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

Scaled data based on original data using

LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: INVUE

Report Number: P1459752

Luminaire Tested: ABB-CX-740-X-U-S-GM-CBP

Issue Date: 5/26/2026

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Peachtree City, GA 30269

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2024 |
| Report Number: | P1459752 |
| | TEST IS SCALED FROM IESNA LM-79-24 TEST DATA (G2-2509-539-31) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 5/27/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | INVUE |
| Catalog Number: | ABB-CX-740-X-U-S-GM-CBP |
| Description: | ARBOR OUTDOOR ARCHITECTURAL BOLLARD LUMINAIRE |
| | SYMMETRIC OPTIC, GRAPHITE METALLIC PAINTED FINISH |
| Light Source: | 4000K CCT, 70 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 309.3 lumens |
| Efficiency: | N/A |
| Efficacy: | 53.3 lumens/watt |
| Luminous Opening: | Circular (Dia: 0.4' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B0 - U0 - G0 |

| | |
|---|---|
| Input Watts (W): | 5.8 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | N/R |
| Total Harmonic Distortion (THDi): | N/R |
| Frequency (hertz): | 60 |
| Stabilization Time: | HR |
| Operation Time: | 3 HR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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REPORT NUMBER: P1459752
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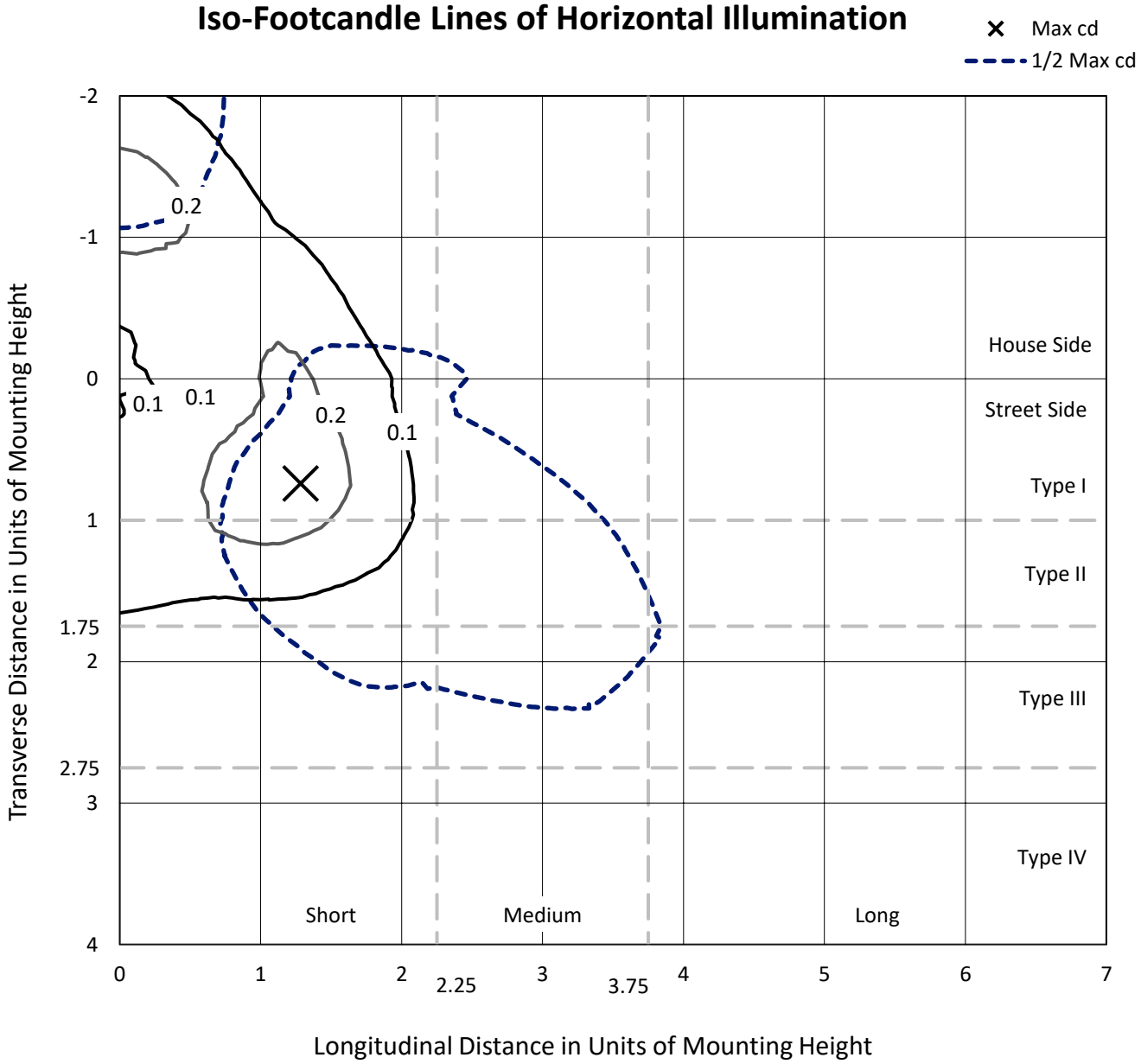
## Iso-Footcandle Lines of Horizontal Illumination




Based on 10 foot mounting height. Maximum calculated value = 0.4 fc
Type III - Short - N/A

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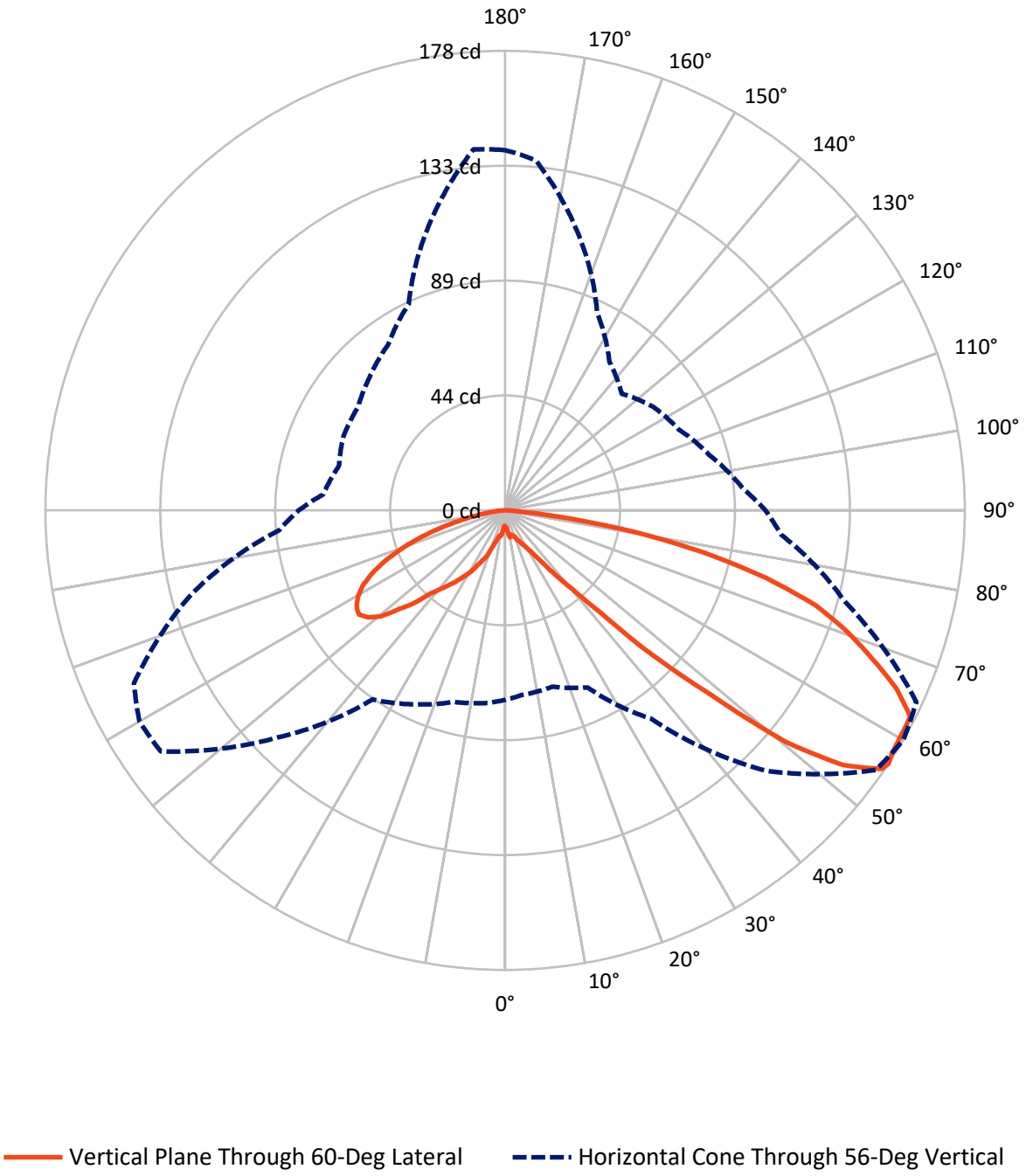
## Luminous Intensity Polar Plot



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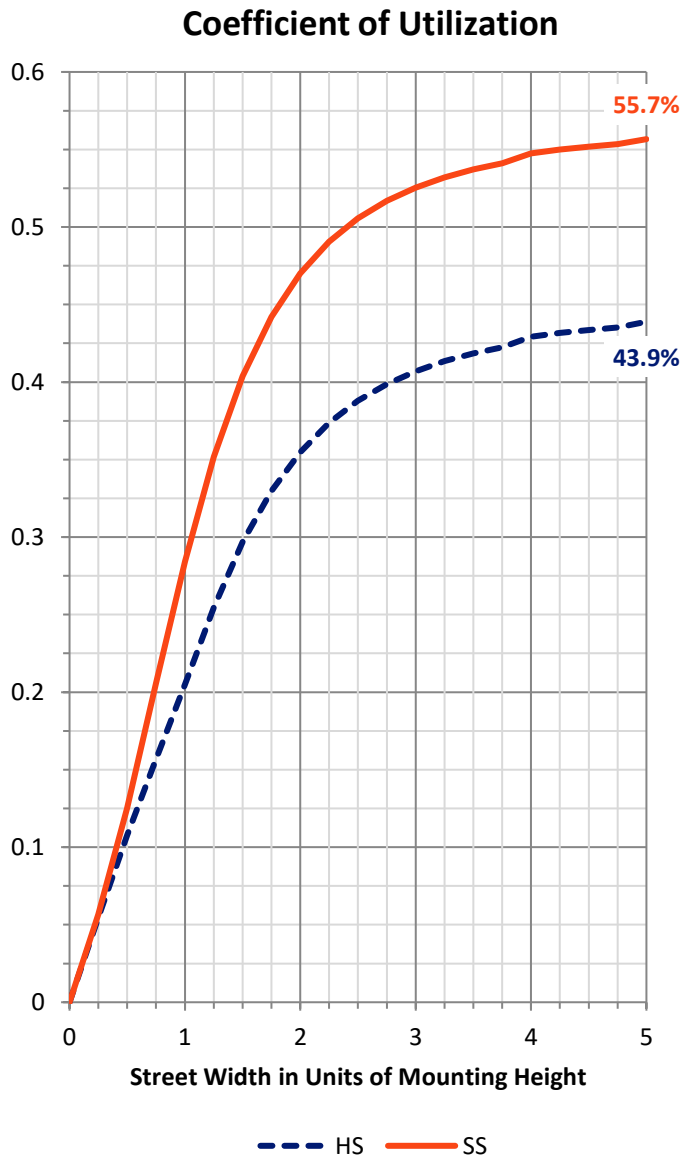
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 136.1 | 0.0 | 136.1 |
| | % Fixture | 44.0 | 0.0 | 44.0 |
| **Street Side** | Lumens | 173.2 | 0.0 | 173.2 |
| | % Fixture | 56.0 | 0.0 | 56.0 |
| **Total** | Lumens | 309.3 | 0.0 | 309.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 0.8 | 0.3 |
| 10°-20° | 3.3 | 1.1 |
| 20°-30° | 8.2 | 2.7 |
| 30°-40° | 18.1 | 5.8 |
| 40°-50° | 44.7 | 14.5 |
| 50°-60° | 86.2 | 27.9 |
| 60°-70° | 87.6 | 28.3 |
| 70°-80° | 52.6 | 17.0 |
| 80°-90° | 7.8 | 2.5 |
| 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° | 309.3 | 100.0 |
| 0°-180° | 309.3 | 100.0 |



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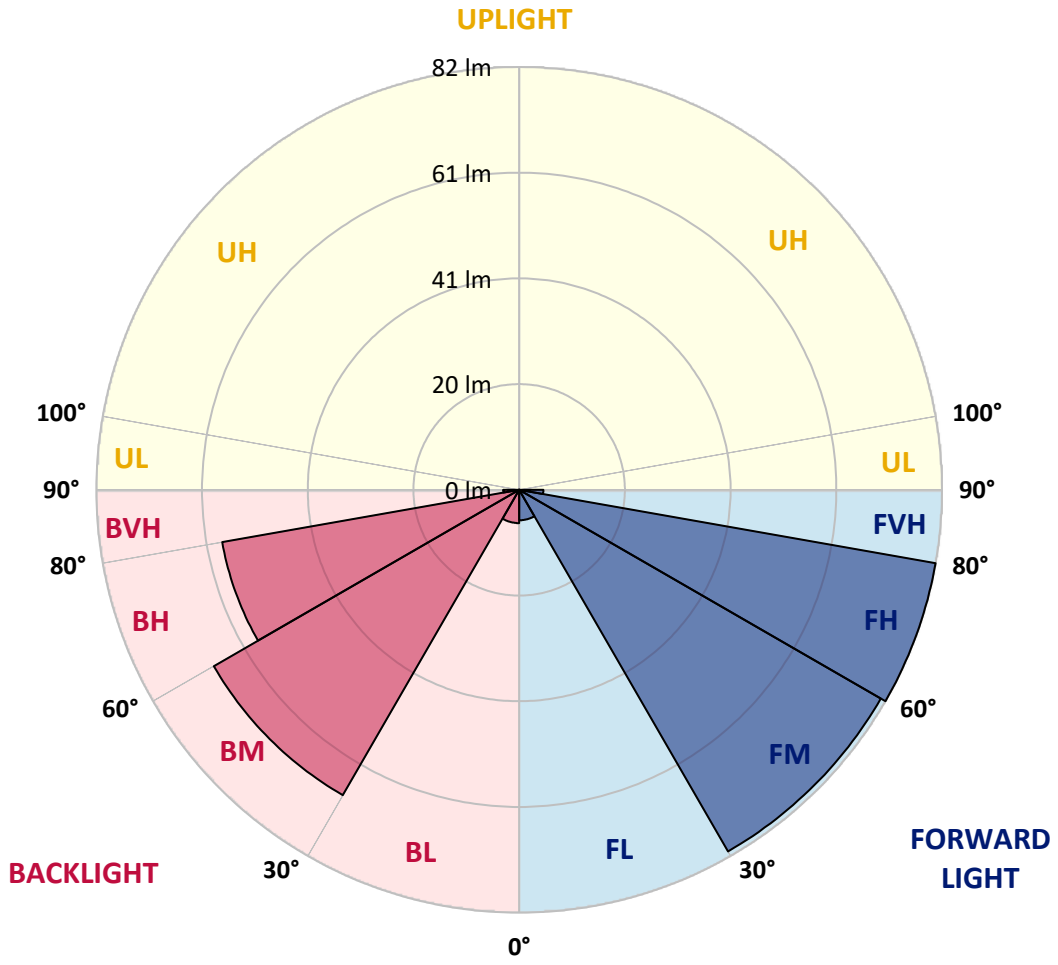
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 5.9 | 1.9 | | | |
| FM | (30°-60°) | 80.8 | 26.1 | | | |
| FH | (60°-80°) | 81.8 | 26.5 | | | G0/660 |
| FVH | (80°-90°) | 4.7 | 1.5 | | | G0/10 |
| BL | (0°-30°) | 6.4 | 2.1 | B0/110 | | |
| BM | (30°-60°) | 68.2 | 22.1 | B0/220 | | |
| BH | (60°-80°) | 58.3 | 18.9 | B0/110 | | G0/110 |
| BVH | (80°-90°) | 3.1 | 1.0 | | | G0/10 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B0-U0-G0**
Type III Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 60° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | *6.5* | 6.5 | 6.5 | 6.5 |
| 2.5° | 7.6 | 7.6 | 8.4 | 8.7 | 8.4 | 7.6 | 7.2 | *7.2* | 7.2 | 6.8 | 6.1 |
| 5° | 10.6 | 9.9 | 8.7 | 8.7 | 8.4 | 8.0 | 6.8 | *6.8* | 6.8 | 6.1 | 5.7 |
| 7.5° | 10.3 | 11.4 | 11.4 | 11.4 | 11.0 | 11.0 | 9.9 | *9.1* | 9.1 | 8.0 | 8.4 |
| 10° | 11.0 | 11.0 | 10.6 | 12.5 | 11.8 | 11.8 | 10.6 | *10.6* | 10.6 | 10.3 | 10.3 |
| 12.5° | 10.3 | 9.9 | 10.6 | 11.4 | 10.3 | 11.0 | 10.3 | *9.5* | 9.5 | 10.3 | 10.6 |
| 15° | 10.6 | 11.0 | 11.4 | 12.5 | 12.2 | 11.4 | 10.3 | *10.3* | 10.3 | 11.8 | 11.8 |
| 17.5° | 12.2 | 12.9 | 12.9 | 13.3 | 13.3 | 12.2 | 10.3 | *10.3* | 10.6 | 11.8 | 13.3 |
| 20° | 14.1 | 14.1 | 14.1 | 14.1 | 14.1 | 12.9 | 11.0 | *11.0* | 11.8 | 12.5 | 14.1 |
| 22.5° | 16.7 | 16.7 | 17.9 | 16.3 | 16.0 | 13.7 | 12.9 | *12.5* | 13.7 | 13.3 | 15.2 |
| 25° | 20.5 | 21.7 | 20.5 | 17.5 | 17.1 | 14.8 | 13.7 | *13.7* | 14.1 | 16.0 | 16.3 |
| 27.5° | 24.3 | 25.1 | 21.7 | 19.0 | 19.4 | 16.7 | 15.6 | *15.2* | 16.0 | 17.9 | 19.0 |
| 30° | 26.6 | 27.0 | 23.9 | 20.9 | 21.7 | 19.0 | 17.9 | *17.1* | 17.9 | 20.1 | 22.4 |
| 32.5° | 29.2 | 30.0 | 27.0 | 23.5 | 23.9 | 23.5 | 21.7 | *20.1* | 20.1 | 22.4 | 24.3 |
| 35° | 33.0 | 32.7 | 29.2 | 25.8 | 26.6 | 28.1 | 27.3 | *24.7* | 24.3 | 24.3 | 27.7 |
| 37.5° | 36.1 | 35.3 | 33.0 | 28.9 | 29.6 | 32.7 | 34.2 | *31.5* | 30.4 | 28.5 | 31.1 |
| 40° | 39.1 | 39.1 | 36.5 | 31.9 | 35.3 | 39.9 | 43.7 | *39.9* | 38.0 | 34.6 | 34.9 |
| 42.5° | 42.9 | 43.3 | 41.4 | 37.2 | 42.9 | 52.4 | 59.3 | *53.6* | 50.5 | 43.7 | 41.4 |
| 45° | 50.5 | 52.0 | 50.1 | 46.3 | 53.9 | 70.3 | 82.8 | *79.4* | 74.4 | 58.9 | 53.6 |
| 47.5° | 56.6 | 57.7 | 55.8 | 52.8 | 64.2 | 88.1 | 110.5 | *105.2* | 103.3 | 76.3 | 66.9 |
| 50° | 65.0 | 65.0 | 64.2 | 63.8 | 79.8 | 117.4 | 139.8 | *140.9* | 141.3 | 101.0 | 85.8 |
| 52.5° | 69.9 | 69.1 | 68.4 | 71.0 | 91.5 | 131.0 | 161.4 | *163.7* | 165.6 | 120.4 | 98.4 |
| 55° | 72.9 | 71.8 | 70.6 | 75.2 | 97.2 | 140.9 | 173.2 | *176.6* | 174.7 | 132.9 | 104.8 |
| 56° | *73.3* | *71.8* | *70.6* | *75.6* | *98.4* | *142.4* | *175.1* | *177.8* | *175.5* | *136.0* | *107.1* |
| 57.5° | 72.9 | 71.4 | 69.9 | 76.0 | 98.8 | 142.4 | 174.3 | *176.6* | 176.2 | 138.3 | 108.6 |
| 60° | 71.4 | 69.9 | 67.6 | 76.0 | 99.5 | 139.8 | 172.1 | *176.2* | 177.0 | 139.0 | 109.0 |
| 62.5° | 68.8 | 68.0 | 64.2 | 74.8 | 98.4 | 134.1 | 171.3 | *175.9* | 175.1 | 135.6 | 104.5 |
| 65° | 63.8 | 63.4 | 58.9 | 72.5 | 93.4 | 124.2 | 161.4 | *166.4* | 164.1 | 128.4 | 95.0 |
| 67.5° | 57.4 | 56.6 | 52.4 | 68.4 | 88.5 | 112.4 | 150.0 | *153.1* | 152.3 | 120.0 | 84.3 |
| 70° | 49.4 | 49.4 | 46.3 | 62.3 | 83.6 | 98.8 | 136.7 | *140.2* | 141.3 | 110.2 | 74.4 |
| 72.5° | 41.0 | 41.4 | 39.9 | 54.7 | 76.0 | 83.9 | 120.0 | *125.7* | 126.9 | 97.2 | 61.9 |
| 75° | 31.9 | 32.3 | 32.3 | 45.6 | 65.3 | 66.5 | 99.9 | *104.1* | 105.6 | 81.3 | 48.6 |
| 77.5° | 22.8 | 22.8 | 23.9 | 34.6 | 52.4 | 46.7 | 75.6 | *78.6* | 81.3 | 61.5 | 32.7 |
| 80° | 14.8 | 14.1 | 15.6 | 22.0 | 34.9 | 28.1 | 48.2 | *50.5* | 53.2 | 38.7 | 18.2 |
| 82.5° | 8.7 | 8.0 | 8.7 | 10.3 | 14.8 | 12.9 | 22.0 | *22.4* | 28.5 | 17.1 | 7.6 |
| 85° | 4.2 | 4.2 | 3.8 | 4.2 | 3.8 | 4.6 | 4.2 | *4.2* | 4.9 | 3.0 | 3.4 |
| 87.5° | 3.0 | 2.7 | 2.7 | 2.7 | 2.7 | 3.4 | 3.0 | *3.0* | 3.4 | 2.3 | 2.7 |
| 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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**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |
| 2.5° | 6.1 | 5.7 | 5.3 | 5.3 | 4.9 | 5.7 | 6.5 | 6.5 | 6.1 | 6.1 | 6.1 |
| 5° | 6.1 | 6.5 | 6.8 | 7.6 | 8.4 | 7.6 | 7.2 | 6.5 | 5.7 | 5.3 | 5.3 |
| 7.5° | 9.1 | 9.1 | 8.4 | 8.7 | 9.1 | 8.4 | 8.7 | 8.4 | 7.6 | 7.2 | 6.8 |
| 10° | 10.3 | 10.6 | 12.2 | 11.4 | 11.0 | 11.0 | 10.6 | 10.3 | 9.5 | 8.7 | 8.4 |
| 12.5° | 11.4 | 11.8 | 12.2 | 11.0 | 12.2 | 11.8 | 11.4 | 10.3 | 9.9 | 9.1 | 9.1 |
| 15° | 12.2 | 12.9 | 12.5 | 12.9 | 12.5 | 12.5 | 12.2 | 11.0 | 10.6 | 9.1 | 8.7 |
| 17.5° | 14.1 | 14.1 | 14.8 | 14.4 | 13.3 | 14.1 | 13.3 | 12.5 | 11.4 | 9.9 | 9.9 |
| 20° | 14.8 | 16.0 | 16.3 | 16.3 | 15.6 | 16.0 | 16.3 | 15.2 | 13.3 | 12.2 | 12.2 |
| 22.5° | 16.7 | 17.5 | 18.6 | 20.1 | 18.2 | 18.2 | 17.9 | 15.2 | 12.9 | 13.3 | 12.5 |
| 25° | 19.0 | 18.2 | 19.8 | 22.4 | 20.9 | 19.0 | 19.4 | 17.1 | 15.2 | 14.8 | 14.1 |
| 27.5° | 20.9 | 20.9 | 23.2 | 26.6 | 22.8 | 21.7 | 20.9 | 19.0 | 16.7 | 16.0 | 16.0 |
| 30° | 25.8 | 23.9 | 26.6 | 28.5 | 27.7 | 22.8 | 22.8 | 20.5 | 19.0 | 17.9 | 18.2 |
| 32.5° | 28.9 | 27.3 | 30.0 | 31.1 | 30.8 | 25.1 | 25.1 | 23.5 | 22.4 | 21.7 | 20.5 |
| 35° | 31.9 | 32.3 | 32.7 | 34.2 | 33.4 | 29.6 | 27.0 | 25.8 | 25.8 | 25.8 | 25.1 |
| 37.5° | 35.7 | 36.1 | 36.5 | 37.2 | 36.1 | 32.7 | 30.0 | 28.9 | 30.0 | 31.9 | 30.4 |
| 40° | 39.5 | 41.0 | 39.9 | 40.3 | 39.5 | 36.5 | 34.6 | 33.8 | 36.5 | 40.6 | 38.4 |
| 42.5° | 47.1 | 47.1 | 45.6 | 44.4 | 43.3 | 40.6 | 39.9 | 41.4 | 46.7 | 53.9 | 51.3 |
| 45° | 57.0 | 56.6 | 53.9 | 52.0 | 50.5 | 47.5 | 47.5 | 52.0 | 62.7 | 73.7 | 74.1 |
| 47.5° | 74.1 | 66.9 | 62.3 | 59.3 | 56.6 | 53.2 | 53.6 | 61.9 | 76.7 | 93.8 | 94.2 |
| 50° | 87.7 | 82.0 | 74.1 | 67.2 | 63.8 | 60.0 | 61.9 | 74.4 | 95.0 | 110.5 | 114.3 |
| 52.5° | 96.1 | 89.6 | 79.4 | 72.2 | 68.0 | 63.8 | 67.2 | 82.4 | 105.6 | 125.3 | 129.5 |
| 55° | 99.1 | 91.9 | 82.4 | 74.4 | 69.9 | 64.6 | 70.3 | 84.7 | 109.8 | 134.5 | 138.6 |
| 56° | *100.7* | *92.7* | *82.0* | *74.1* | *69.9* | *63.8* | *70.3* | *84.3* | *110.2* | *136.0* | *139.4* |
| 57.5° | 102.2 | 92.3 | 81.3 | 73.7 | 69.5 | 63.1 | 70.3 | 83.6 | 109.8 | 136.0 | 139.8 |
| 60° | 105.2 | 92.3 | 77.9 | 71.8 | 66.9 | 60.8 | 69.5 | 83.6 | 108.3 | 133.7 | 140.2 |
| 62.5° | 102.9 | 91.5 | 73.3 | 67.6 | 64.6 | 58.1 | 66.9 | 82.4 | 104.5 | 131.8 | 140.2 |
| 65° | 97.2 | 88.9 | 66.5 | 61.5 | 59.3 | 53.2 | 62.7 | 79.4 | 97.6 | 125.3 | 132.6 |
| 67.5° | 90.0 | 85.1 | 59.3 | 54.3 | 52.4 | 47.9 | 57.4 | 73.7 | 88.1 | 112.8 | 120.0 |
| 70° | 80.1 | 80.1 | 51.7 | 46.3 | 45.2 | 41.0 | 51.3 | 67.6 | 75.2 | 99.1 | 106.0 |
| 72.5° | 66.1 | 68.8 | 45.2 | 37.6 | 36.8 | 34.6 | 43.7 | 59.3 | 61.5 | 84.7 | 91.9 |
| 75° | 50.5 | 55.5 | 36.5 | 28.9 | 28.1 | 27.3 | 34.6 | 48.6 | 47.5 | 66.9 | 74.1 |
| 77.5° | 33.4 | 39.1 | 26.6 | 20.5 | 19.4 | 19.8 | 24.7 | 37.2 | 33.0 | 47.5 | 53.6 |
| 80° | 16.3 | 21.3 | 16.3 | 13.7 | 12.2 | 12.9 | 15.2 | 23.5 | 18.6 | 27.7 | 33.4 |
| 82.5° | 5.3 | 6.8 | 8.0 | 7.6 | 6.8 | 6.8 | 7.2 | 9.5 | 8.4 | 10.3 | 14.1 |
| 85° | 2.7 | 3.0 | 3.8 | 3.8 | 3.4 | 3.4 | 3.4 | 3.8 | 4.2 | 3.8 | 3.8 |
| 87.5° | 1.9 | 1.9 | 3.0 | 3.0 | 2.7 | 2.7 | 2.7 | 2.7 | 3.4 | 3.0 | 3.0 |
| 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: ABB-CX-740-X-U-S-GM-CBP

**CANDELA DISTRIBUTION (continued):**

| | 185° | 195° | 205° | 215° | 225° | 235° | 245° | 255° | 265° | 270° | 275° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |
| 2.5° | 6.5 | 6.5 | 6.5 | 6.5 | 5.7 | 6.1 | 5.7 | 6.1 | 6.1 | 6.1 | 6.1 |
| 5° | 5.7 | 6.1 | 6.5 | 6.1 | 6.8 | 6.8 | 6.8 | 6.5 | 5.3 | 5.3 | 5.3 |
| 7.5° | 7.6 | 8.0 | 8.0 | 7.2 | 8.0 | 9.1 | 8.7 | 8.4 | 7.2 | 6.8 | 6.5 |
| 10° | 9.1 | 10.6 | 9.5 | 10.6 | 11.0 | 10.6 | 9.5 | 8.7 | 10.3 | 9.9 | 9.5 |
| 12.5° | 9.1 | 9.9 | 10.6 | 12.2 | 13.3 | 10.3 | 9.5 | 10.6 | 10.3 | 10.3 | 9.5 |
| 15° | 9.1 | 11.0 | 11.8 | 12.9 | 14.1 | 12.2 | 9.9 | 11.4 | 12.2 | 11.8 | 11.0 |
| 17.5° | 10.3 | 11.4 | 12.2 | 14.1 | 15.2 | 14.1 | 11.8 | 12.5 | 13.3 | 14.4 | 13.7 |
| 20° | 11.8 | 12.5 | 12.9 | 15.2 | 15.6 | 16.7 | 14.1 | 14.1 | 14.1 | 14.8 | 14.4 |
| 22.5° | 13.3 | 14.8 | 14.8 | 16.7 | 17.1 | 19.8 | 18.6 | 14.8 | 14.1 | 16.0 | 15.6 |
| 25° | 14.1 | 15.6 | 16.7 | 18.2 | 19.0 | 21.7 | 20.9 | 17.9 | 16.3 | 16.7 | 16.7 |
| 27.5° | 16.3 | 17.5 | 18.6 | 19.8 | 22.4 | 23.5 | 25.1 | 20.1 | 18.6 | 18.6 | 18.6 |
| 30° | 17.5 | 19.4 | 20.9 | 23.2 | 25.4 | 26.6 | 28.5 | 22.0 | 20.1 | 20.5 | 20.5 |
| 32.5° | 20.5 | 21.3 | 23.5 | 26.2 | 27.7 | 30.0 | 30.4 | 24.7 | 22.4 | 22.4 | 22.0 |
| 35° | 23.9 | 23.9 | 25.8 | 29.6 | 30.8 | 33.8 | 32.7 | 28.1 | 25.1 | 25.1 | 24.7 |
| 37.5° | 29.2 | 28.1 | 29.2 | 33.0 | 34.6 | 36.8 | 35.7 | 31.5 | 28.1 | 28.5 | 28.1 |
| 40° | 36.1 | 33.4 | 33.0 | 37.2 | 38.0 | 40.3 | 38.7 | 35.3 | 32.3 | 32.7 | 32.3 |
| 42.5° | 47.1 | 40.6 | 39.9 | 41.8 | 42.5 | 44.1 | 42.5 | 39.9 | 38.0 | 39.1 | 39.9 |
| 45° | 69.1 | 55.8 | 50.9 | 52.0 | 51.3 | 51.3 | 49.4 | 47.9 | 46.0 | 47.5 | 49.8 |
| 47.5° | 90.0 | 71.4 | 63.8 | 58.9 | 57.4 | 56.6 | 55.1 | 53.9 | 51.3 | 55.1 | 60.4 |
| 50° | 110.2 | 89.3 | 77.1 | 71.4 | 68.4 | 63.4 | 62.7 | 61.5 | 61.5 | 67.2 | 73.3 |
| 52.5° | 128.0 | 104.1 | 85.8 | 77.9 | 72.9 | 68.0 | 66.5 | 65.3 | 67.2 | 76.0 | 82.4 |
| 55° | 139.8 | 112.8 | 88.1 | 79.0 | 74.1 | 69.9 | 68.8 | 66.9 | 70.3 | 79.4 | 87.4 |
| 56° | *140.2* | *114.0* | *88.1* | *78.6* | *73.7* | *69.5* | *68.8* | *66.5* | *70.6* | *79.8* | *87.7* |
| 57.5° | 139.8 | 115.1 | 87.4 | 78.2 | 72.5 | 68.8 | 68.0 | 65.3 | 70.6 | 80.1 | 88.5 |
| 60° | 136.7 | 114.3 | 85.1 | 77.9 | 69.5 | 66.1 | 66.1 | 62.3 | 69.5 | 80.9 | 89.3 |
| 62.5° | 137.5 | 111.7 | 81.3 | 75.6 | 64.6 | 61.9 | 63.1 | 58.5 | 66.9 | 80.9 | 88.9 |
| 65° | 132.2 | 107.5 | 74.4 | 71.4 | 58.9 | 55.8 | 58.5 | 52.4 | 63.1 | 77.1 | 84.7 |
| 67.5° | 120.0 | 99.1 | 67.2 | 66.9 | 52.4 | 49.4 | 52.0 | 46.7 | 57.7 | 72.5 | 80.1 |
| 70° | 106.4 | 87.4 | 58.1 | 60.0 | 46.0 | 41.8 | 44.4 | 39.9 | 51.7 | 66.5 | 74.8 |
| 72.5° | 92.3 | 73.7 | 47.1 | 50.9 | 38.7 | 34.2 | 36.1 | 33.4 | 44.4 | 58.1 | 65.7 |
| 75° | 74.8 | 58.1 | 35.3 | 40.3 | 30.8 | 26.2 | 27.0 | 26.2 | 36.1 | 47.9 | 54.7 |
| 77.5° | 54.7 | 41.8 | 23.2 | 28.5 | 22.0 | 18.2 | 18.6 | 19.0 | 26.6 | 35.3 | 41.4 |
| 80° | 33.4 | 26.6 | 12.9 | 16.7 | 13.7 | 12.2 | 11.4 | 12.2 | 16.7 | 21.7 | 25.4 |
| 82.5° | 13.3 | 10.6 | 5.3 | 6.5 | 6.8 | 6.8 | 6.5 | 6.5 | 8.0 | 8.4 | 8.0 |
| 85° | 3.8 | 2.7 | 3.0 | 2.7 | 3.4 | 3.4 | 3.0 | 2.7 | 3.0 | 3.0 | 3.0 |
| 87.5° | 3.0 | 1.9 | 2.3 | 1.9 | 2.7 | 3.0 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 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

Scaled Data Report

REPORT NUMBER: P1459752
CATALOG NUMBER: ABB-CX-740-X-U-S-GM-CBP

**CANDELA DISTRIBUTION (continued):**

| | 285° | 295° | 300° | 305° | 315° | 325° | 335° | 345° | 355° | 360° |
|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |
| 2.5° | 6.1 | 6.5 | 6.5 | 6.8 | 7.2 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 |
| 5° | 5.7 | 5.3 | 5.3 | 4.9 | 5.3 | 6.1 | 6.8 | 7.6 | 9.5 | 10.6 |
| 7.5° | 6.8 | 6.8 | 6.8 | 6.8 | 6.5 | 6.8 | 8.0 | 9.1 | 10.3 | 10.3 |
| 10° | 9.5 | 9.1 | 8.7 | 9.1 | 9.1 | 8.4 | 9.5 | 11.0 | 11.8 | 11.0 |
| 12.5° | 9.1 | 8.7 | 8.4 | 8.4 | 8.7 | 9.1 | 11.0 | 12.2 | 10.3 | 10.3 |
| 15° | 10.3 | 9.5 | 9.1 | 9.1 | 9.1 | 10.6 | 12.2 | 12.9 | 10.6 | 10.6 |
| 17.5° | 11.4 | 9.9 | 9.1 | 9.5 | 10.3 | 11.4 | 13.3 | 13.3 | 12.2 | 12.2 |
| 20° | 12.2 | 10.6 | 10.3 | 11.0 | 11.0 | 13.3 | 13.7 | 14.4 | 14.1 | 14.1 |
| 22.5° | 13.3 | 11.4 | 11.0 | 11.4 | 12.5 | 14.4 | 15.6 | 17.5 | 15.6 | 16.7 |
| 25° | 14.8 | 12.9 | 12.9 | 12.5 | 13.7 | 15.6 | 17.5 | 18.6 | 18.6 | 20.5 |
| 27.5° | 16.3 | 15.2 | 15.2 | 14.8 | 14.8 | 17.1 | 20.1 | 20.9 | 23.2 | 24.3 |
| 30° | 18.6 | 18.2 | 17.5 | 17.1 | 17.1 | 18.2 | 22.0 | 25.1 | 27.7 | 26.6 |
| 32.5° | 21.7 | 21.7 | 20.9 | 21.3 | 19.8 | 20.9 | 25.1 | 28.1 | 29.6 | 29.2 |
| 35° | 25.1 | 25.8 | 25.1 | 24.7 | 23.2 | 23.9 | 27.7 | 31.9 | 33.0 | 33.0 |
| 37.5° | 30.8 | 31.1 | 30.4 | 29.2 | 27.3 | 27.0 | 31.5 | 34.6 | 36.1 | 36.1 |
| 40° | 38.0 | 40.3 | 38.4 | 36.1 | 31.9 | 31.1 | 35.7 | 38.0 | 39.5 | 39.1 |
| 42.5° | 47.9 | 51.3 | 50.9 | 47.5 | 38.0 | 35.7 | 40.6 | 42.5 | 43.3 | 42.9 |
| 45° | 64.6 | 73.7 | 75.6 | 71.4 | 52.8 | 46.0 | 51.7 | 52.8 | 52.0 | 50.5 |
| 47.5° | 79.0 | 93.1 | 99.9 | 94.2 | 65.3 | 54.7 | 59.6 | 60.4 | 58.1 | 56.6 |
| 50° | 103.3 | 124.2 | 127.6 | 124.2 | 90.8 | 69.9 | 71.4 | 70.3 | 66.9 | 65.0 |
| 52.5° | 116.6 | 143.6 | 148.5 | 145.5 | 109.8 | 81.7 | 79.0 | 74.8 | 71.8 | 69.9 |
| 55° | 123.8 | 156.5 | 162.9 | 160.7 | 121.2 | 88.5 | 82.4 | 77.1 | 74.8 | 72.9 |
| 56° | *125.7* | *158.4* | *163.3* | *162.6* | *124.2* | *89.3* | *82.8* | *76.7* | *74.8* | *73.3* |
| 57.5° | 126.5 | 158.4 | 162.2 | 161.8 | 126.9 | 89.3 | 82.4 | 75.6 | 74.4 | 72.9 |
| 60° | 123.4 | 156.1 | 158.8 | 158.0 | 128.0 | 88.9 | 82.0 | 72.5 | 72.2 | 71.4 |
| 62.5° | 115.5 | 154.2 | 159.9 | 158.8 | 126.9 | 85.8 | 82.0 | 67.6 | 68.4 | 68.8 |
| 65° | 107.5 | 145.9 | 152.7 | 152.7 | 121.9 | 79.8 | 80.1 | 61.9 | 61.9 | 63.8 |
| 67.5° | 96.9 | 133.3 | 140.5 | 140.9 | 113.6 | 71.0 | 76.3 | 56.2 | 55.1 | 57.4 |
| 70° | 82.8 | 118.1 | 126.1 | 126.1 | 102.9 | 61.9 | 71.0 | 49.8 | 47.1 | 49.4 |
| 72.5° | 69.1 | 101.8 | 110.9 | 111.3 | 89.3 | 52.4 | 63.1 | 43.3 | 38.7 | 41.0 |
| 75° | 54.3 | 82.4 | 91.5 | 93.8 | 74.8 | 41.4 | 52.4 | 36.5 | 30.4 | 31.9 |
| 77.5° | 38.7 | 61.5 | 69.1 | 69.9 | 57.4 | 29.6 | 39.5 | 27.3 | 21.7 | 22.8 |
| 80° | 23.5 | 39.1 | 45.2 | 48.6 | 38.0 | 18.2 | 24.7 | 17.9 | 14.4 | 14.8 |
| 82.5° | 10.3 | 17.1 | 20.9 | 23.9 | 17.9 | 8.7 | 8.0 | 9.1 | 8.4 | 8.7 |
| 85° | 3.8 | 3.8 | 4.2 | 4.6 | 3.4 | 3.4 | 3.0 | 4.2 | 4.2 | 4.2 |
| 87.5° | 3.0 | 3.0 | 3.0 | 3.0 | 2.3 | 2.7 | 1.9 | 3.0 | 3.0 | 3.0 |
| 90° | 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

Invue

Report Number: SP1-2509-539-9

Test Date: 04/14/2026

Luminaire Tested: Luxscape Bollard

Data in this report applies to families of products including ;Luxscape

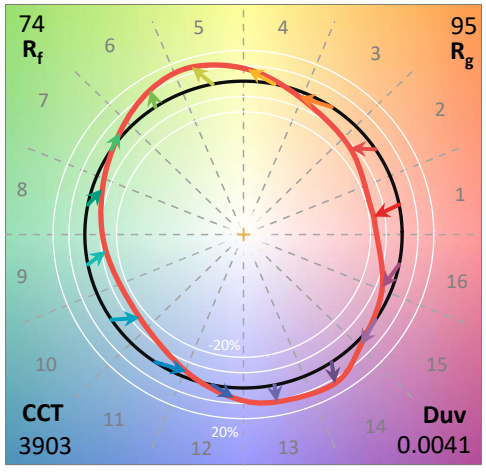
Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.05

## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2509-539-9 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 04/15/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | Invue |
| Catalog Number: | **Luxscape Bollard** |
| Description: | ARB-C1-740-LED-XX-Dx-S-GM-SPECULAR REFLECTOR |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 3903 | CRI (Ra): | 71.4 | | |
| CIE u': | 0.2247 | R1: | 67.8 | R9: | -38.3 |
| CIE v': | 0.5085 | R2: | 77.2 | R10: | 48.5 |
| Duv: | 0.0041 | R3: | 87.2 | R11: | 70.3 |
| CIE x: | 0.3880 | R4: | 72.2 | R12: | 48.8 |
| CIE y: | 0.3902 | R5: | 68.6 | R13: | 68.9 |
| CIE z: | 0.2218 | R6: | 70.0 | R14: | 92.8 |
| Peak Wavelength (nm): | 442 | R7: | 79.2 | R15: | 58.3 |
| Dominant Wavelength (nm): | 577 | R8: | 49.3 | | |
| Purity: | 33.55395 | | | | |
| Rf: | 74.1 | | | | |
| Rg: | 95.4 | | | | |




## Test Conditions

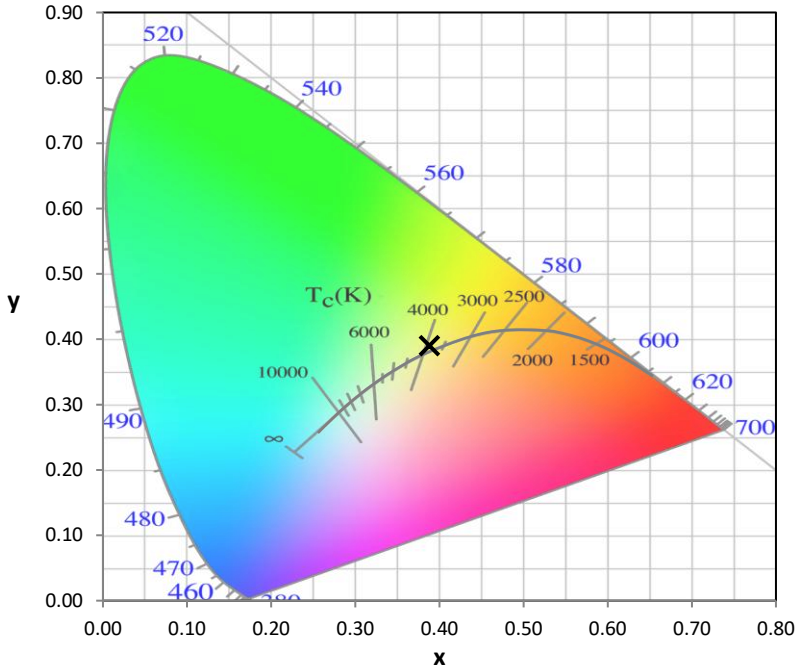
| | |
|---|---|
| Stabilization Time: | 24M |
| Operation Time: | 1H 24M |
| Sphere Temperature (°C): | 25.1 |

REPORT NUMBER: SP1-2509-539-9

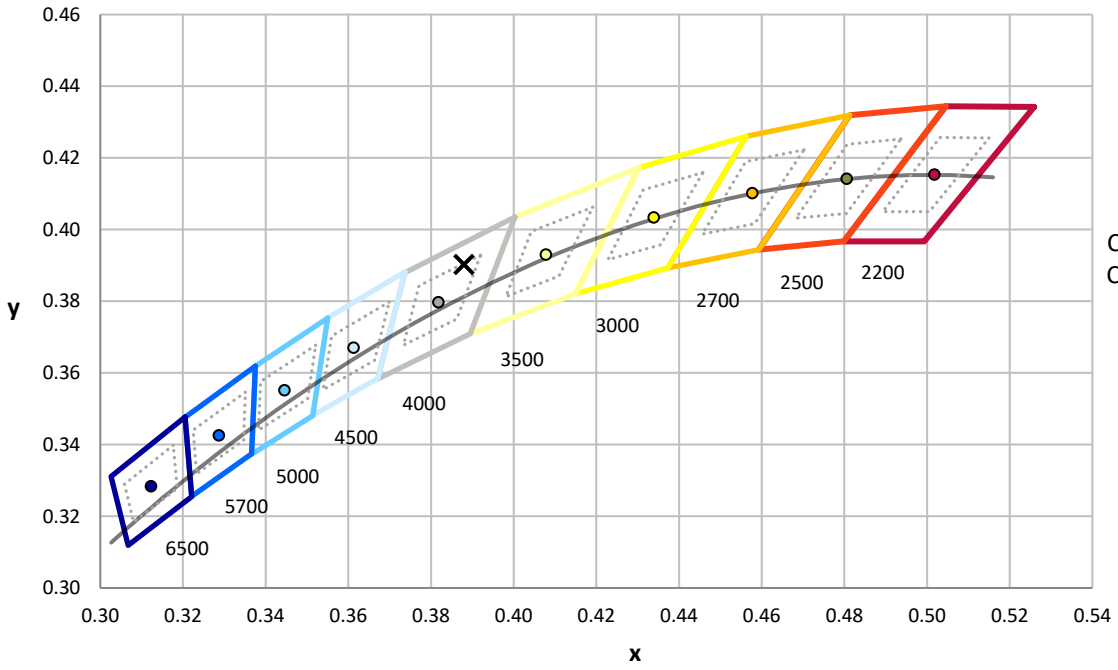
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 12/16/2025 | 6/16/2026 |
| Power Meter | XITRON INXT2011004 | 10/21/2025 | 10/21/2026 |
| AC Power Source | CHROMA 61603 IN0063 | 10/21/2025 | 10/21/2026 |
| DC Power Source | AGILENT E3634A IN0208 | 10/21/2025 | 10/21/2026 |
| Sphere Thermometer | ONSET IN0085 | 10/21/2025 | 10/21/2026 |
| Room Thermometer | ONSET IN0046 | 10/21/2025 | 10/21/2026 |

REPORT NUMBER: SP1-2509-539-9

## CIE 1931 Chromaticity Diagram




## CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles

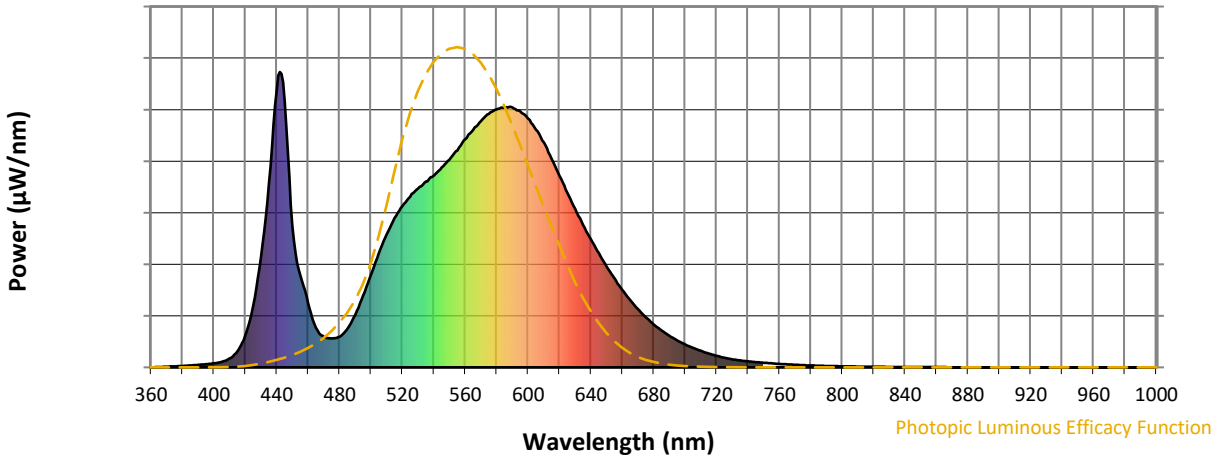



CCT = 3903K
CIE x = 0.3880
CIE y = 0.3902
Duv = 0.0041

Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2509-539-9

## Photopic Flux vs. Wavelength

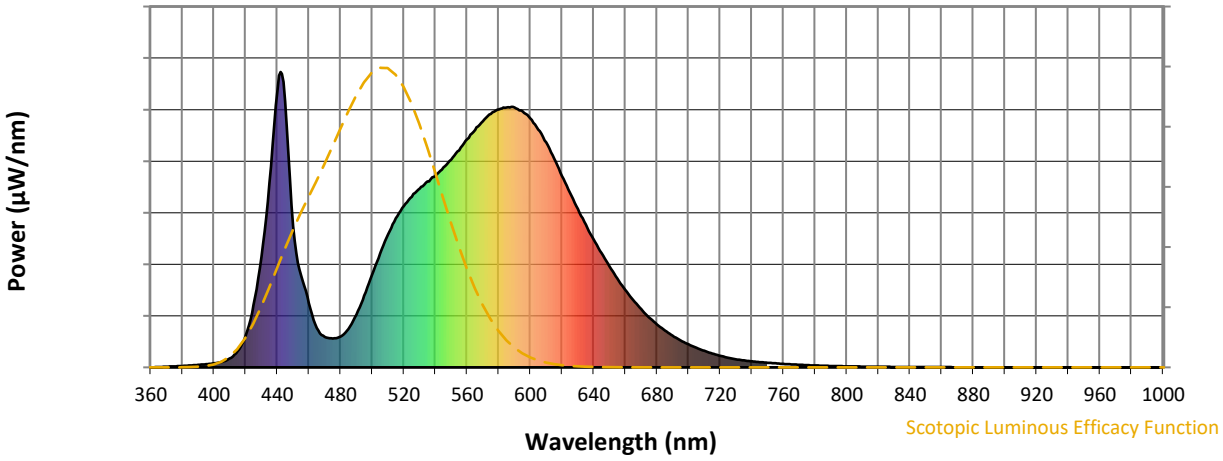



## Photopic Lumens: NR

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 179 | NR | 620 | 648 | NR | 750 | 16 | NR | 880 | 0 | NR |
| 365 | 1 | NR | 495 | 243 | NR | 625 | 592 | NR | 755 | 14 | NR | 885 | 0 | NR |
| 370 | 2 | NR | 500 | 314 | NR | 630 | 536 | NR | 760 | 12 | NR | 890 | 0 | NR |
| 375 | 3 | NR | 505 | 386 | NR | 635 | 483 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 5 | NR | 510 | 450 | NR | 640 | 433 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 7 | NR | 515 | 505 | NR | 645 | 387 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 8 | NR | 520 | 546 | NR | 650 | 341 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 11 | NR | 525 | 577 | NR | 655 | 301 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 14 | NR | 530 | 605 | NR | 660 | 262 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 19 | NR | 535 | 630 | NR | 665 | 227 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 30 | NR | 540 | 649 | NR | 670 | 197 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 55 | NR | 545 | 677 | NR | 675 | 169 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 109 | NR | 550 | 703 | NR | 680 | 146 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 210 | NR | 555 | 735 | NR | 685 | 125 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 373 | NR | 560 | 772 | NR | 690 | 107 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 624 | NR | 565 | 804 | NR | 695 | 91 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 936 | NR | 570 | 833 | NR | 700 | 78 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 901 | NR | 575 | 858 | NR | 705 | 66 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 478 | NR | 580 | 873 | NR | 710 | 56 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 311 | NR | 585 | 879 | NR | 715 | 47 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 218 | NR | 590 | 880 | NR | 720 | 39 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 134 | NR | 595 | 867 | NR | 725 | 33 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 103 | NR | 600 | 842 | NR | 730 | 27 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 98 | NR | 605 | 806 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 104 | NR | 610 | 762 | NR | 740 | 20 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 130 | NR | 615 | 707 | NR | 745 | 18 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2509-539-9

## Scotopic Flux vs. Wavelength

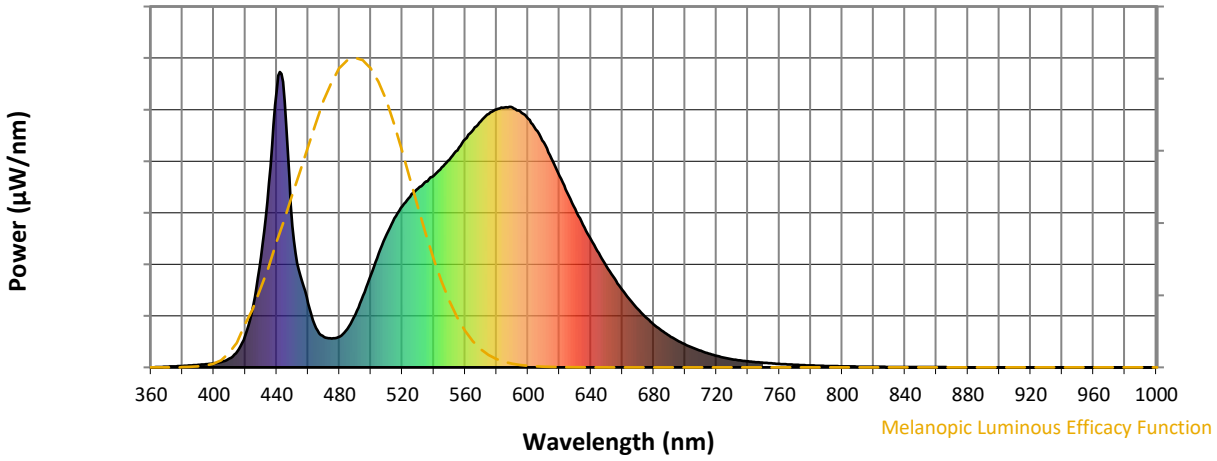



**Scotopic Lumens: NR** **S/P: 1.48**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 179 | NR | 620 | 648 | NR | 750 | 16 | NR | 880 | 0 | NR |
| 365 | 1 | NR | 495 | 243 | NR | 625 | 592 | NR | 755 | 14 | NR | 885 | 0 | NR |
| 370 | 2 | NR | 500 | 314 | NR | 630 | 536 | NR | 760 | 12 | NR | 890 | 0 | NR |
| 375 | 3 | NR | 505 | 386 | NR | 635 | 483 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 5 | NR | 510 | 450 | NR | 640 | 433 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 7 | NR | 515 | 505 | NR | 645 | 387 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 8 | NR | 520 | 546 | NR | 650 | 341 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 11 | NR | 525 | 577 | NR | 655 | 301 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 14 | NR | 530 | 605 | NR | 660 | 262 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 19 | NR | 535 | 630 | NR | 665 | 227 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 30 | NR | 540 | 649 | NR | 670 | 197 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 55 | NR | 545 | 677 | NR | 675 | 169 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 109 | NR | 550 | 703 | NR | 680 | 146 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 210 | NR | 555 | 735 | NR | 685 | 125 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 373 | NR | 560 | 772 | NR | 690 | 107 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 624 | NR | 565 | 804 | NR | 695 | 91 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 936 | NR | 570 | 833 | NR | 700 | 78 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 901 | NR | 575 | 858 | NR | 705 | 66 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 478 | NR | 580 | 873 | NR | 710 | 56 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 311 | NR | 585 | 879 | NR | 715 | 47 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 218 | NR | 590 | 880 | NR | 720 | 39 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 134 | NR | 595 | 867 | NR | 725 | 33 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 103 | NR | 600 | 842 | NR | 730 | 27 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 98 | NR | 605 | 806 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 104 | NR | 610 | 762 | NR | 740 | 20 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 130 | NR | 615 | 707 | NR | 745 | 18 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2509-539-9

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.81**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 179 | NR | 620 | 648 | NR | 750 | 16 | NR | 880 | 0 | NR |
| 365 | 1 | NR | 495 | 243 | NR | 625 | 592 | NR | 755 | 14 | NR | 885 | 0 | NR |
| 370 | 2 | NR | 500 | 314 | NR | 630 | 536 | NR | 760 | 12 | NR | 890 | 0 | NR |
| 375 | 3 | NR | 505 | 386 | NR | 635 | 483 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 5 | NR | 510 | 450 | NR | 640 | 433 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 7 | NR | 515 | 505 | NR | 645 | 387 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 8 | NR | 520 | 546 | NR | 650 | 341 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 11 | NR | 525 | 577 | NR | 655 | 301 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 14 | NR | 530 | 605 | NR | 660 | 262 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 19 | NR | 535 | 630 | NR | 665 | 227 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 30 | NR | 540 | 649 | NR | 670 | 197 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 55 | NR | 545 | 677 | NR | 675 | 169 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 109 | NR | 550 | 703 | NR | 680 | 146 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 210 | NR | 555 | 735 | NR | 685 | 125 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 373 | NR | 560 | 772 | NR | 690 | 107 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 624 | NR | 565 | 804 | NR | 695 | 91 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 936 | NR | 570 | 833 | NR | 700 | 78 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 901 | NR | 575 | 858 | NR | 705 | 66 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 478 | NR | 580 | 873 | NR | 710 | 56 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 311 | NR | 585 | 879 | NR | 715 | 47 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 218 | NR | 590 | 880 | NR | 720 | 39 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 134 | NR | 595 | 867 | NR | 725 | 33 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 103 | NR | 600 | 842 | NR | 730 | 27 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 98 | NR | 605 | 806 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 104 | NR | 610 | 762 | NR | 740 | 20 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 130 | NR | 615 | 707 | NR | 745 | 18 | NR | 875 | 0 | NR | | | |

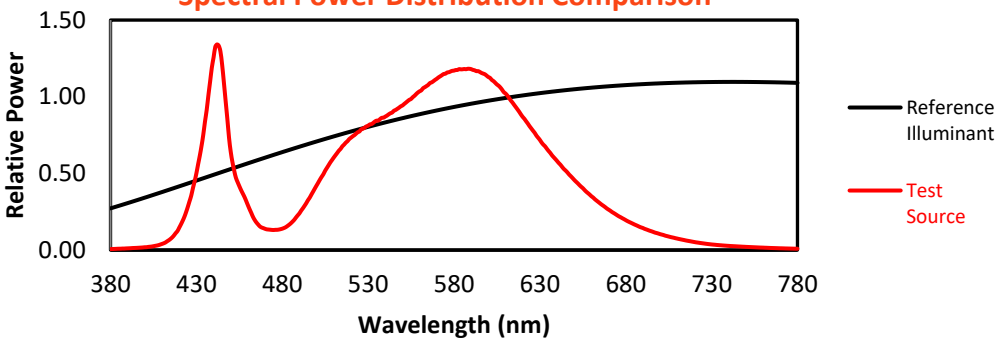
REPORT NUMBER: SP1-2509-539-9

## TM-30-18

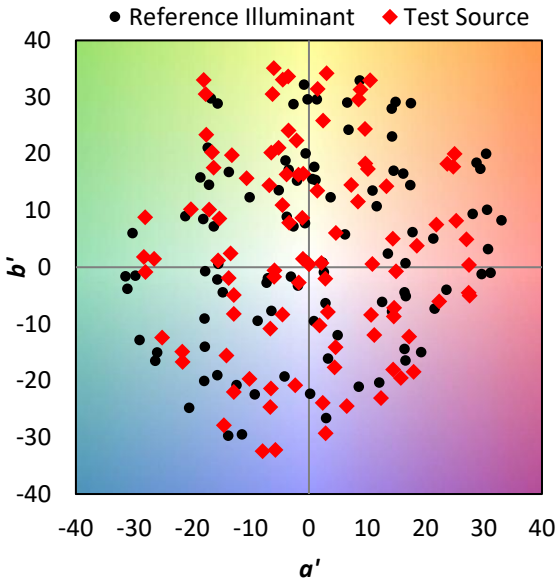
### Summary

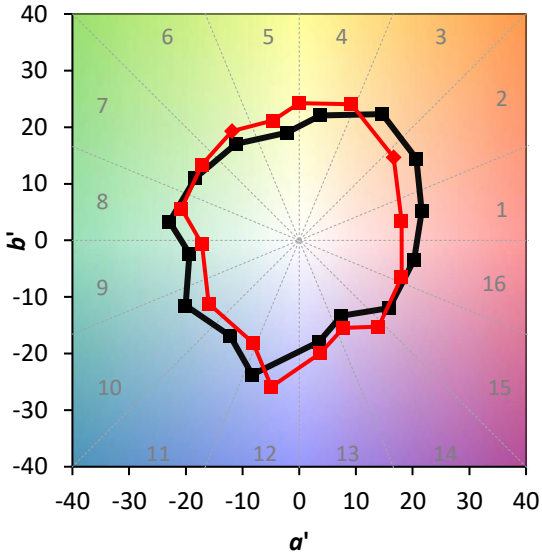
$R_f$ = 74.1
$R_g$ = 95.4
CIE $R_a$ = 71.4
$R_9$ = -38.3

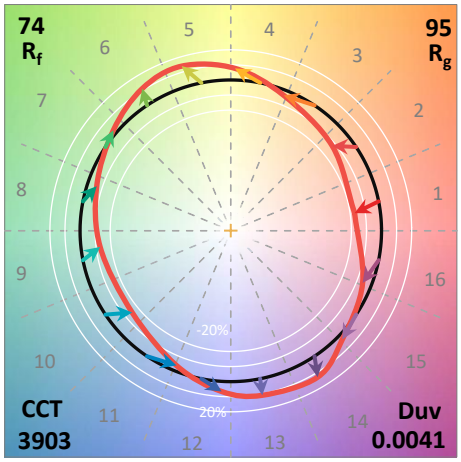
### Spectral Power Distribution Comparison

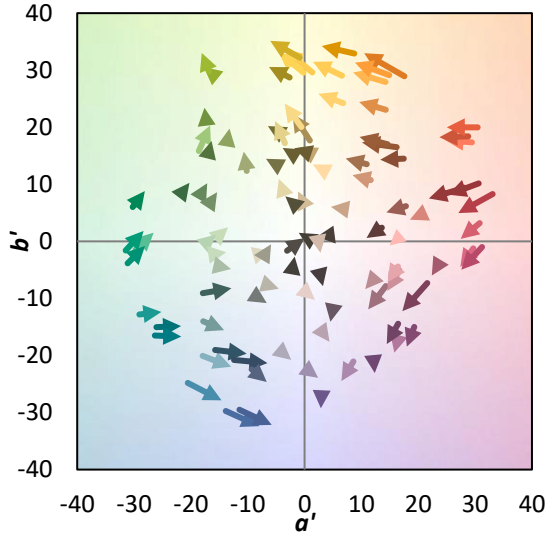



### Color Vector Graphics



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

| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 62 | CES51 = 88 | CES76 = 54 |
| CES02 = 61 | CES27 = 84 | CES52 = 89 | CES77 = 74 |
| CES03 = 30 | CES28 = 83 | CES53 = 76 | CES78 = 57 |
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| CES06 = 50 | CES31 = 62 | CES56 = 70 | CES81 = 77 |
| CES07 = 40 | CES32 = 60 | CES57 = 69 | CES82 = 92 |
| CES08 = 39 | CES33 = 66 | CES58 = 71 | CES83 = 87 |
| CES09 = 29 | CES34 = 72 | CES59 = 87 | CES84 = 89 |
| CES10 = 74 | CES35 = 85 | CES60 = 92 | CES85 = 84 |
| CES11 = 57 | CES36 = 93 | CES61 = 87 | CES86 = 70 |
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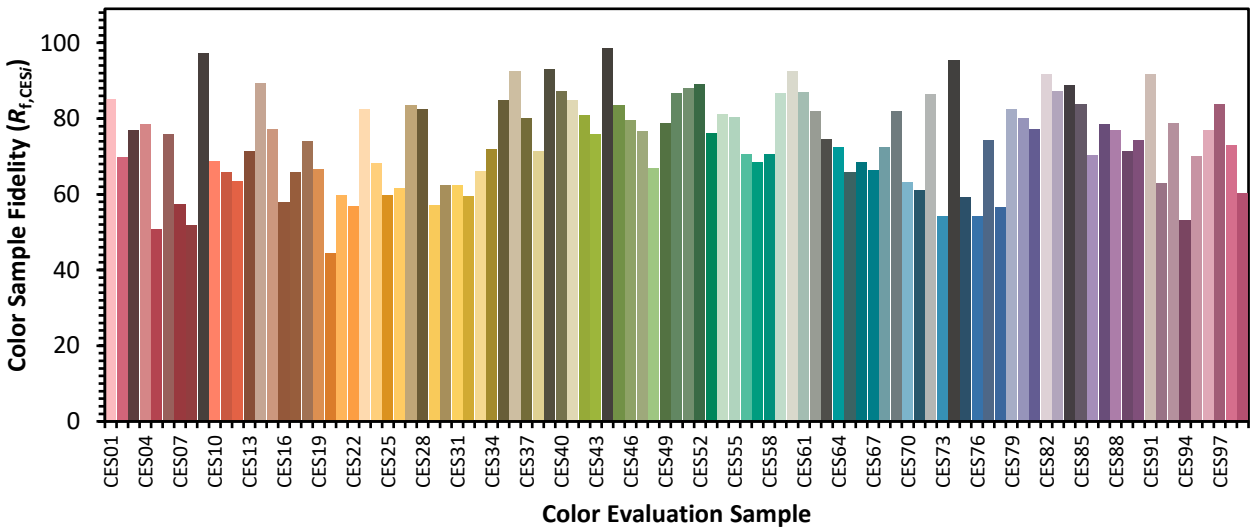
| CES13 = 42 | CES38 = 72 | CES63 = 74 | CES88 = 77 |
| CES14 = 74 | CES39 = 93 | CES64 = 72 | CES89 = 71 |
| CES15 = 71 | CES40 = 87 | CES65 = 66 | CES90 = 74 |
| CES16 = 46 | CES41 = 85 | CES66 = 69 | CES91 = 92 |
| CES17 = 49 | CES42 = 81 | CES67 = 66 | CES92 = 63 |
| CES18 = 56 | CES43 = 76 | CES68 = 73 | CES93 = 79 |
| CES19 = 72 | CES44 = 99 | CES69 = 82 | CES94 = 53 |
| CES20 = 65 | CES45 = 84 | CES70 = 63 | CES95 = 70 |
| CES21 = 86 | CES46 = 80 | CES71 = 61 | CES96 = 77 |
| CES22 = 78 | CES47 = 77 | CES72 = 86 | CES97 = 84 |
| CES23 = 92 | CES48 = 67 | CES73 = 54 | CES98 = 73 |
| CES24 = 91 | CES49 = 79 | CES74 = 96 | CES99 = 60 |
| CES25 = 72 | CES50 = 87 | CES75 = 59 | |



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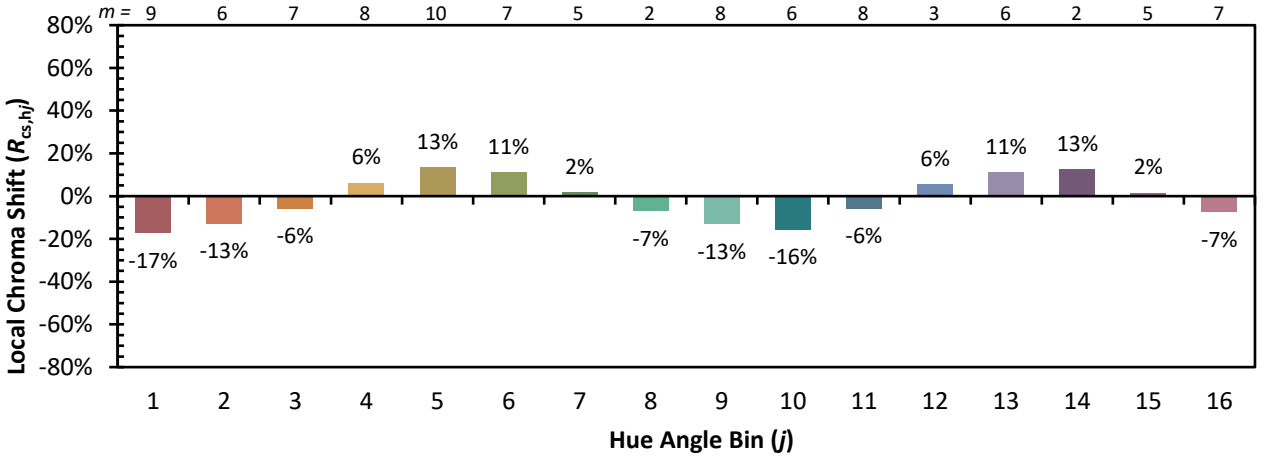
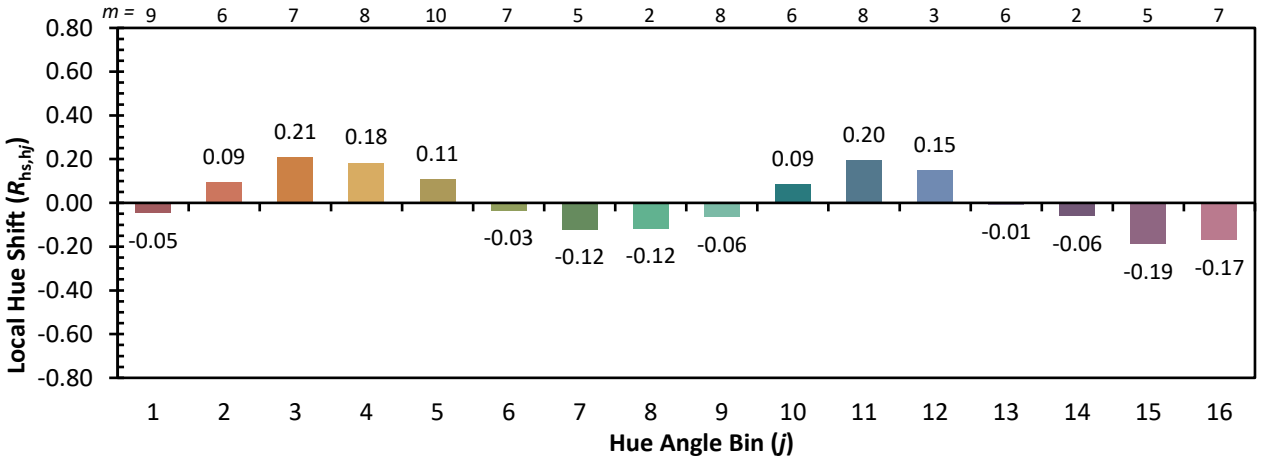
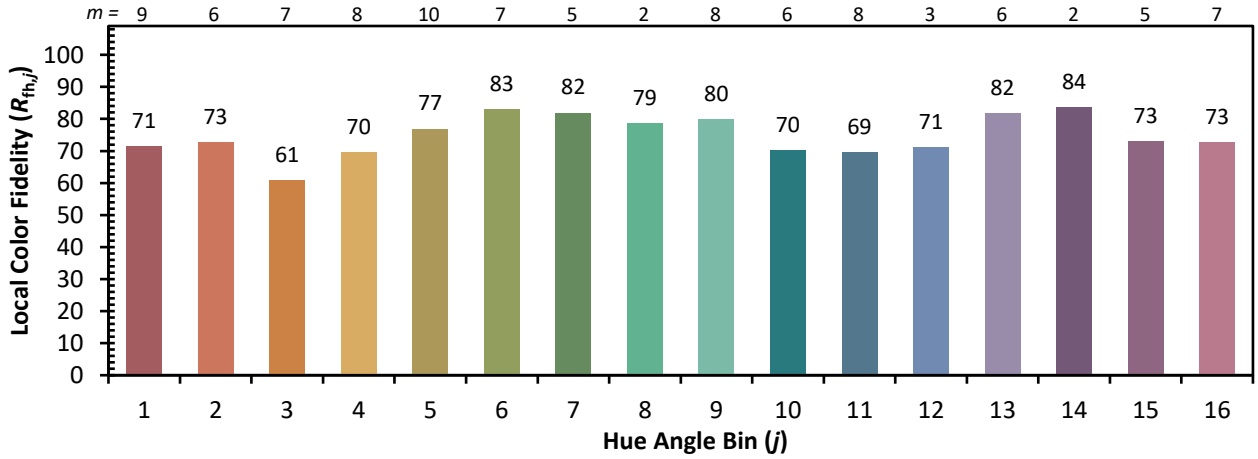
## Color Rendition by Hue-Angle Bin



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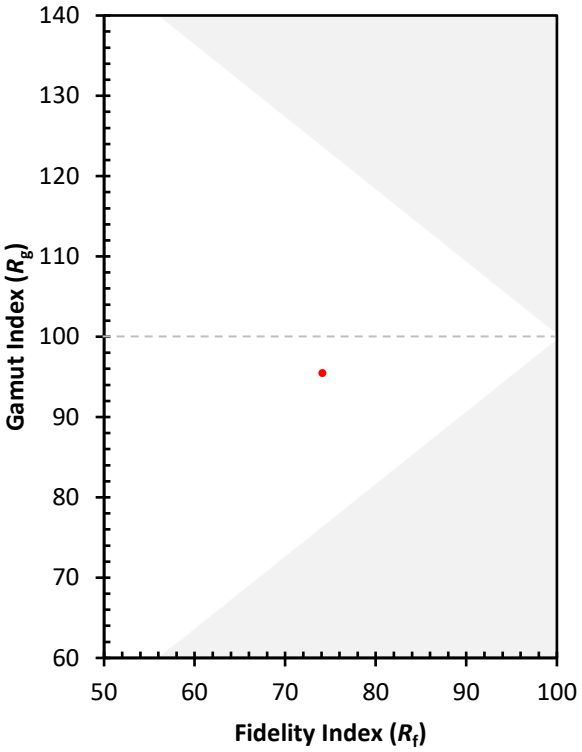
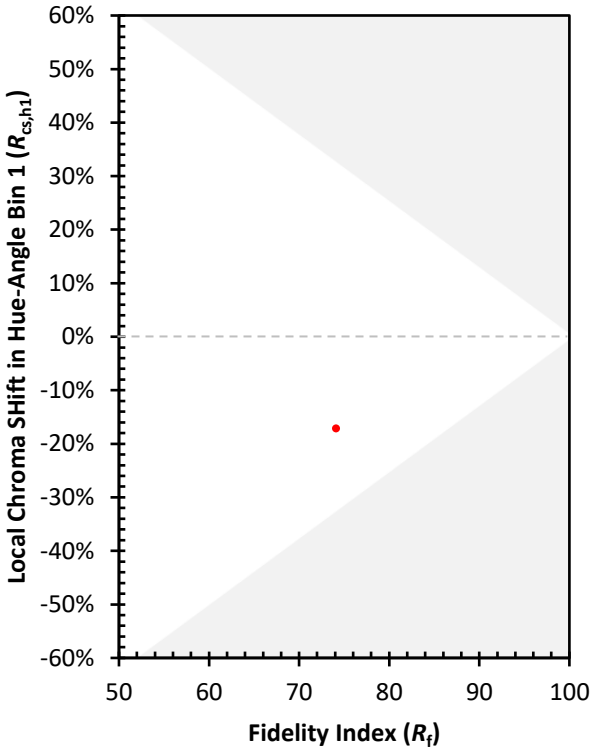
## Measure Comparisons




(END OF REPORT)