

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: P1067338

Luminaire Tested: **NAV-SA6B-827-U-T2BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1067338  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: LUMARK  
Catalog Number: NAV-SA6B-827-U-T2BC  
Description: Navion AREA AND ROADWAY LUMINAIRE 800mA 6xLight Square PACKAGE  
80CRI 2700K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (84) 2700K CCT, 80 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 19332.1 lumens  
Efficiency: N/A  
Efficacy: 91.6 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G3

Input Watts (W): 211  
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

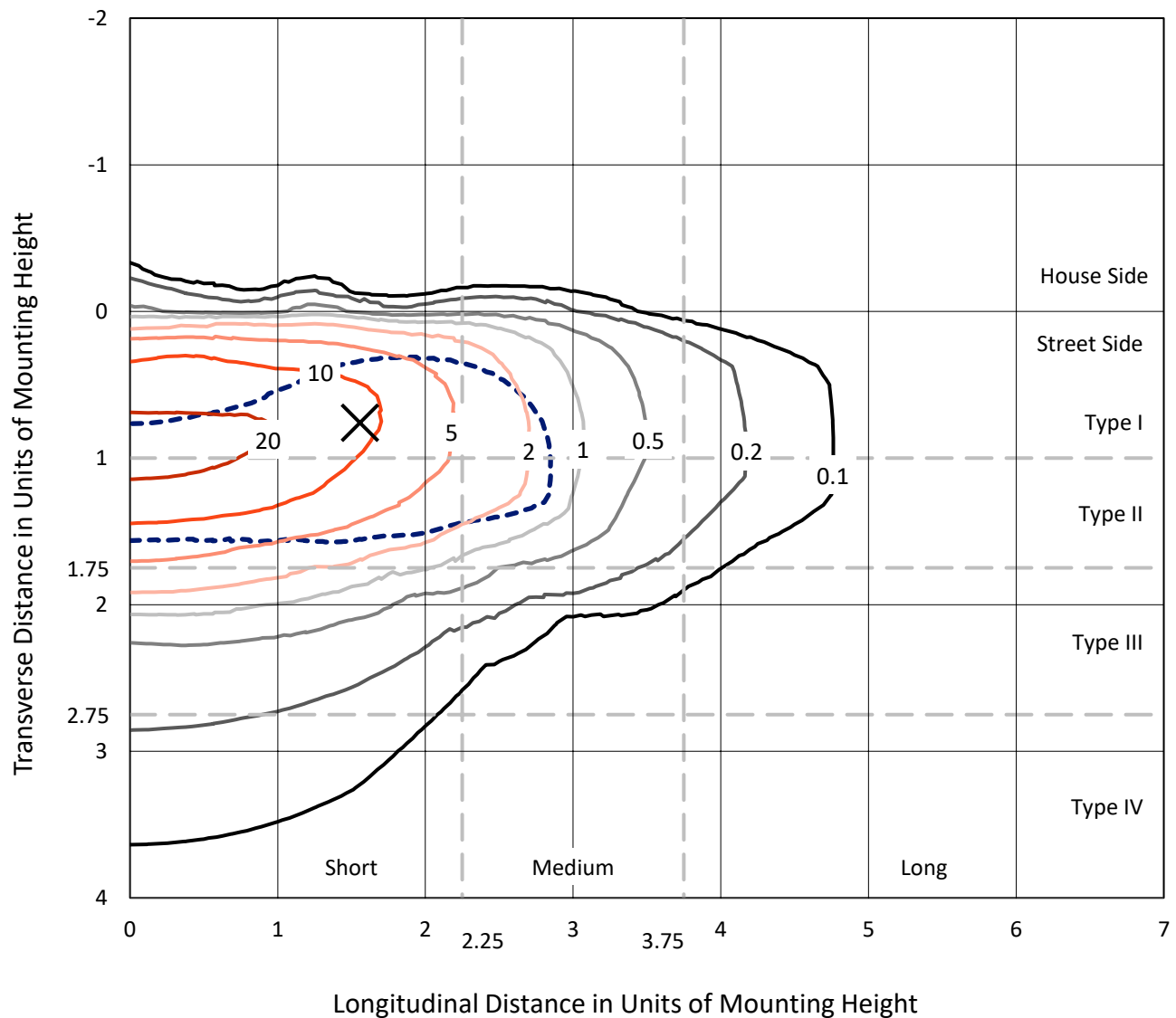


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## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

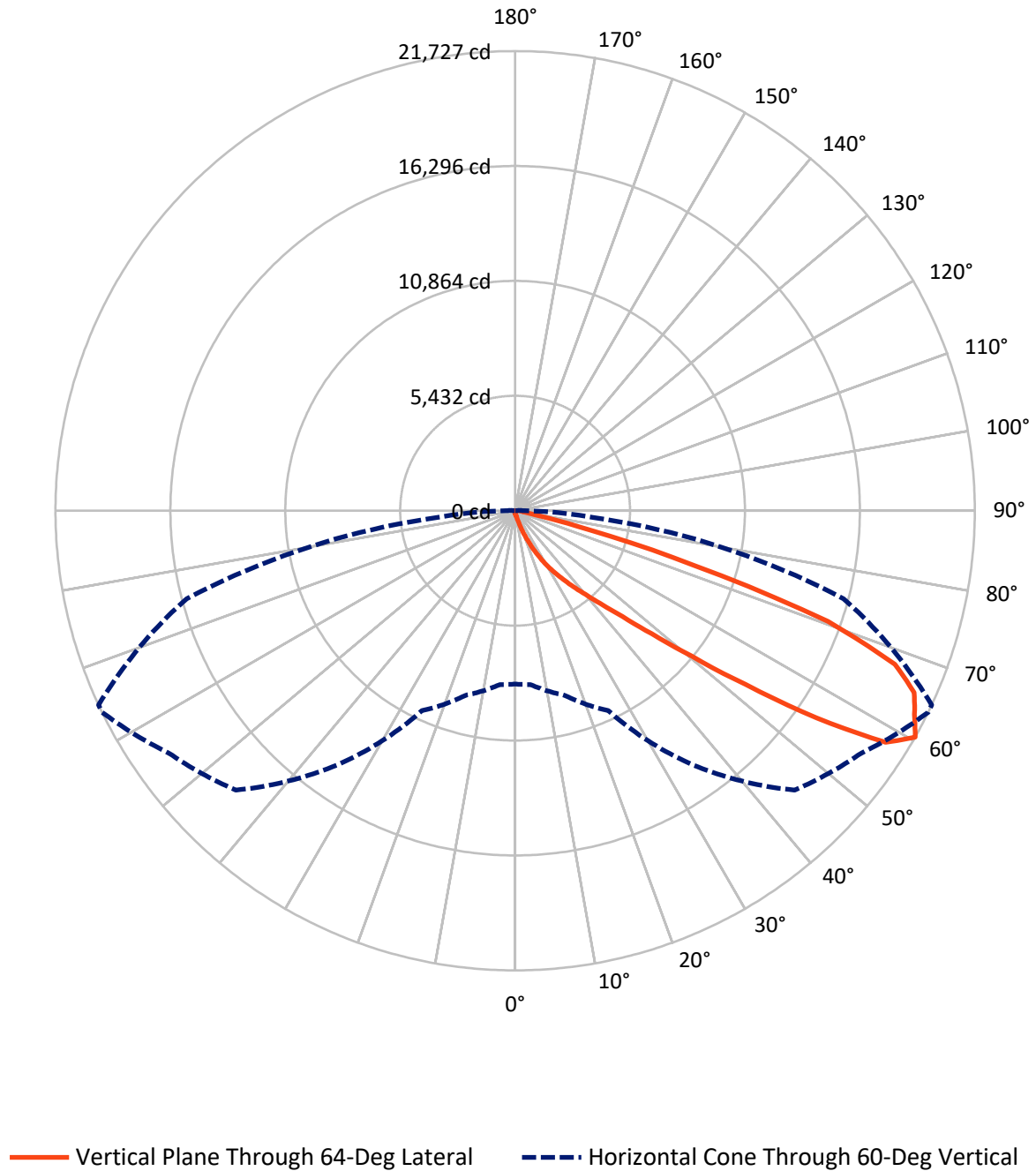


Based on 15 foot mounting height. Maximum calculated value = 27.7 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 78.4     | 0.0    | 78.4    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 19253.7  | 0.0    | 19253.7 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 19332.1  | 0.0    | 19332.1 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 19.2    | 0.1       |
| 10°-20°   | 190.0   | 1.0       |
| 20°-30°   | 630.9   | 3.3       |
| 30°-40°   | 1683.6  | 8.7       |
| 40°-50°   | 4279.2  | 22.1      |
| 50°-60°   | 6238.2  | 32.3      |
| 60°-70°   | 4818.4  | 24.9      |
| 70°-80°   | 1323.2  | 6.8       |
| 80°-90°   | 149.4   | 0.8       |
| 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°    | 19332.1 | 100.0     |
| 0°-180°   | 19332.1 | 100.0     |



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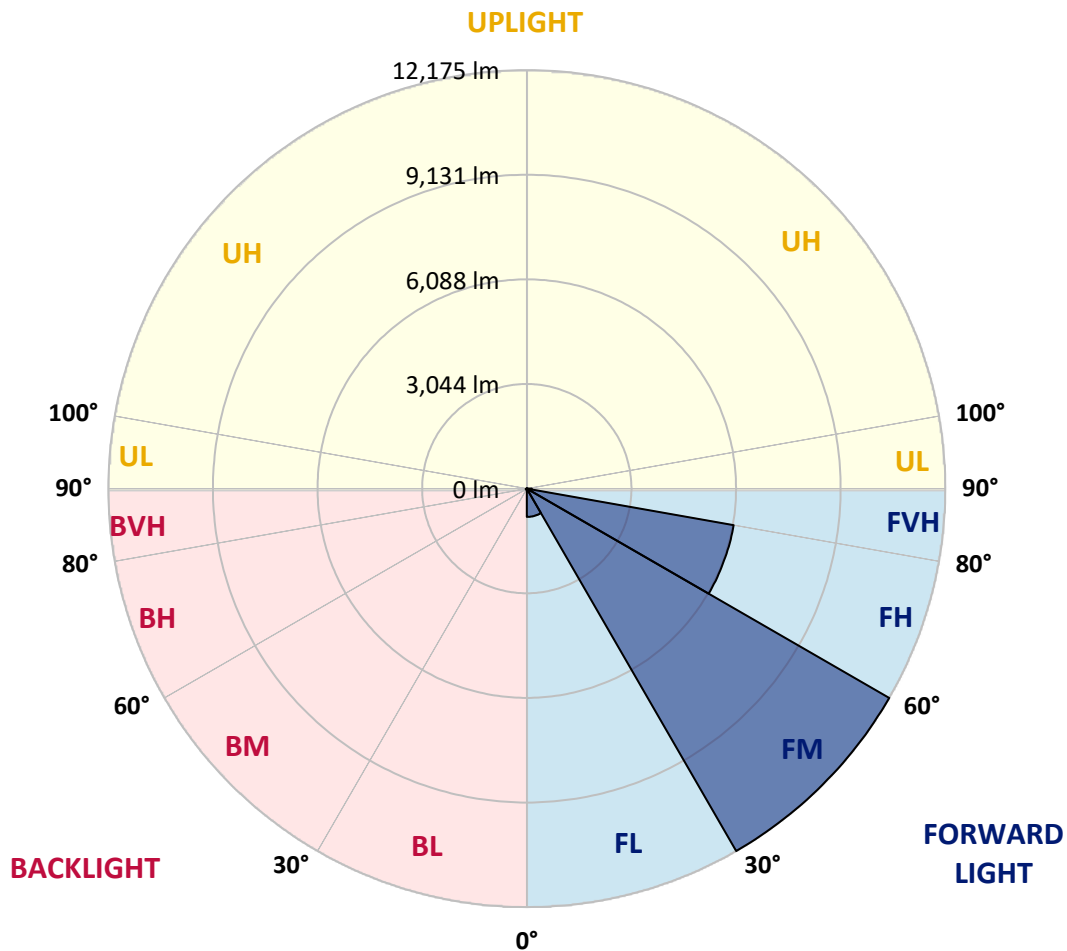
CATALOG NUMBER: NAV-SA6B-827-U-T2BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|---------|-----------|-------------------------|------|---------|
|      |             |         |           | B                       | U    | G       |
| FL   | (0°-30°)    | 822.6   | 4.3       |                         |      |         |
| FM   | (30°-60°)   | 12175.0 | 63.0      |                         |      |         |
| FH   | (60°-80°)   | 6110.3  | 31.6      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 145.8   | 0.8       |                         |      | G2/225  |
| BL   | (0°-30°)    | 17.6    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 26.0    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 31.3    | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 3.5     | 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-G3**

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 127.7   | 127.7   | 127.7   | 127.7   | 127.7   | 127.7   | 127.7   | 127.7   | 127.7   | 127.7   | 127.7  |
| 2.5°  | 170.3   | 170.3   | 170.3   | 165.0   | 159.6   | 159.6   | 154.3   | 149.0   | 149.0   | 138.4   | 133.0  |
| 5°    | 260.8   | 260.8   | 250.1   | 239.5   | 223.5   | 202.2   | 180.9   | 165.0   | 165.0   | 149.0   | 138.4  |
| 7.5°  | 510.9   | 526.8   | 478.9   | 420.4   | 340.6   | 287.4   | 228.8   | 191.6   | 186.3   | 159.6   | 138.4  |
| 10°   | 1106.9  | 1096.2  | 1021.7  | 878.0   | 691.8   | 500.2   | 319.3   | 234.1   | 223.5   | 170.3   | 138.4  |
| 12.5° | 1665.6  | 1681.6  | 1601.8  | 1442.1  | 1218.6  | 888.7   | 548.1   | 303.3   | 292.7   | 186.3   | 138.4  |
| 15°   | 2144.5  | 2144.5  | 2091.3  | 2011.5  | 1766.7  | 1420.8  | 883.4   | 452.3   | 415.1   | 202.2   | 133.0  |
| 17.5° | 2474.5  | 2469.1  | 2447.9  | 2426.6  | 2282.9  | 1926.4  | 1351.6  | 723.7   | 638.6   | 239.5   | 133.0  |
| 20°   | 2847.0  | 2831.0  | 2857.6  | 2815.0  | 2703.3  | 2421.3  | 1846.5  | 1074.9  | 995.1   | 303.3   | 133.0  |
| 22.5° | 3235.4  | 3251.4  | 3272.7  | 3230.1  | 3107.7  | 2862.9  | 2368.0  | 1527.3  | 1442.1  | 420.4   | 138.4  |
| 25°   | 3730.3  | 3719.7  | 3767.6  | 3730.3  | 3576.0  | 3288.6  | 2857.6  | 2022.1  | 1899.8  | 585.4   | 149.0  |
| 27.5° | 4337.0  | 4315.7  | 4347.6  | 4251.8  | 4049.6  | 3756.9  | 3294.0  | 2527.7  | 2384.0  | 840.8   | 170.3  |
| 30°   | 5140.5  | 5156.5  | 5012.8  | 4901.0  | 4613.7  | 4225.2  | 3778.2  | 3070.5  | 2921.5  | 1144.1  | 191.6  |
| 32.5° | 6407.0  | 6295.3  | 6071.8  | 5619.4  | 5241.6  | 4746.7  | 4262.5  | 3544.1  | 3411.0  | 1532.6  | 223.5  |
| 35°   | 8381.3  | 8402.5  | 7913.0  | 6795.5  | 5976.0  | 5401.3  | 4794.6  | 4065.6  | 3969.8  | 1974.3  | 266.1  |
| 37.5° | 10786.6 | 10728.0 | 10297.0 | 8886.8  | 7050.9  | 6215.4  | 5401.3  | 4635.0  | 4496.6  | 2453.2  | 319.3  |
| 40°   | 13511.1 | 13266.3 | 13016.2 | 12058.4 | 9291.2  | 7237.2  | 6167.5  | 5294.8  | 5188.4  | 3006.6  | 404.4  |
| 42.5° | 15692.9 | 15629.1 | 15671.6 | 15272.5 | 13026.9 | 8977.3  | 7183.9  | 6103.7  | 5976.0  | 3693.1  | 553.4  |
| 45°   | 16767.8 | 16677.4 | 16932.8 | 17230.8 | 16656.1 | 12681.0 | 8822.9  | 7136.0  | 6965.8  | 4501.9  | 782.3  |
| 47.5° | 16480.5 | 16416.6 | 16964.7 | 17550.1 | 18316.4 | 16975.4 | 11499.6 | 8679.3  | 8386.6  | 5539.6  | 1122.8 |
| 50°   | 15065.0 | 15070.3 | 15969.6 | 17060.5 | 18273.8 | 19151.8 | 15464.1 | 10791.9 | 10424.7 | 6917.9  | 1655.0 |
| 52.5° | 13686.7 | 13729.3 | 14681.8 | 16273.0 | 17640.6 | 19407.3 | 18944.3 | 13638.8 | 13042.8 | 8540.9  | 2282.9 |
| 55°   | 12271.2 | 12292.5 | 13133.3 | 15373.6 | 17342.6 | 18646.3 | 20732.3 | 17305.3 | 16672.1 | 10563.1 | 2894.9 |
| 57.5° | 10908.9 | 10908.9 | 11222.9 | 13213.1 | 17018.0 | 18577.1 | 20519.5 | 20657.8 | 20141.6 | 12872.6 | 3347.2 |
| 60°   | 8195.0  | 8248.2  | 9030.5  | 10424.7 | 14676.5 | 18678.2 | 19976.7 | 21727.4 | 21727.4 | 16076.1 | 3693.1 |
| 62.5° | 4140.1  | 4219.9  | 5193.7  | 6550.7  | 10068.2 | 17284.0 | 20061.8 | 21190.0 | 21275.1 | 18901.7 | 4480.6 |
| 65°   | 1942.3  | 2032.8  | 2554.3  | 3512.1  | 5417.2  | 12164.8 | 19178.5 | 20732.3 | 20705.7 | 18364.3 | 6140.9 |
| 67.5° | 1394.2  | 1420.8  | 1596.4  | 2048.8  | 2916.1  | 5332.1  | 14639.3 | 19364.7 | 19375.3 | 15602.5 | 7061.5 |
| 70°   | 1250.5  | 1250.5  | 1293.1  | 1426.1  | 1756.1  | 2384.0  | 7114.8  | 15682.3 | 16443.2 | 12047.7 | 6545.4 |
| 72.5° | 1234.6  | 1223.9  | 1213.3  | 1218.6  | 1186.7  | 1197.3  | 2442.5  | 8854.9  | 9940.4  | 8429.2  | 5220.3 |
| 75°   | 1202.6  | 1202.6  | 1192.0  | 1154.8  | 947.2   | 771.6   | 840.8   | 3581.3  | 4140.1  | 5630.1  | 3874.0 |
| 77.5° | 952.5   | 1048.3  | 1160.1  | 1090.9  | 867.4   | 580.0   | 489.6   | 1037.7  | 1309.1  | 3453.6  | 2809.7 |
| 80°   | 441.7   | 447.0   | 441.7   | 463.0   | 553.4   | 415.1   | 361.9   | 505.5   | 510.9   | 1915.7  | 1740.1 |
| 82.5° | 319.3   | 324.6   | 308.6   | 276.7   | 244.8   | 223.5   | 298.0   | 372.5   | 399.1   | 878.0   | 649.2  |
| 85°   | 95.8    | 90.5    | 106.4   | 143.7   | 170.3   | 196.9   | 250.1   | 314.0   | 329.9   | 324.6   | 95.8   |
| 87.5° | 42.6    | 42.6    | 53.2    | 74.5    | 101.1   | 149.0   | 218.2   | 287.4   | 292.7   | 335.3   | 26.6   |
| 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-SA6B-827-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 127.7  | 127.7 | 127.7 | 127.7 | 127.7 | 127.7 | 127.7 | 127.7 | 127.7 | 127.7 | 127.7 |
| 2.5°  | 133.0  | 127.7 | 122.4 | 117.1 | 111.8 | 106.4 | 101.1 | 101.1 | 106.4 | 106.4 | 106.4 |
| 5°    | 127.7  | 122.4 | 111.8 | 101.1 | 95.8  | 90.5  | 85.1  | 85.1  | 90.5  | 90.5  | 90.5  |
| 7.5°  | 127.7  | 117.1 | 106.4 | 95.8  | 85.1  | 79.8  | 74.5  | 74.5  | 74.5  | 79.8  | 79.8  |
| 10°   | 127.7  | 117.1 | 101.1 | 85.1  | 74.5  | 69.2  | 63.9  | 58.5  | 63.9  | 63.9  | 63.9  |
| 12.5° | 122.4  | 111.8 | 95.8  | 79.8  | 63.9  | 53.2  | 47.9  | 47.9  | 47.9  | 47.9  | 47.9  |
| 15°   | 117.1  | 106.4 | 90.5  | 69.2  | 53.2  | 42.6  | 31.9  | 31.9  | 31.9  | 37.3  | 37.3  |
| 17.5° | 111.8  | 101.1 | 79.8  | 53.2  | 37.3  | 26.6  | 21.3  | 21.3  | 21.3  | 26.6  | 26.6  |
| 20°   | 111.8  | 95.8  | 69.2  | 42.6  | 26.6  | 16.0  | 10.6  | 10.6  | 10.6  | 16.0  | 21.3  |
| 22.5° | 111.8  | 95.8  | 63.9  | 31.9  | 16.0  | 10.6  | 5.3   | 5.3   | 5.3   | 5.3   | 5.3   |
| 25°   | 111.8  | 90.5  | 58.5  | 26.6  | 10.6  | 5.3   | 0.0   | 0.0   | 5.3   | 10.6  | 16.0  |
| 27.5° | 111.8  | 85.1  | 47.9  | 16.0  | 10.6  | 5.3   | 0.0   | 5.3   | 10.6  | 10.6  | 10.6  |
| 30°   | 111.8  | 85.1  | 42.6  | 16.0  | 5.3   | 0.0   | 0.0   | 5.3   | 10.6  | 10.6  | 16.0  |
| 32.5° | 117.1  | 79.8  | 37.3  | 10.6  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 122.4  | 74.5  | 31.9  | 10.6  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 133.0  | 74.5  | 21.3  | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 149.0  | 79.8  | 21.3  | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 186.3  | 85.1  | 16.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 260.8  | 106.4 | 16.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 383.1  | 159.6 | 16.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 558.8  | 218.2 | 10.6  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 686.5  | 218.2 | 10.6  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 681.1  | 138.4 | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 521.5  | 95.8  | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 441.7  | 69.2  | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 532.1  | 53.2  | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 947.2  | 47.9  | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1521.9 | 47.9  | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 1702.9 | 47.9  | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1330.4 | 42.6  | 5.3   | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 729.0  | 37.3  | 5.3   | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 367.2  | 26.6  | 10.6  | 5.3   | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 154.3  | 21.3  | 10.6  | 5.3   | 5.3   | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 53.2   | 21.3  | 10.6  | 10.6  | 5.3   | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 26.6   | 16.0  | 16.0  | 10.6  | 10.6  | 5.3   | 5.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 16.0   | 16.0  | 16.0  | 10.6  | 10.6  | 5.3   | 5.3   | 0.0   | 0.0   | 0.0   | 5.3   |
| 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: SP1-2407-184-8

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-827-U-5WQ

Data in this report applies to families of products including GSS-SB1A-827-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-8  
 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-827-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI  
 2700K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2756  
 CIE  $u'$ : 0.2599  
 CIE  $v'$ : 0.5271  
 Duv: 0.0006  
 CIE x: 0.4563  
 CIE y: 0.4112  
 CIE z: 0.1325  
 Peak Wavelength (nm): 609  
 Dominant Wavelength (nm): 583  
 Purity: 60.41121  
 R<sub>f</sub>: 82.2  
 R<sub>g</sub>: 99.9

CRI (Ra): 82.9  
 R1: 81.6  
 R2: 88.8  
 R3: 96.0  
 R4: 83.4  
 R5: 81.4  
 R6: 87.0  
 R7: 84.0  
 R8: 60.8  
 R9: 10.8  
 R10: 74.8  
 R11: 84.3  
 R12: 72.1  
 R13: 82.9  
 R14: 97.3  
 R15: 73.7



### Test Conditions

Stabilization Time: 29M  
 Operation Time: 1H 29M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-8

| 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 2700K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| 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    | 158                      | NR            | 620    | 959                      | NR            | 750    | 35                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 211                      | NR            | 625    | 918                      | NR            | 755    | 30                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 264                      | NR            | 630    | 873                      | NR            | 760    | 26                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 318                      | NR            | 635    | 816                      | NR            | 765    | 22                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 363                      | NR            | 640    | 755                      | NR            | 770    | 19                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 403                      | NR            | 645    | 689                      | NR            | 775    | 16                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 435                      | NR            | 650    | 626                      | NR            | 780    | 14                       | NR            | 910    | 0                        | NR            |
| 395    | 1                        | NR            | 525    | 459                      | NR            | 655    | 564                      | NR            | 785    | 12                       | NR            | 915    | 0                        | NR            |
| 400    | 3                        | NR            | 530    | 481                      | NR            | 660    | 503                      | NR            | 790    | 10                       | NR            | 920    | 0                        | NR            |
| 405    | 6                        | NR            | 535    | 501                      | NR            | 665    | 447                      | NR            | 795    | 9                        | NR            | 925    | 0                        | NR            |
| 410    | 13                       | NR            | 540    | 519                      | NR            | 670    | 392                      | NR            | 800    | 8                        | NR            | 930    | 0                        | NR            |
| 415    | 26                       | NR            | 545    | 542                      | NR            | 675    | 343                      | NR            | 805    | 7                        | NR            | 935    | 0                        | NR            |
| 420    | 51                       | NR            | 550    | 565                      | NR            | 680    | 299                      | NR            | 810    | 6                        | NR            | 940    | 0                        | NR            |
| 425    | 93                       | NR            | 555    | 593                      | NR            | 685    | 260                      | NR            | 815    | 5                        | NR            | 945    | 0                        | NR            |
| 430    | 156                      | NR            | 560    | 624                      | NR            | 690    | 225                      | NR            | 820    | 4                        | NR            | 950    | 0                        | NR            |
| 435    | 250                      | NR            | 565    | 662                      | NR            | 695    | 194                      | NR            | 825    | 4                        | NR            | 955    | 0                        | NR            |
| 440    | 391                      | NR            | 570    | 707                      | NR            | 700    | 166                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 460                      | NR            | 575    | 756                      | NR            | 705    | 143                      | NR            | 835    | 3                        | NR            | 965    | 0                        | NR            |
| 450    | 293                      | NR            | 580    | 810                      | NR            | 710    | 122                      | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 188                      | NR            | 585    | 860                      | NR            | 715    | 105                      | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 149                      | NR            | 590    | 910                      | NR            | 720    | 90                       | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 103                      | NR            | 595    | 950                      | NR            | 725    | 77                       | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 80                       | NR            | 600    | 980                      | NR            | 730    | 66                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 82                       | NR            | 605    | 995                      | NR            | 735    | 56                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 92                       | NR            | 610    | 998                      | NR            | 740    | 48                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 116                      | NR            | 615    | 985                      | NR            | 745    | 41                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.2

| 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       | 158                         | NR               | 620       | 959                         | NR               | 750       | 35                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 211                         | NR               | 625       | 918                         | NR               | 755       | 30                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 264                         | NR               | 630       | 873                         | NR               | 760       | 26                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 318                         | NR               | 635       | 816                         | NR               | 765       | 22                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 363                         | NR               | 640       | 755                         | NR               | 770       | 19                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 403                         | NR               | 645       | 689                         | NR               | 775       | 16                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 435                         | NR               | 650       | 626                         | NR               | 780       | 14                          | NR               | 910       | 0                           | NR               |
| 395       | 1                           | NR               | 525       | 459                         | NR               | 655       | 564                         | NR               | 785       | 12                          | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 481                         | NR               | 660       | 503                         | NR               | 790       | 10                          | NR               | 920       | 0                           | NR               |
| 405       | 6                           | NR               | 535       | 501                         | NR               | 665       | 447                         | NR               | 795       | 9                           | NR               | 925       | 0                           | NR               |
| 410       | 13                          | NR               | 540       | 519                         | NR               | 670       | 392                         | NR               | 800       | 8                           | NR               | 930       | 0                           | NR               |
| 415       | 26                          | NR               | 545       | 542                         | NR               | 675       | 343                         | NR               | 805       | 7                           | NR               | 935       | 0                           | NR               |
| 420       | 51                          | NR               | 550       | 565                         | NR               | 680       | 299                         | NR               | 810       | 6                           | NR               | 940       | 0                           | NR               |
| 425       | 93                          | NR               | 555       | 593                         | NR               | 685       | 260                         | NR               | 815       | 5                           | NR               | 945       | 0                           | NR               |
| 430       | 156                         | NR               | 560       | 624                         | NR               | 690       | 225                         | NR               | 820       | 4                           | NR               | 950       | 0                           | NR               |
| 435       | 250                         | NR               | 565       | 662                         | NR               | 695       | 194                         | NR               | 825       | 4                           | NR               | 955       | 0                           | NR               |
| 440       | 391                         | NR               | 570       | 707                         | NR               | 700       | 166                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 460                         | NR               | 575       | 756                         | NR               | 705       | 143                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 293                         | NR               | 580       | 810                         | NR               | 710       | 122                         | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 188                         | NR               | 585       | 860                         | NR               | 715       | 105                         | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 149                         | NR               | 590       | 910                         | NR               | 720       | 90                          | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 103                         | NR               | 595       | 950                         | NR               | 725       | 77                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 80                          | NR               | 600       | 980                         | NR               | 730       | 66                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 82                          | NR               | 605       | 995                         | NR               | 735       | 56                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 92                          | NR               | 610       | 998                         | NR               | 740       | 48                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 116                         | NR               | 615       | 985                         | NR               | 745       | 41                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.16

| $\lambda$<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               | 158                                    | NR                             | 620               | 959                                    | NR                             | 750               | 35                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 211                                    | NR                             | 625               | 918                                    | NR                             | 755               | 30                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 264                                    | NR                             | 630               | 873                                    | NR                             | 760               | 26                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 318                                    | NR                             | 635               | 816                                    | NR                             | 765               | 22                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 363                                    | NR                             | 640               | 755                                    | NR                             | 770               | 19                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 403                                    | NR                             | 645               | 689                                    | NR                             | 775               | 16                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 435                                    | NR                             | 650               | 626                                    | NR                             | 780               | 14                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 1                                      | NR                             | 525               | 459                                    | NR                             | 655               | 564                                    | NR                             | 785               | 12                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 3                                      | NR                             | 530               | 481                                    | NR                             | 660               | 503                                    | NR                             | 790               | 10                                     | NR                             | 920               | 0                                      | NR                             |
| 405               | 6                                      | NR                             | 535               | 501                                    | NR                             | 665               | 447                                    | NR                             | 795               | 9                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 13                                     | NR                             | 540               | 519                                    | NR                             | 670               | 392                                    | NR                             | 800               | 8                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 26                                     | NR                             | 545               | 542                                    | NR                             | 675               | 343                                    | NR                             | 805               | 7                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 51                                     | NR                             | 550               | 565                                    | NR                             | 680               | 299                                    | NR                             | 810               | 6                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 93                                     | NR                             | 555               | 593                                    | NR                             | 685               | 260                                    | NR                             | 815               | 5                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 156                                    | NR                             | 560               | 624                                    | NR                             | 690               | 225                                    | NR                             | 820               | 4                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 250                                    | NR                             | 565               | 662                                    | NR                             | 695               | 194                                    | NR                             | 825               | 4                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 391                                    | NR                             | 570               | 707                                    | NR                             | 700               | 166                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 460                                    | NR                             | 575               | 756                                    | NR                             | 705               | 143                                    | NR                             | 835               | 3                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 293                                    | NR                             | 580               | 810                                    | NR                             | 710               | 122                                    | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 188                                    | NR                             | 585               | 860                                    | NR                             | 715               | 105                                    | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 149                                    | NR                             | 590               | 910                                    | NR                             | 720               | 90                                     | NR                             | 850               | 2                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 103                                    | NR                             | 595               | 950                                    | NR                             | 725               | 77                                     | NR                             | 855               | 2                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 80                                     | NR                             | 600               | 980                                    | NR                             | 730               | 66                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 82                                     | NR                             | 605               | 995                                    | NR                             | 735               | 56                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 92                                     | NR                             | 610               | 998                                    | NR                             | 740               | 48                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 116                                    | NR                             | 615               | 985                                    | NR                             | 745               | 41                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

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TM-30-18

### Summary

$R_f = 82.2$   
 $R_g = 99.9$   
 $CIE R_a = 82.9$   
 $R_9 = 10.8$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 76 | CES51 = 89 | CES76 = 75 |
| CES02 = 63 | CES27 = 89 | CES52 = 91 | CES77 = 87 |
| CES03 = 31 | CES28 = 90 | CES53 = 82 | CES78 = 76 |
| CES04 = 71 | CES29 = 68 | CES54 = 88 | CES79 = 91 |
| CES05 = 50 | CES30 = 69 | CES55 = 87 | CES80 = 90 |
| CES06 = 52 | CES31 = 72 | CES56 = 80 | CES81 = 74 |
| CES07 = 43 | CES32 = 71 | CES57 = 78 | CES82 = 95 |
| CES08 = 42 | CES33 = 71 | CES58 = 80 | CES83 = 90 |
| CES09 = 29 | CES34 = 84 | CES59 = 93 | CES84 = 94 |
| CES10 = 77 | CES35 = 92 | CES60 = 96 | CES85 = 83 |
| CES11 = 59 | CES36 = 92 | CES61 = 94 | CES86 = 69 |
| CES12 = 66 | CES37 = 89 | CES62 = 84 | CES87 = 85 |
| CES13 = 44 | CES38 = 75 | CES63 = 79 | CES88 = 84 |
| CES14 = 74 | CES39 = 93 | CES64 = 85 | CES89 = 74 |
| CES15 = 72 | CES40 = 89 | CES65 = 79 | CES90 = 81 |
| CES16 = 48 | CES41 = 85 | CES66 = 83 | CES91 = 96 |
| CES17 = 50 | CES42 = 88 | CES67 = 82 | CES92 = 72 |
| CES18 = 57 | CES43 = 81 | CES68 = 86 | CES93 = 84 |
| CES19 = 73 | CES44 = 98 | CES69 = 92 | CES94 = 63 |
| CES20 = 67 | CES45 = 87 | CES70 = 81 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 81 | CES96 = 85 |
| CES22 = 79 | CES47 = 76 | CES72 = 93 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 75 | CES98 = 82 |
| CES24 = 91 | CES49 = 81 | CES74 = 91 | CES99 = 76 |
| CES25 = 72 | CES50 = 88 | CES75 = 79 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)