

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: P1047873

Luminaire Tested: **GALN-SA9A-760-U-T2BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047873  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA9A-760-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 9xLight Square PACKAGE  
70CRI 5700K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (126) 5700K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 32257.3 lumens  
Efficiency: N/A  
Efficacy: 131.9 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 244.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

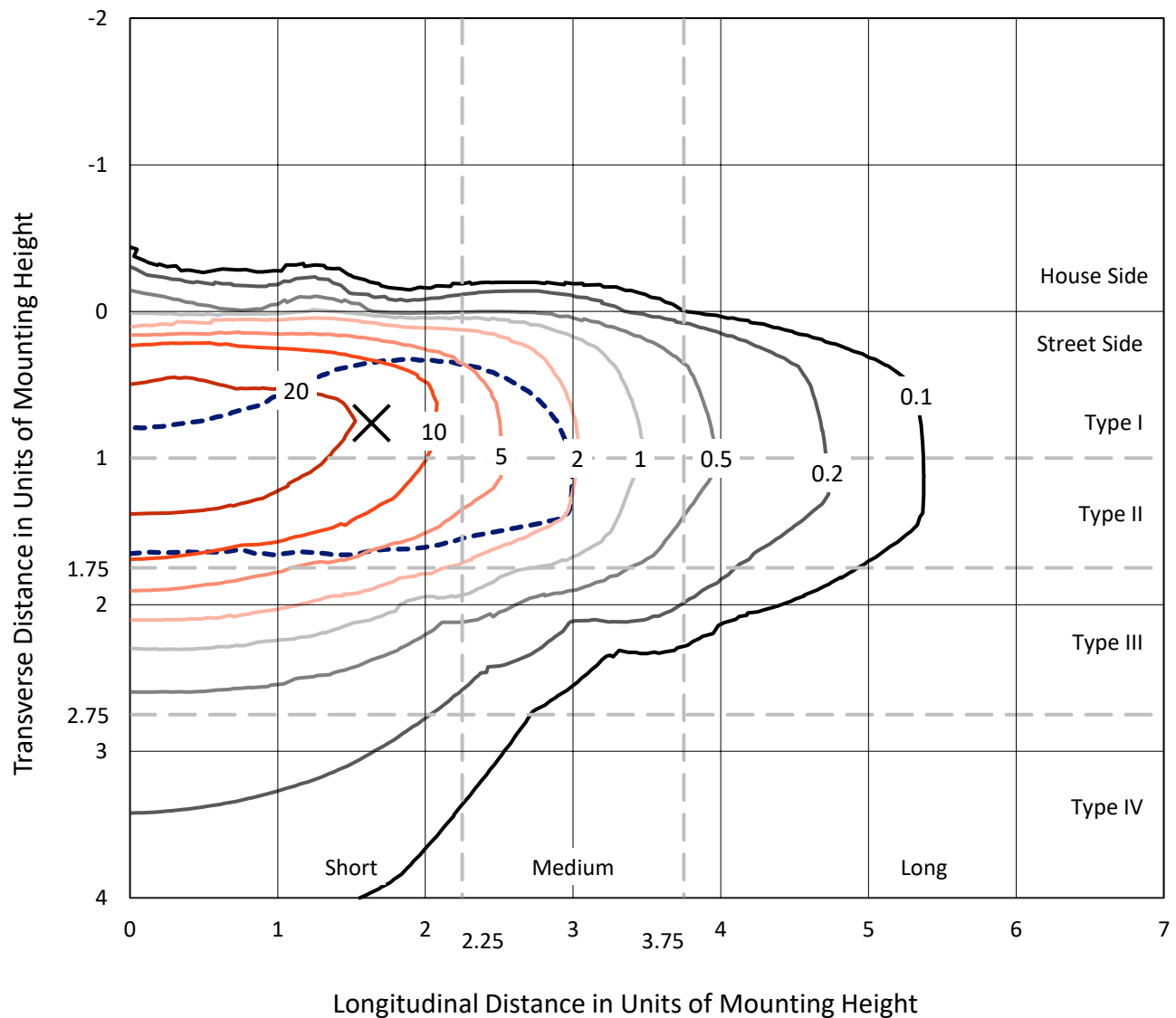


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

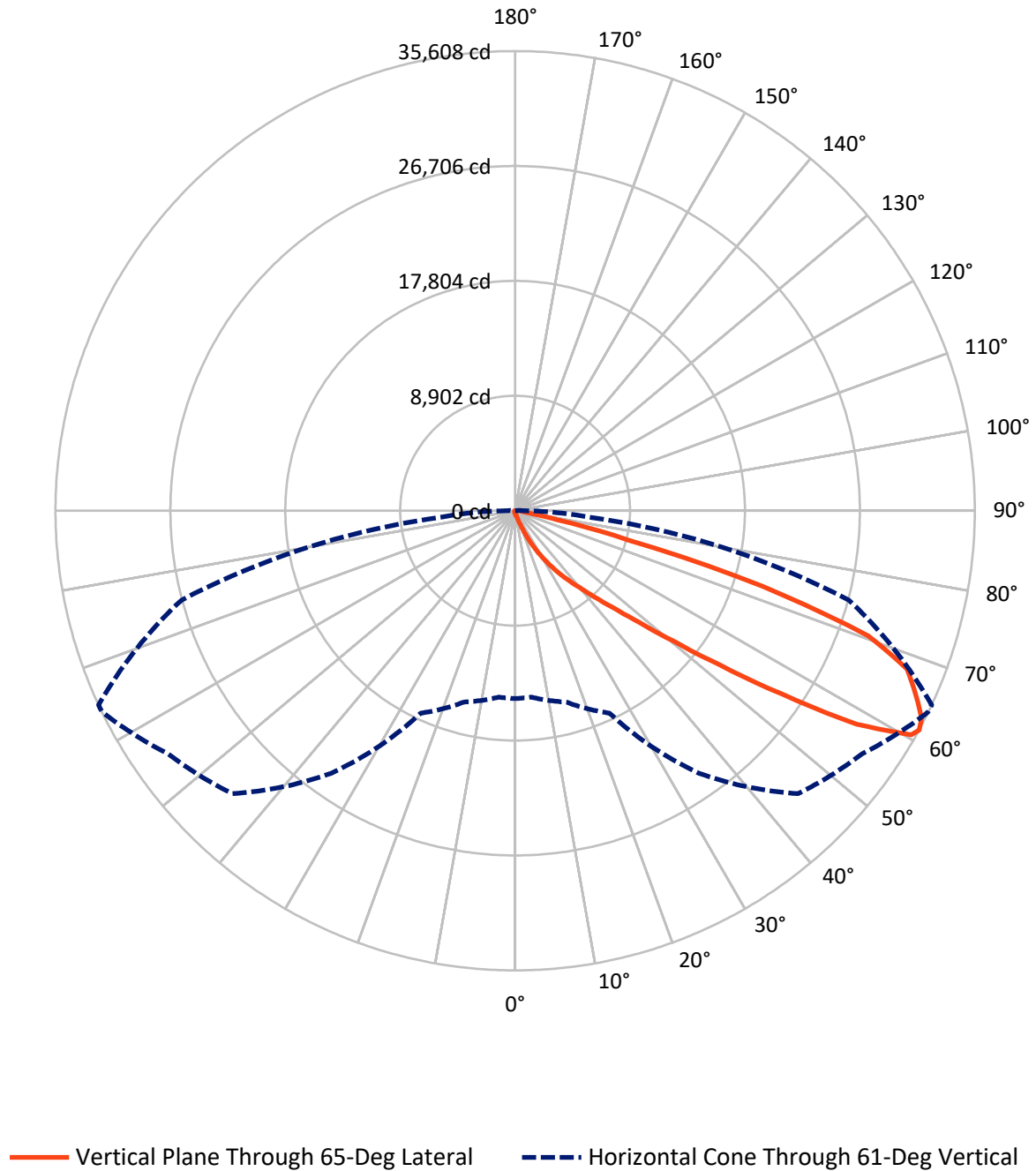


Based on 15 foot mounting height. Maximum calculated value = 42.7 fc  
 Type II - Short - N/A

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CATALOG NUMBER: GALN-SA9A-760-U-T2BC

## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA9A-760-U-T2BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 137.7    | 0.0    | 137.7   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 32119.6  | 0.0    | 32119.6 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 32257.3  | 0.0    | 32257.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 25.1    | 0.1       |
| 10°-20°   | 265.3   | 0.8       |
| 20°-30°   | 952.0   | 3.0       |
| 30°-40°   | 2534.5  | 7.9       |
| 40°-50°   | 6658.1  | 20.6      |
| 50°-60°   | 10314.6 | 32.0      |
| 60°-70°   | 8648.7  | 26.8      |
| 70°-80°   | 2545.1  | 7.9       |
| 80°-90°   | 314.0   | 1.0       |
| 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°    | 32257.3 | 100.0     |
| 0°-180°   | 32257.3 | 100.0     |



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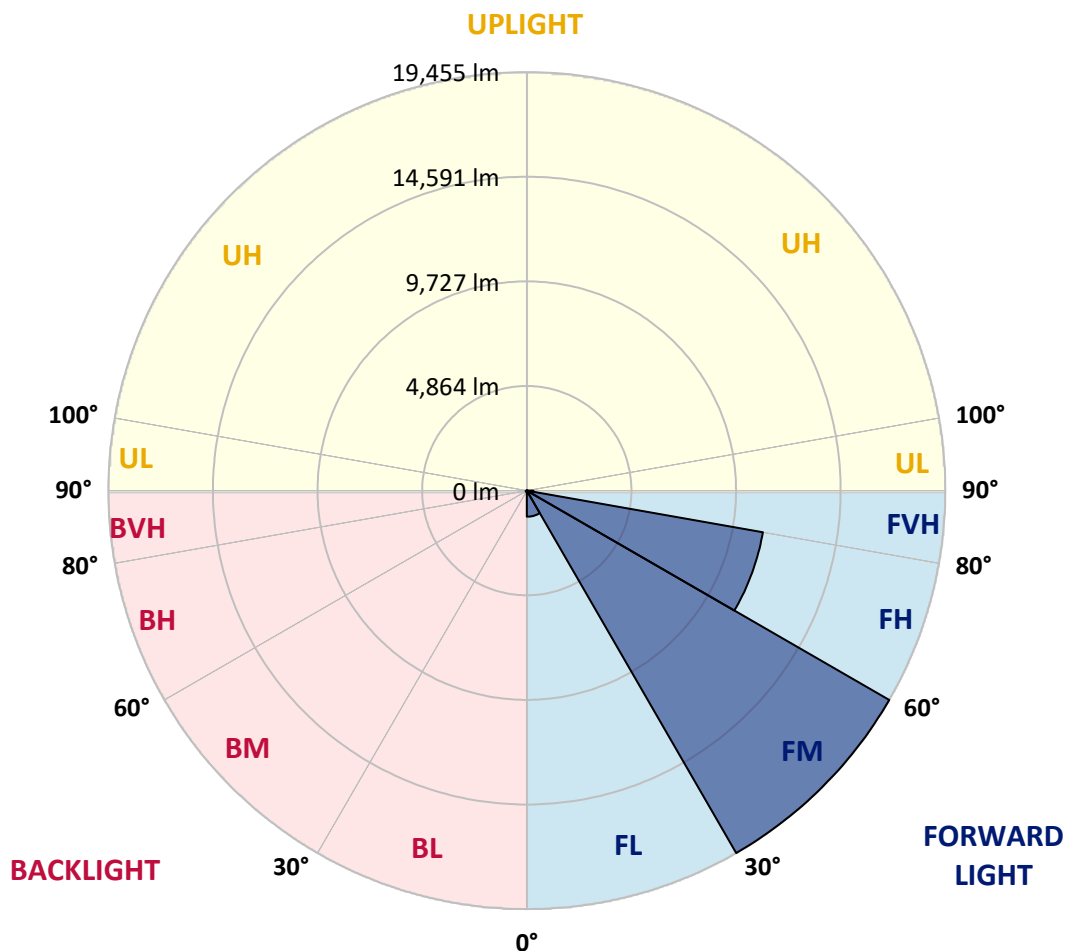
CATALOG NUMBER: GALN-SA9A-760-U-T2BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1211.4  | 3.8       |                         |      |          |
| FM   | (30°-60°)   | 19454.8 | 60.3      |                         |      |          |
| FH   | (60°-80°)   | 11145.2 | 34.6      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 308.1   | 1.0       |                         |      | G3/500   |
| BL   | (0°-30°)    | 30.9    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 52.4    | 0.2       | B0/220                  |      |          |
| BH   | (60°-80°)   | 48.6    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 5.8     | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

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

Type II Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 197.5   | 197.5   | 197.5   | 197.5   | 197.5   | 197.5   | 197.5   | 197.5   | 197.5   | 197.5   | 197.5   |
| 2.5°  | 239.6   | 241.9   | 237.4   | 228.6   | 221.9   | 221.9   | 219.7   | 213.0   | 213.0   | 206.4   | 201.9   |
| 5°    | 335.1   | 330.6   | 321.7   | 304.0   | 288.5   | 272.9   | 257.4   | 241.9   | 239.6   | 219.7   | 206.4   |
| 7.5°  | 548.1   | 552.5   | 523.7   | 468.2   | 421.6   | 361.7   | 306.2   | 272.9   | 268.5   | 235.2   | 208.6   |
| 10°   | 1202.7  | 1169.4  | 1102.8  | 887.6   | 730.0   | 550.3   | 408.3   | 317.3   | 312.9   | 253.0   | 213.0   |
| 12.5° | 2192.3  | 2165.7  | 2043.7  | 1821.8  | 1415.7  | 985.2   | 596.9   | 392.8   | 379.4   | 268.5   | 215.2   |
| 15°   | 3159.8  | 3117.6  | 3051.1  | 2826.9  | 2352.1  | 1766.3  | 976.3   | 537.0   | 501.5   | 290.7   | 213.0   |
| 17.5° | 3776.7  | 3783.3  | 3723.4  | 3628.0  | 3321.8  | 2613.9  | 1686.4  | 801.0   | 732.3   | 330.6   | 208.6   |
| 20°   | 4315.9  | 4300.3  | 4333.6  | 4282.6  | 4067.3  | 3552.5  | 2454.2  | 1269.2  | 1151.6  | 395.0   | 210.8   |
| 22.5° | 4937.2  | 4974.9  | 4999.3  | 4988.2  | 4750.8  | 4311.4  | 3326.2  | 1899.4  | 1750.8  | 512.6   | 217.5   |
| 25°   | 5769.3  | 5764.8  | 5767.1  | 5738.2  | 5507.4  | 5019.3  | 4200.5  | 2682.7  | 2531.8  | 703.4   | 233.0   |
| 27.5° | 6641.3  | 6668.0  | 6679.1  | 6574.8  | 6273.0  | 5793.7  | 5010.4  | 3539.2  | 3361.7  | 1009.6  | 253.0   |
| 30°   | 7832.9  | 7810.7  | 7759.7  | 7546.7  | 7180.5  | 6585.9  | 5809.2  | 4437.9  | 4251.5  | 1437.9  | 284.0   |
| 32.5° | 9439.4  | 9415.0  | 9157.6  | 8687.2  | 8139.1  | 7411.3  | 6612.5  | 5338.8  | 5112.5  | 1972.6  | 326.2   |
| 35°   | 12086.6 | 12124.4 | 11492.0 | 10273.8 | 9290.8  | 8403.2  | 7502.3  | 6235.3  | 6035.6  | 2631.7  | 383.9   |
| 37.5° | 16140.7 | 15934.3 | 15075.6 | 12923.2 | 10806.3 | 9641.4  | 8352.1  | 7140.6  | 6967.5  | 3443.8  | 459.3   |
| 40°   | 20079.3 | 19875.2 | 19626.6 | 17587.4 | 13440.2 | 11006.0 | 9541.5  | 8203.5  | 7979.4  | 4360.2  | 570.3   |
| 42.5° | 24219.9 | 24106.7 | 24095.6 | 22557.9 | 18246.5 | 13151.7 | 10972.7 | 9448.3  | 9257.5  | 5365.4  | 752.2   |
| 45°   | 27153.3 | 27040.2 | 27277.6 | 27546.1 | 24792.4 | 17749.4 | 13464.6 | 11065.9 | 10788.6 | 6585.9  | 1042.9  |
| 47.5° | 27548.3 | 27552.7 | 28187.4 | 29028.4 | 29656.3 | 24861.2 | 16784.2 | 13209.4 | 12872.2 | 8332.2  | 1531.1  |
| 50°   | 26234.7 | 26285.7 | 27295.4 | 28799.8 | 30490.6 | 30827.9 | 22637.8 | 16320.4 | 15821.1 | 10402.5 | 2223.4  |
| 52.5° | 23733.9 | 23791.6 | 25198.4 | 27672.6 | 29722.9 | 32261.4 | 29529.8 | 20390.0 | 19815.3 | 12985.3 | 3199.7  |
| 55°   | 21481.7 | 21517.2 | 23130.4 | 26256.9 | 28797.6 | 31482.5 | 33621.6 | 25824.2 | 25069.7 | 16162.9 | 4162.8  |
| 57.5° | 19251.6 | 19169.5 | 20219.1 | 23798.3 | 28640.0 | 30526.1 | 34225.1 | 32017.3 | 31185.2 | 19635.5 | 4912.8  |
| 60°   | 16269.4 | 16131.8 | 16975.0 | 19251.6 | 26567.5 | 31154.1 | 33095.7 | 35443.3 | 35254.7 | 24470.6 | 5491.9  |
| 61°   | 14554.1 | 14496.4 | 15344.1 | 17296.7 | 24823.4 | 30994.3 | 32825.0 | 35587.6 | 35607.6 | 26758.4 | 5751.5  |
| 62.5° | 10393.6 | 10557.8 | 11853.7 | 14392.1 | 20791.6 | 29958.1 | 32860.5 | 35141.6 | 35339.1 | 29798.3 | 6423.9  |
| 65°   | 4619.9  | 4883.9  | 5891.3  | 7957.2  | 12091.1 | 24921.1 | 32545.4 | 34163.0 | 34065.4 | 30632.7 | 8740.5  |
| 67.5° | 2740.4  | 2780.3  | 3281.8  | 4508.9  | 6403.9  | 13404.7 | 28719.9 | 32869.4 | 32738.4 | 26667.4 | 10875.1 |
| 70°   | 2159.0  | 2179.0  | 2338.8  | 2829.2  | 3716.7  | 5134.7  | 16391.4 | 28438.1 | 29008.4 | 21623.7 | 10646.5 |
| 72.5° | 2048.1  | 2043.7  | 2065.8  | 2152.4  | 2341.0  | 2547.4  | 6346.2  | 18903.3 | 20063.8 | 15572.6 | 8926.9  |
| 75°   | 2021.5  | 2012.6  | 1990.4  | 1957.1  | 1695.3  | 1500.0  | 1966.0  | 8361.0  | 9033.4  | 10639.9 | 6721.2  |
| 77.5° | 1961.6  | 1963.8  | 1968.2  | 1877.2  | 1453.4  | 1060.7  | 951.9   | 2682.7  | 3299.6  | 6752.3  | 4777.4  |
| 80°   | 1326.9  | 1346.9  | 1380.2  | 1344.7  | 1307.0  | 767.8   | 672.3   | 954.2   | 967.5   | 3790.0  | 3155.4  |
| 82.5° | 672.3   | 672.3   | 656.8   | 585.8   | 505.9   | 499.3   | 534.8   | 692.3   | 701.2   | 1917.2  | 1484.5  |
| 85°   | 406.1   | 428.3   | 437.1   | 397.2   | 363.9   | 335.1   | 408.3   | 550.3   | 570.3   | 743.3   | 346.2   |
| 87.5° | 91.0    | 93.2    | 102.1   | 135.4   | 197.5   | 268.5   | 379.4   | 503.7   | 512.6   | 477.1   | 42.2    |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |

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CATALOG NUMBER: GALN-SA9A-760-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 197.5  | 197.5 | 197.5 | 197.5 | 197.5 | 197.5 | 197.5 | 197.5 | 197.5 | 197.5 | 197.5 |
| 2.5°  | 199.7  | 195.3 | 193.0 | 186.4 | 179.7 | 173.1 | 168.6 | 166.4 | 168.6 | 170.9 | 170.9 |
| 5°    | 197.5  | 190.8 | 179.7 | 168.6 | 159.8 | 150.9 | 142.0 | 139.8 | 139.8 | 142.0 | 142.0 |
| 7.5°  | 197.5  | 186.4 | 170.9 | 157.5 | 144.2 | 130.9 | 124.3 | 119.8 | 122.0 | 122.0 | 122.0 |
| 10°   | 197.5  | 184.2 | 164.2 | 144.2 | 128.7 | 113.2 | 102.1 | 97.6  | 97.6  | 97.6  | 97.6  |
| 12.5° | 195.3  | 182.0 | 157.5 | 133.1 | 110.9 | 93.2  | 79.9  | 73.2  | 75.4  | 75.4  | 75.4  |
| 15°   | 190.8  | 175.3 | 148.7 | 113.2 | 88.8  | 71.0  | 57.7  | 51.0  | 53.3  | 57.7  | 59.9  |
| 17.5° | 184.2  | 168.6 | 133.1 | 95.4  | 71.0  | 53.3  | 39.9  | 35.5  | 37.7  | 44.4  | 44.4  |
| 20°   | 182.0  | 162.0 | 117.6 | 77.7  | 53.3  | 37.7  | 26.6  | 22.2  | 24.4  | 33.3  | 35.5  |
| 22.5° | 182.0  | 157.5 | 106.5 | 64.3  | 39.9  | 24.4  | 15.5  | 8.9   | 8.9   | 15.5  | 15.5  |
| 25°   | 184.2  | 155.3 | 97.6  | 53.3  | 28.8  | 17.8  | 8.9   | 4.4   | 8.9   | 24.4  | 28.8  |
| 27.5° | 188.6  | 153.1 | 93.2  | 44.4  | 22.2  | 15.5  | 6.7   | 15.5  | 26.6  | 26.6  | 26.6  |
| 30°   | 193.0  | 148.7 | 86.5  | 37.7  | 20.0  | 11.1  | 11.1  | 22.2  | 22.2  | 26.6  | 28.8  |
| 32.5° | 199.7  | 146.5 | 82.1  | 33.3  | 15.5  | 8.9   | 15.5  | 13.3  | 13.3  | 15.5  | 17.8  |
| 35°   | 213.0  | 148.7 | 77.7  | 33.3  | 15.5  | 11.1  | 13.3  | 6.7   | 4.4   | 4.4   | 4.4   |
| 37.5° | 230.8  | 150.9 | 71.0  | 28.8  | 13.3  | 13.3  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 259.6  | 157.5 | 66.6  | 26.6  | 11.1  | 11.1  | 2.2   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 308.4  | 170.9 | 64.3  | 24.4  | 11.1  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 406.1  | 201.9 | 59.9  | 22.2  | 11.1  | 4.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 583.6  | 275.2 | 57.7  | 17.8  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 852.1  | 372.8 | 55.5  | 15.5  | 2.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 1087.3 | 392.8 | 37.7  | 13.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 1113.9 | 270.7 | 28.8  | 8.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 887.6  | 175.3 | 24.4  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 672.3  | 133.1 | 22.2  | 2.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 61°   | 645.7  | 119.8 | 22.2  | 2.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 712.3  | 104.3 | 20.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1158.3 | 86.5  | 17.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2012.6 | 75.4  | 15.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2542.9 | 71.0  | 13.3  | 2.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 2216.7 | 64.3  | 13.3  | 4.4   | 2.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1333.6 | 55.5  | 13.3  | 8.9   | 4.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 699.0  | 42.2  | 13.3  | 11.1  | 6.7   | 2.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 339.5  | 37.7  | 15.5  | 11.1  | 8.9   | 4.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 133.1  | 31.1  | 17.8  | 15.5  | 11.1  | 6.7   | 2.2   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 59.9   | 26.6  | 20.0  | 17.8  | 15.5  | 8.9   | 2.2   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 31.1   | 24.4  | 22.2  | 20.0  | 15.5  | 11.1  | 4.4   | 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   |

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



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

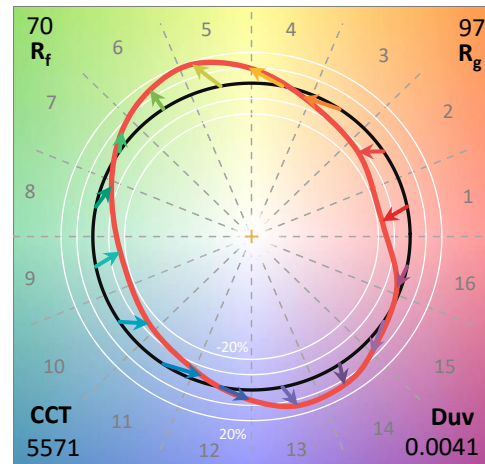
Data in this report applies to families of products including GSS-SB1A-760-U-5WQ

### 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

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 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 (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 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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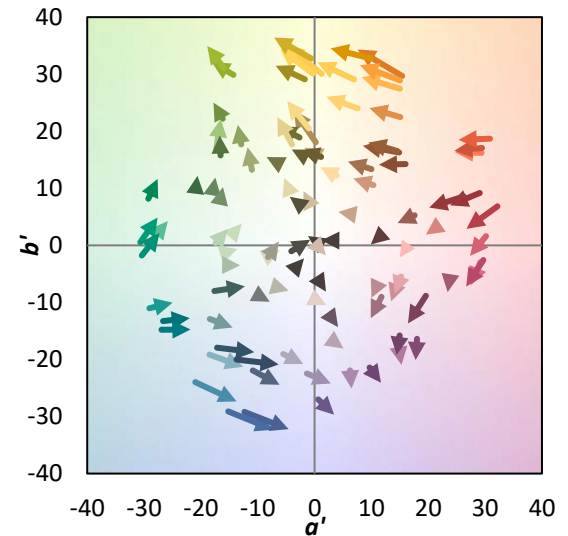
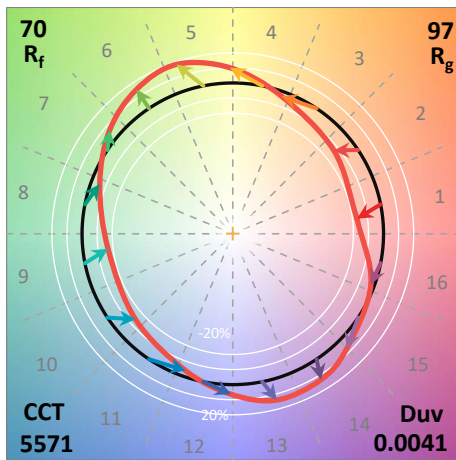
TM-30-18

### Summary

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

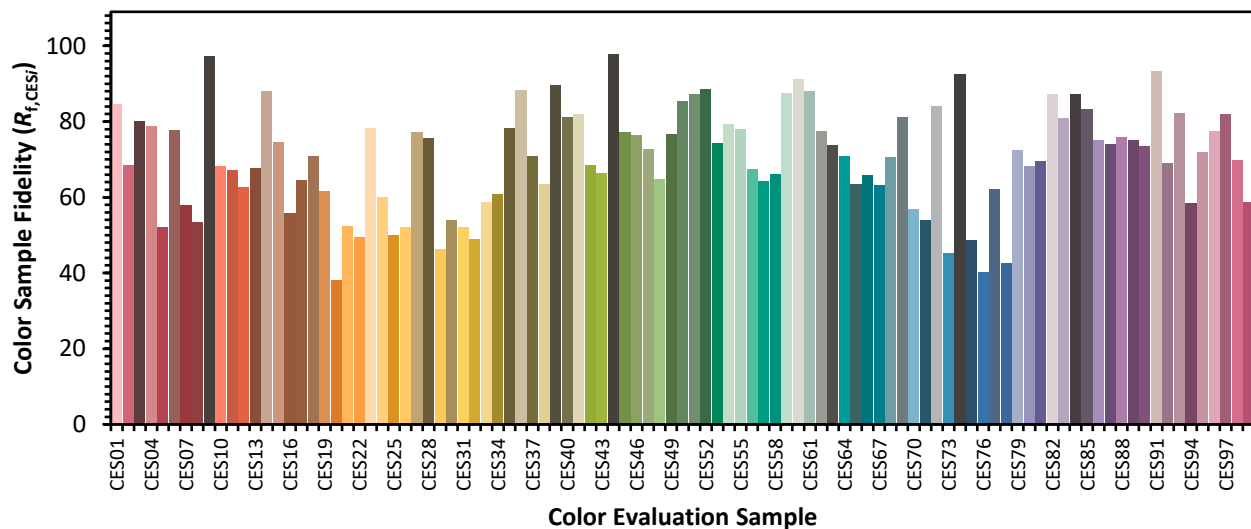


### Color Vector Graphics

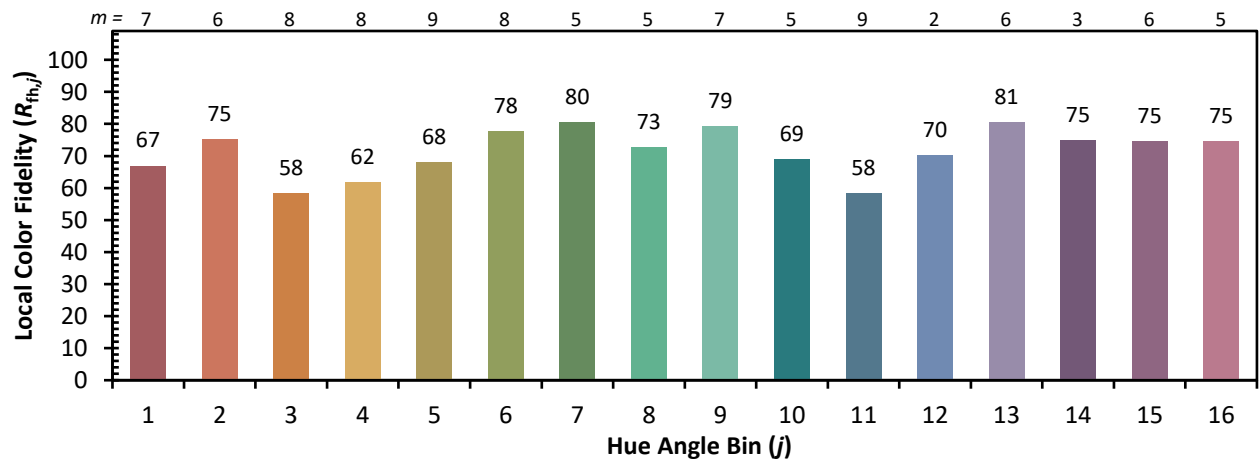
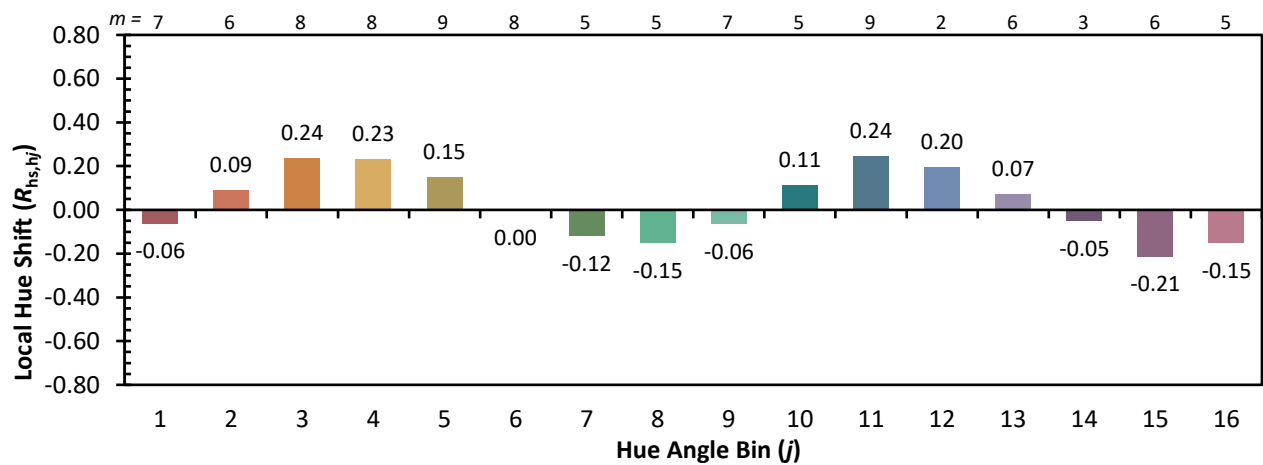
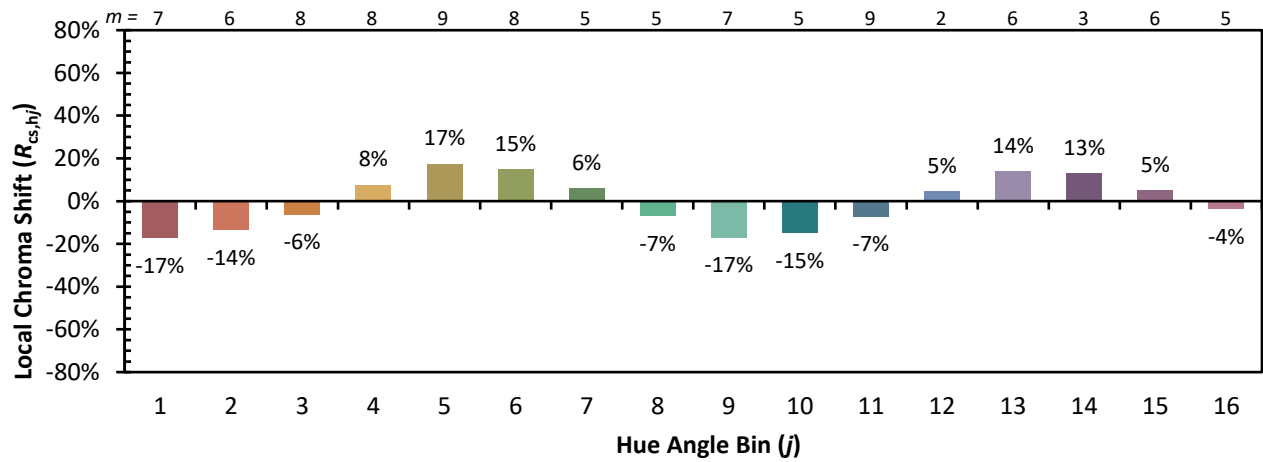


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

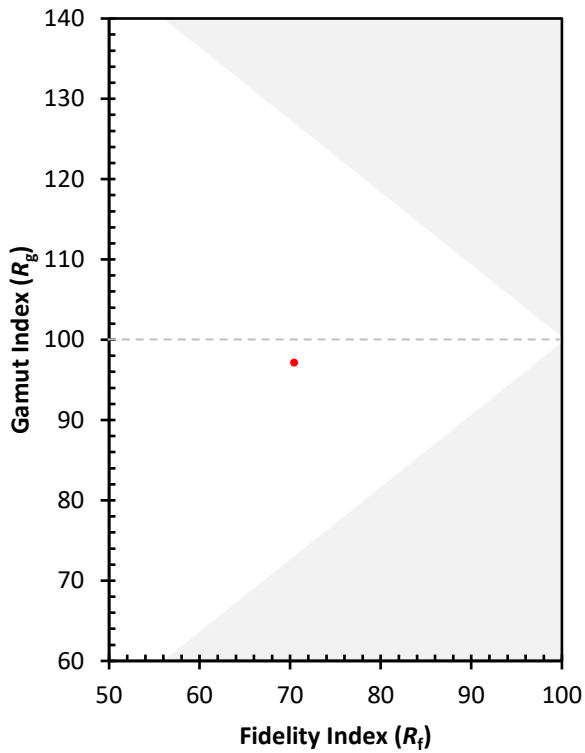
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 52 | CES51 = 87 | CES76 = 40 |
| CES02 = 59 | CES27 = 77 | CES52 = 88 | CES77 = 62 |
| CES03 = 30 | CES28 = 76 | CES53 = 74 | CES78 = 43 |
| CES04 = 68 | CES29 = 46 | CES54 = 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)