

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: P1048333

Luminaire Tested: **GALN-SA7A-727-U-T4BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1048333  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA7A-727-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 7xLight Square PACKAGE  
70CRI 2700K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (98) 2700K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 22939.9 lumens  
Efficiency: N/A  
Efficacy: 118.8 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G5

Input Watts (W): 193.1  
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

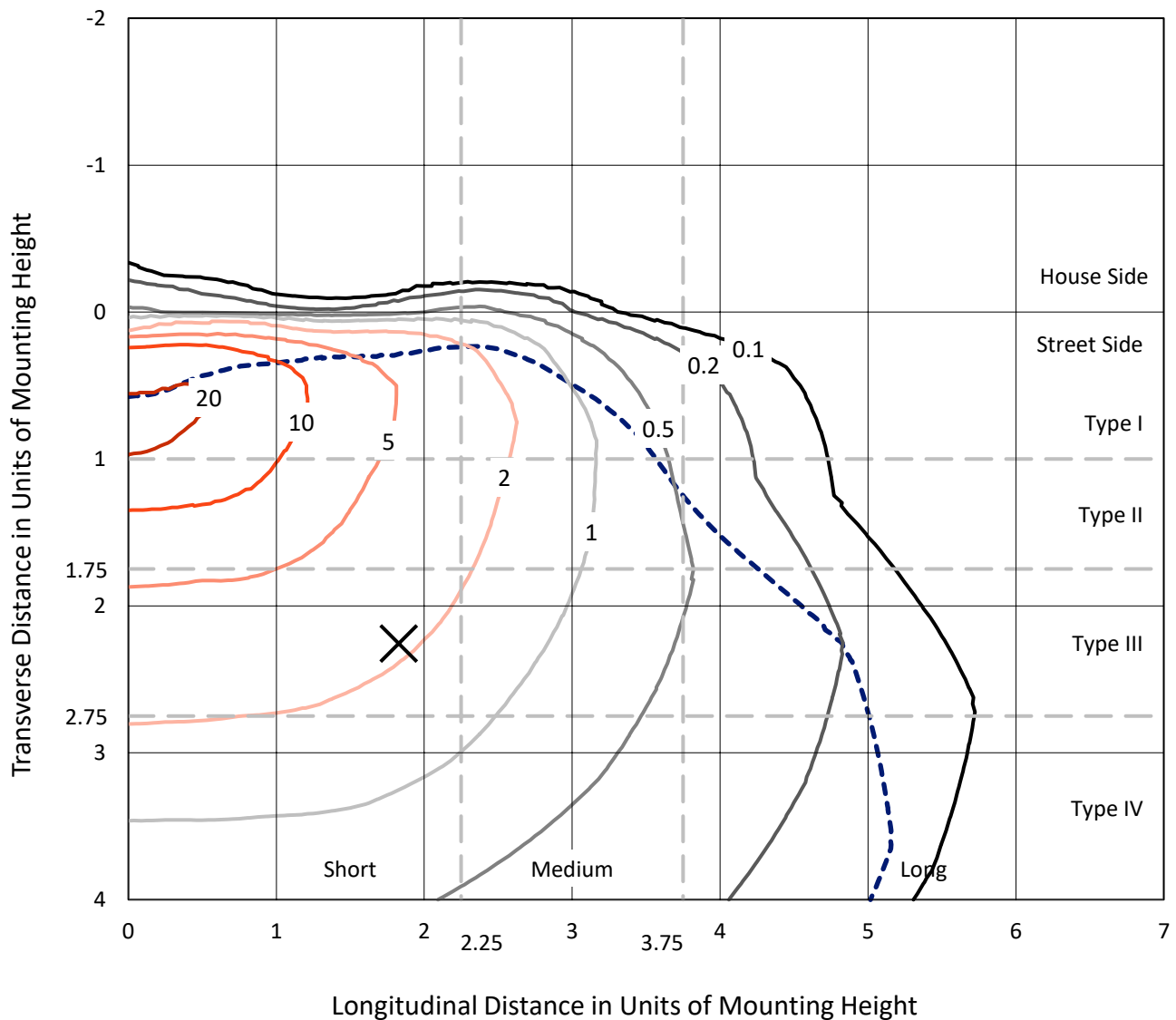


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

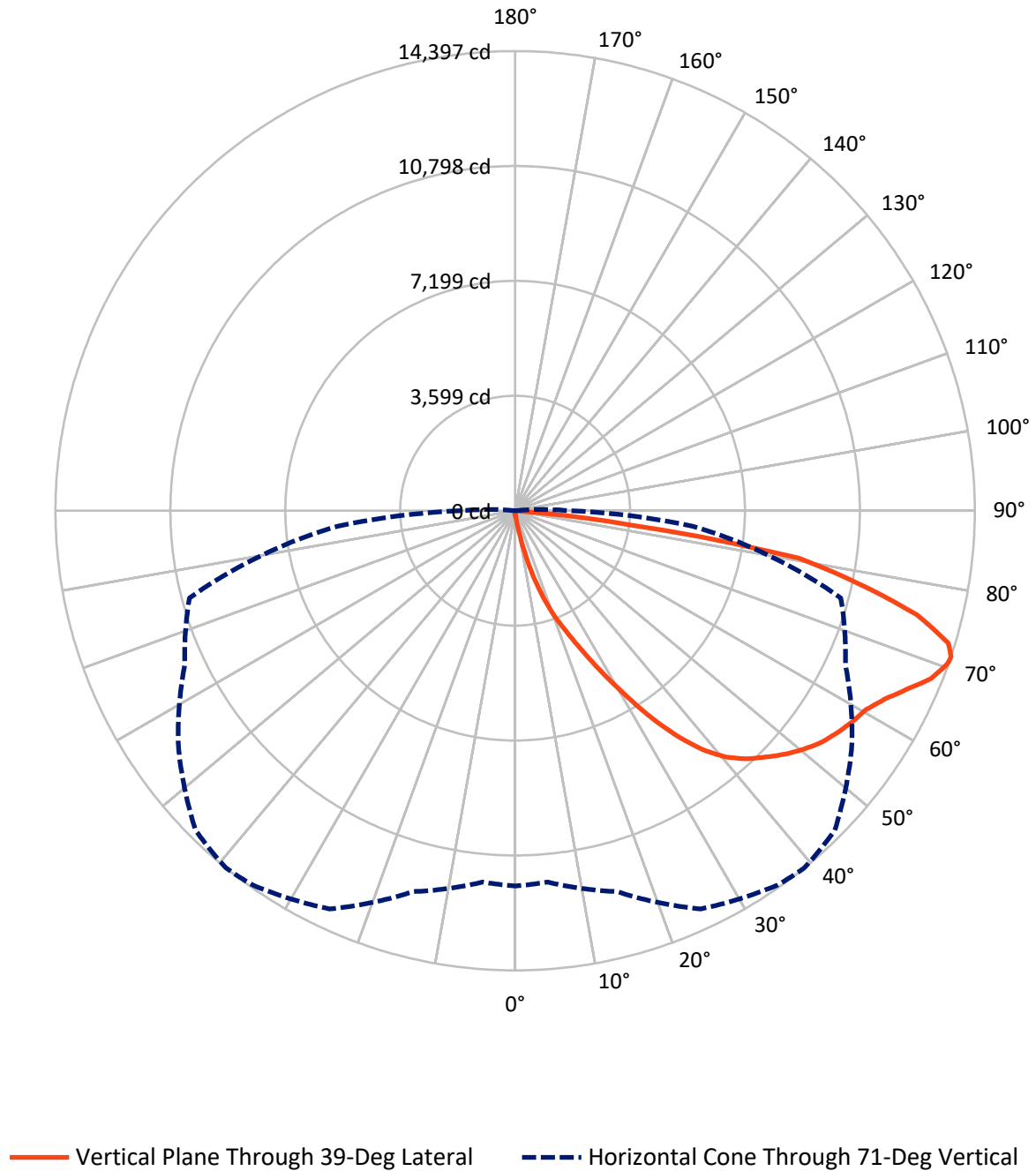


Based on 15 foot mounting height. Maximum calculated value = 23.6 fc  
 Type IV - Short - N/A

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CATALOG NUMBER: GALN-SA7A-727-U-T4BC

## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA7A-727-U-T4BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 81.5     | 0.0    | 81.5    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 22858.4  | 0.0    | 22858.4 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 22939.9  | 0.0    | 22939.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 19.2    | 0.1       |
| 10°-20°   | 245.2   | 1.1       |
| 20°-30°   | 873.2   | 3.8       |
| 30°-40°   | 2104.4  | 9.2       |
| 40°-50°   | 3521.8  | 15.4      |
| 50°-60°   | 4523.4  | 19.7      |
| 60°-70°   | 5724.4  | 25.0      |
| 70°-80°   | 5103.5  | 22.2      |
| 80°-90°   | 825.0   | 3.6       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 22939.9 | 100.0     |
| 0°-180°   | 22939.9 | 100.0     |



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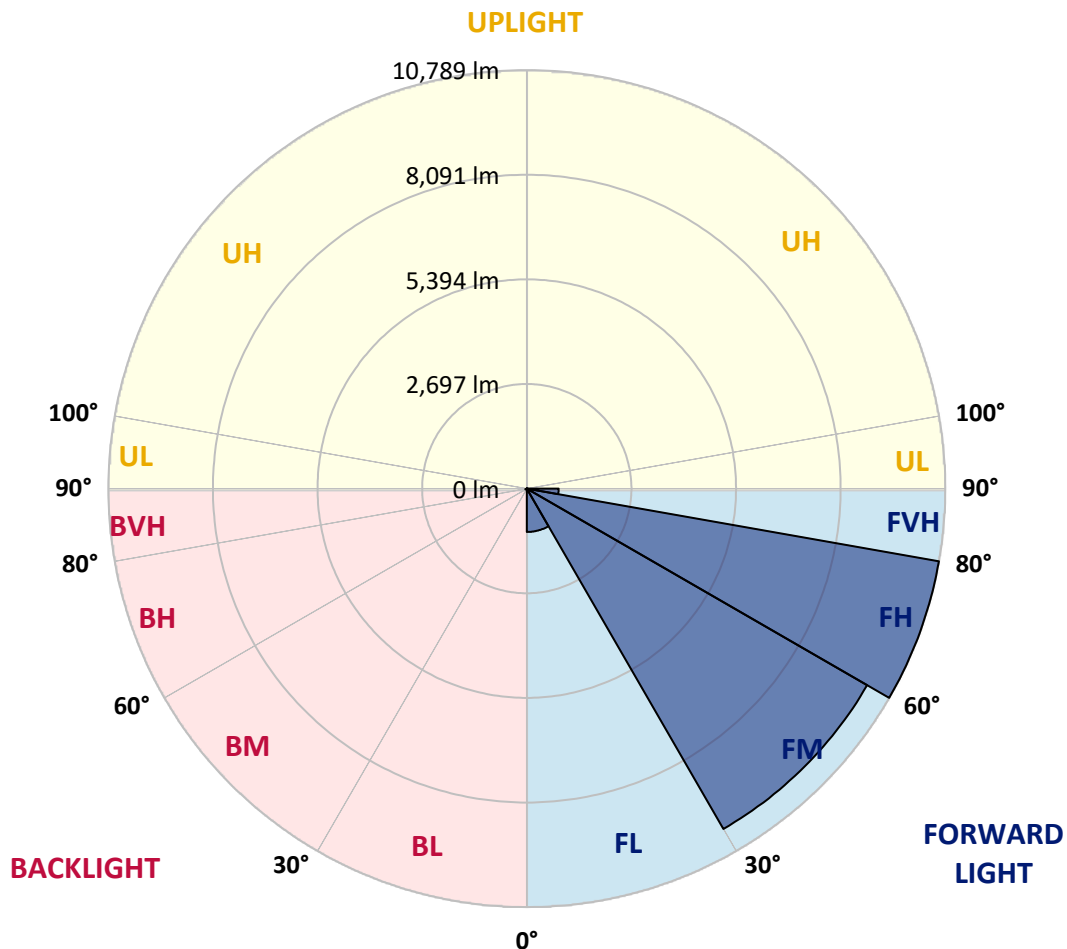
CATALOG NUMBER: GALN-SA7A-727-U-T4BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1117.8  | 4.9       |                         |      |          |
| FM   | (30°-60°)   | 10130.7 | 44.2      |                         |      |          |
| FH   | (60°-80°)   | 10788.7 | 47.0      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 821.2   | 3.6       |                         |      | G5       |
| BL   | (0°-30°)    | 19.7    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 18.9    | 0.1       | B0/220                  |      |          |
| BH   | (60°-80°)   | 39.2    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 3.7     | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

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

Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 39°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 125.8   | 125.8   | 125.8   | 125.8   | 125.8   | 125.8   | 125.8   | 125.8   | 125.8   | 125.8   | 125.8  |
| 2.5°  | 144.4   | 144.4   | 144.4   | 139.8   | 139.8   | 138.2   | 136.7   | 136.7   | 133.6   | 132.0   | 128.9  |
| 5°    | 219.0   | 214.3   | 203.4   | 197.2   | 184.8   | 177.0   | 169.3   | 158.4   | 147.5   | 139.8   | 130.4  |
| 7.5°  | 495.4   | 506.2   | 470.5   | 403.8   | 335.4   | 305.9   | 256.2   | 206.5   | 170.8   | 147.5   | 132.0  |
| 10°   | 1262.5  | 1256.3  | 1135.2  | 1001.6  | 773.3   | 681.7   | 534.2   | 337.0   | 220.5   | 161.5   | 133.6  |
| 12.5° | 2147.7  | 2141.5  | 1998.6  | 1816.9  | 1515.6  | 1324.6  | 1045.1  | 628.9   | 316.8   | 183.2   | 133.6  |
| 15°   | 2891.5  | 2866.7  | 2821.6  | 2641.5  | 2289.0  | 2129.0  | 1759.4  | 1111.9  | 512.5   | 220.5   | 136.7  |
| 17.5° | 3383.8  | 3362.0  | 3320.1  | 3254.9  | 3031.3  | 2841.8  | 2545.2  | 1747.0  | 829.3   | 285.7   | 142.9  |
| 20°   | 3835.7  | 3820.2  | 3786.0  | 3773.6  | 3629.1  | 3528.2  | 3282.8  | 2476.9  | 1292.0  | 388.2   | 152.2  |
| 22.5° | 4456.8  | 4424.2  | 4438.2  | 4363.7  | 4222.4  | 4101.2  | 3950.6  | 3240.9  | 1857.3  | 559.0   | 169.3  |
| 25°   | 5217.8  | 5202.2  | 5163.4  | 5110.6  | 4915.0  | 4809.4  | 4578.0  | 3961.5  | 2489.3  | 782.7   | 187.9  |
| 27.5° | 6137.1  | 6120.0  | 6110.7  | 5989.6  | 5764.4  | 5649.5  | 5326.5  | 4641.6  | 3200.5  | 1096.4  | 212.7  |
| 30°   | 7196.2  | 7203.9  | 7143.4  | 6988.1  | 6725.6  | 6564.1  | 6231.8  | 5354.4  | 3928.9  | 1464.4  | 239.1  |
| 32.5° | 8292.5  | 8277.0  | 8183.8  | 8000.6  | 7766.1  | 7615.5  | 7193.1  | 6135.5  | 4692.9  | 1950.5  | 270.2  |
| 35°   | 9474.3  | 9444.8  | 9199.4  | 8989.8  | 8789.5  | 8600.0  | 8214.9  | 7042.4  | 5456.9  | 2495.5  | 312.1  |
| 37.5° | 10666.9 | 10528.7 | 10036.4 | 9770.9  | 9632.7  | 9477.4  | 9118.7  | 8009.9  | 6216.3  | 3104.3  | 363.4  |
| 40°   | 11567.6 | 11460.5 | 10876.6 | 10387.4 | 10277.1 | 10145.2 | 9878.1  | 8845.4  | 7023.8  | 3758.0  | 425.5  |
| 42.5° | 12066.1 | 12007.1 | 11482.2 | 10999.3 | 10739.9 | 10623.4 | 10395.2 | 9575.2  | 7822.0  | 4480.1  | 515.6  |
| 45°   | 12278.8 | 12187.2 | 11836.3 | 11611.1 | 11198.0 | 11005.5 | 10733.7 | 10126.5 | 8655.9  | 5300.1  | 641.4  |
| 47.5° | 12213.6 | 12160.8 | 11909.3 | 11991.6 | 11691.8 | 11392.1 | 10993.0 | 10548.9 | 9368.7  | 6241.1  | 813.7  |
| 50°   | 11803.7 | 11758.6 | 11681.0 | 12126.7 | 12089.4 | 11735.3 | 11328.5 | 10882.8 | 9951.0  | 7211.7  | 1080.8 |
| 52.5° | 11024.1 | 11005.5 | 11204.2 | 12021.1 | 12314.6 | 12038.1 | 11651.5 | 11177.8 | 10494.6 | 8225.8  | 1462.8 |
| 55°   | 10019.4 | 10095.5 | 10663.8 | 11856.5 | 12429.5 | 12261.8 | 11937.2 | 11454.3 | 10930.9 | 9132.7  | 2026.5 |
| 57.5° | 9606.3  | 9626.5  | 10336.2 | 11740.0 | 12480.7 | 12459.0 | 12215.2 | 11718.2 | 11331.6 | 9857.9  | 2886.9 |
| 60°   | 10089.2 | 10058.2 | 10432.4 | 11828.5 | 12583.2 | 12636.0 | 12462.1 | 11963.6 | 11679.4 | 10480.6 | 4032.9 |
| 62.5° | 10962.0 | 10944.9 | 11064.5 | 12205.9 | 12882.9 | 12990.1 | 12805.3 | 12140.6 | 11986.9 | 10890.5 | 5340.5 |
| 65°   | 11741.5 | 11705.8 | 11927.9 | 12875.2 | 13409.4 | 13485.5 | 13324.0 | 12443.5 | 12122.0 | 11188.7 | 6568.8 |
| 67.5° | 12078.5 | 12070.8 | 12427.9 | 13511.9 | 13962.2 | 14044.5 | 13903.2 | 12861.2 | 12090.9 | 11283.4 | 7110.8 |
| 70°   | 11924.8 | 11895.3 | 12466.8 | 13782.1 | 14274.3 | 14367.5 | 14230.9 | 13016.5 | 11754.0 | 10983.7 | 6307.9 |
| 71°   | 11755.5 | 11676.3 | 12350.3 | 13763.4 | 14317.8 | 14397.0 | 14157.9 | 12875.2 | 11415.4 | 10558.2 | 5579.6 |
| 72.5° | 11230.6 | 11244.6 | 12030.4 | 13569.3 | 14213.8 | 14190.5 | 13744.8 | 12368.9 | 11007.0 | 9592.3  | 4481.7 |
| 75°   | 9938.6  | 10020.9 | 10994.6 | 12754.0 | 13285.1 | 12988.5 | 12306.8 | 11401.5 | 10187.1 | 6877.8  | 3112.0 |
| 77.5° | 8121.7  | 8244.4  | 9314.3  | 11185.6 | 11035.0 | 11005.5 | 10977.5 | 10045.8 | 8699.4  | 3694.4  | 2164.8 |
| 80°   | 3877.6  | 4143.2  | 5618.4  | 7985.1  | 8674.5  | 9008.4  | 8798.8  | 8095.3  | 6727.2  | 1759.4  | 1293.6 |
| 82.5° | 253.1   | 250.0   | 354.1   | 670.9   | 2827.8  | 3655.5  | 5807.9  | 5786.1  | 4689.8  | 857.2   | 528.0  |
| 85°   | 119.6   | 122.7   | 135.1   | 153.7   | 178.6   | 195.7   | 270.2   | 1584.0  | 2244.0  | 408.4   | 114.9  |
| 87.5° | 69.9    | 71.4    | 83.9    | 107.2   | 139.8   | 155.3   | 184.8   | 237.6   | 291.9   | 225.2   | 24.8   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |



REPORT NUMBER: P1048333

CATALOG NUMBER: GALN-SA7A-727-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 125.8  | 125.8 | 125.8 | 125.8 | 125.8 | 125.8 | 125.8 | 125.8 | 125.8 | 125.8 | 125.8 |
| 2.5°  | 127.3  | 125.8 | 121.1 | 116.5 | 111.8 | 108.7 | 107.2 | 108.7 | 108.7 | 110.3 | 110.3 |
| 5°    | 127.3  | 122.7 | 114.9 | 105.6 | 99.4  | 93.2  | 90.1  | 88.5  | 90.1  | 90.1  | 90.1  |
| 7.5°  | 125.8  | 118.0 | 107.2 | 96.3  | 88.5  | 80.8  | 77.6  | 76.1  | 76.1  | 77.6  | 77.6  |
| 10°   | 122.7  | 114.9 | 100.9 | 88.5  | 79.2  | 69.9  | 65.2  | 60.6  | 60.6  | 60.6  | 62.1  |
| 12.5° | 121.1  | 110.3 | 93.2  | 80.8  | 68.3  | 57.5  | 48.1  | 43.5  | 45.0  | 45.0  | 45.0  |
| 15°   | 118.0  | 105.6 | 88.5  | 73.0  | 57.5  | 43.5  | 35.7  | 31.1  | 32.6  | 34.2  | 32.6  |
| 17.5° | 118.0  | 104.0 | 82.3  | 63.7  | 45.0  | 32.6  | 26.4  | 23.3  | 23.3  | 24.8  | 24.8  |
| 20°   | 118.0  | 100.9 | 77.6  | 54.4  | 34.2  | 24.8  | 18.6  | 17.1  | 17.1  | 20.2  | 21.7  |
| 22.5° | 121.1  | 100.9 | 71.4  | 45.0  | 28.0  | 18.6  | 14.0  | 12.4  | 14.0  | 17.1  | 18.6  |
| 25°   | 125.8  | 99.4  | 65.2  | 40.4  | 23.3  | 14.0  | 10.9  | 7.8   | 9.3   | 12.4  | 14.0  |
| 27.5° | 130.4  | 97.8  | 59.0  | 35.7  | 18.6  | 10.9  | 7.8   | 6.2   | 4.7   | 6.2   | 6.2   |
| 30°   | 135.1  | 97.8  | 52.8  | 29.5  | 15.5  | 7.8   | 4.7   | 3.1   | 1.6   | 0.0   | 0.0   |
| 32.5° | 138.2  | 94.7  | 48.1  | 23.3  | 12.4  | 6.2   | 3.1   | 1.6   | 0.0   | 0.0   | 0.0   |
| 35°   | 141.3  | 91.6  | 41.9  | 18.6  | 9.3   | 4.7   | 1.6   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 144.4  | 87.0  | 35.7  | 15.5  | 7.8   | 3.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 147.5  | 80.8  | 29.5  | 14.0  | 4.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 150.6  | 76.1  | 24.8  | 10.9  | 3.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 158.4  | 73.0  | 20.2  | 9.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 172.4  | 69.9  | 18.6  | 6.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 192.6  | 66.8  | 17.1  | 4.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 220.5  | 65.2  | 15.5  | 3.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 270.2  | 63.7  | 14.0  | 3.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 355.6  | 62.1  | 14.0  | 3.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 545.1  | 59.0  | 14.0  | 3.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 973.7  | 57.5  | 12.4  | 3.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1697.3 | 59.0  | 12.4  | 3.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2433.4 | 62.1  | 10.9  | 4.7   | 1.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2082.5 | 54.4  | 10.9  | 6.2   | 3.1   | 1.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 71°   | 1697.3 | 48.1  | 10.9  | 6.2   | 3.1   | 1.6   | 1.6   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1091.7 | 37.3  | 9.3   | 6.2   | 3.1   | 3.1   | 1.6   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 461.2  | 31.1  | 9.3   | 6.2   | 4.7   | 3.1   | 3.1   | 1.6   | 0.0   | 0.0   | 0.0   |
| 77.5° | 197.2  | 23.3  | 9.3   | 7.8   | 6.2   | 4.7   | 4.7   | 3.1   | 1.6   | 0.0   | 0.0   |
| 80°   | 74.5   | 18.6  | 10.9  | 9.3   | 7.8   | 7.8   | 6.2   | 3.1   | 1.6   | 0.0   | 0.0   |
| 82.5° | 34.2   | 15.5  | 10.9  | 9.3   | 9.3   | 7.8   | 6.2   | 4.7   | 3.1   | 0.0   | 0.0   |
| 85°   | 21.7   | 14.0  | 10.9  | 9.3   | 9.3   | 7.8   | 7.8   | 4.7   | 3.1   | 0.0   | 0.0   |
| 87.5° | 17.1   | 14.0  | 10.9  | 10.9  | 9.3   | 9.3   | 6.2   | 4.7   | 1.6   | 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: SP1-2407-184-3

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-727-U-5WQ

Data in this report applies to families of products including GSS-SB1A-727-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-3  
 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-727-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 2700K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 2672     | CRI (Ra): | 71.1 |      |       |
| CIE u':                   | 0.2638   | R1:       | 68.3 | R9:  | -27.8 |
| CIE v':                   | 0.5276   | R2:       | 79.8 | R10: | 54.4  |
| Duv:                      | -0.0002  | R3:       | 91.2 | R11: | 65.8  |
| CIE x:                    | 0.4619   | R4:       | 69.4 | R12: | 45.6  |
| CIE y:                    | 0.4106   | R5:       | 66.5 | R13: | 69.8  |
| CIE z:                    | 0.1275   | R6:       | 72.6 | R14: | 94.5  |
| Peak Wavelength (nm):     | 601      | R7:       | 77.0 | R15: | 60.1  |
| Dominant Wavelength (nm): | 584      | R8:       | 44.1 |      |       |
| Purity:                   | 61.88407 |           |      |      |       |
| Rf:                       | 67.9     |           |      |      |       |
| Rg:                       | 98.6     |           |      |      |       |



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-3

| 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           |



REPORT NUMBER: SP1-2407-184-3

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 0                             | NR                             | 490               | 52                            | NR                             | 620               | 888                           | NR                             | 750               | 27                            | NR                             | 880               | 1                             | NR                             |
| 365               | 0                             | NR                             | 495               | 87                            | NR                             | 625               | 834                           | NR                             | 755               | 23                            | NR                             | 885               | 1                             | NR                             |
| 370               | 0                             | NR                             | 500               | 135                           | NR                             | 630               | 776                           | NR                             | 760               | 20                            | NR                             | 890               | 1                             | NR                             |
| 375               | 0                             | NR                             | 505               | 196                           | NR                             | 635               | 712                           | NR                             | 765               | 17                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 258                           | NR                             | 640               | 648                           | NR                             | 770               | 15                            | NR                             | 900               | 0                             | NR                             |
| 385               | 1                             | NR                             | 515               | 317                           | NR                             | 645               | 583                           | NR                             | 775               | 12                            | NR                             | 905               | 0                             | NR                             |
| 390               | 2                             | NR                             | 520               | 368                           | NR                             | 650               | 523                           | NR                             | 780               | 11                            | NR                             | 910               | 0                             | NR                             |
| 395               | 4                             | NR                             | 525               | 408                           | NR                             | 655               | 465                           | NR                             | 785               | 9                             | NR                             | 915               | 0                             | NR                             |
| 400               | 6                             | NR                             | 530               | 443                           | NR                             | 660               | 410                           | NR                             | 790               | 8                             | NR                             | 920               | 0                             | NR                             |
| 405               | 11                            | NR                             | 535               | 473                           | NR                             | 665               | 360                           | NR                             | 795               | 7                             | NR                             | 925               | 0                             | NR                             |
| 410               | 23                            | NR                             | 540               | 498                           | NR                             | 670               | 313                           | NR                             | 800               | 6                             | NR                             | 930               | 0                             | NR                             |
| 415               | 51                            | NR                             | 545               | 530                           | NR                             | 675               | 272                           | NR                             | 805               | 5                             | NR                             | 935               | 0                             | NR                             |
| 420               | 111                           | NR                             | 550               | 563                           | NR                             | 680               | 236                           | NR                             | 810               | 4                             | NR                             | 940               | 0                             | NR                             |
| 425               | 214                           | NR                             | 555               | 605                           | NR                             | 685               | 203                           | NR                             | 815               | 4                             | NR                             | 945               | 0                             | NR                             |
| 430               | 339                           | NR                             | 560               | 651                           | NR                             | 690               | 175                           | NR                             | 820               | 3                             | NR                             | 950               | 0                             | NR                             |
| 435               | 467                           | NR                             | 565               | 705                           | NR                             | 695               | 150                           | NR                             | 825               | 3                             | NR                             | 955               | 0                             | NR                             |
| 440               | 535                           | NR                             | 570               | 765                           | NR                             | 700               | 128                           | NR                             | 830               | 3                             | NR                             | 960               | 0                             | NR                             |
| 445               | 372                           | NR                             | 575               | 824                           | NR                             | 705               | 110                           | NR                             | 835               | 2                             | NR                             | 965               | 0                             | NR                             |
| 450               | 160                           | NR                             | 580               | 882                           | NR                             | 710               | 94                            | NR                             | 840               | 2                             | NR                             | 970               | 0                             | NR                             |
| 455               | 89                            | NR                             | 585               | 930                           | NR                             | 715               | 80                            | NR                             | 845               | 2                             | NR                             | 975               | 0                             | NR                             |
| 460               | 53                            | NR                             | 590               | 968                           | NR                             | 720               | 69                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 31                            | NR                             | 595               | 991                           | NR                             | 725               | 59                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 23                            | NR                             | 600               | 999                           | NR                             | 730               | 50                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 21                            | NR                             | 605               | 992                           | NR                             | 735               | 43                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 23                            | NR                             | 610               | 969                           | NR                             | 740               | 36                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 32                            | NR                             | 615               | 935                           | NR                             | 745               | 31                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.02

| 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       | 52                          | NR               | 620       | 888                         | NR               | 750       | 27                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 87                          | NR               | 625       | 834                         | NR               | 755       | 23                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 135                         | NR               | 630       | 776                         | NR               | 760       | 20                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 196                         | NR               | 635       | 712                         | NR               | 765       | 17                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 258                         | NR               | 640       | 648                         | NR               | 770       | 15                          | NR               | 900       | 0                           | NR               |
| 385       | 1                           | NR               | 515       | 317                         | NR               | 645       | 583                         | NR               | 775       | 12                          | NR               | 905       | 0                           | NR               |
| 390       | 2                           | NR               | 520       | 368                         | NR               | 650       | 523                         | NR               | 780       | 11                          | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 408                         | NR               | 655       | 465                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 6                           | NR               | 530       | 443                         | NR               | 660       | 410                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 11                          | NR               | 535       | 473                         | NR               | 665       | 360                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 23                          | NR               | 540       | 498                         | NR               | 670       | 313                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 51                          | NR               | 545       | 530                         | NR               | 675       | 272                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 111                         | NR               | 550       | 563                         | NR               | 680       | 236                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 214                         | NR               | 555       | 605                         | NR               | 685       | 203                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 339                         | NR               | 560       | 651                         | NR               | 690       | 175                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 467                         | NR               | 565       | 705                         | NR               | 695       | 150                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 535                         | NR               | 570       | 765                         | NR               | 700       | 128                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 372                         | NR               | 575       | 824                         | NR               | 705       | 110                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 160                         | NR               | 580       | 882                         | NR               | 710       | 94                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 89                          | NR               | 585       | 930                         | NR               | 715       | 80                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 53                          | NR               | 590       | 968                         | NR               | 720       | 69                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 31                          | NR               | 595       | 991                         | NR               | 725       | 59                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 23                          | NR               | 600       | 999                         | NR               | 730       | 50                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 21                          | NR               | 605       | 992                         | NR               | 735       | 43                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 23                          | NR               | 610       | 969                         | NR               | 740       | 36                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 32                          | NR               | 615       | 935                         | NR               | 745       | 31                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 1.71

| 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       | 52                          | NR               | 620       | 888                         | NR               | 750       | 27                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 87                          | NR               | 625       | 834                         | NR               | 755       | 23                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 135                         | NR               | 630       | 776                         | NR               | 760       | 20                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 196                         | NR               | 635       | 712                         | NR               | 765       | 17                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 258                         | NR               | 640       | 648                         | NR               | 770       | 15                          | NR               | 900       | 0                           | NR               |
| 385       | 1                           | NR               | 515       | 317                         | NR               | 645       | 583                         | NR               | 775       | 12                          | NR               | 905       | 0                           | NR               |
| 390       | 2                           | NR               | 520       | 368                         | NR               | 650       | 523                         | NR               | 780       | 11                          | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 408                         | NR               | 655       | 465                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 6                           | NR               | 530       | 443                         | NR               | 660       | 410                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 11                          | NR               | 535       | 473                         | NR               | 665       | 360                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 23                          | NR               | 540       | 498                         | NR               | 670       | 313                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 51                          | NR               | 545       | 530                         | NR               | 675       | 272                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 111                         | NR               | 550       | 563                         | NR               | 680       | 236                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 214                         | NR               | 555       | 605                         | NR               | 685       | 203                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 339                         | NR               | 560       | 651                         | NR               | 690       | 175                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 467                         | NR               | 565       | 705                         | NR               | 695       | 150                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 535                         | NR               | 570       | 765                         | NR               | 700       | 128                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 372                         | NR               | 575       | 824                         | NR               | 705       | 110                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 160                         | NR               | 580       | 882                         | NR               | 710       | 94                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 89                          | NR               | 585       | 930                         | NR               | 715       | 80                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 53                          | NR               | 590       | 968                         | NR               | 720       | 69                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 31                          | NR               | 595       | 991                         | NR               | 725       | 59                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 23                          | NR               | 600       | 999                         | NR               | 730       | 50                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 21                          | NR               | 605       | 992                         | NR               | 735       | 43                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 23                          | NR               | 610       | 969                         | NR               | 740       | 36                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 32                          | NR               | 615       | 935                         | NR               | 745       | 31                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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TM-30-18

### Summary

$R_f = 67.9$   
 $R_g = 98.6$   
 $CIE R_a = 71.1$   
 $R_g = -27.8$

### Spectral Power Distribution Comparison



### Color Vector Graphics



**Individual Sample Fidelity Index ( $R_{fi}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 53 | CES51 = 75 | CES76 = 51 |
| CES02 = 63 | CES27 = 70 | CES52 = 80 | CES77 = 79 |
| CES03 = 31 | CES28 = 81 | CES53 = 64 | CES78 = 58 |
| CES04 = 71 | CES29 = 37 | CES54 = 73 | CES79 = 82 |
| CES05 = 50 | CES30 = 33 | CES55 = 69 | CES80 = 82 |
| CES06 = 52 | CES31 = 44 | CES56 = 60 | CES81 = 69 |
| CES07 = 42 | CES32 = 47 | CES57 = 54 | CES82 = 92 |
| CES08 = 41 | CES33 = 45 | CES58 = 59 | CES83 = 82 |
| CES09 = 29 | CES34 = 67 | CES59 = 85 | CES84 = 92 |
| CES10 = 77 | CES35 = 84 | CES60 = 86 | CES85 = 87 |
| CES11 = 60 | CES36 = 68 | CES61 = 86 | CES86 = 60 |
| CES12 = 66 | CES37 = 77 | CES62 = 59 | CES87 = 79 |
| CES13 = 44 | CES38 = 40 | CES63 = 66 | CES88 = 70 |
| CES14 = 74 | CES39 = 88 | CES64 = 69 | CES89 = 66 |
| CES15 = 72 | CES40 = 82 | CES65 = 64 | CES90 = 64 |
| CES16 = 48 | CES41 = 70 | CES66 = 65 | CES91 = 81 |
| CES17 = 51 | CES42 = 76 | CES67 = 64 | CES92 = 69 |
| CES18 = 57 | CES43 = 63 | CES68 = 73 | CES93 = 81 |
| CES19 = 73 | CES44 = 97 | CES69 = 83 | CES94 = 53 |
| CES20 = 67 | CES45 = 74 | CES70 = 64 | CES95 = 77 |
| CES21 = 88 | CES46 = 67 | CES71 = 60 | CES96 = 79 |
| CES22 = 80 | CES47 = 55 | CES72 = 87 | CES97 = 78 |
| CES23 = 92 | CES48 = 42 | CES73 = 57 | CES98 = 69 |
| CES24 = 92 | CES49 = 65 | CES74 = 84 | CES99 = 60 |
| CES25 = 73 | CES50 = 74 | CES75 = 60 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)