | 938                      | NR            | 735    | 31                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 68                       | NR            | 610    | 892                      | NR            | 740    | 26                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 84                       | NR            | 615    | 838                      | NR            | 745    | 22                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.36**

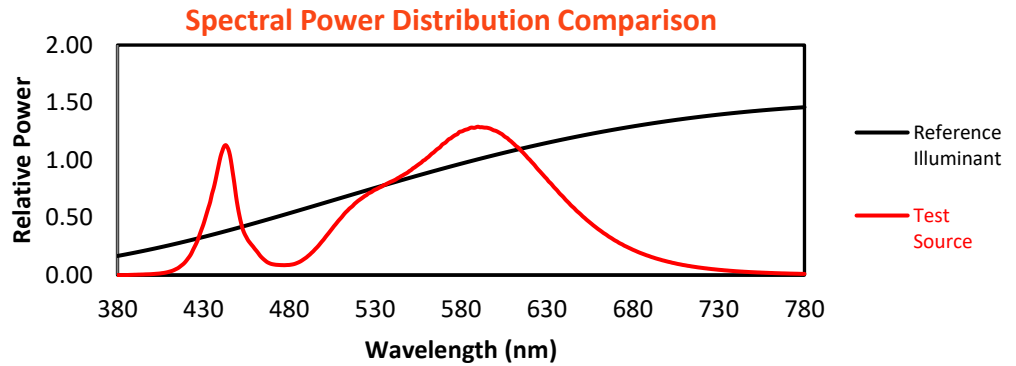
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 119                                  | NR                             | 620               | 778                                  | NR                             | 750               | 19                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 173                                  | NR                             | 625               | 711                                  | NR                             | 755               | 16                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 239                                  | NR                             | 630               | 648                                  | NR                             | 760               | 14                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 313                                  | NR                             | 635               | 582                                  | NR                             | 765               | 12                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 383                                  | NR                             | 640               | 520                                  | NR                             | 770               | 11                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 448                                  | NR                             | 645               | 460                                  | NR                             | 775               | 9                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 2                                    | NR                             | 520               | 500                                  | NR                             | 650               | 406                                  | NR                             | 780               | 8                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 539                                  | NR                             | 655               | 355                                  | NR                             | 785               | 7                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 6                                    | NR                             | 530               | 575                                  | NR                             | 660               | 309                                  | NR                             | 790               | 6                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 11                                   | NR                             | 535               | 606                                  | NR                             | 665               | 269                                  | NR                             | 795               | 5                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 22                                   | NR                             | 540               | 633                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 45                                   | NR                             | 545               | 666                                  | NR                             | 675               | 199                                  | NR                             | 805               | 4                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 96                                   | NR                             | 550               | 701                                  | NR                             | 680               | 171                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 193                                  | NR                             | 555               | 743                                  | NR                             | 685               | 147                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 341                                  | NR                             | 560               | 788                                  | NR                             | 690               | 126                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 547                                  | NR                             | 565               | 837                                  | NR                             | 695               | 107                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 799                                  | NR                             | 570               | 887                                  | NR                             | 700               | 92                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 831                                  | NR                             | 575               | 931                                  | NR                             | 705               | 78                                   | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 461                                  | NR                             | 580               | 967                                  | NR                             | 710               | 67                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 256                                  | NR                             | 585               | 990                                  | NR                             | 715               | 57                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 176                                  | NR                             | 590               | 1000                                 | NR                             | 720               | 49                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 107                                  | NR                             | 595               | 994                                  | NR                             | 725               | 42                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 74                                   | NR                             | 600               | 973                                  | NR                             | 730               | 36                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 67                                   | NR                             | 605               | 938                                  | NR                             | 735               | 31                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 68                                   | NR                             | 610               | 892                                  | NR                             | 740               | 26                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 84                                   | NR                             | 615               | 838                                  | NR                             | 745               | 22                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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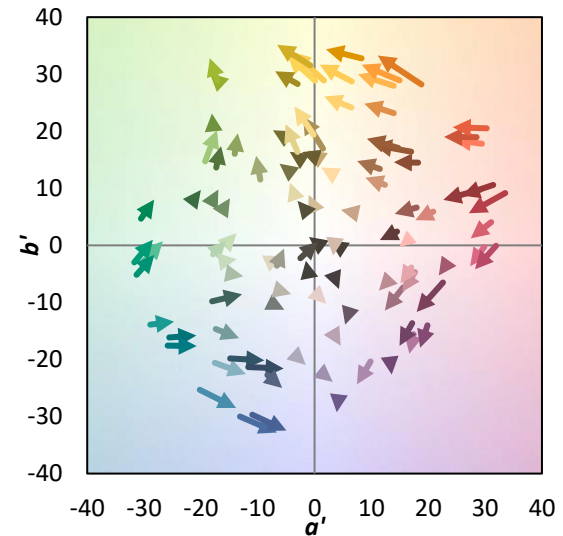
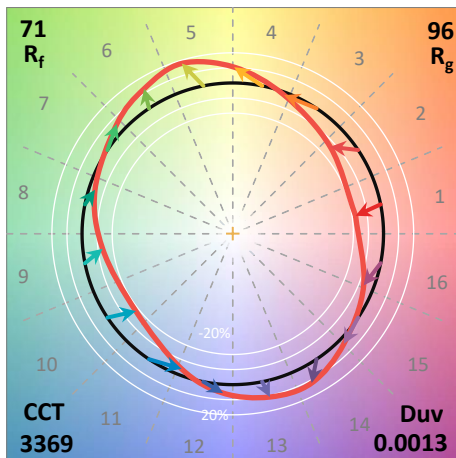
TM-30-18

### Summary

$R_f = 71.4$   
 $R_g = 96$   
 CIE  $R_a = 70.1$   
 $R_g = -40.2$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 57 | CES51 = 84 | CES76 = 50 |
| CES02 = 62 | CES27 = 80 | CES52 = 86 | CES77 = 74 |
| CES03 = 31 | CES28 = 81 | CES53 = 72 | CES78 = 54 |
| CES04 = 70 | CES29 = 50 | CES54 = 79 | CES79 = 81 |
| CES05 = 48 | CES30 = 55 | CES55 = 78 | CES80 = 79 |
| CES06 = 51 | CES31 = 56 | CES56 = 67 | CES81 = 74 |
| CES07 = 40 | CES32 = 54 | CES57 = 65 | CES82 = 91 |
| CES08 = 39 | CES33 = 60 | CES58 = 68 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 85 | CES84 = 89 |
| CES10 = 75 | CES35 = 83 | CES60 = 91 | CES85 = 83 |
| CES11 = 58 | CES36 = 88 | CES61 = 85 | CES86 = 66 |
| CES12 = 64 | CES37 = 78 | CES62 = 78 | CES87 = 77 |
| CES13 = 43 | CES38 = 64 | CES63 = 71 | CES88 = 75 |
| CES14 = 74 | CES39 = 92 | CES64 = 70 | CES89 = 68 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 72 |
| CES16 = 47 | CES41 = 81 | CES66 = 65 | CES91 = 95 |
| CES17 = 50 | CES42 = 79 | CES67 = 63 | CES92 = 62 |
| CES18 = 56 | CES43 = 71 | CES68 = 69 | CES93 = 78 |
| CES19 = 72 | CES44 = 98 | CES69 = 80 | CES94 = 51 |
| CES20 = 65 | CES45 = 80 | CES70 = 60 | CES95 = 70 |
| CES21 = 87 | CES46 = 75 | CES71 = 58 | CES96 = 76 |
| CES22 = 79 | CES47 = 71 | CES72 = 85 | CES97 = 82 |
| CES23 = 92 | CES48 = 61 | CES73 = 51 | CES98 = 72 |
| CES24 = 91 | CES49 = 74 | CES74 = 94 | CES99 = 60 |
| CES25 = 72 | CES50 = 83 | CES75 = 57 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)