

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: P1047262

Luminaire Tested: **GALN-SA9B-760-U-T3BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047262  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA9B-760-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 9xLight Square PACKAGE  
70CRI 5700K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (126) 5700K CCT, 70 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 41737.1 lumens  
Efficiency: N/A  
Efficacy: 133.5 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G5

Input Watts (W): 312.7  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

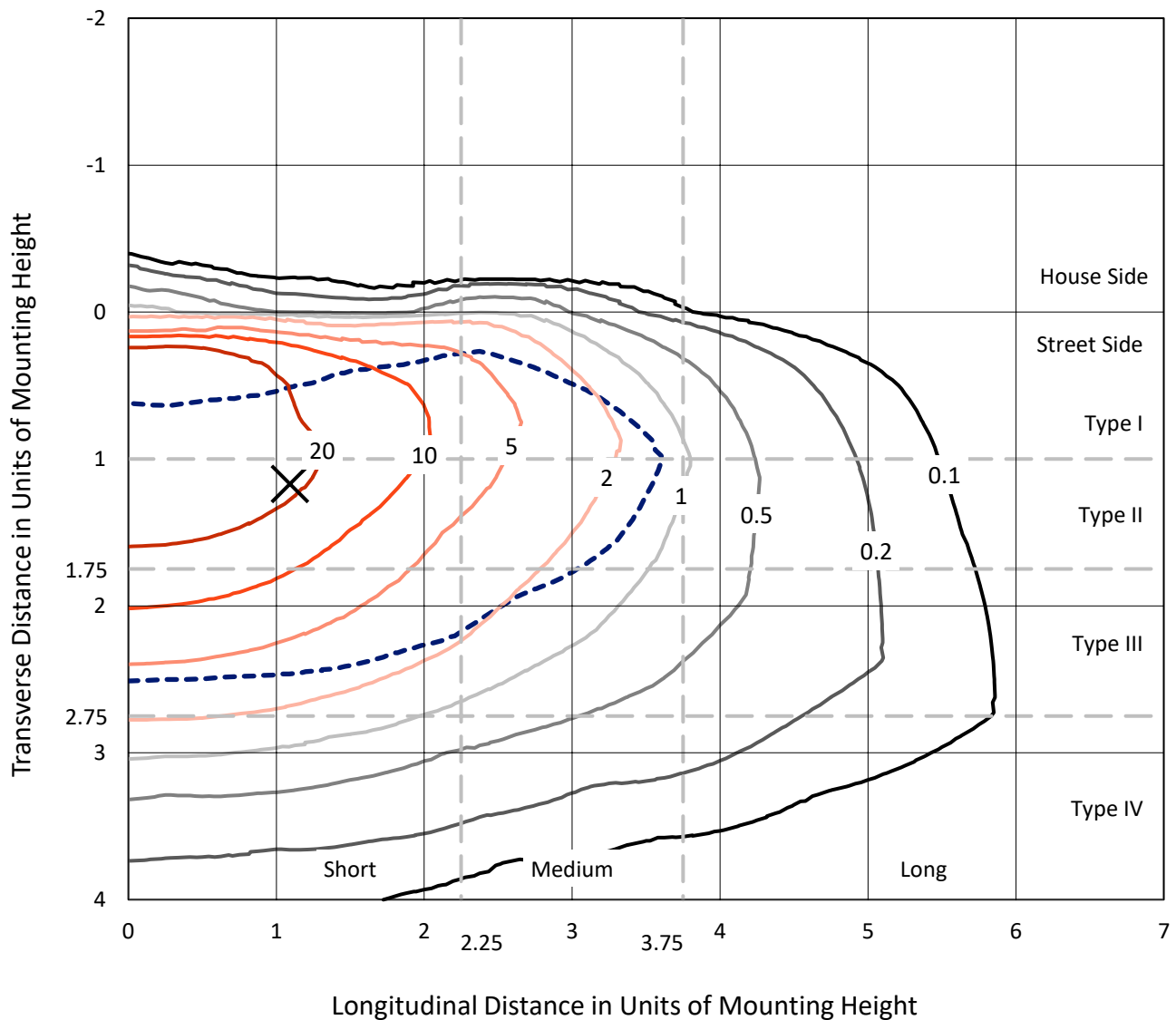


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 --- 1/2 Max cd

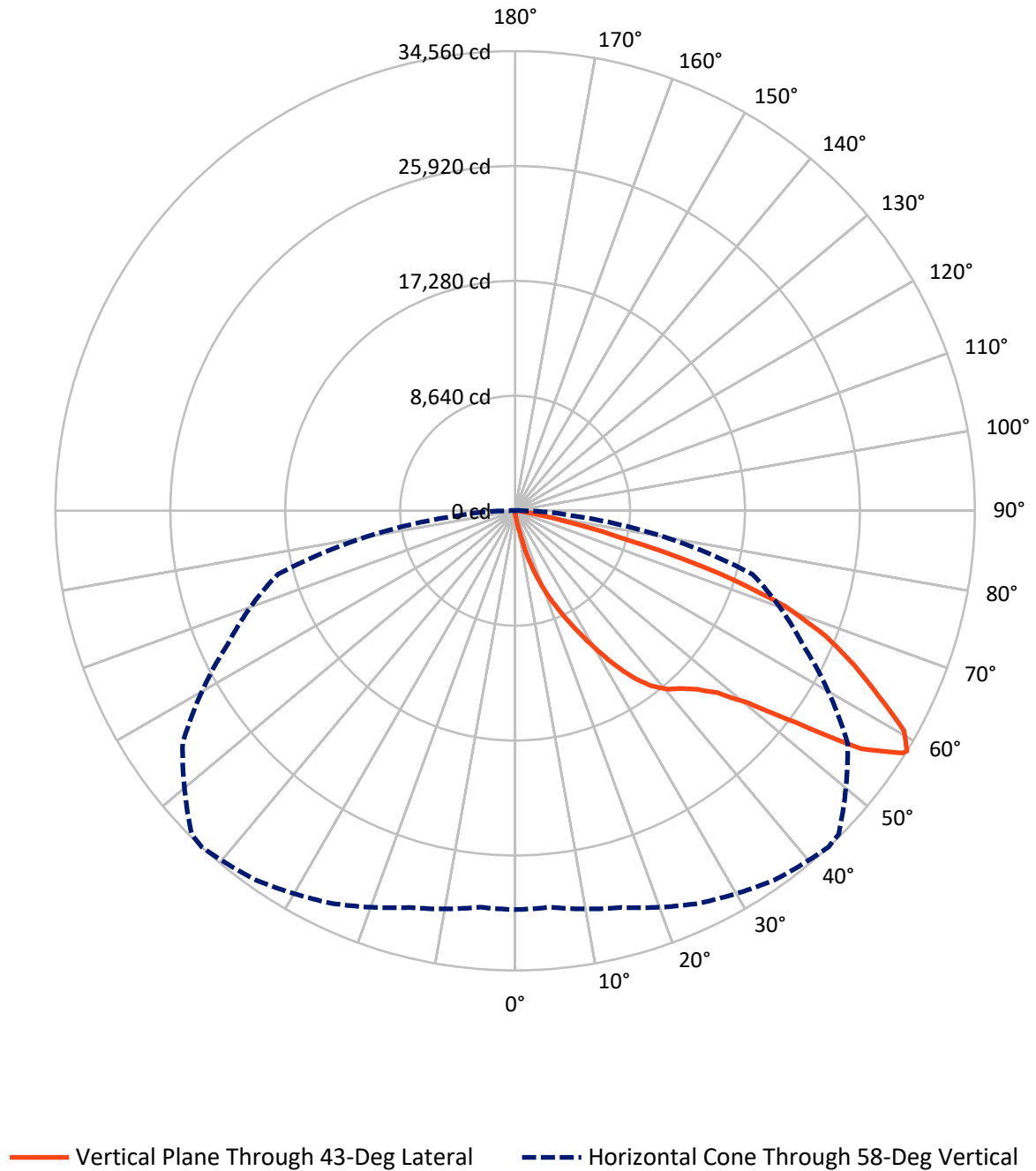


Based on 15 foot mounting height. Maximum calculated value = 46.8 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA9B-760-U-T3BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 152.4    | 0.0    | 152.4   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 41584.8  | 0.0    | 41584.8 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 41737.1  | 0.0    | 41737.1 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 40.0    | 0.1       |
| 10°-20°   | 479.8   | 1.1       |
| 20°-30°   | 1729.2  | 4.1       |
| 30°-40°   | 3956.4  | 9.5       |
| 40°-50°   | 6672.9  | 16.0      |
| 50°-60°   | 11011.9 | 26.4      |
| 60°-70°   | 12307.3 | 29.5      |
| 70°-80°   | 5081.5  | 12.2      |
| 80°-90°   | 458.1   | 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°    | 41737.1 | 100.0     |
| 0°-180°   | 41737.1 | 100.0     |



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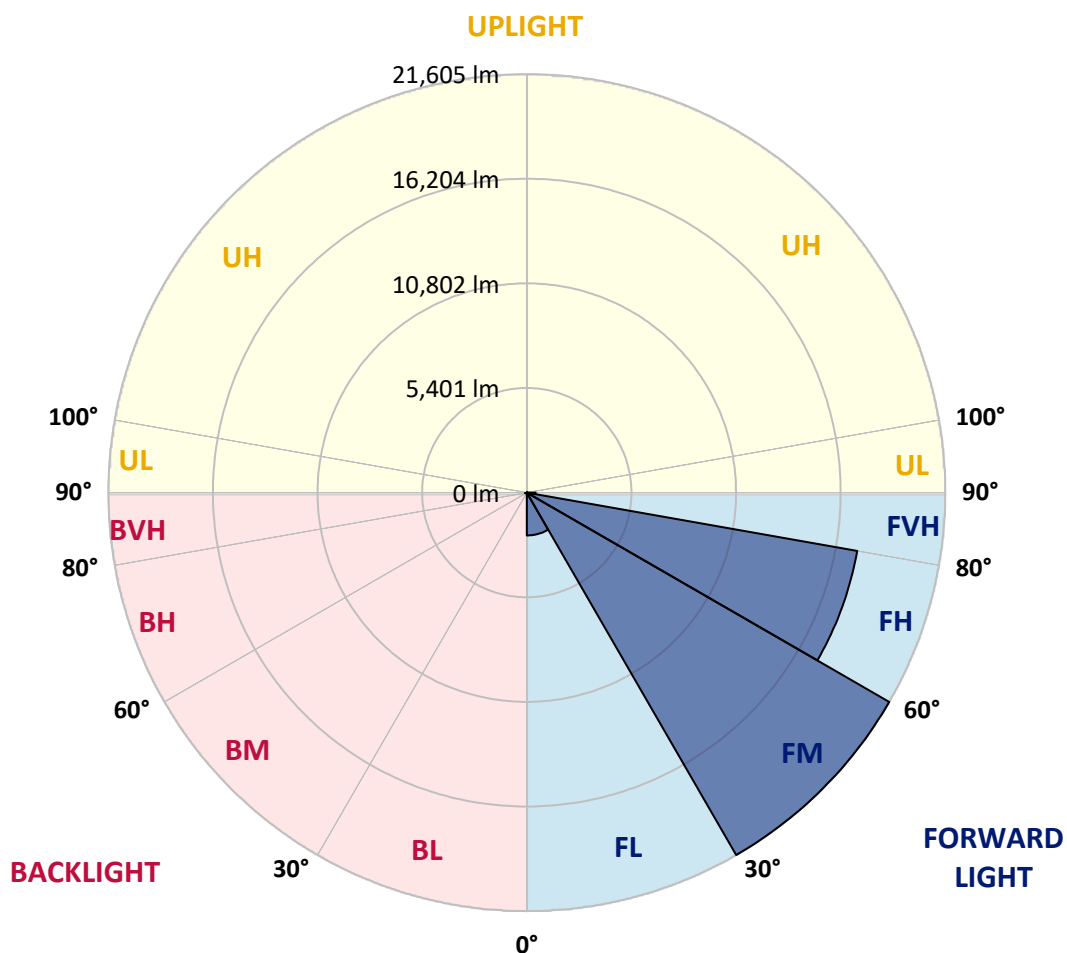
CATALOG NUMBER: GALN-SA9B-760-U-T3BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|---------|-----------|-------------------------|------|--------|
|      |             |         |           | B                       | U    | G      |
| FL   | (0°-30°)    | 2209.2  | 5.3       |                         |      |        |
| FM   | (30°-60°)   | 21604.7 | 51.8      |                         |      |        |
| FH   | (60°-80°)   | 17319.0 | 41.5      |                         |      | G5     |
| FVH  | (80°-90°)   | 451.8   | 1.1       |                         |      | G3/500 |
| BL   | (0°-30°)    | 39.7    | 0.1       | B0/110                  |      |        |
| BM   | (30°-60°)   | 36.5    | 0.1       | B0/220                  |      |        |
| BH   | (60°-80°)   | 69.8    | 0.2       | B0/110                  |      | G0/110 |
| BVH  | (80°-90°)   | 6.3     | 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 III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 272.9   | 272.9   | 272.9   | 272.9   | 272.9   | 272.9   | 272.9   | 272.9   | 272.9   | 272.9   | 272.9   |
| 2.5°  | 327.5   | 338.4   | 327.5   | 327.5   | 327.5   | 316.6   | 316.6   | 305.6   | 305.6   | 294.7   | 283.8   |
| 5°    | 480.3   | 480.3   | 447.6   | 425.7   | 403.9   | 393.0   | 382.1   | 360.2   | 338.4   | 316.6   | 294.7   |
| 7.5°  | 1069.8  | 1069.8  | 971.5   | 840.5   | 665.9   | 567.6   | 545.8   | 447.6   | 382.1   | 338.4   | 294.7   |
| 10°   | 2554.3  | 2554.3  | 2336.0  | 1975.8  | 1528.2  | 1135.3  | 1015.2  | 644.0   | 458.5   | 360.2   | 305.6   |
| 12.5° | 4246.3  | 4300.9  | 4028.0  | 3569.5  | 2903.7  | 2215.9  | 1975.8  | 1178.9  | 611.3   | 393.0   | 305.6   |
| 15°   | 5763.6  | 5632.6  | 5556.2  | 5119.6  | 4486.5  | 3667.8  | 3362.1  | 1986.7  | 884.2   | 447.6   | 305.6   |
| 17.5° | 6789.7  | 6789.7  | 6680.6  | 6385.8  | 5807.3  | 5086.8  | 4835.8  | 3209.3  | 1430.0  | 513.1   | 316.6   |
| 20°   | 7990.5  | 7990.5  | 7794.0  | 7586.6  | 7073.6  | 6462.3  | 6222.1  | 4562.9  | 2215.9  | 655.0   | 316.6   |
| 22.5° | 9442.3  | 9464.2  | 9245.8  | 8874.7  | 8383.5  | 7706.7  | 7499.3  | 5818.2  | 3209.3  | 873.3   | 327.5   |
| 25°   | 11210.7 | 11232.5 | 10916.0 | 10566.7 | 9813.5  | 9082.1  | 8765.5  | 7259.1  | 4421.0  | 1222.6  | 327.5   |
| 27.5° | 13164.7 | 13317.5 | 12848.1 | 12247.7 | 11450.9 | 10533.9 | 10293.8 | 8558.1  | 5621.7  | 1724.7  | 349.3   |
| 30°   | 15598.9 | 15598.9 | 14976.7 | 14136.2 | 13273.8 | 12138.6 | 11832.9 | 9922.6  | 6898.9  | 2390.6  | 371.1   |
| 32.5° | 17694.8 | 17531.1 | 16734.2 | 15850.0 | 14933.1 | 13874.2 | 13546.7 | 11352.6 | 8208.8  | 3220.2  | 414.8   |
| 35°   | 19299.5 | 19157.5 | 18175.1 | 17225.4 | 16428.5 | 15457.0 | 15064.1 | 12902.7 | 9595.1  | 4159.0  | 480.3   |
| 37.5° | 20674.9 | 20620.3 | 19288.5 | 18098.7 | 17574.7 | 16723.3 | 16374.0 | 14365.4 | 10959.6 | 5174.2  | 556.7   |
| 40°   | 22181.3 | 22006.6 | 20587.5 | 19113.9 | 18327.9 | 17640.2 | 17323.7 | 15544.4 | 12269.6 | 6364.0  | 665.9   |
| 42.5° | 23469.4 | 23262.0 | 21984.8 | 20543.9 | 19201.2 | 18273.3 | 17967.7 | 16537.7 | 13546.7 | 7553.9  | 807.8   |
| 45°   | 24899.3 | 24790.2 | 23502.1 | 22410.5 | 20620.3 | 19135.7 | 18731.8 | 17334.6 | 14714.7 | 8972.9  | 993.4   |
| 47.5° | 27049.8 | 26853.3 | 25652.6 | 24757.4 | 22683.4 | 20445.6 | 19867.1 | 18153.3 | 15839.1 | 10370.2 | 1277.2  |
| 50°   | 29549.6 | 29418.6 | 28709.0 | 27999.5 | 25936.4 | 22683.4 | 21995.7 | 19332.2 | 17094.4 | 12029.4 | 1648.3  |
| 52.5° | 31590.8 | 31569.0 | 31656.3 | 31667.3 | 30106.3 | 26449.4 | 25423.3 | 21231.6 | 18535.3 | 13666.8 | 2172.3  |
| 55°   | 31547.2 | 31645.4 | 32606.0 | 33708.5 | 33828.6 | 31590.8 | 30597.5 | 24430.0 | 20412.9 | 15686.3 | 2903.7  |
| 57.5° | 30368.3 | 30291.8 | 31307.0 | 32966.3 | 34134.3 | 34374.4 | 34210.7 | 29396.7 | 23240.1 | 18120.5 | 4028.0  |
| 58°   | 29986.2 | 29920.7 | 30881.3 | 32573.3 | 33915.9 | 34560.0 | 34396.3 | 30521.1 | 23873.2 | 18469.8 | 4333.6  |
| 60°   | 28599.9 | 28610.8 | 29178.4 | 30717.6 | 32060.2 | 33588.5 | 33741.3 | 33730.4 | 27028.0 | 20805.9 | 5872.8  |
| 62.5° | 26766.0 | 26678.7 | 27202.6 | 28458.0 | 29636.9 | 30663.0 | 30925.0 | 33948.7 | 31645.4 | 23775.0 | 8809.2  |
| 65°   | 24233.5 | 24102.5 | 24659.2 | 26078.3 | 27344.5 | 28010.4 | 28021.3 | 31023.2 | 33817.7 | 26962.5 | 13000.9 |
| 67.5° | 19528.7 | 19419.5 | 20533.0 | 22355.9 | 24309.9 | 25183.2 | 25576.1 | 26918.8 | 31983.8 | 29123.8 | 15402.4 |
| 70°   | 11963.9 | 12193.1 | 13743.2 | 16603.2 | 19943.5 | 21548.1 | 22137.6 | 22552.4 | 27235.4 | 28796.4 | 12880.9 |
| 72.5° | 5523.5  | 5250.6  | 6571.4  | 8569.0  | 12378.7 | 15948.2 | 16559.5 | 18186.0 | 21591.8 | 24997.6 | 9606.1  |
| 75°   | 2576.2  | 2477.9  | 2783.6  | 3744.2  | 5610.8  | 8612.7  | 9726.1  | 14518.3 | 16559.5 | 17389.2 | 6931.6  |
| 77.5° | 1320.8  | 1331.7  | 1582.8  | 1702.9  | 2314.2  | 3984.3  | 4573.8  | 9551.5  | 12138.6 | 9704.3  | 4650.2  |
| 80°   | 578.5   | 600.4   | 611.3   | 665.9   | 938.8   | 1539.2  | 1735.6  | 4431.9  | 8296.1  | 4944.9  | 2543.4  |
| 82.5° | 371.1   | 382.1   | 382.1   | 382.1   | 447.6   | 611.3   | 698.6   | 1779.3  | 4137.2  | 2456.1  | 786.0   |
| 85°   | 196.5   | 196.5   | 218.3   | 272.9   | 316.6   | 371.1   | 393.0   | 567.6   | 1364.5  | 731.4   | 185.6   |
| 87.5° | 109.2   | 120.1   | 131.0   | 163.7   | 207.4   | 251.1   | 272.9   | 393.0   | 524.0   | 502.1   | 43.7    |
| 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: P1047262

CATALOG NUMBER: GALN-SA9B-760-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 272.9  | 272.9 | 272.9 | 272.9 | 272.9 | 272.9 | 272.9 | 272.9 | 272.9 | 272.9 | 272.9 |
| 2.5°  | 283.8  | 272.9 | 262.0 | 251.1 | 240.2 | 229.2 | 229.2 | 229.2 | 229.2 | 229.2 | 229.2 |
| 5°    | 272.9  | 262.0 | 251.1 | 229.2 | 207.4 | 196.5 | 185.6 | 174.7 | 174.7 | 174.7 | 174.7 |
| 7.5°  | 272.9  | 262.0 | 229.2 | 207.4 | 185.6 | 163.7 | 141.9 | 141.9 | 141.9 | 141.9 | 141.9 |
| 10°   | 272.9  | 251.1 | 218.3 | 185.6 | 152.8 | 131.0 | 120.1 | 109.2 | 109.2 | 109.2 | 109.2 |
| 12.5° | 272.9  | 240.2 | 207.4 | 163.7 | 131.0 | 109.2 | 98.2  | 87.3  | 87.3  | 87.3  | 87.3  |
| 15°   | 272.9  | 240.2 | 196.5 | 152.8 | 120.1 | 87.3  | 76.4  | 65.5  | 65.5  | 65.5  | 65.5  |
| 17.5° | 262.0  | 229.2 | 185.6 | 131.0 | 98.2  | 65.5  | 54.6  | 43.7  | 43.7  | 54.6  | 54.6  |
| 20°   | 251.1  | 218.3 | 163.7 | 109.2 | 76.4  | 54.6  | 32.7  | 32.7  | 32.7  | 32.7  | 32.7  |
| 22.5° | 251.1  | 218.3 | 152.8 | 98.2  | 65.5  | 32.7  | 21.8  | 21.8  | 21.8  | 21.8  | 32.7  |
| 25°   | 251.1  | 207.4 | 131.0 | 76.4  | 43.7  | 21.8  | 10.9  | 10.9  | 10.9  | 10.9  | 10.9  |
| 27.5° | 251.1  | 207.4 | 120.1 | 65.5  | 32.7  | 21.8  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 240.2  | 196.5 | 109.2 | 54.6  | 21.8  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 240.2  | 185.6 | 87.3  | 43.7  | 21.8  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 251.1  | 174.7 | 76.4  | 32.7  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 10.9  |
| 37.5° | 262.0  | 163.7 | 65.5  | 21.8  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 272.9  | 152.8 | 65.5  | 21.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 294.7  | 152.8 | 54.6  | 21.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 316.6  | 152.8 | 43.7  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 360.2  | 163.7 | 43.7  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 393.0  | 174.7 | 32.7  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 436.6  | 163.7 | 32.7  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 491.2  | 163.7 | 32.7  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 534.9  | 152.8 | 32.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 556.7  | 141.9 | 21.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 665.9  | 131.0 | 21.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 1037.0 | 109.2 | 21.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 2106.8 | 98.2  | 21.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 3929.8 | 87.3  | 21.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 4399.1 | 98.2  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 2772.7 | 76.4  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1462.7 | 76.4  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 731.4  | 76.4  | 10.9  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 338.4  | 54.6  | 10.9  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 141.9  | 32.7  | 21.8  | 10.9  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 65.5   | 32.7  | 21.8  | 21.8  | 10.9  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 32.7   | 32.7  | 32.7  | 21.8  | 21.8  | 10.9  | 10.9  | 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: SP1-2407-184-7

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-760-U-5WQ

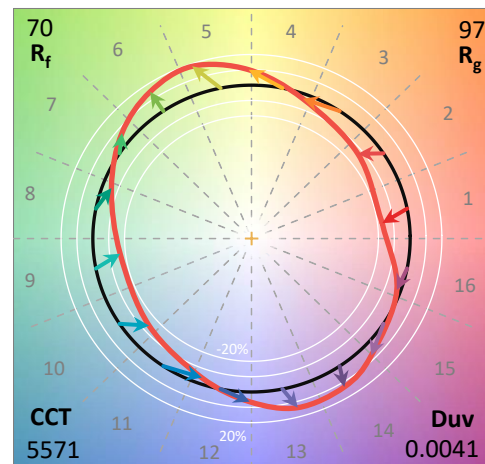
Data in this report applies to families of products including GSS-SB1A-760-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-7  
 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-70-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 5700K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 5571     | CRI (Ra): | 69.9 |      |       |
| CIE u':                   | 0.2033   | R1:       | 68.8 | R9:  | -35.4 |
| CIE v':                   | 0.4806   | R2:       | 72.5 | R10: | 36.7  |
| Duv:                      | 0.0041   | R3:       | 76.8 | R11: | 73.9  |
| CIE x:                    | 0.3308   | R4:       | 72.0 | R12: | 47.8  |
| CIE y:                    | 0.3476   | R5:       | 70.9 | R13: | 68.0  |
| CIE z:                    | 0.3216   | R6:       | 65.6 | R14: | 87.0  |
| Peak Wavelength (nm):     | 442      | R7:       | 75.5 | R15: | 59.8  |
| Dominant Wavelength (nm): | 544      | R8:       | 56.8 |      |       |
| Purity:                   | 3.635698 |           |      |      |       |
| Rf:                       | 70.4     |           |      |      |       |
| Rg:                       | 97.1     |           |      |      |       |



### Test Conditions

Stabilization Time: 20M  
 Operation Time: 1H 20M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-7

| 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 5700K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-7

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| 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       | 120                         | NR               | 620       | 298                         | NR               | 750       | 9                           | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 167                         | NR               | 625       | 270                         | NR               | 755       | 7                           | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 222                         | NR               | 630       | 245                         | NR               | 760       | 6                           | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 279                         | NR               | 635       | 219                         | NR               | 765       | 6                           | NR               | 895       | 0                           | NR               |
| 380       | 1                           | NR               | 510       | 329                         | NR               | 640       | 196                         | NR               | 770       | 5                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 371                         | NR               | 645       | 173                         | NR               | 775       | 4                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 403                         | NR               | 650       | 153                         | NR               | 780       | 4                           | NR               | 910       | 0                           | NR               |
| 395       | 6                           | NR               | 525       | 424                         | NR               | 655       | 135                         | NR               | 785       | 3                           | NR               | 915       | 0                           | NR               |
| 400       | 9                           | NR               | 530       | 439                         | NR               | 660       | 117                         | NR               | 790       | 3                           | NR               | 920       | 0                           | NR               |
| 405       | 14                          | NR               | 535       | 449                         | NR               | 665       | 103                         | NR               | 795       | 2                           | NR               | 925       | 0                           | NR               |
| 410       | 28                          | NR               | 540       | 454                         | NR               | 670       | 89                          | NR               | 800       | 2                           | NR               | 930       | 0                           | NR               |
| 415       | 55                          | NR               | 545       | 459                         | NR               | 675       | 77                          | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 118                         | NR               | 550       | 463                         | NR               | 680       | 67                          | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 237                         | NR               | 555       | 466                         | NR               | 685       | 58                          | NR               | 815       | 1                           | NR               | 945       | 0                           | NR               |
| 430       | 420                         | NR               | 560       | 467                         | NR               | 690       | 50                          | NR               | 820       | 1                           | NR               | 950       | 0                           | NR               |
| 435       | 677                         | NR               | 565       | 469                         | NR               | 695       | 43                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 962                         | NR               | 570       | 469                         | NR               | 700       | 37                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 894                         | NR               | 575       | 466                         | NR               | 705       | 32                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 472                         | NR               | 580       | 461                         | NR               | 710       | 28                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 275                         | NR               | 585       | 450                         | NR               | 715       | 24                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 180                         | NR               | 590       | 437                         | NR               | 720       | 21                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 107                         | NR               | 595       | 420                         | NR               | 725       | 18                          | NR               | 855       | 0                           | NR               | 985       | 0                           | NR               |
| 470       | 76                          | NR               | 600       | 400                         | NR               | 730       | 15                          | NR               | 860       | 0                           | NR               | 990       | 0                           | NR               |
| 475       | 68                          | NR               | 605       | 376                         | NR               | 735       | 13                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 69                          | NR               | 610       | 352                         | NR               | 740       | 11                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 86                          | NR               | 615       | 325                         | NR               | 745       | 10                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.84

| 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       | 120                         | NR               | 620       | 298                         | NR               | 750       | 9                           | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 167                         | NR               | 625       | 270                         | NR               | 755       | 7                           | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 222                         | NR               | 630       | 245                         | NR               | 760       | 6                           | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 279                         | NR               | 635       | 219                         | NR               | 765       | 6                           | NR               | 895       | 0                           | NR               |
| 380       | 1                           | NR               | 510       | 329                         | NR               | 640       | 196                         | NR               | 770       | 5                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 371                         | NR               | 645       | 173                         | NR               | 775       | 4                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 403                         | NR               | 650       | 153                         | NR               | 780       | 4                           | NR               | 910       | 0                           | NR               |
| 395       | 6                           | NR               | 525       | 424                         | NR               | 655       | 135                         | NR               | 785       | 3                           | NR               | 915       | 0                           | NR               |
| 400       | 9                           | NR               | 530       | 439                         | NR               | 660       | 117                         | NR               | 790       | 3                           | NR               | 920       | 0                           | NR               |
| 405       | 14                          | NR               | 535       | 449                         | NR               | 665       | 103                         | NR               | 795       | 2                           | NR               | 925       | 0                           | NR               |
| 410       | 28                          | NR               | 540       | 454                         | NR               | 670       | 89                          | NR               | 800       | 2                           | NR               | 930       | 0                           | NR               |
| 415       | 55                          | NR               | 545       | 459                         | NR               | 675       | 77                          | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 118                         | NR               | 550       | 463                         | NR               | 680       | 67                          | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 237                         | NR               | 555       | 466                         | NR               | 685       | 58                          | NR               | 815       | 1                           | NR               | 945       | 0                           | NR               |
| 430       | 420                         | NR               | 560       | 467                         | NR               | 690       | 50                          | NR               | 820       | 1                           | NR               | 950       | 0                           | NR               |
| 435       | 677                         | NR               | 565       | 469                         | NR               | 695       | 43                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 962                         | NR               | 570       | 469                         | NR               | 700       | 37                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 894                         | NR               | 575       | 466                         | NR               | 705       | 32                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 472                         | NR               | 580       | 461                         | NR               | 710       | 28                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 275                         | NR               | 585       | 450                         | NR               | 715       | 24                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 180                         | NR               | 590       | 437                         | NR               | 720       | 21                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 107                         | NR               | 595       | 420                         | NR               | 725       | 18                          | NR               | 855       | 0                           | NR               | 985       | 0                           | NR               |
| 470       | 76                          | NR               | 600       | 400                         | NR               | 730       | 15                          | NR               | 860       | 0                           | NR               | 990       | 0                           | NR               |
| 475       | 68                          | NR               | 605       | 376                         | NR               | 735       | 13                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 69                          | NR               | 610       | 352                         | NR               | 740       | 11                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 86                          | NR               | 615       | 325                         | NR               | 745       | 10                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.71

| $\lambda$<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               | 120                                  | NR                             | 620               | 298                                  | NR                             | 750               | 9                                    | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 167                                  | NR                             | 625               | 270                                  | NR                             | 755               | 7                                    | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 222                                  | NR                             | 630               | 245                                  | NR                             | 760               | 6                                    | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 279                                  | NR                             | 635               | 219                                  | NR                             | 765               | 6                                    | NR                             | 895               | 0                                    | NR                             |
| 380               | 1                                    | NR                             | 510               | 329                                  | NR                             | 640               | 196                                  | NR                             | 770               | 5                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 2                                    | NR                             | 515               | 371                                  | NR                             | 645               | 173                                  | NR                             | 775               | 4                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 4                                    | NR                             | 520               | 403                                  | NR                             | 650               | 153                                  | NR                             | 780               | 4                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 6                                    | NR                             | 525               | 424                                  | NR                             | 655               | 135                                  | NR                             | 785               | 3                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 9                                    | NR                             | 530               | 439                                  | NR                             | 660               | 117                                  | NR                             | 790               | 3                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 14                                   | NR                             | 535               | 449                                  | NR                             | 665               | 103                                  | NR                             | 795               | 2                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 28                                   | NR                             | 540               | 454                                  | NR                             | 670               | 89                                   | NR                             | 800               | 2                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 55                                   | NR                             | 545               | 459                                  | NR                             | 675               | 77                                   | NR                             | 805               | 2                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 118                                  | NR                             | 550               | 463                                  | NR                             | 680               | 67                                   | NR                             | 810               | 2                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 237                                  | NR                             | 555               | 466                                  | NR                             | 685               | 58                                   | NR                             | 815               | 1                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 420                                  | NR                             | 560               | 467                                  | NR                             | 690               | 50                                   | NR                             | 820               | 1                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 677                                  | NR                             | 565               | 469                                  | NR                             | 695               | 43                                   | NR                             | 825               | 1                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 962                                  | NR                             | 570               | 469                                  | NR                             | 700               | 37                                   | NR                             | 830               | 1                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 894                                  | NR                             | 575               | 466                                  | NR                             | 705               | 32                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 472                                  | NR                             | 580               | 461                                  | NR                             | 710               | 28                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 275                                  | NR                             | 585               | 450                                  | NR                             | 715               | 24                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 180                                  | NR                             | 590               | 437                                  | NR                             | 720               | 21                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 107                                  | NR                             | 595               | 420                                  | NR                             | 725               | 18                                   | NR                             | 855               | 0                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 76                                   | NR                             | 600               | 400                                  | NR                             | 730               | 15                                   | NR                             | 860               | 0                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 68                                   | NR                             | 605               | 376                                  | NR                             | 735               | 13                                   | NR                             | 865               | 0                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 69                                   | NR                             | 610               | 352                                  | NR                             | 740               | 11                                   | NR                             | 870               | 0                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 86                                   | NR                             | 615               | 325                                  | NR                             | 745               | 10                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

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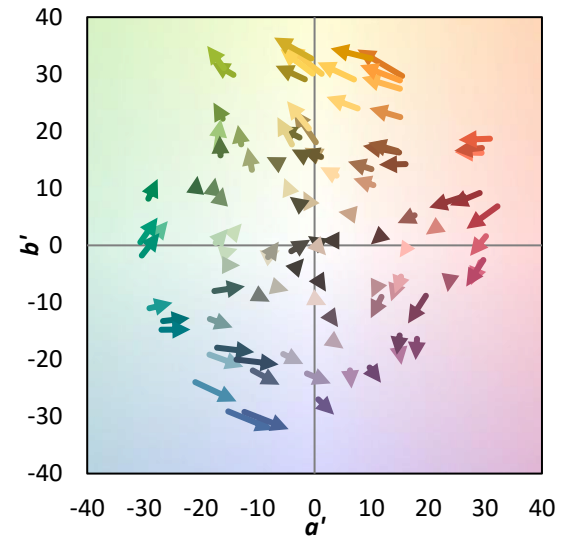
TM-30-18

### Summary

$R_f = 70.4$   
 $R_g = 97.1$   
 $CIE R_a = 69.9$   
 $R_g = -35.4$



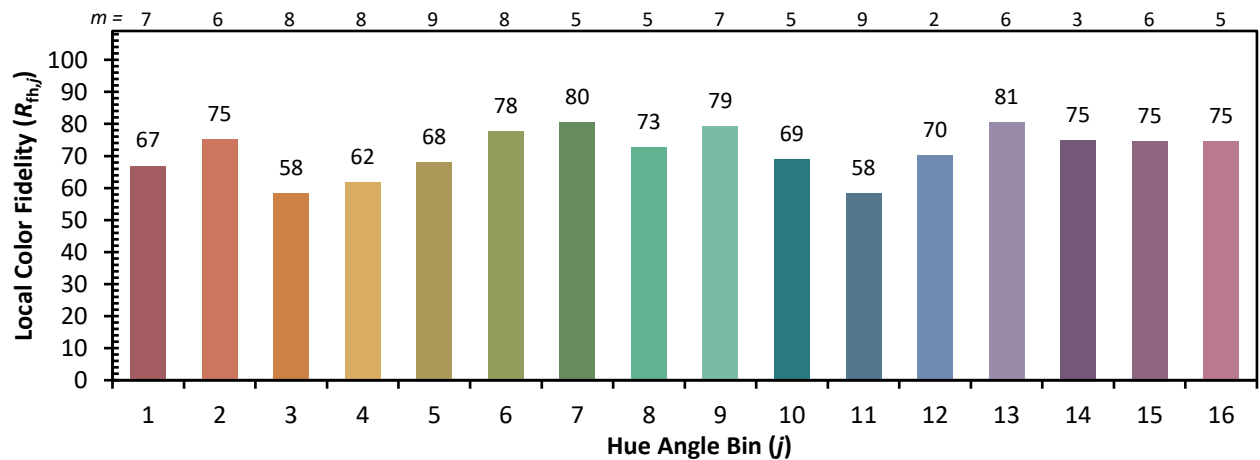
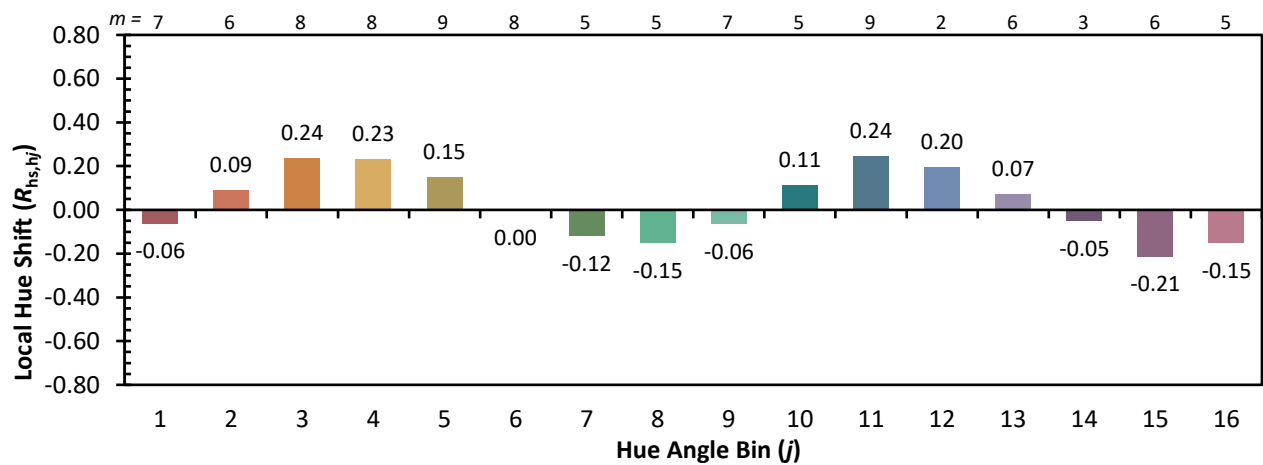
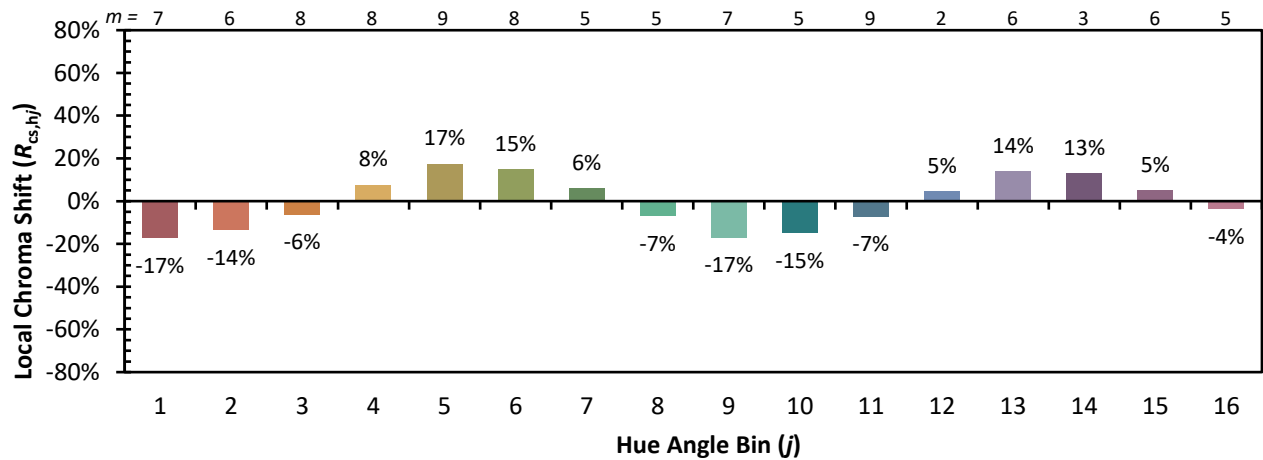
### Color Vector Graphics



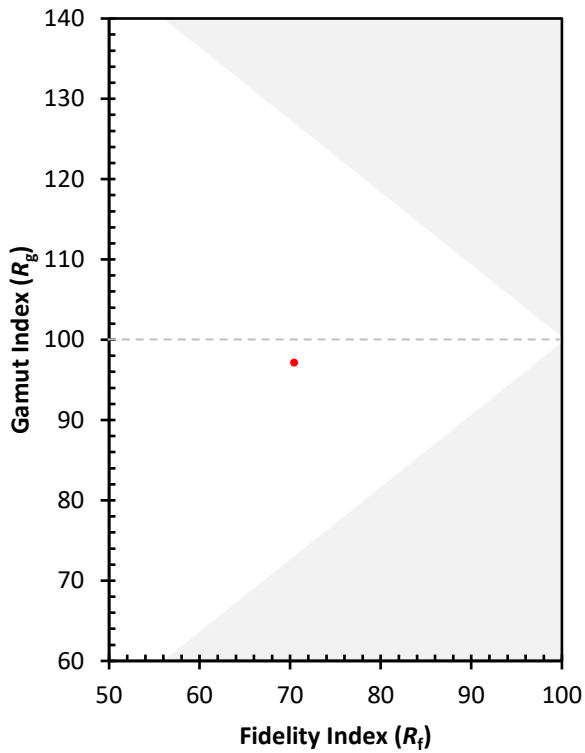
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 52 | CES51 = 87 | CES76 = 40 |
| CES02 = 59 | CES27 = 77 | CES52 = 88 | CES77 = 62 |
| CES03 = 30 | CES28 = 76 | CES53 = 74 | CES78 = 43 |
| CES04 = 68 | CES29 = 46 | CES54 = 79 | CES79 = 72 |
| CES05 = 45 | CES30 = 54 | CES55 = 78 | CES80 = 68 |
| CES06 = 49 | CES31 = 52 | CES56 = 67 | CES81 = 70 |
| CES07 = 38 | CES32 = 49 | CES57 = 64 | CES82 = 87 |
| CES08 = 37 | CES33 = 59 | CES58 = 66 | CES83 = 81 |
| CES09 = 29 | CES34 = 61 | CES59 = 87 | CES84 = 87 |
| CES10 = 72 | CES35 = 78 | CES60 = 91 | CES85 = 83 |
| CES11 = 55 | CES36 = 88 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 71 | CES62 = 77 | CES87 = 74 |
| CES13 = 41 | CES38 = 64 | CES63 = 74 | CES88 = 76 |
| CES14 = 74 | CES39 = 90 | CES64 = 71 | CES89 = 75 |
| CES15 = 70 | CES40 = 81 | CES65 = 63 | CES90 = 73 |
| CES16 = 46 | CES41 = 82 | CES66 = 66 | CES91 = 93 |
| CES17 = 48 | CES42 = 69 | CES67 = 63 | CES92 = 69 |
| CES18 = 55 | CES43 = 67 | CES68 = 71 | CES93 = 82 |
| CES19 = 70 | CES44 = 98 | CES69 = 81 | CES94 = 58 |
| CES20 = 63 | CES45 = 77 | CES70 = 57 | CES95 = 72 |
| CES21 = 85 | CES46 = 76 | CES71 = 54 | CES96 = 78 |
| CES22 = 77 | CES47 = 73 | CES72 = 84 | CES97 = 82 |
| CES23 = 91 | CES48 = 65 | CES73 = 45 | CES98 = 70 |
| CES24 = 90 | CES49 = 77 | CES74 = 92 | CES99 = 59 |
| CES25 = 71 | CES50 = 85 | CES75 = 49 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)