

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: P1048591

Luminaire Tested: **GALN-SA8C-835-U-T4BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1048591  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA8C-835-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 8xLight Square PACKAGE  
80CRI 3500K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (112) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 40180 lumens  
Efficiency: N/A  
Efficacy: 107.8 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G5

Input Watts (W): 372.9  
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

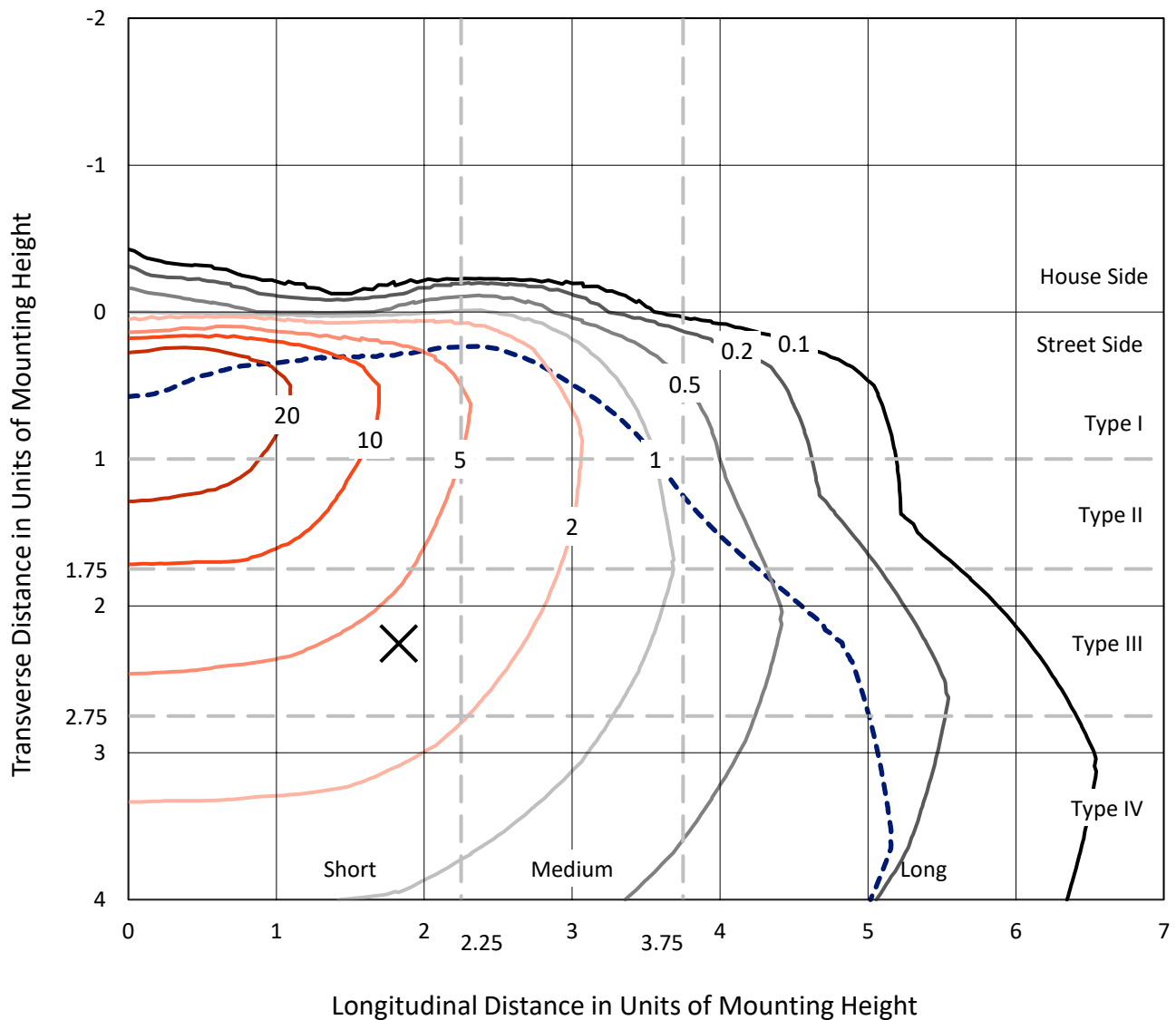


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
- - - 1/2 Max cd

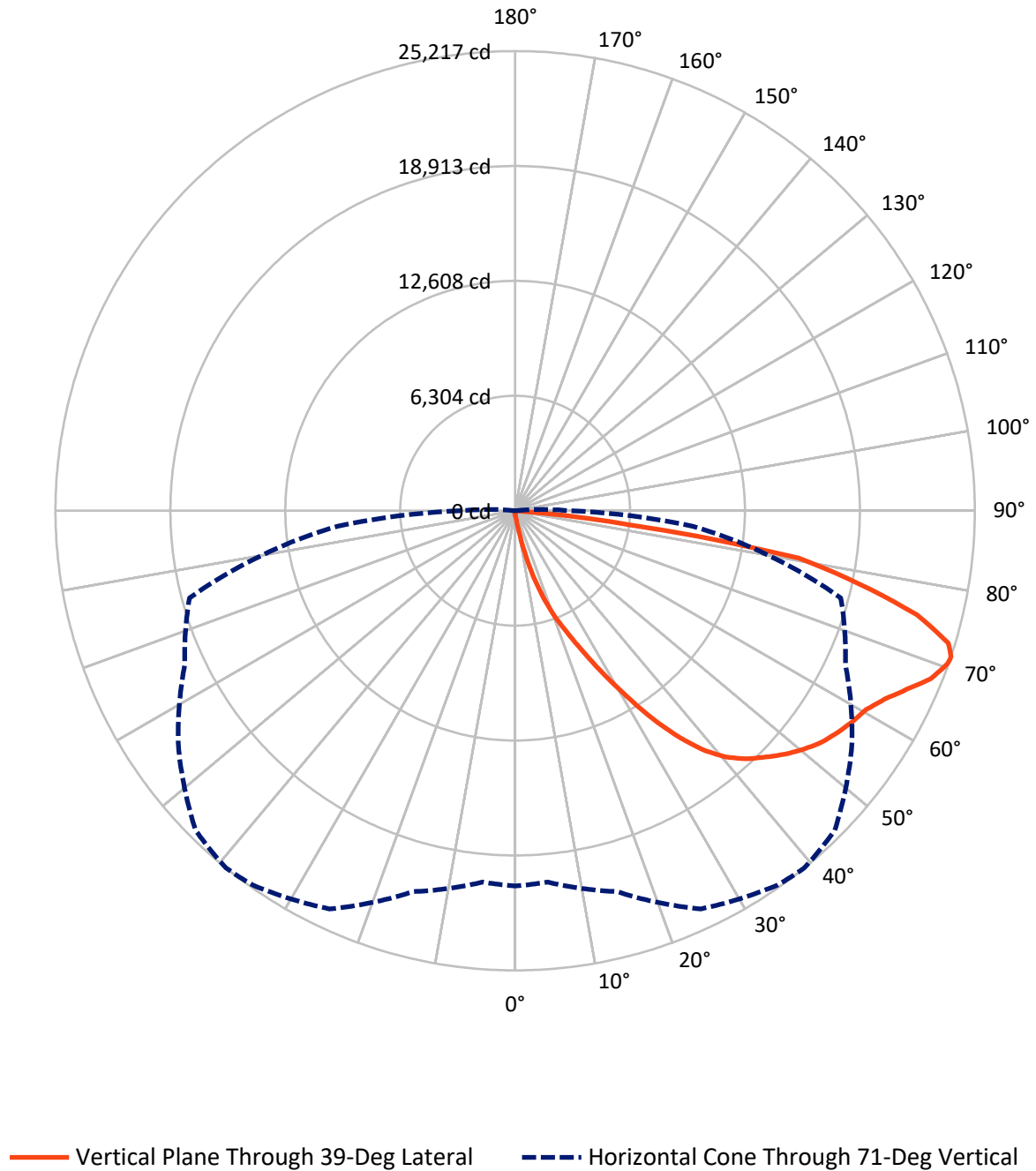


Based on 15 foot mounting height. Maximum calculated value = 41.3 fc  
Type IV - Short - N/A

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CATALOG NUMBER: GALN-SA8C-835-U-T4BC

## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA8C-835-U-T4BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 142.8    | 0.0    | 142.8   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 40037.3  | 0.0    | 40037.3 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 40180.0  | 0.0    | 40180.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 33.6    | 0.1       |
| 10°-20°   | 429.4   | 1.1       |
| 20°-30°   | 1529.4  | 3.8       |
| 30°-40°   | 3685.9  | 9.2       |
| 40°-50°   | 6168.6  | 15.4      |
| 50°-60°   | 7922.8  | 19.7      |
| 60°-70°   | 10026.4 | 25.0      |
| 70°-80°   | 8939.0  | 22.2      |
| 80°-90°   | 1444.9  | 3.6       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 40180.0 | 100.0     |
| 0°-180°   | 40180.0 | 100.0     |



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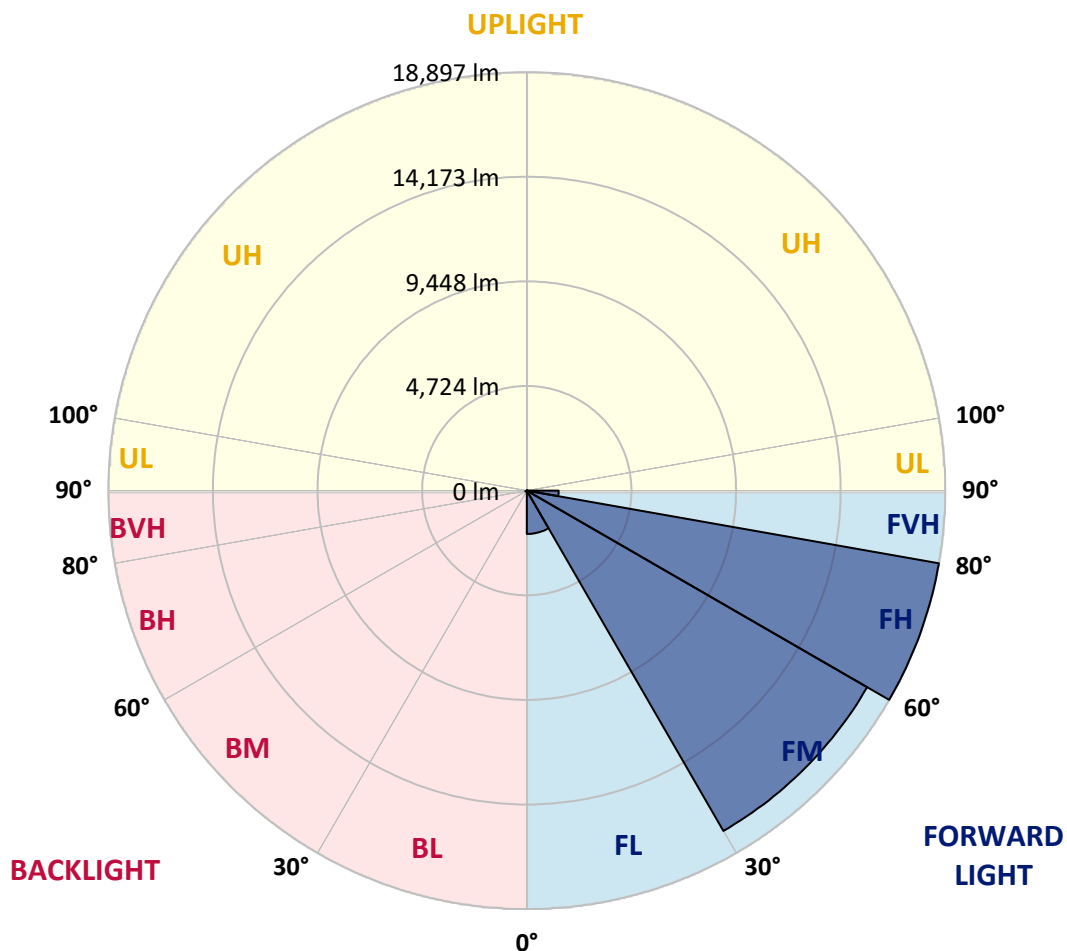
CATALOG NUMBER: GALN-SA8C-835-U-T4BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|---------|-----------|-------------------------|------|--------|
|      |             |         |           | B                       | U    | G      |
| FL   | (0°-30°)    | 1957.8  | 4.9       |                         |      |        |
| FM   | (30°-60°)   | 17744.3 | 44.2      |                         |      |        |
| FH   | (60°-80°)   | 18896.7 | 47.0      |                         |      | G5     |
| FVH  | (80°-90°)   | 1438.4  | 3.6       |                         |      | G5     |
| BL   | (0°-30°)    | 34.5    | 0.1       | B0/110                  |      |        |
| BM   | (30°-60°)   | 33.0    | 0.1       | B0/220                  |      |        |
| BH   | (60°-80°)   | 68.7    | 0.2       | B0/110                  |      | G0/110 |
| BVH  | (80°-90°)   | 6.6     | 0.0       |                         |      | G0/10  |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |        |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |        |

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

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 39°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 220.3   | 220.3   | 220.3   | 220.3   | 220.3   | 220.3   | 220.3   | 220.3   | 220.3   | 220.3   | 220.3   |
| 2.5°  | 253.0   | 253.0   | 253.0   | 244.8   | 244.8   | 242.1   | 239.4   | 239.4   | 233.9   | 231.2   | 225.8   |
| 5°    | 383.5   | 375.4   | 356.3   | 345.4   | 323.7   | 310.1   | 296.5   | 277.4   | 258.4   | 244.8   | 228.5   |
| 7.5°  | 867.7   | 886.7   | 824.2   | 707.2   | 587.5   | 535.8   | 448.8   | 361.8   | 299.2   | 258.4   | 231.2   |
| 10°   | 2211.3  | 2200.5  | 1988.3  | 1754.4  | 1354.5  | 1194.1  | 935.7   | 590.2   | 386.2   | 282.9   | 233.9   |
| 12.5° | 3761.7  | 3750.8  | 3500.6  | 3182.4  | 2654.7  | 2320.1  | 1830.5  | 1101.6  | 554.9   | 321.0   | 233.9   |
| 15°   | 5064.6  | 5021.1  | 4942.2  | 4626.7  | 4009.2  | 3729.1  | 3081.7  | 1947.5  | 897.6   | 386.2   | 239.4   |
| 17.5° | 5926.8  | 5888.7  | 5815.3  | 5701.1  | 5309.4  | 4977.6  | 4458.0  | 3060.0  | 1452.5  | 500.5   | 250.2   |
| 20°   | 6718.3  | 6691.1  | 6631.3  | 6609.5  | 6356.6  | 6179.8  | 5750.0  | 4338.4  | 2263.0  | 680.0   | 266.6   |
| 22.5° | 7806.3  | 7749.2  | 7773.7  | 7643.1  | 7395.6  | 7183.5  | 6919.6  | 5676.6  | 3253.1  | 979.2   | 296.5   |
| 25°   | 9139.1  | 9111.9  | 9043.9  | 8951.4  | 8608.7  | 8423.8  | 8018.5  | 6938.7  | 4360.1  | 1370.9  | 329.1   |
| 27.5° | 10749.3 | 10719.4 | 10703.1 | 10490.9 | 10096.5 | 9895.3  | 9329.5  | 8130.0  | 5605.9  | 1920.3  | 372.6   |
| 30°   | 12604.4 | 12618.0 | 12511.9 | 12239.9 | 11780.2 | 11497.3 | 10915.3 | 9378.5  | 6881.5  | 2564.9  | 418.9   |
| 32.5° | 14524.7 | 14497.5 | 14334.3 | 14013.3 | 13602.6 | 13338.8 | 12598.9 | 10746.6 | 8219.8  | 3416.3  | 473.3   |
| 35°   | 16594.6 | 16542.9 | 16113.1 | 15745.9 | 15395.1 | 15063.2 | 14388.7 | 12335.1 | 9558.0  | 4371.0  | 546.7   |
| 37.5° | 18683.5 | 18441.4 | 17579.2 | 17114.1 | 16872.0 | 16600.0 | 15971.7 | 14029.6 | 10888.1 | 5437.2  | 636.5   |
| 40°   | 20261.1 | 20073.4 | 19050.7 | 18193.9 | 18000.8 | 17769.6 | 17301.8 | 15493.0 | 12302.4 | 6582.3  | 745.3   |
| 42.5° | 21134.2 | 21030.8 | 20111.5 | 19265.6 | 18811.3 | 18607.3 | 18207.5 | 16771.4 | 13700.5 | 7847.1  | 903.0   |
| 45°   | 21506.8 | 21346.4 | 20731.6 | 20337.2 | 19613.7 | 19276.5 | 18800.5 | 17736.9 | 15161.1 | 9283.3  | 1123.3  |
| 47.5° | 21392.6 | 21300.1 | 20859.5 | 21003.6 | 20478.7 | 19953.7 | 19254.7 | 18476.8 | 16409.6 | 10931.6 | 1425.3  |
| 50°   | 20674.5 | 20595.6 | 20459.6 | 21240.3 | 21175.0 | 20554.8 | 19842.2 | 19061.6 | 17429.6 | 12631.6 | 1893.1  |
| 52.5° | 19309.1 | 19276.5 | 19624.6 | 21055.3 | 21569.4 | 21085.2 | 20408.0 | 19578.4 | 18381.6 | 14407.7 | 2562.2  |
| 55°   | 17549.3 | 17682.6 | 18678.1 | 20767.0 | 21770.7 | 21476.9 | 20908.4 | 20062.5 | 19145.9 | 15996.2 | 3549.6  |
| 57.5° | 16825.8 | 16861.1 | 18104.1 | 20563.0 | 21860.4 | 21822.4 | 21395.3 | 20524.9 | 19847.6 | 17266.4 | 5056.4  |
| 60°   | 17671.7 | 17617.3 | 18272.8 | 20718.0 | 22039.9 | 22132.4 | 21827.8 | 20954.7 | 20456.9 | 18357.1 | 7063.8  |
| 62.5° | 19200.3 | 19170.4 | 19379.8 | 21379.0 | 22564.9 | 22752.6 | 22428.9 | 21264.8 | 20995.5 | 19075.2 | 9354.0  |
| 65°   | 20565.7 | 20503.2 | 20892.1 | 22551.3 | 23487.0 | 23620.3 | 23337.4 | 21795.2 | 21232.1 | 19597.4 | 11505.5 |
| 67.5° | 21156.0 | 21142.4 | 21768.0 | 23666.5 | 24455.3 | 24599.4 | 24351.9 | 22526.8 | 21177.7 | 19763.3 | 12454.8 |
| 70°   | 20886.7 | 20835.0 | 21836.0 | 24139.8 | 25002.0 | 25165.2 | 24925.8 | 22798.8 | 20587.5 | 19238.4 | 11048.5 |
| 71°   | 20590.2 | 20451.5 | 21632.0 | 24107.1 | 25078.2 | 25216.9 | 24798.0 | 22551.3 | 19994.5 | 18493.1 | 9772.9  |
| 72.5° | 19670.9 | 19695.3 | 21071.6 | 23767.1 | 24895.9 | 24855.1 | 24074.5 | 21664.6 | 19279.2 | 16801.3 | 7849.8  |
| 75°   | 17407.8 | 17552.0 | 19257.4 | 22339.1 | 23269.4 | 22749.9 | 21555.8 | 19970.0 | 17843.0 | 12046.8 | 5450.8  |
| 77.5° | 14225.5 | 14440.3 | 16314.4 | 19592.0 | 19328.1 | 19276.5 | 19227.5 | 17595.5 | 15237.3 | 6470.8  | 3791.6  |
| 80°   | 6791.8  | 7256.9  | 9840.9  | 13986.1 | 15193.8 | 15778.6 | 15411.4 | 14179.2 | 11782.9 | 3081.7  | 2265.7  |
| 82.5° | 443.4   | 437.9   | 620.2   | 1175.0  | 4953.1  | 6402.8  | 10172.7 | 10134.6 | 8214.3  | 1501.4  | 924.8   |
| 85°   | 209.4   | 214.9   | 236.6   | 269.3   | 312.8   | 342.7   | 473.3   | 2774.4  | 3930.4  | 715.4   | 201.3   |
| 87.5° | 122.4   | 125.1   | 146.9   | 187.7   | 244.8   | 272.0   | 323.7   | 416.2   | 511.4   | 394.4   | 43.5    |
| 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-SA8C-835-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 220.3  | 220.3 | 220.3 | 220.3 | 220.3 | 220.3 | 220.3 | 220.3 | 220.3 | 220.3 | 220.3 |
| 2.5°  | 223.0  | 220.3 | 212.2 | 204.0 | 195.8 | 190.4 | 187.7 | 190.4 | 190.4 | 193.1 | 193.1 |
| 5°    | 223.0  | 214.9 | 201.3 | 185.0 | 174.1 | 163.2 | 157.8 | 155.0 | 157.8 | 157.8 | 157.8 |
| 7.5°  | 220.3  | 206.7 | 187.7 | 168.6 | 155.0 | 141.4 | 136.0 | 133.3 | 133.3 | 136.0 | 136.0 |
| 10°   | 214.9  | 201.3 | 176.8 | 155.0 | 138.7 | 122.4 | 114.2 | 106.1 | 106.1 | 106.1 | 108.8 |
| 12.5° | 212.2  | 193.1 | 163.2 | 141.4 | 119.7 | 100.6 | 84.3  | 76.2  | 78.9  | 78.9  | 78.9  |
| 15°   | 206.7  | 185.0 | 155.0 | 127.8 | 100.6 | 76.2  | 62.6  | 54.4  | 57.1  | 59.8  | 57.1  |
| 17.5° | 206.7  | 182.2 | 144.2 | 111.5 | 78.9  | 57.1  | 46.2  | 40.8  | 40.8  | 43.5  | 43.5  |
| 20°   | 206.7  | 176.8 | 136.0 | 95.2  | 59.8  | 43.5  | 32.6  | 29.9  | 29.9  | 35.4  | 38.1  |
| 22.5° | 212.2  | 176.8 | 125.1 | 78.9  | 49.0  | 32.6  | 24.5  | 21.8  | 24.5  | 29.9  | 32.6  |
| 25°   | 220.3  | 174.1 | 114.2 | 70.7  | 40.8  | 24.5  | 19.0  | 13.6  | 16.3  | 21.8  | 24.5  |
| 27.5° | 228.5  | 171.4 | 103.4 | 62.6  | 32.6  | 19.0  | 13.6  | 10.9  | 8.2   | 10.9  | 10.9  |
| 30°   | 236.6  | 171.4 | 92.5  | 51.7  | 27.2  | 13.6  | 8.2   | 5.4   | 2.7   | 0.0   | 0.0   |
| 32.5° | 242.1  | 165.9 | 84.3  | 40.8  | 21.8  | 10.9  | 5.4   | 2.7   | 0.0   | 0.0   | 0.0   |
| 35°   | 247.5  | 160.5 | 73.4  | 32.6  | 16.3  | 8.2   | 2.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 253.0  | 152.3 | 62.6  | 27.2  | 13.6  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 258.4  | 141.4 | 51.7  | 24.5  | 8.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 263.8  | 133.3 | 43.5  | 19.0  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 277.4  | 127.8 | 35.4  | 16.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 301.9  | 122.4 | 32.6  | 10.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 337.3  | 117.0 | 29.9  | 8.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 386.2  | 114.2 | 27.2  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 473.3  | 111.5 | 24.5  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 622.9  | 108.8 | 24.5  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 954.7  | 103.4 | 24.5  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 1705.4 | 100.6 | 21.8  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 2972.9 | 103.4 | 21.8  | 5.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 4262.2 | 108.8 | 19.0  | 8.2   | 2.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 3647.5 | 95.2  | 19.0  | 10.9  | 5.4   | 2.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 71°   | 2972.9 | 84.3  | 19.0  | 10.9  | 5.4   | 2.7   | 2.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1912.1 | 65.3  | 16.3  | 10.9  | 5.4   | 5.4   | 2.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 807.8  | 54.4  | 16.3  | 10.9  | 8.2   | 5.4   | 5.4   | 2.7   | 0.0   | 0.0   | 0.0   |
| 77.5° | 345.4  | 40.8  | 16.3  | 13.6  | 10.9  | 8.2   | 8.2   | 5.4   | 2.7   | 0.0   | 0.0   |
| 80°   | 130.6  | 32.6  | 19.0  | 16.3  | 13.6  | 13.6  | 10.9  | 5.4   | 2.7   | 0.0   | 0.0   |
| 82.5° | 59.8   | 27.2  | 19.0  | 16.3  | 16.3  | 13.6  | 10.9  | 8.2   | 5.4   | 0.0   | 0.0   |
| 85°   | 38.1   | 24.5  | 19.0  | 16.3  | 16.3  | 13.6  | 13.6  | 8.2   | 5.4   | 0.0   | 0.0   |
| 87.5° | 29.9   | 24.5  | 19.0  | 19.0  | 16.3  | 16.3  | 10.9  | 8.2   | 2.7   | 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: SP1-2407-184-10

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-835-U-5WQ

Data in this report applies to families of products including GSS-SB1A-835-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-10  
 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-835-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI 3500K CCT 26 LEDS

### Spectral Parameters

CCT (K): 3411  
 CIE  $u'$ : 0.2360  
 CIE  $v'$ : 0.5189  
 Duv: 0.0044  
 CIE x: 0.4154  
 CIE y: 0.4059  
 CIE z: 0.1787  
 Peak Wavelength (nm): 601  
 Dominant Wavelength (nm): 579  
 Purity: 46.51914  
 R<sub>f</sub>: 86.6  
 R<sub>g</sub>: 95.9

CRI (Ra): 83.5  
 R1: 81.1  
 R2: 88.9  
 R3: 97.2  
 R4: 83.8  
 R5: 81.7  
 R6: 86.9  
 R7: 86.1  
 R8: 62.2  
 R9: 6.3  
 R10: 75.4  
 R11: 84.1  
 R12: 69.7  
 R13: 82.8  
 R14: 98.5  
 R15: 72.6



### Test Conditions

Stabilization Time: 35M  
 Operation Time: 1H 35M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-10

| 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 3500K 7-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 311                                  | NR                             | 620               | 903                                  | NR                             | 750               | 26                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 376                                  | NR                             | 625               | 851                                  | NR                             | 755               | 22                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 438                                  | NR                             | 630               | 797                                  | NR                             | 760               | 19                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 491                                  | NR                             | 635               | 735                                  | NR                             | 765               | 16                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 533                                  | NR                             | 640               | 672                                  | NR                             | 770               | 14                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 566                                  | NR                             | 645               | 607                                  | NR                             | 775               | 12                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 592                                  | NR                             | 650               | 546                                  | NR                             | 780               | 10                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 608                                  | NR                             | 655               | 487                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 625                                  | NR                             | 660               | 429                                  | NR                             | 790               | 7                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 642                                  | NR                             | 665               | 378                                  | NR                             | 795               | 6                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 657                                  | NR                             | 670               | 329                                  | NR                             | 800               | 5                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 22                                   | NR                             | 545               | 677                                  | NR                             | 675               | 286                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 43                                   | NR                             | 550               | 701                                  | NR                             | 680               | 248                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 80                                   | NR                             | 555               | 728                                  | NR                             | 685               | 213                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 140                                  | NR                             | 560               | 757                                  | NR                             | 690               | 184                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 243                                  | NR                             | 565               | 793                                  | NR                             | 695               | 156                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 412                                  | NR                             | 570               | 831                                  | NR                             | 700               | 134                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 610                                  | NR                             | 575               | 872                                  | NR                             | 705               | 114                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 597                                  | NR                             | 580               | 911                                  | NR                             | 710               | 97                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 412                                  | NR                             | 585               | 944                                  | NR                             | 715               | 83                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 330                                  | NR                             | 590               | 974                                  | NR                             | 720               | 70                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 274                                  | NR                             | 595               | 992                                  | NR                             | 725               | 60                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 211                                  | NR                             | 600               | 999                                  | NR                             | 730               | 51                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 200                                  | NR                             | 605               | 992                                  | NR                             | 735               | 43                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 220                                  | NR                             | 610               | 975                                  | NR                             | 740               | 36                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 255                                  | NR                             | 615               | 944                                  | NR                             | 745               | 31                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.48

| 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       | 311                         | NR               | 620       | 903                         | NR               | 750       | 26                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 376                         | NR               | 625       | 851                         | NR               | 755       | 22                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 438                         | NR               | 630       | 797                         | NR               | 760       | 19                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 491                         | NR               | 635       | 735                         | NR               | 765       | 16                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 533                         | NR               | 640       | 672                         | NR               | 770       | 14                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 566                         | NR               | 645       | 607                         | NR               | 775       | 12                          | NR               | 905       | 0                           | NR               |
| 390       | 0                           | NR               | 520       | 592                         | NR               | 650       | 546                         | NR               | 780       | 10                          | NR               | 910       | 0                           | NR               |
| 395       | 1                           | NR               | 525       | 608                         | NR               | 655       | 487                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 625                         | NR               | 660       | 429                         | NR               | 790       | 7                           | NR               | 920       | 0                           | NR               |
| 405       | 6                           | NR               | 535       | 642                         | NR               | 665       | 378                         | NR               | 795       | 6                           | NR               | 925       | 0                           | NR               |
| 410       | 12                          | NR               | 540       | 657                         | NR               | 670       | 329                         | NR               | 800       | 5                           | NR               | 930       | 0                           | NR               |
| 415       | 22                          | NR               | 545       | 677                         | NR               | 675       | 286                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 43                          | NR               | 550       | 701                         | NR               | 680       | 248                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 80                          | NR               | 555       | 728                         | NR               | 685       | 213                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 140                         | NR               | 560       | 757                         | NR               | 690       | 184                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 243                         | NR               | 565       | 793                         | NR               | 695       | 156                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 412                         | NR               | 570       | 831                         | NR               | 700       | 134                         | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 610                         | NR               | 575       | 872                         | NR               | 705       | 114                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 597                         | NR               | 580       | 911                         | NR               | 710       | 97                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 412                         | NR               | 585       | 944                         | NR               | 715       | 83                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 330                         | NR               | 590       | 974                         | NR               | 720       | 70                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 274                         | NR               | 595       | 992                         | NR               | 725       | 60                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 211                         | NR               | 600       | 999                         | NR               | 730       | 51                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 200                         | NR               | 605       | 992                         | NR               | 735       | 43                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 220                         | NR               | 610       | 975                         | NR               | 740       | 36                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 255                         | NR               | 615       | 944                         | NR               | 745       | 31                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.88

| $\lambda$<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               | 311                                  | NR                             | 620               | 903                                  | NR                             | 750               | 26                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 376                                  | NR                             | 625               | 851                                  | NR                             | 755               | 22                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 438                                  | NR                             | 630               | 797                                  | NR                             | 760               | 19                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 491                                  | NR                             | 635               | 735                                  | NR                             | 765               | 16                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 533                                  | NR                             | 640               | 672                                  | NR                             | 770               | 14                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 566                                  | NR                             | 645               | 607                                  | NR                             | 775               | 12                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 592                                  | NR                             | 650               | 546                                  | NR                             | 780               | 10                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 608                                  | NR                             | 655               | 487                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 625                                  | NR                             | 660               | 429                                  | NR                             | 790               | 7                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 642                                  | NR                             | 665               | 378                                  | NR                             | 795               | 6                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 657                                  | NR                             | 670               | 329                                  | NR                             | 800               | 5                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 22                                   | NR                             | 545               | 677                                  | NR                             | 675               | 286                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 43                                   | NR                             | 550               | 701                                  | NR                             | 680               | 248                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 80                                   | NR                             | 555               | 728                                  | NR                             | 685               | 213                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 140                                  | NR                             | 560               | 757                                  | NR                             | 690               | 184                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 243                                  | NR                             | 565               | 793                                  | NR                             | 695               | 156                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 412                                  | NR                             | 570               | 831                                  | NR                             | 700               | 134                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 610                                  | NR                             | 575               | 872                                  | NR                             | 705               | 114                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 597                                  | NR                             | 580               | 911                                  | NR                             | 710               | 97                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 412                                  | NR                             | 585               | 944                                  | NR                             | 715               | 83                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 330                                  | NR                             | 590               | 974                                  | NR                             | 720               | 70                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 274                                  | NR                             | 595               | 992                                  | NR                             | 725               | 60                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 211                                  | NR                             | 600               | 999                                  | NR                             | 730               | 51                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 200                                  | NR                             | 605               | 992                                  | NR                             | 735               | 43                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 220                                  | NR                             | 610               | 975                                  | NR                             | 740               | 36                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 255                                  | NR                             | 615               | 944                                  | NR                             | 745               | 31                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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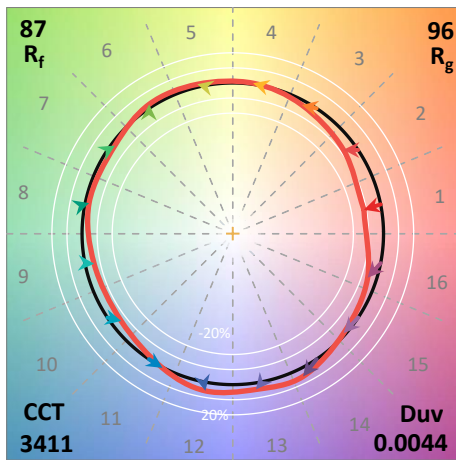
TM-30-18

### Summary

$R_f = 86.6$   
 $R_g = 95.9$   
 $CIE R_a = 83.5$   
 $R_9 = 6.3$



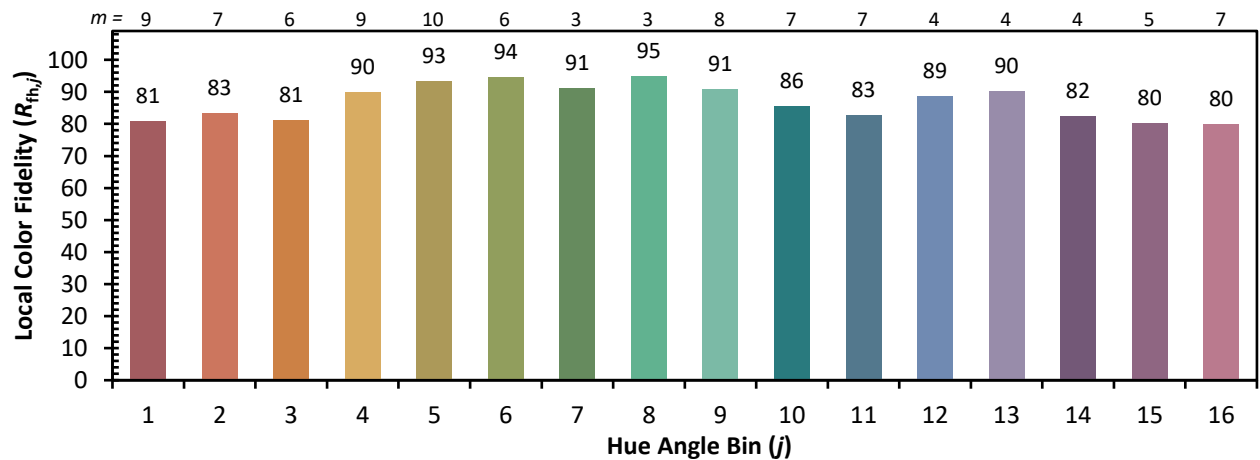
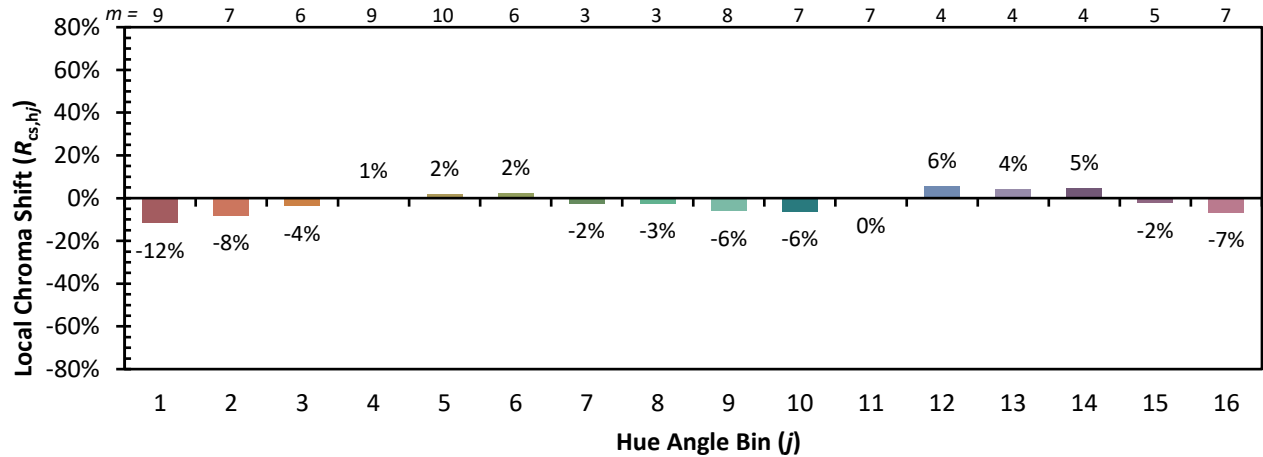
### Color Vector Graphics



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

|            |             |            |            |
|------------|-------------|------------|------------|
| CES01 = 86 | CES26 = 85  | CES51 = 97 | CES76 = 81 |
| CES02 = 62 | CES27 = 95  | CES52 = 96 | CES77 = 87 |
| CES03 = 31 | CES28 = 94  | CES53 = 91 | CES78 = 80 |
| CES04 = 70 | CES29 = 87  | CES54 = 92 | CES79 = 93 |
| CES05 = 49 | CES30 = 93  | CES55 = 92 | CES80 = 91 |
| CES06 = 51 | CES31 = 89  | CES56 = 88 | CES81 = 77 |
| CES07 = 41 | CES32 = 84  | CES57 = 87 | CES82 = 96 |
| CES08 = 40 | CES33 = 91  | CES58 = 88 | CES83 = 95 |
| CES09 = 29 | CES34 = 91  | CES59 = 93 | CES84 = 92 |
| CES10 = 75 | CES35 = 95  | CES60 = 94 | CES85 = 80 |
| CES11 = 58 | CES36 = 90  | CES61 = 91 | CES86 = 72 |
| CES12 = 64 | CES37 = 95  | CES62 = 95 | CES87 = 86 |
| CES13 = 43 | CES38 = 100 | CES63 = 88 | CES88 = 88 |
| CES14 = 74 | CES39 = 97  | CES64 = 85 | CES89 = 77 |
| CES15 = 71 | CES40 = 94  | CES65 = 80 | CES90 = 88 |
| CES16 = 47 | CES41 = 97  | CES66 = 84 | CES91 = 81 |
| CES17 = 49 | CES42 = 96  | CES67 = 82 | CES92 = 67 |
| CES18 = 56 | CES43 = 93  | CES68 = 85 | CES93 = 81 |
| CES19 = 72 | CES44 = 99  | CES69 = 89 | CES94 = 63 |
| CES20 = 66 | CES45 = 95  | CES70 = 81 | CES95 = 76 |
| CES21 = 86 | CES46 = 91  | CES71 = 79 | CES96 = 84 |
| CES22 = 78 | CES47 = 93  | CES72 = 93 | CES97 = 92 |
| CES23 = 91 | CES48 = 85  | CES73 = 76 | CES98 = 86 |
| CES24 = 90 | CES49 = 92  | CES74 = 95 | CES99 = 77 |
| CES25 = 72 | CES50 = 96  | CES75 = 80 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)