

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: LUMARK

Report Number: P1067049

Luminaire Tested: **NAV-SA6A-750-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1067049  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: LUMARK  
Catalog Number: NAV-SA6A-750-U-T3BC  
Description: Navion AREA AND ROADWAY LUMINAIRE 615mA 6xLight Square PACKAGE  
70CRI 5000K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (84) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 22316 lumens  
Efficiency: N/A  
Efficacy: 138.1 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 161.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

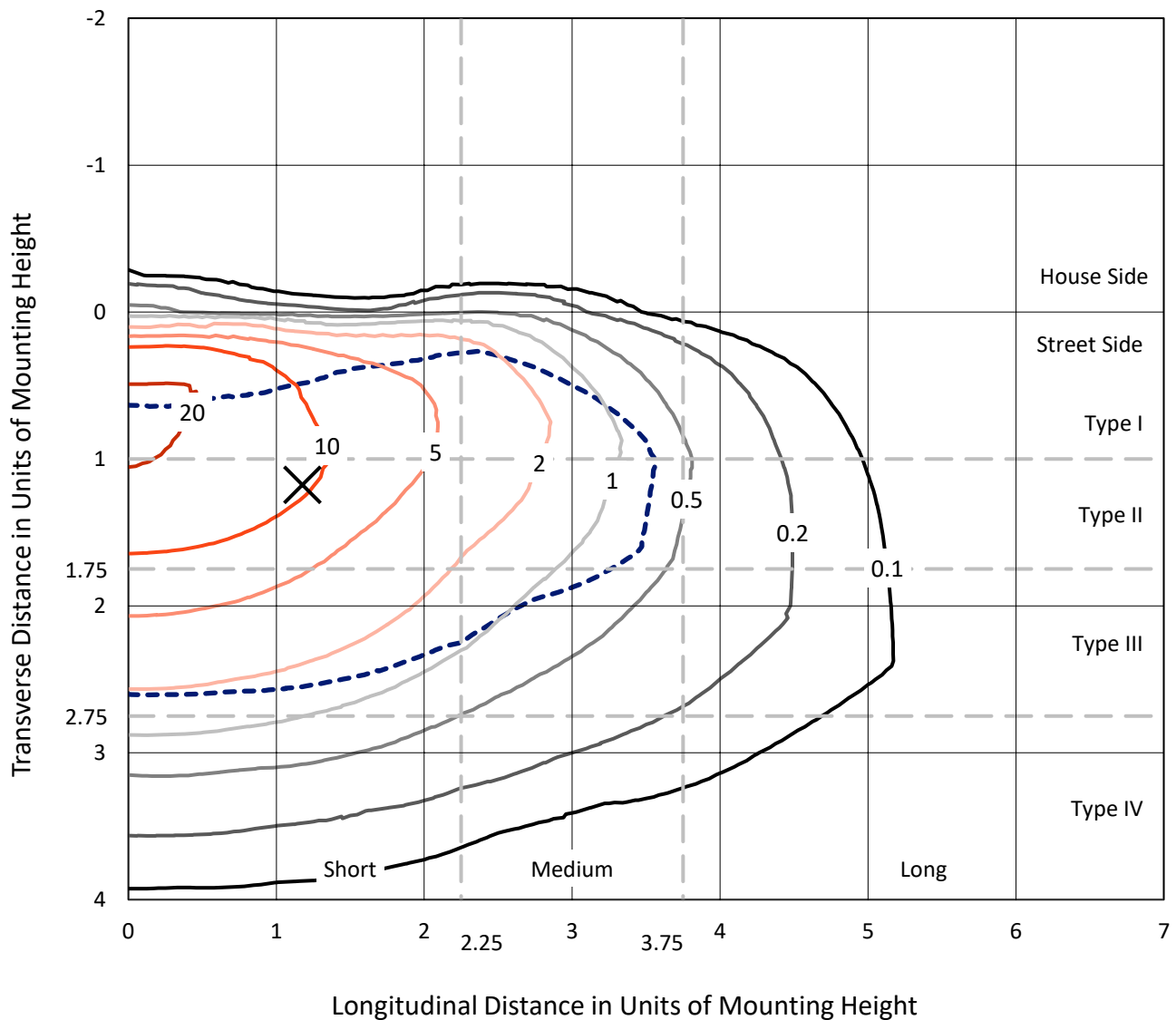


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
- - - 1/2 Max cd

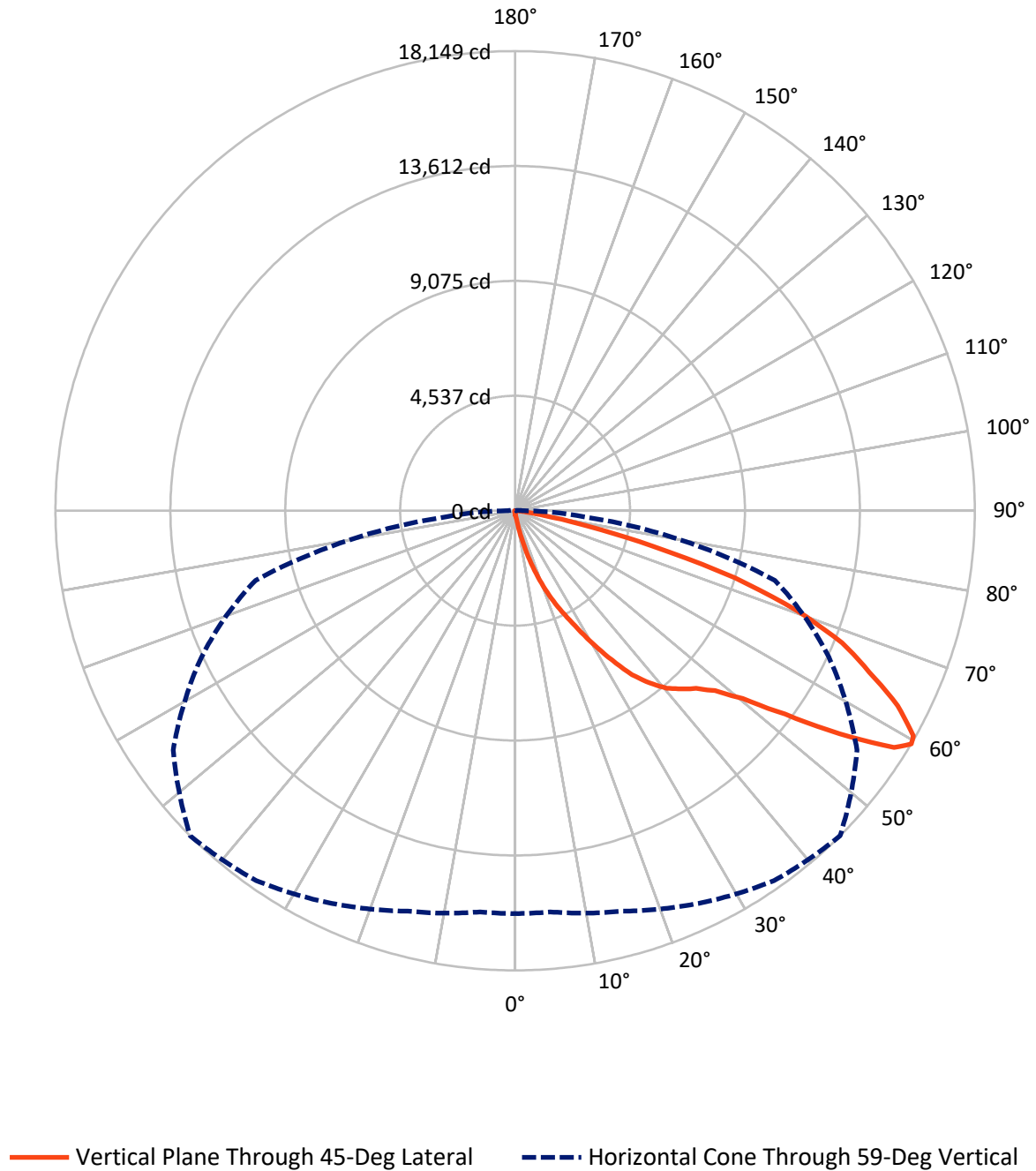


Based on 15 foot mounting height. Maximum calculated value = 24.3 fc  
Type III - Short - N/A

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## Luminous Intensity Polar Plot



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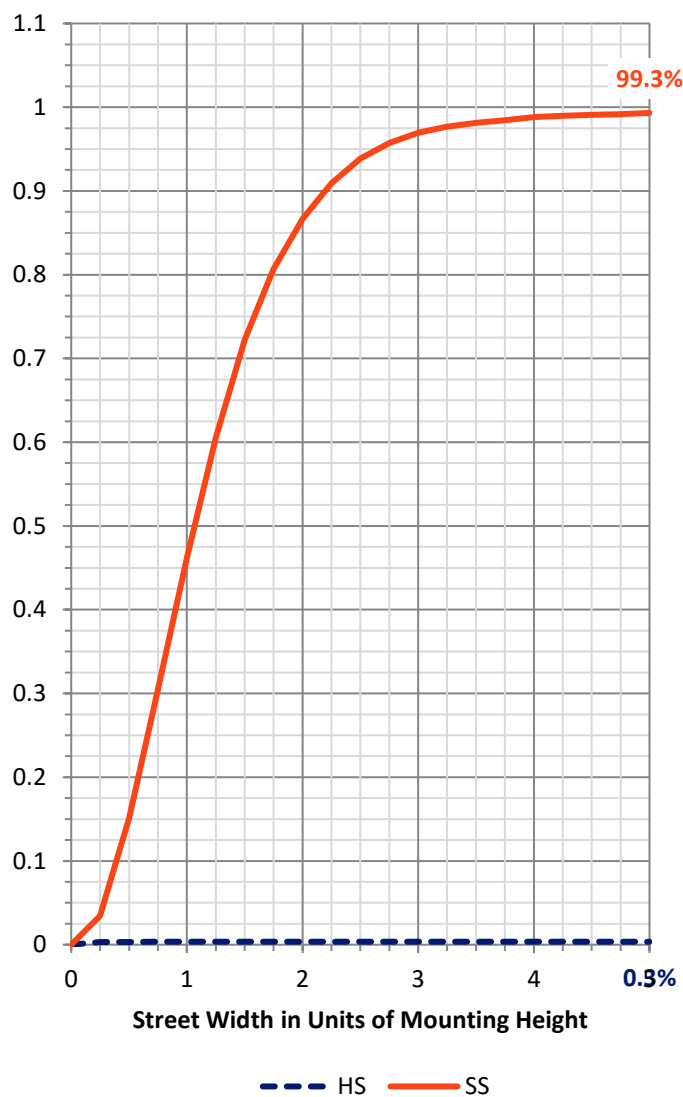
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 79.2     | 0.0    | 79.2    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 22236.8  | 0.0    | 22236.8 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 22316.0  | 0.0    | 22316.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 20.7    | 0.1       |
| 10°-20°   | 246.6   | 1.1       |
| 20°-30°   | 886.3   | 4.0       |
| 30°-40°   | 2059.4  | 9.2       |
| 40°-50°   | 3510.2  | 15.7      |
| 50°-60°   | 5783.9  | 25.9      |
| 60°-70°   | 6687.4  | 30.0      |
| 70°-80°   | 2873.1  | 12.9      |
| 80°-90°   | 248.3   | 1.1       |
| 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°    | 22316.0 | 100.0     |
| 0°-180°   | 22316.0 | 100.0     |



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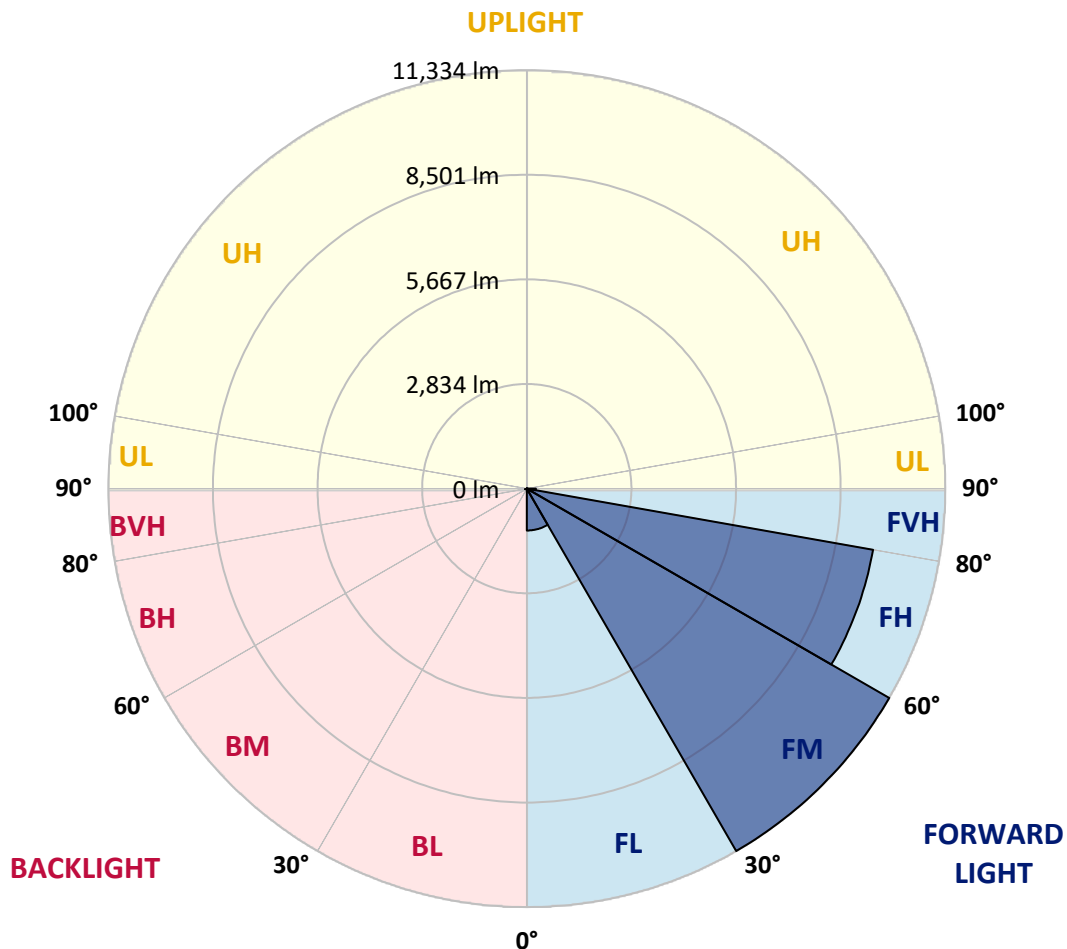
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1134.1  | 5.1       |                         |      |          |
| FM   | (30°-60°)   | 11334.4 | 50.8      |                         |      |          |
| FH   | (60°-80°)   | 9523.3  | 42.7      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 245.0   | 1.1       |                         |      | G3/500   |
| BL   | (0°-30°)    | 19.5    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 19.2    | 0.1       | B0/220                  |      |          |
| BH   | (60°-80°)   | 37.3    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 3.2     | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B0-U0-G4**

Type III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 44°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 141.1   | 141.1   | 141.1   | 141.1   | 141.1   | 141.1   | 141.1   | 141.1   | 141.1   | 141.1   | 141.1  |
| 2.5°  | 183.1   | 183.1   | 178.6   | 172.6   | 171.1   | 166.6   | 166.6   | 162.1   | 156.1   | 151.6   | 145.6  |
| 5°    | 265.6   | 264.1   | 252.1   | 237.1   | 217.6   | 205.6   | 205.6   | 189.1   | 174.1   | 160.6   | 148.6  |
| 7.5°  | 580.7   | 567.2   | 523.7   | 451.7   | 357.1   | 294.1   | 289.6   | 235.6   | 199.6   | 172.6   | 150.1  |
| 10°   | 1332.5  | 1286.0  | 1224.4  | 1051.9  | 777.3   | 543.2   | 532.7   | 343.6   | 238.6   | 186.1   | 153.1  |
| 12.5° | 2183.3  | 2220.8  | 2097.8  | 1826.2  | 1505.0  | 1119.4  | 1044.4  | 579.2   | 315.1   | 204.1   | 156.1  |
| 15°   | 2957.6  | 2948.6  | 2879.5  | 2657.5  | 2286.8  | 1773.6  | 1727.1  | 1006.9  | 451.7   | 232.6   | 159.1  |
| 17.5° | 3536.8  | 3526.3  | 3460.2  | 3317.7  | 3032.6  | 2519.4  | 2478.9  | 1605.6  | 708.3   | 273.1   | 162.1  |
| 20°   | 4147.5  | 4134.0  | 4040.9  | 3926.9  | 3677.8  | 3241.2  | 3193.1  | 2274.8  | 1108.9  | 339.1   | 162.1  |
| 22.5° | 4879.7  | 4854.2  | 4755.2  | 4561.6  | 4299.0  | 3919.4  | 3875.9  | 2959.1  | 1605.6  | 447.2   | 169.6  |
| 25°   | 5765.1  | 5721.6  | 5585.0  | 5410.9  | 5094.3  | 4590.1  | 4543.6  | 3721.3  | 2204.3  | 610.7   | 177.1  |
| 27.5° | 6774.9  | 6782.4  | 6597.9  | 6303.8  | 5879.1  | 5364.4  | 5277.4  | 4404.1  | 2824.0  | 844.8   | 186.1  |
| 30°   | 7973.9  | 7898.8  | 7639.2  | 7297.1  | 6884.5  | 6228.7  | 6144.7  | 5083.8  | 3520.3  | 1189.9  | 201.1  |
| 32.5° | 9096.3  | 9015.2  | 8665.6  | 8235.0  | 7792.3  | 7100.5  | 7031.5  | 5847.6  | 4153.5  | 1598.1  | 228.1  |
| 35°   | 10059.6 | 10002.6 | 9513.4  | 8988.2  | 8595.1  | 7976.9  | 7955.9  | 6699.9  | 4897.8  | 2037.7  | 258.1  |
| 37.5° | 10907.4 | 10803.9 | 10175.1 | 9630.5  | 9231.3  | 8677.6  | 8632.6  | 7480.2  | 5615.0  | 2547.9  | 303.1  |
| 40°   | 11630.7 | 11573.6 | 10806.9 | 10091.1 | 9767.0  | 9271.8  | 9214.8  | 8164.4  | 6356.3  | 3140.6  | 358.6  |
| 42.5° | 12404.9 | 12329.9 | 11585.7 | 10782.9 | 10185.7 | 9656.0  | 9618.4  | 8728.6  | 7016.5  | 3791.9  | 441.2  |
| 45°   | 13279.8 | 13140.2 | 12487.5 | 11767.2 | 10859.4 | 10053.6 | 10011.6 | 9231.3  | 7693.3  | 4491.1  | 541.7  |
| 47.5° | 14214.6 | 14093.1 | 13564.9 | 13059.2 | 12014.8 | 10709.3 | 10619.3 | 9659.0  | 8365.5  | 5298.4  | 669.2  |
| 50°   | 15165.9 | 15168.9 | 14772.8 | 14529.7 | 13426.8 | 11774.7 | 11647.2 | 10287.7 | 9072.3  | 6162.7  | 858.3  |
| 52.5° | 16273.3 | 16301.8 | 16295.8 | 16115.8 | 15260.5 | 13516.8 | 13345.8 | 11242.0 | 9893.0  | 7171.1  | 1119.4 |
| 55°   | 16737.0 | 16788.0 | 17119.6 | 17518.8 | 17286.2 | 15725.6 | 15542.6 | 12888.1 | 10980.9 | 8295.0  | 1506.5 |
| 57.5° | 16357.4 | 16414.4 | 16872.0 | 17571.3 | 18105.5 | 17659.8 | 17638.8 | 15030.9 | 12414.0 | 9657.5  | 2139.8 |
| 59°   | 15905.7 | 15898.2 | 16367.9 | 17109.1 | 17829.4 | 18119.0 | 18149.0 | 16480.4 | 13662.4 | 10613.3 | 2686.0 |
| 60°   | 15605.6 | 15611.6 | 15923.7 | 16684.5 | 17449.8 | 17952.4 | 18069.5 | 17334.2 | 14391.7 | 11300.6 | 3154.1 |
| 62.5° | 14447.2 | 14516.2 | 14763.8 | 15470.5 | 16196.8 | 16758.0 | 16957.6 | 18095.0 | 16478.9 | 12924.1 | 4782.2 |
| 65°   | 13188.2 | 13192.7 | 13545.4 | 14150.1 | 14846.3 | 15241.0 | 15367.0 | 16911.1 | 17872.9 | 14577.7 | 6917.5 |
| 67.5° | 10941.9 | 11033.5 | 11434.1 | 12414.0 | 13333.8 | 13833.5 | 13929.5 | 14720.3 | 17295.2 | 15655.1 | 7987.4 |
| 70°   | 7657.2  | 7777.3  | 8349.0  | 9619.9  | 10989.9 | 11810.7 | 11804.7 | 12236.9 | 15221.5 | 15174.9 | 6771.9 |
| 72.5° | 3823.4  | 4030.4  | 4497.1  | 5858.1  | 7517.7  | 8806.7  | 9078.3  | 9843.5  | 12227.9 | 12604.5 | 5052.3 |
| 75°   | 1689.6  | 1701.6  | 1967.2  | 2653.0  | 3736.3  | 5373.4  | 5616.5  | 7813.3  | 9381.4  | 8760.1  | 3649.3 |
| 77.5° | 982.9   | 991.9   | 1039.9  | 1191.4  | 1514.0  | 2633.4  | 2906.5  | 5124.3  | 6629.4  | 5091.3  | 2379.9 |
| 80°   | 357.1   | 366.1   | 364.6   | 451.7   | 663.2   | 1036.9  | 1155.4  | 2483.4  | 4422.1  | 2681.5  | 1246.9 |
| 82.5° | 219.1   | 219.1   | 211.6   | 213.1   | 241.6   | 397.6   | 435.2   | 1057.9  | 2153.3  | 1320.5  | 357.1  |
| 85°   | 108.0   | 114.0   | 121.5   | 136.5   | 162.1   | 196.6   | 208.6   | 303.1   | 724.8   | 319.6   | 85.5   |
| 87.5° | 64.5    | 66.0    | 72.0    | 87.0    | 108.0   | 141.1   | 150.1   | 205.6   | 259.6   | 214.6   | 21.0   |
| 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: NAV-SA6A-750-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 141.1  | 141.1 | 141.1 | 141.1 | 141.1 | 141.1 | 141.1 | 141.1 | 141.1 | 141.1 | 141.1 |
| 2.5°  | 142.6  | 141.1 | 133.5 | 127.5 | 121.5 | 115.5 | 111.0 | 106.5 | 106.5 | 108.0 | 106.5 |
| 5°    | 142.6  | 136.5 | 124.5 | 114.0 | 105.0 | 97.5  | 90.0  | 84.0  | 82.5  | 82.5  | 84.0  |
| 7.5°  | 141.1  | 133.5 | 117.0 | 103.5 | 91.5  | 81.0  | 73.5  | 66.0  | 64.5  | 66.0  | 64.5  |
| 10°   | 139.6  | 130.5 | 111.0 | 94.5  | 78.0  | 67.5  | 57.0  | 49.5  | 49.5  | 49.5  | 51.0  |
| 12.5° | 139.6  | 126.0 | 105.0 | 85.5  | 67.5  | 55.5  | 45.0  | 37.5  | 36.0  | 36.0  | 36.0  |
| 15°   | 138.0  | 123.0 | 99.0  | 75.0  | 57.0  | 42.0  | 33.0  | 25.5  | 25.5  | 25.5  | 25.5  |
| 17.5° | 135.0  | 118.5 | 91.5  | 66.0  | 45.0  | 31.5  | 22.5  | 15.0  | 15.0  | 18.0  | 18.0  |
| 20°   | 132.0  | 114.0 | 82.5  | 54.0  | 37.5  | 24.0  | 15.0  | 9.0   | 9.0   | 13.5  | 15.0  |
| 22.5° | 133.5  | 114.0 | 76.5  | 48.0  | 30.0  | 18.0  | 12.0  | 7.5   | 6.0   | 10.5  | 13.5  |
| 25°   | 135.0  | 111.0 | 69.0  | 42.0  | 22.5  | 13.5  | 9.0   | 3.0   | 1.5   | 3.0   | 4.5   |
| 27.5° | 135.0  | 108.0 | 60.0  | 33.0  | 16.5  | 10.5  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 133.5  | 103.5 | 52.5  | 27.0  | 12.0  | 6.0   | 1.5   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 132.0  | 99.0  | 48.0  | 21.0  | 10.5  | 3.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 133.5  | 93.0  | 42.0  | 16.5  | 6.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 3.0   |
| 37.5° | 138.0  | 87.0  | 36.0  | 13.5  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 144.1  | 82.5  | 30.0  | 10.5  | 1.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 156.1  | 82.5  | 27.0  | 7.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 171.1  | 82.5  | 22.5  | 6.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 190.6  | 84.0  | 19.5  | 6.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 214.6  | 87.0  | 18.0  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 232.6  | 84.0  | 16.5  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 264.1  | 81.0  | 15.0  | 3.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 306.1  | 76.5  | 15.0  | 1.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 59°   | 348.1  | 70.5  | 15.0  | 1.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 396.1  | 67.5  | 13.5  | 1.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 654.2  | 60.0  | 12.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1263.5 | 57.0  | 10.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2042.2 | 57.0  | 7.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2147.3 | 57.0  | 6.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1428.5 | 46.5  | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 765.3  | 42.0  | 4.5   | 1.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 412.6  | 39.0  | 6.0   | 3.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 181.6  | 28.5  | 7.5   | 4.5   | 3.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 72.0   | 19.5  | 9.0   | 7.5   | 6.0   | 3.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 34.5   | 15.0  | 12.0  | 10.5  | 7.5   | 4.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 16.5   | 15.0  | 13.5  | 12.0  | 10.5  | 7.5   | 1.5   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-6

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-750-U-5WQ

Data in this report applies to families of products including GSS-SB1A-750-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-6  
 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-750-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 5000K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 4896     | CRI (Ra): | 70.2 |      |       |
| CIE u':                   | 0.2101   | R1:       | 68.1 | R9:  | -35.1 |
| CIE v':                   | 0.4901   | R2:       | 73.9 | R10: | 39.3  |
| Duv:                      | 0.0035   | R3:       | 79.4 | R11: | 71.1  |
| CIE x:                    | 0.3489   | R4:       | 72.1 | R12: | 43.8  |
| CIE y:                    | 0.3618   | R5:       | 69.2 | R13: | 68.1  |
| CIE z:                    | 0.2893   | R6:       | 65.7 | R14: | 88.4  |
| Peak Wavelength (nm):     | 443      | R7:       | 78.1 | R15: | 59.7  |
| Dominant Wavelength (nm): | 570      | R8:       | 55.3 |      |       |
| Purity:                   | 13.25435 |           |      |      |       |
| Rf:                       | 70.7     |           |      |      |       |
| Rg:                       | 96.8     |           |      |      |       |



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-6

| 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 5000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 118                      | NR            | 620    | 401                      | NR            | 750    | 12                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 168                      | NR            | 625    | 365                      | NR            | 755    | 10                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 230                      | NR            | 630    | 331                      | NR            | 760    | 9                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 299                      | NR            | 635    | 298                      | NR            | 765    | 8                        | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 362                      | NR            | 640    | 266                      | NR            | 770    | 6                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 418                      | NR            | 645    | 236                      | NR            | 775    | 6                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 461                      | NR            | 650    | 209                      | NR            | 780    | 5                        | NR            | 910    | 0                        | NR            |
| 395    | 6                        | NR            | 525    | 491                      | NR            | 655    | 184                      | NR            | 785    | 4                        | NR            | 915    | 0                        | NR            |
| 400    | 9                        | NR            | 530    | 514                      | NR            | 660    | 160                      | NR            | 790    | 4                        | NR            | 920    | 0                        | NR            |
| 405    | 14                       | NR            | 535    | 530                      | NR            | 665    | 140                      | NR            | 795    | 3                        | NR            | 925    | 0                        | NR            |
| 410    | 27                       | NR            | 540    | 539                      | NR            | 670    | 122                      | NR            | 800    | 3                        | NR            | 930    | 0                        | NR            |
| 415    | 55                       | NR            | 545    | 549                      | NR            | 675    | 106                      | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 115                      | NR            | 550    | 557                      | NR            | 680    | 92                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 226                      | NR            | 555    | 565                      | NR            | 685    | 79                       | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 395                      | NR            | 560    | 572                      | NR            | 690    | 68                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 648                      | NR            | 565    | 580                      | NR            | 695    | 59                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 937                      | NR            | 570    | 586                      | NR            | 700    | 51                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 953                      | NR            | 575    | 588                      | NR            | 705    | 44                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 591                      | NR            | 580    | 588                      | NR            | 710    | 38                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 334                      | NR            | 585    | 580                      | NR            | 715    | 32                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 221                      | NR            | 590    | 568                      | NR            | 720    | 28                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 140                      | NR            | 595    | 550                      | NR            | 725    | 24                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 93                       | NR            | 600    | 527                      | NR            | 730    | 21                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 79                       | NR            | 605    | 499                      | NR            | 735    | 18                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 469                      | NR            | 740    | 15                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 87                       | NR            | 615    | 435                      | NR            | 745    | 13                       | NR            | 875    | 0                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.7

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 118                         | NR               | 620       | 401                         | NR               | 750       | 12                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 168                         | NR               | 625       | 365                         | NR               | 755       | 10                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 230                         | NR               | 630       | 331                         | NR               | 760       | 9                           | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 299                         | NR               | 635       | 298                         | NR               | 765       | 8                           | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 362                         | NR               | 640       | 266                         | NR               | 770       | 6                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 418                         | NR               | 645       | 236                         | NR               | 775       | 6                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 461                         | NR               | 650       | 209                         | NR               | 780       | 5                           | NR               | 910       | 0                           | NR               |
| 395       | 6                           | NR               | 525       | 491                         | NR               | 655       | 184                         | NR               | 785       | 4                           | NR               | 915       | 0                           | NR               |
| 400       | 9                           | NR               | 530       | 514                         | NR               | 660       | 160                         | NR               | 790       | 4                           | NR               | 920       | 0                           | NR               |
| 405       | 14                          | NR               | 535       | 530                         | NR               | 665       | 140                         | NR               | 795       | 3                           | NR               | 925       | 0                           | NR               |
| 410       | 27                          | NR               | 540       | 539                         | NR               | 670       | 122                         | NR               | 800       | 3                           | NR               | 930       | 0                           | NR               |
| 415       | 55                          | NR               | 545       | 549                         | NR               | 675       | 106                         | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 115                         | NR               | 550       | 557                         | NR               | 680       | 92                          | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 226                         | NR               | 555       | 565                         | NR               | 685       | 79                          | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 395                         | NR               | 560       | 572                         | NR               | 690       | 68                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 648                         | NR               | 565       | 580                         | NR               | 695       | 59                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 937                         | NR               | 570       | 586                         | NR               | 700       | 51                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 953                         | NR               | 575       | 588                         | NR               | 705       | 44                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 591                         | NR               | 580       | 588                         | NR               | 710       | 38                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 334                         | NR               | 585       | 580                         | NR               | 715       | 32                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 221                         | NR               | 590       | 568                         | NR               | 720       | 28                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 140                         | NR               | 595       | 550                         | NR               | 725       | 24                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 93                          | NR               | 600       | 527                         | NR               | 730       | 21                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 79                          | NR               | 605       | 499                         | NR               | 735       | 18                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 469                         | NR               | 740       | 15                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 87                          | NR               | 615       | 435                         | NR               | 745       | 13                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 3.37**

| $\lambda$<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               | 118                                    | NR                             | 620               | 401                                    | NR                             | 750               | 12                                     | NR                             | 880               | 0                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 168                                    | NR                             | 625               | 365                                    | NR                             | 755               | 10                                     | NR                             | 885               | 0                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 230                                    | NR                             | 630               | 331                                    | NR                             | 760               | 9                                      | NR                             | 890               | 0                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 299                                    | NR                             | 635               | 298                                    | NR                             | 765               | 8                                      | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 362                                    | NR                             | 640               | 266                                    | NR                             | 770               | 6                                      | NR                             | 900               | 0                                      | NR                             |
| 385               | 2                                      | NR                             | 515               | 418                                    | NR                             | 645               | 236                                    | NR                             | 775               | 6                                      | NR                             | 905               | 0                                      | NR                             |
| 390               | 4                                      | NR                             | 520               | 461                                    | NR                             | 650               | 209                                    | NR                             | 780               | 5                                      | NR                             | 910               | 0                                      | NR                             |
| 395               | 6                                      | NR                             | 525               | 491                                    | NR                             | 655               | 184                                    | NR                             | 785               | 4                                      | NR                             | 915               | 0                                      | NR                             |
| 400               | 9                                      | NR                             | 530               | 514                                    | NR                             | 660               | 160                                    | NR                             | 790               | 4                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 14                                     | NR                             | 535               | 530                                    | NR                             | 665               | 140                                    | NR                             | 795               | 3                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 27                                     | NR                             | 540               | 539                                    | NR                             | 670               | 122                                    | NR                             | 800               | 3                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 55                                     | NR                             | 545               | 549                                    | NR                             | 675               | 106                                    | NR                             | 805               | 2                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 115                                    | NR                             | 550               | 557                                    | NR                             | 680               | 92                                     | NR                             | 810               | 2                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 226                                    | NR                             | 555               | 565                                    | NR                             | 685               | 79                                     | NR                             | 815               | 2                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 395                                    | NR                             | 560               | 572                                    | NR                             | 690               | 68                                     | NR                             | 820               | 2                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 648                                    | NR                             | 565               | 580                                    | NR                             | 695               | 59                                     | NR                             | 825               | 1                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 937                                    | NR                             | 570               | 586                                    | NR                             | 700               | 51                                     | NR                             | 830               | 1                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 953                                    | NR                             | 575               | 588                                    | NR                             | 705               | 44                                     | NR                             | 835               | 1                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 591                                    | NR                             | 580               | 588                                    | NR                             | 710               | 38                                     | NR                             | 840               | 1                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 334                                    | NR                             | 585               | 580                                    | NR                             | 715               | 32                                     | NR                             | 845               | 1                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 221                                    | NR                             | 590               | 568                                    | NR                             | 720               | 28                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 140                                    | NR                             | 595               | 550                                    | NR                             | 725               | 24                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 93                                     | NR                             | 600               | 527                                    | NR                             | 730               | 21                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 79                                     | NR                             | 605               | 499                                    | NR                             | 735               | 18                                     | NR                             | 865               | 0                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 76                                     | NR                             | 610               | 469                                    | NR                             | 740               | 15                                     | NR                             | 870               | 0                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 87                                     | NR                             | 615               | 435                                    | NR                             | 745               | 13                                     | NR                             | 875               | 0                                      | NR                             |                   |                                        |                                |

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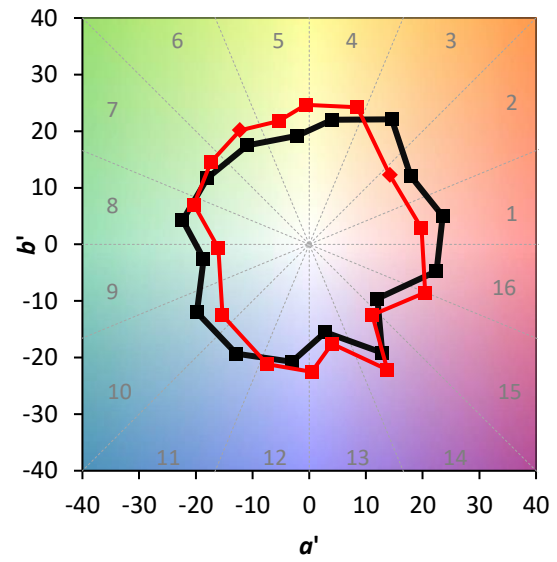
TM-30-18

### Summary

$R_f = 70.7$   
 $R_g = 96.8$   
 $CIE R_a = 70.2$   
 $R_g = -35.1$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 53 | CES51 = 87 | CES76 = 42 |
| CES02 = 59 | CES27 = 78 | CES52 = 88 | CES77 = 64 |
| CES03 = 30 | CES28 = 76 | CES53 = 74 | CES78 = 45 |
| CES04 = 69 | CES29 = 48 | CES54 = 80 | CES79 = 74 |
| CES05 = 46 | CES30 = 56 | CES55 = 79 | CES80 = 71 |
| CES06 = 50 | CES31 = 54 | CES56 = 68 | CES81 = 72 |
| CES07 = 39 | CES32 = 50 | CES57 = 65 | CES82 = 88 |
| CES08 = 38 | CES33 = 60 | CES58 = 67 | CES83 = 82 |
| CES09 = 29 | CES34 = 62 | CES59 = 87 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 91 | CES85 = 84 |
| CES11 = 56 | CES36 = 90 | CES61 = 87 | CES86 = 74 |
| CES12 = 61 | CES37 = 72 | CES62 = 79 | CES87 = 75 |
| CES13 = 41 | CES38 = 66 | CES63 = 72 | CES88 = 76 |
| CES14 = 74 | CES39 = 91 | CES64 = 70 | CES89 = 74 |
| CES15 = 70 | CES40 = 83 | CES65 = 63 | CES90 = 73 |
| CES16 = 46 | CES41 = 83 | CES66 = 64 | CES91 = 92 |
| CES17 = 49 | CES42 = 70 | CES67 = 62 | CES92 = 67 |
| CES18 = 55 | CES43 = 68 | CES68 = 69 | CES93 = 81 |
| CES19 = 71 | CES44 = 98 | CES69 = 80 | CES94 = 56 |
| CES20 = 64 | CES45 = 78 | CES70 = 56 | CES95 = 71 |
| CES21 = 85 | CES46 = 77 | CES71 = 53 | CES96 = 77 |
| CES22 = 77 | CES47 = 73 | CES72 = 84 | CES97 = 82 |
| CES23 = 91 | CES48 = 65 | CES73 = 46 | CES98 = 71 |
| CES24 = 90 | CES49 = 76 | CES74 = 94 | CES99 = 59 |
| CES25 = 71 | CES50 = 85 | CES75 = 49 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)