

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: McGRAW-EDISON

Report Number: P1047281

Luminaire Tested: **GALN-SA5A-827-U-T3BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047281  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA5A-827-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 5xLight Square PACKAGE  
80CRI 2700K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (70) 2700K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 16038.4 lumens  
Efficiency: N/A  
Efficacy: 117.4 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G3

Input Watts (W): 136.6  
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

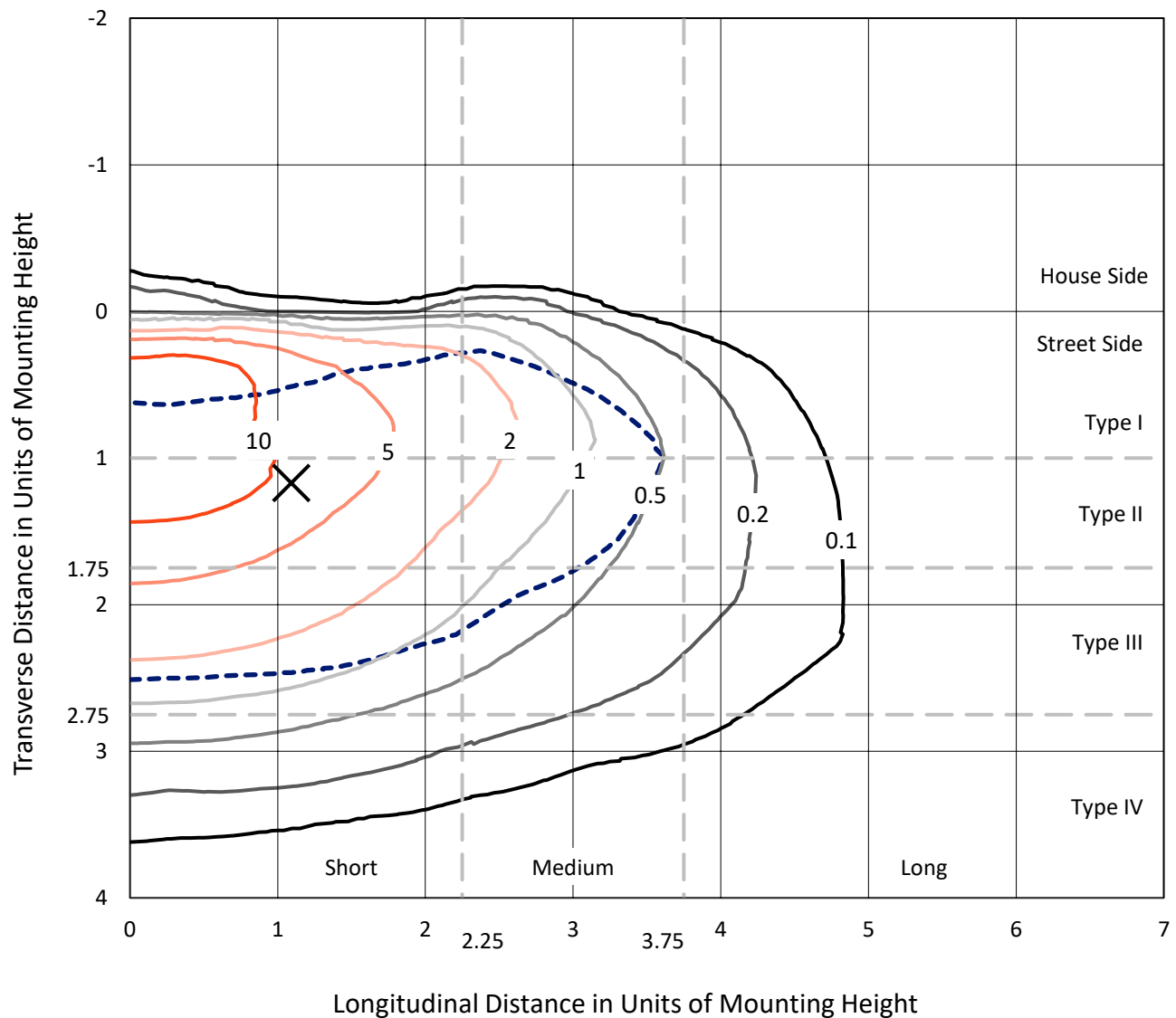


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

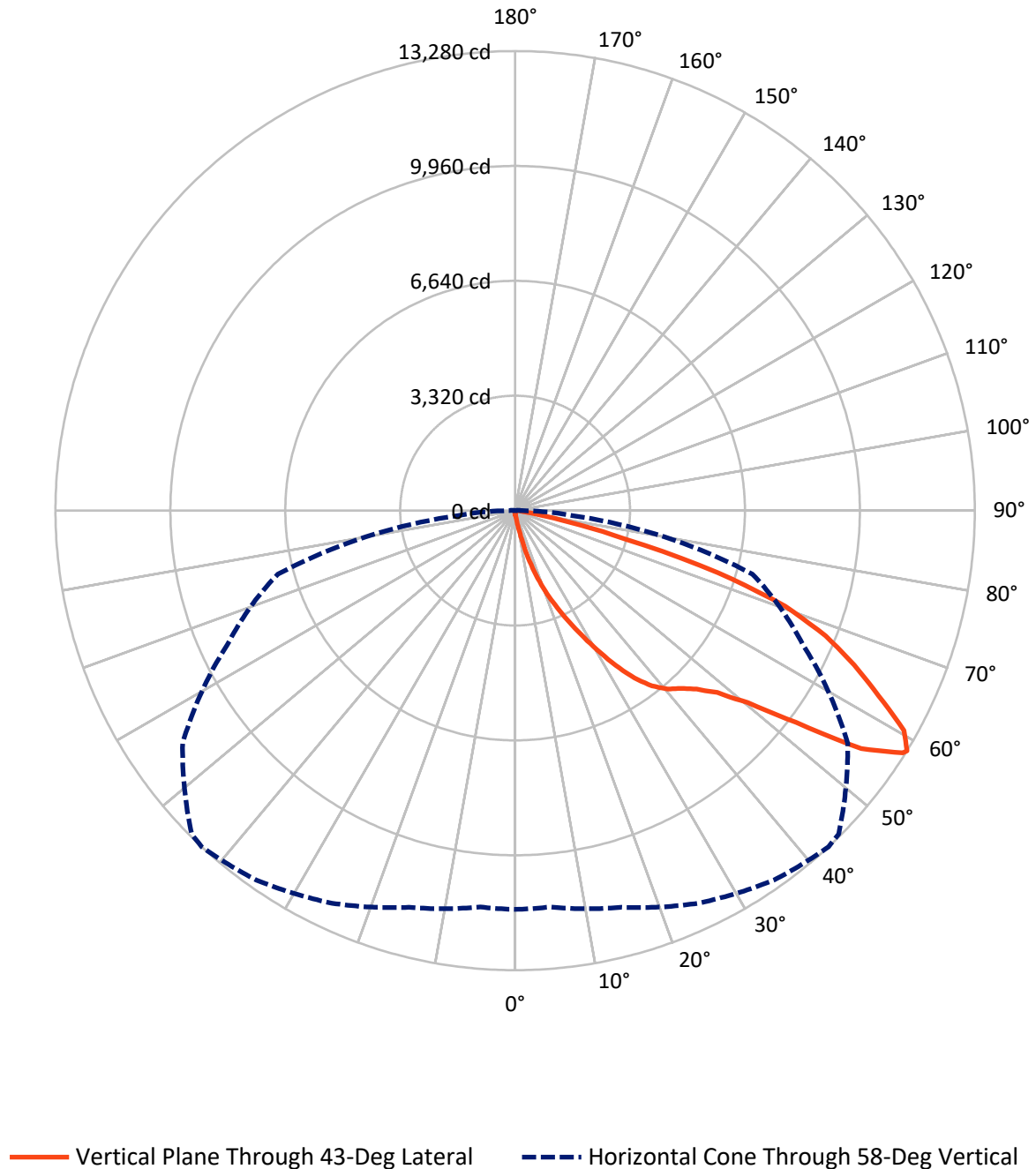


Based on 15 foot mounting height. Maximum calculated value = 18 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA5A-827-U-T3BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 58.6     | 0.0    | 58.6    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 15979.8  | 0.0    | 15979.8 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 16038.4  | 0.0    | 16038.4 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 15.4    | 0.1       |
| 10°-20°   | 184.4   | 1.1       |
| 20°-30°   | 664.5   | 4.1       |
| 30°-40°   | 1520.3  | 9.5       |
| 40°-50°   | 2564.2  | 16.0      |
| 50°-60°   | 4231.6  | 26.4      |
| 60°-70°   | 4729.4  | 29.5      |
| 70°-80°   | 1952.7  | 12.2      |
| 80°-90°   | 176.0   | 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°    | 16038.4 | 100.0     |
| 0°-180°   | 16038.4 | 100.0     |



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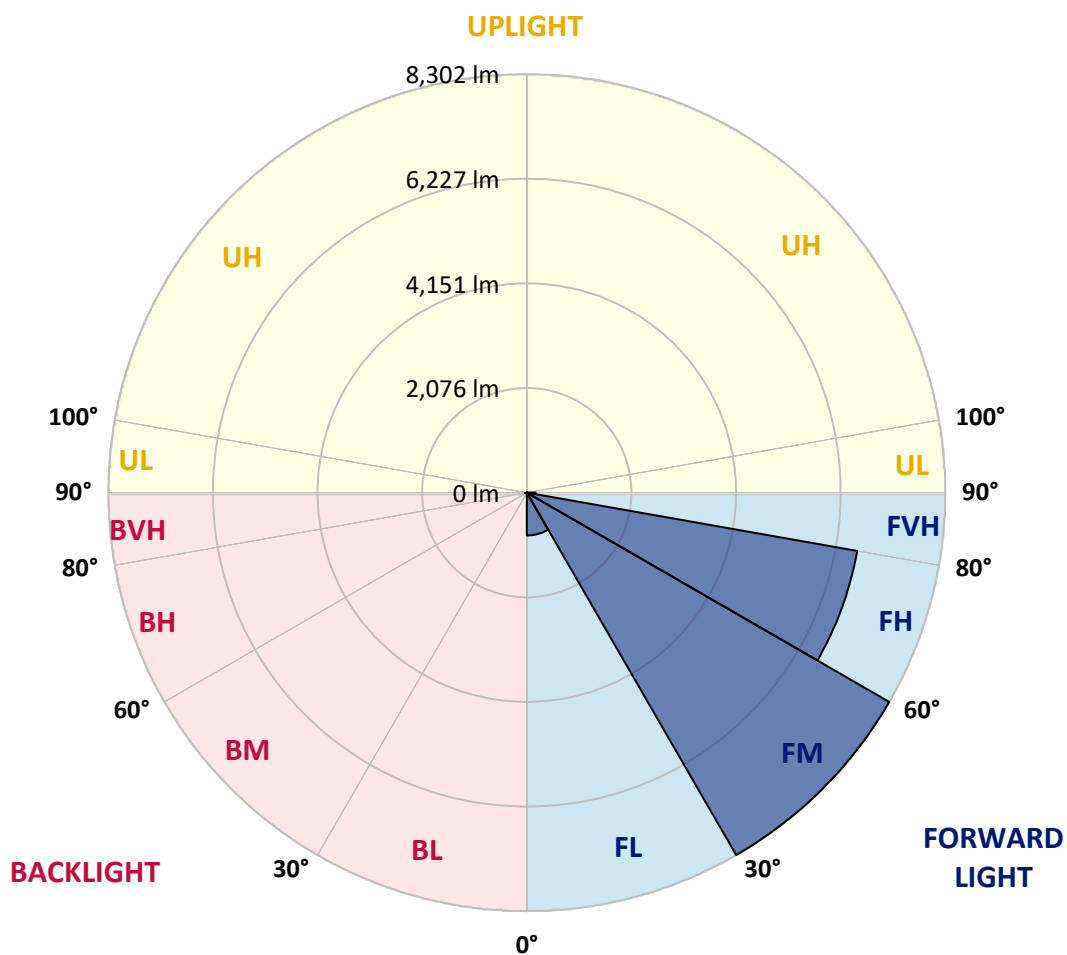
CATALOG NUMBER: GALN-SA5A-827-U-T3BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 848.9  | 5.3       |                         |      |         |
| FM   | (30°-60°)   | 8302.1 | 51.8      |                         |      |         |
| FH   | (60°-80°)   | 6655.2 | 41.5      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 173.6  | 1.1       |                         |      | G2/225  |
| BL   | (0°-30°)    | 15.3   | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 14.0   | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 26.8   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 2.4    | 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 III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 104.9   | 104.9   | 104.9   | 104.9   | 104.9   | 104.9   | 104.9   | 104.9   | 104.9   | 104.9   | 104.9  |
| 2.5°  | 125.8   | 130.0   | 125.8   | 125.8   | 125.8   | 121.6   | 121.6   | 117.5   | 117.5   | 113.3   | 109.1  |
| 5°    | 184.6   | 184.6   | 172.0   | 163.6   | 155.2   | 151.0   | 146.8   | 138.4   | 130.0   | 121.6   | 113.3  |
| 7.5°  | 411.1   | 411.1   | 373.3   | 323.0   | 255.9   | 218.1   | 209.7   | 172.0   | 146.8   | 130.0   | 113.3  |
| 10°   | 981.6   | 981.6   | 897.7   | 759.2   | 587.3   | 436.2   | 390.1   | 247.5   | 176.2   | 138.4   | 117.5  |
| 12.5° | 1631.7  | 1652.7  | 1547.8  | 1371.7  | 1115.8  | 851.5   | 759.2   | 453.0   | 234.9   | 151.0   | 117.5  |
| 15°   | 2214.8  | 2164.5  | 2135.1  | 1967.3  | 1724.0  | 1409.4  | 1292.0  | 763.4   | 339.8   | 172.0   | 117.5  |
| 17.5° | 2609.1  | 2609.1  | 2567.2  | 2453.9  | 2231.6  | 1954.7  | 1858.3  | 1233.2  | 549.5   | 197.2   | 121.6  |
| 20°   | 3070.5  | 3070.5  | 2995.0  | 2915.3  | 2718.2  | 2483.3  | 2391.0  | 1753.4  | 851.5   | 251.7   | 121.6  |
| 22.5° | 3628.4  | 3636.8  | 3552.9  | 3410.3  | 3221.5  | 2961.5  | 2881.8  | 2235.8  | 1233.2  | 335.6   | 125.8  |
| 25°   | 4308.0  | 4316.3  | 4194.7  | 4060.5  | 3771.0  | 3490.0  | 3368.3  | 2789.5  | 1698.9  | 469.8   | 125.8  |
| 27.5° | 5058.8  | 5117.5  | 4937.2  | 4706.5  | 4400.2  | 4047.9  | 3955.6  | 3288.6  | 2160.3  | 662.8   | 134.2  |
| 30°   | 5994.2  | 5994.2  | 5755.1  | 5432.1  | 5100.8  | 4664.5  | 4547.1  | 3813.0  | 2651.0  | 918.6   | 142.6  |
| 32.5° | 6799.6  | 6736.7  | 6430.5  | 6090.7  | 5738.3  | 5331.5  | 5205.6  | 4362.5  | 3154.4  | 1237.4  | 159.4  |
| 35°   | 7416.2  | 7361.7  | 6984.2  | 6619.2  | 6313.0  | 5939.7  | 5788.7  | 4958.1  | 3687.1  | 1598.2  | 184.6  |
| 37.5° | 7944.8  | 7923.8  | 7412.0  | 6954.8  | 6753.5  | 6426.3  | 6292.0  | 5520.2  | 4211.5  | 1988.3  | 213.9  |
| 40°   | 8523.6  | 8456.5  | 7911.2  | 7344.9  | 7042.9  | 6778.6  | 6657.0  | 5973.3  | 4714.8  | 2445.5  | 255.9  |
| 42.5° | 9018.6  | 8938.9  | 8448.1  | 7894.4  | 7378.5  | 7021.9  | 6904.5  | 6355.0  | 5205.6  | 2902.7  | 310.4  |
| 45°   | 9568.1  | 9526.2  | 9031.2  | 8611.7  | 7923.8  | 7353.3  | 7198.1  | 6661.2  | 5654.5  | 3448.0  | 381.7  |
| 47.5° | 10394.5 | 10319.0 | 9857.5  | 9513.6  | 8716.6  | 7856.7  | 7634.4  | 6975.8  | 6086.5  | 3985.0  | 490.8  |
| 50°   | 11355.0 | 11304.7 | 11032.1 | 10759.4 | 9966.6  | 8716.6  | 8452.3  | 7428.8  | 6568.9  | 4622.6  | 633.4  |
| 52.5° | 12139.5 | 12131.1 | 12164.6 | 12168.8 | 11569.0 | 10163.8 | 9769.5  | 8158.7  | 7122.6  | 5251.8  | 834.7  |
| 55°   | 12122.7 | 12160.4 | 12529.6 | 12953.2 | 12999.4 | 12139.5 | 11757.7 | 9387.7  | 7844.1  | 6027.8  | 1115.8 |
| 57.5° | 11669.7 | 11640.3 | 12030.4 | 12668.0 | 13116.8 | 13209.1 | 13146.2 | 11296.3 | 8930.5  | 6963.2  | 1547.8 |
| 58°   | 11522.8 | 11497.7 | 11866.8 | 12517.0 | 13032.9 | 13280.4 | 13217.5 | 11728.4 | 9173.8  | 7097.4  | 1665.3 |
| 60°   | 10990.1 | 10994.3 | 11212.4 | 11803.9 | 12319.8 | 12907.1 | 12965.8 | 12961.6 | 10386.1 | 7995.1  | 2256.7 |
| 62.5° | 10285.4 | 10251.8 | 10453.2 | 10935.6 | 11388.6 | 11782.9 | 11883.6 | 13045.5 | 12160.4 | 9136.1  | 3385.1 |
| 65°   | 9312.2  | 9261.9  | 9475.8  | 10021.1 | 10507.7 | 10763.6 | 10767.8 | 11921.3 | 12995.2 | 10360.9 | 4995.9 |
| 67.5° | 7504.3  | 7462.4  | 7890.2  | 8590.7  | 9341.6  | 9677.2  | 9828.2  | 10344.1 | 12290.5 | 11191.5 | 5918.7 |
| 70°   | 4597.4  | 4685.5  | 5281.1  | 6380.1  | 7663.7  | 8280.3  | 8506.8  | 8666.2  | 10465.8 | 11065.6 | 4949.7 |
| 72.5° | 2122.5  | 2017.6  | 2525.2  | 3292.8  | 4756.8  | 6128.5  | 6363.4  | 6988.4  | 8297.1  | 9605.9  | 3691.3 |
| 75°   | 989.9   | 952.2   | 1069.6  | 1438.8  | 2156.1  | 3309.6  | 3737.5  | 5578.9  | 6363.4  | 6682.2  | 2663.6 |
| 77.5° | 507.6   | 511.8   | 608.2   | 654.4   | 889.3   | 1531.1  | 1757.6  | 3670.4  | 4664.5  | 3729.1  | 1786.9 |
| 80°   | 222.3   | 230.7   | 234.9   | 255.9   | 360.7   | 591.5   | 667.0   | 1703.0  | 3188.0  | 1900.2  | 977.4  |
| 82.5° | 142.6   | 146.8   | 146.8   | 146.8   | 172.0   | 234.9   | 268.5   | 683.7   | 1589.8  | 943.8   | 302.0  |
| 85°   | 75.5    | 75.5    | 83.9    | 104.9   | 121.6   | 142.6   | 151.0   | 218.1   | 524.3   | 281.0   | 71.3   |
| 87.5° | 41.9    | 46.1    | 50.3    | 62.9    | 79.7    | 96.5    | 104.9   | 151.0   | 201.3   | 193.0   | 16.8   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |

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CATALOG NUMBER: GALN-SA5A-827-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 104.9  | 104.9 | 104.9 | 104.9 | 104.9 | 104.9 | 104.9 | 104.9 | 104.9 | 104.9 | 104.9 |
| 2.5°  | 109.1  | 104.9 | 100.7 | 96.5  | 92.3  | 88.1  | 88.1  | 88.1  | 88.1  | 88.1  | 88.1  |
| 5°    | 104.9  | 100.7 | 96.5  | 88.1  | 79.7  | 75.5  | 71.3  | 67.1  | 67.1  | 67.1  | 67.1  |
| 7.5°  | 104.9  | 100.7 | 88.1  | 79.7  | 71.3  | 62.9  | 54.5  | 54.5  | 54.5  | 54.5  | 54.5  |
| 10°   | 104.9  | 96.5  | 83.9  | 71.3  | 58.7  | 50.3  | 46.1  | 41.9  | 41.9  | 41.9  | 41.9  |
| 12.5° | 104.9  | 92.3  | 79.7  | 62.9  | 50.3  | 41.9  | 37.8  | 33.6  | 33.6  | 33.6  | 33.6  |
| 15°   | 104.9  | 92.3  | 75.5  | 58.7  | 46.1  | 33.6  | 29.4  | 25.2  | 25.2  | 25.2  | 25.2  |
| 17.5° | 100.7  | 88.1  | 71.3  | 50.3  | 37.8  | 25.2  | 21.0  | 16.8  | 16.8  | 21.0  | 21.0  |
| 20°   | 96.5   | 83.9  | 62.9  | 41.9  | 29.4  | 21.0  | 12.6  | 12.6  | 12.6  | 12.6  | 12.6  |
| 22.5° | 96.5   | 83.9  | 58.7  | 37.8  | 25.2  | 12.6  | 8.4   | 8.4   | 8.4   | 8.4   | 12.6  |
| 25°   | 96.5   | 79.7  | 50.3  | 29.4  | 16.8  | 8.4   | 4.2   | 4.2   | 4.2   | 4.2   | 4.2   |
| 27.5° | 96.5   | 79.7  | 46.1  | 25.2  | 12.6  | 8.4   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 92.3   | 75.5  | 41.9  | 21.0  | 8.4   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 92.3   | 71.3  | 33.6  | 16.8  | 8.4   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 96.5   | 67.1  | 29.4  | 12.6  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 4.2   |
| 37.5° | 100.7  | 62.9  | 25.2  | 8.4   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 104.9  | 58.7  | 25.2  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 113.3  | 58.7  | 21.0  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 121.6  | 58.7  | 16.8  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 138.4  | 62.9  | 16.8  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 151.0  | 67.1  | 12.6  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 167.8  | 62.9  | 12.6  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 188.8  | 62.9  | 12.6  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 205.5  | 58.7  | 12.6  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 213.9  | 54.5  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 255.9  | 50.3  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 398.5  | 41.9  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 809.6  | 37.8  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1510.1 | 33.6  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 1690.5 | 37.8  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1065.5 | 29.4  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 562.1  | 29.4  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 281.0  | 29.4  | 4.2   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 130.0  | 21.0  | 4.2   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 54.5   | 12.6  | 8.4   | 4.2   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 25.2   | 12.6  | 8.4   | 8.4   | 4.2   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 12.6   | 12.6  | 12.6  | 8.4   | 8.4   | 4.2   | 4.2   | 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: SP1-2407-184-8

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  
 Rf: 82.2  
 Rg: 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

| $\lambda$<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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### 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

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</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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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)