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: P1442038

Luminaire Tested: ABB-C2-835-X-U-S-GM

Issue Date: 4/23/2026

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Peachtree City, GA 30269

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2024 |
| Report Number: | P1442038 |
| | TEST IS SCALED FROM IESNA LM-79-24 TEST DATA (G2-2509-539-30) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 4/24/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | INVUE |
| Catalog Number: | ABB-C2-835-X-U-S-GM |
| Description: | ARBOR OUTDOOR ARCHITECTURAL BOLLARD LUMINAIRE |
| | SYMMETRIC OPTIC, GRAPHITE METALLIC PAINTED FINISH |
| Light Source: | 3500K CCT, 80 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 1175.4 lumens |
| Efficiency: | N/A |
| Efficacy: | 42.9 lumens/watt |
| Luminous Opening: | Circular (Dia: 0.4' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B1 - U0 - G1 |

| | |
|---|---|
| Input Watts (W): | 27.4 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.9937 |
| Total Harmonic Distortion (THDi): | 0.0861672 |
| Frequency (hertz): | 60 |
| Stabilization Time: | 0.5 HR |
| Operation Time: | 3 HR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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REPORT NUMBER: P1442038
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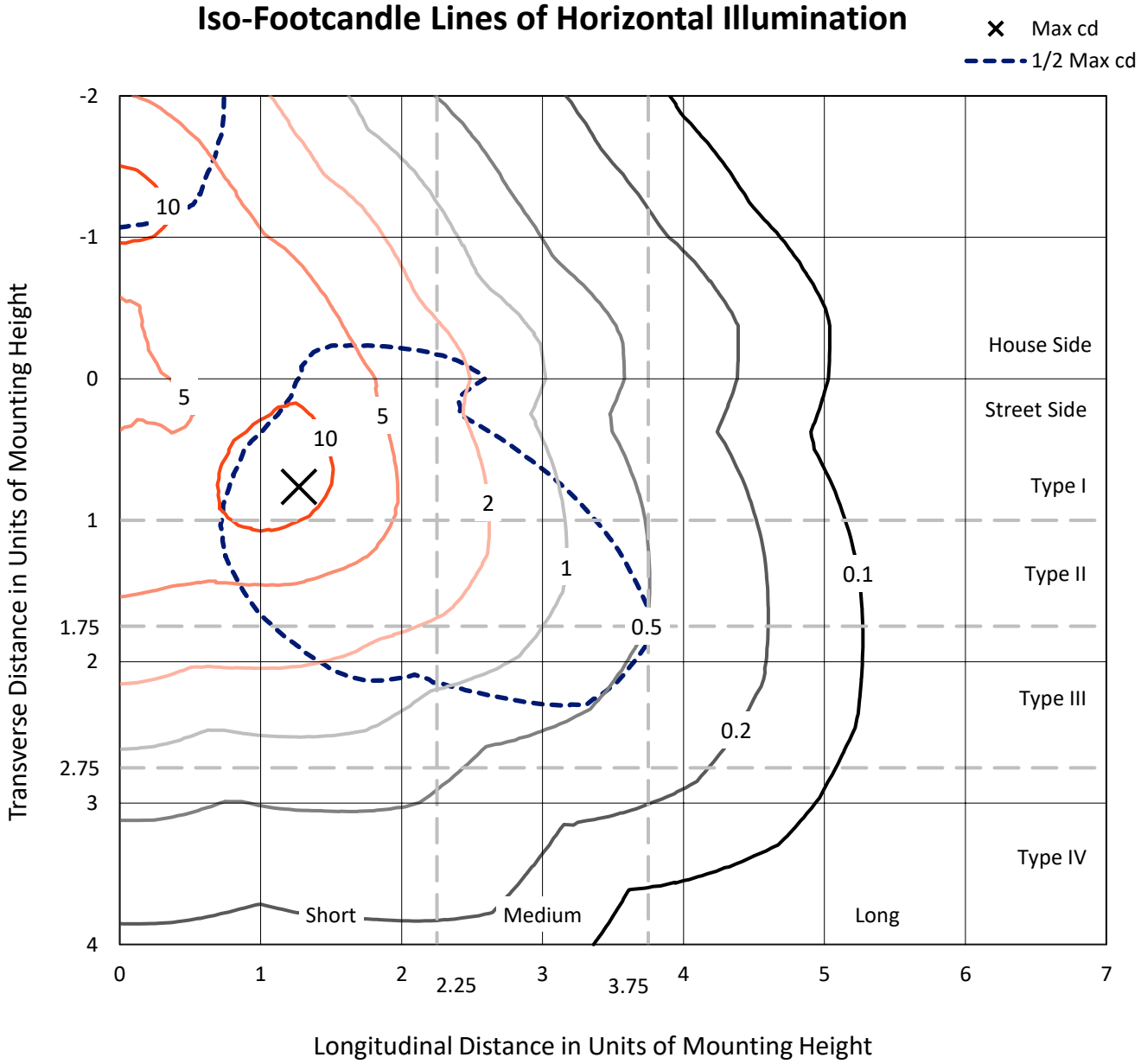
## Iso-Footcandle Lines of Horizontal Illumination




Based on 3 foot mounting height. Maximum calculated value = 16 fc
Type III - Short - N/A

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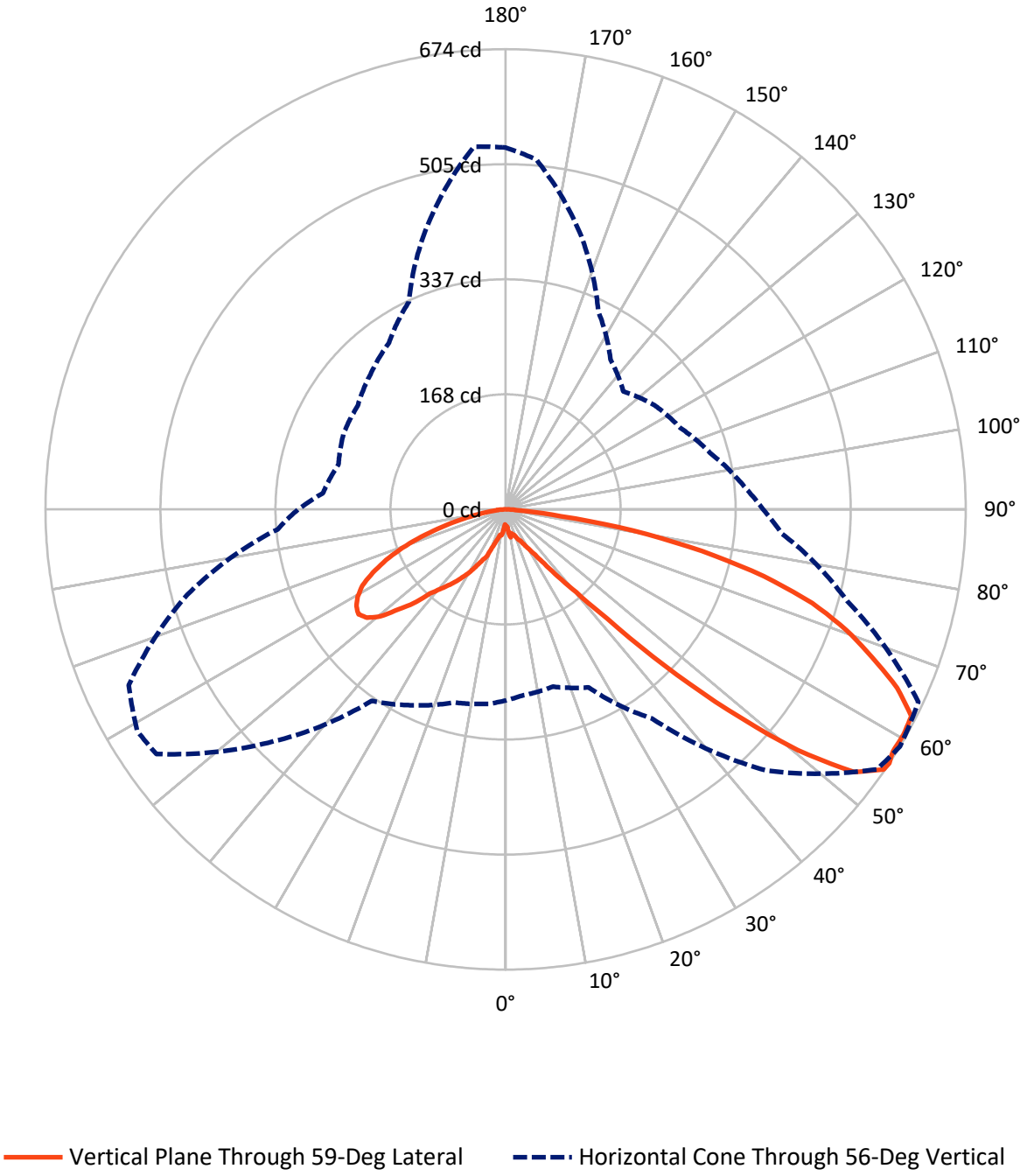
## Luminous Intensity Polar Plot



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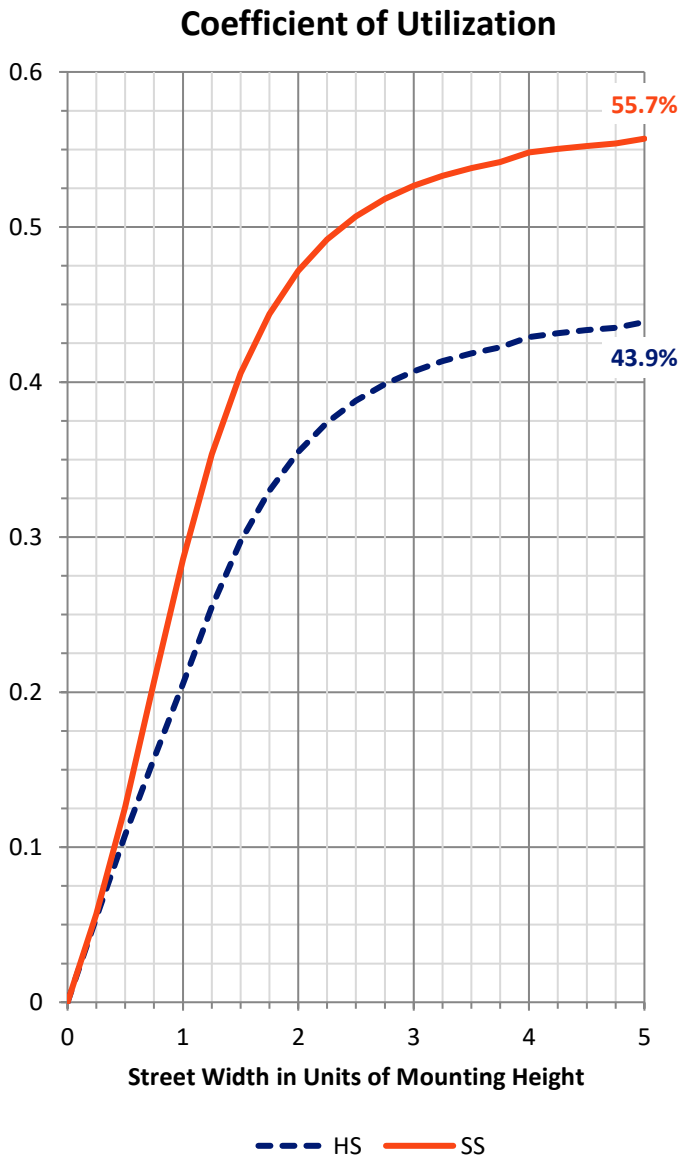
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 516.9 | 0.0 | 516.9 |
| | % Fixture | 44.0 | 0.0 | 44.0 |
| **Street Side** | Lumens | 658.5 | 0.0 | 658.5 |
| | % Fixture | 56.0 | 0.0 | 56.0 |
| **Total** | Lumens | 1175.4 | 0.0 | 1175.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 3.0 | 0.3 |
| 10°-20° | 12.6 | 1.1 |
| 20°-30° | 31.2 | 2.7 |
| 30°-40° | 68.6 | 5.8 |
| 40°-50° | 170.4 | 14.5 |
| 50°-60° | 328.7 | 28.0 |
| 60°-70° | 333.5 | 28.4 |
| 70°-80° | 198.6 | 16.9 |
| 80°-90° | 28.8 | 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° | 1175.4 | 100.0 |
| 0°-180° | 1175.4 | 100.0 |



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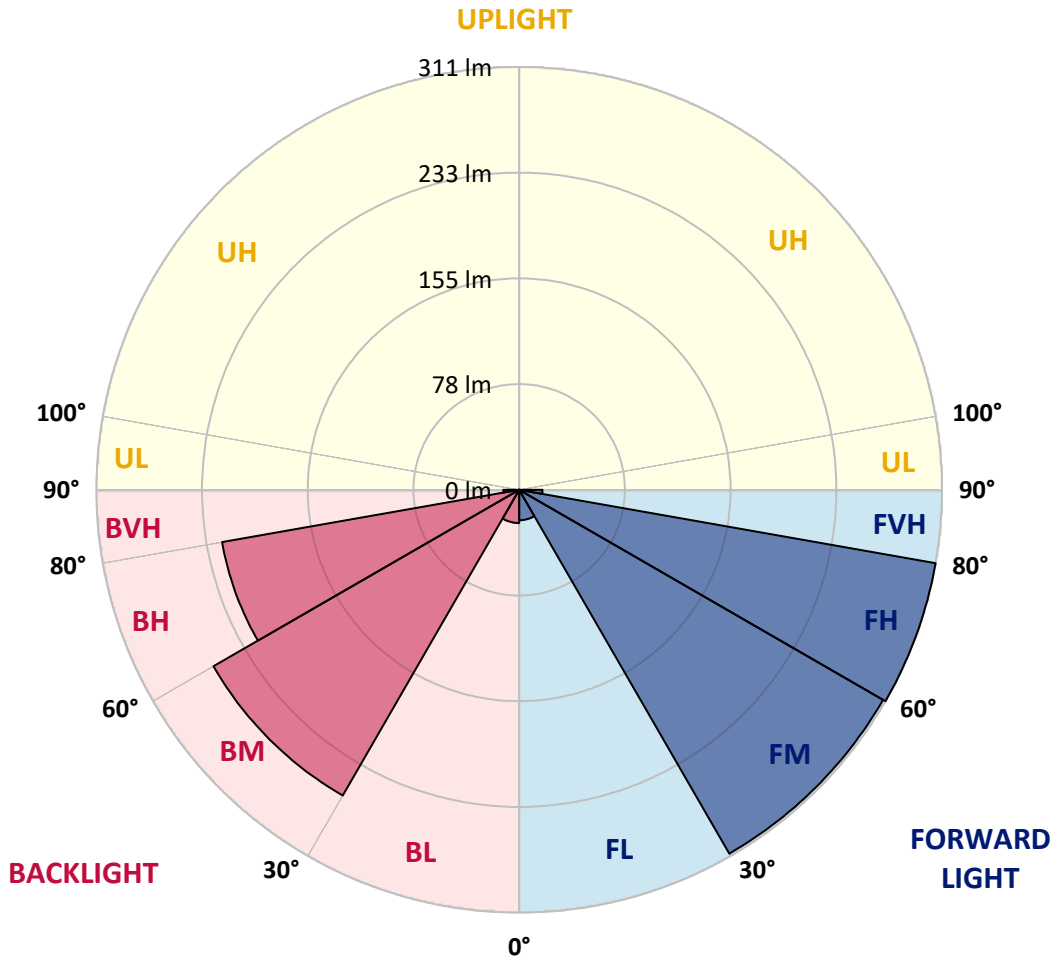
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 22.3 | 1.9 | | | |
| FM | (30°-60°) | 308.6 | 26.3 | | | |
| FH | (60°-80°) | 310.5 | 26.4 | | | G0/660 |
| FVH | (80°-90°) | 17.1 | 1.5 | | | G1/100 |
| BL | (0°-30°) | 24.4 | 2.1 | B0/110 | | |
| BM | (30°-60°) | 259.2 | 22.1 | B1/1000 | | |
| BH | (60°-80°) | 221.6 | 18.8 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 11.7 | 1.0 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B1-U0-G1**
Type III Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 59° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 |
| 2.5° | 28.1 | 29.0 | 31.6 | 31.6 | 30.7 | 29.0 | 27.3 | 27.3 | 26.4 | 24.7 | 23.0 |
| 5° | 40.9 | 37.5 | 32.4 | 32.4 | 32.4 | 29.9 | 26.4 | 25.6 | 25.6 | 23.0 | 22.2 |
| 7.5° | 40.1 | 42.6 | 44.4 | 42.6 | 41.8 | 41.8 | 37.5 | 36.7 | 32.4 | 29.9 | 32.4 |
| 10° | 40.9 | 40.9 | 40.1 | 47.8 | 44.4 | 45.2 | 41.8 | 41.8 | 39.2 | 38.4 | 38.4 |
| 12.5° | 39.2 | 37.5 | 40.1 | 43.5 | 39.2 | 42.6 | 38.4 | 35.8 | 35.8 | 38.4 | 40.9 |
| 15° | 40.1 | 41.8 | 42.6 | 47.8 | 46.1 | 43.5 | 38.4 | 38.4 | 39.2 | 44.4 | 44.4 |
| 17.5° | 46.1 | 49.5 | 49.5 | 50.3 | 50.3 | 46.1 | 38.4 | 39.2 | 41.8 | 45.2 | 50.3 |
| 20° | 53.7 | 53.7 | 54.6 | 53.7 | 53.7 | 49.5 | 40.9 | 42.6 | 45.2 | 47.8 | 52.9 |
| 22.5° | 62.3 | 64.0 | 67.4 | 62.3 | 60.6 | 52.0 | 48.6 | 47.8 | 52.0 | 50.3 | 57.2 |
| 25° | 77.6 | 82.7 | 77.6 | 66.5 | 65.7 | 56.3 | 51.2 | 51.2 | 54.6 | 60.6 | 61.4 |
| 27.5° | 93.0 | 95.5 | 82.7 | 71.7 | 73.4 | 63.1 | 58.9 | 58.9 | 61.4 | 68.2 | 71.7 |
| 30° | 100.7 | 103.2 | 92.1 | 79.3 | 81.0 | 71.7 | 65.7 | 66.5 | 68.2 | 76.8 | 85.3 |
| 32.5° | 110.9 | 115.2 | 102.4 | 89.6 | 90.4 | 88.7 | 79.3 | 79.3 | 76.8 | 85.3 | 92.1 |
| 35° | 125.4 | 124.5 | 111.7 | 98.1 | 100.7 | 105.8 | 98.9 | 97.2 | 93.0 | 94.7 | 104.9 |
| 37.5° | 136.5 | 136.5 | 126.2 | 110.0 | 111.7 | 123.7 | 124.5 | 124.5 | 116.0 | 109.2 | 117.7 |
| 40° | 147.6 | 151.8 | 139.0 | 122.0 | 132.2 | 150.1 | 157.8 | 159.5 | 145.9 | 128.8 | 131.4 |
| 42.5° | 161.2 | 168.9 | 158.7 | 142.5 | 162.1 | 196.2 | 214.1 | 218.4 | 195.3 | 172.3 | 156.1 |
| 45° | 193.6 | 202.2 | 193.6 | 176.6 | 203.0 | 263.6 | 301.1 | 325.8 | 286.6 | 225.2 | 199.6 |
| 47.5° | 215.8 | 221.8 | 214.1 | 200.5 | 240.5 | 326.7 | 390.7 | 439.3 | 400.1 | 293.4 | 246.5 |
| 50° | 248.2 | 248.2 | 244.8 | 242.3 | 302.0 | 441.9 | 527.2 | 554.4 | 541.7 | 386.4 | 320.7 |
| 52.5° | 266.1 | 264.4 | 262.7 | 270.4 | 345.5 | 495.6 | 609.9 | 638.9 | 631.2 | 459.8 | 371.1 |
| 55° | 277.2 | 273.8 | 268.7 | 284.9 | 368.5 | 534.8 | 657.7 | 672.2 | 664.5 | 505.8 | 398.4 |
| 56° | 279.8 | 273.8 | 268.7 | 287.5 | 373.6 | 540.8 | 663.6 | 673.9 | 667.0 | 517.8 | 406.0 |
| 57.5° | 278.9 | 272.1 | 265.3 | 290.0 | 375.3 | 541.7 | 663.6 | 668.8 | 669.6 | 527.2 | 412.9 |
| 60° | 272.1 | 266.1 | 255.0 | 290.0 | 377.9 | 529.7 | 656.0 | 669.6 | 673.9 | 528.0 | 415.4 |
| 62.5° | 261.9 | 258.5 | 241.4 | 285.8 | 374.5 | 505.0 | 650.8 | 667.0 | 664.5 | 516.1 | 400.9 |
| 65° | 243.1 | 239.7 | 220.1 | 276.4 | 355.7 | 465.7 | 616.7 | 630.4 | 621.8 | 487.9 | 364.2 |
| 67.5° | 217.5 | 214.1 | 196.2 | 259.3 | 336.9 | 419.7 | 569.0 | 579.2 | 576.6 | 456.4 | 325.0 |
| 70° | 187.7 | 186.0 | 172.3 | 237.1 | 315.6 | 366.8 | 517.8 | 529.7 | 534.0 | 412.9 | 285.8 |
| 72.5° | 155.2 | 157.0 | 146.7 | 208.1 | 284.9 | 308.8 | 453.8 | 470.0 | 476.8 | 361.7 | 239.7 |
| 75° | 119.4 | 121.1 | 117.7 | 173.2 | 244.8 | 242.3 | 376.2 | 390.7 | 397.5 | 299.4 | 188.5 |
| 77.5° | 85.3 | 85.3 | 85.3 | 131.4 | 195.3 | 166.3 | 284.0 | 294.3 | 303.7 | 222.6 | 133.9 |
| 80° | 55.4 | 52.9 | 54.6 | 83.6 | 128.8 | 97.2 | 180.0 | 189.4 | 187.7 | 136.5 | 78.5 |
| 82.5° | 32.4 | 29.9 | 29.9 | 39.2 | 52.0 | 41.8 | 80.2 | 81.9 | 83.6 | 54.6 | 34.1 |
| 85° | 16.2 | 14.5 | 13.6 | 15.4 | 14.5 | 16.2 | 16.2 | 15.4 | 15.4 | 11.1 | 13.6 |
| 87.5° | 11.9 | 10.2 | 9.4 | 11.1 | 10.2 | 12.8 | 11.9 | 11.9 | 11.9 | 7.7 | 10.2 |
| 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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**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 |
| 2.5° | 22.2 | 22.2 | 20.5 | 19.6 | 18.8 | 21.3 | 23.9 | 23.9 | 23.0 | 23.0 | 23.0 |
| 5° | 23.0 | 23.9 | 26.4 | 30.7 | 31.6 | 29.0 | 27.3 | 24.7 | 22.2 | 20.5 | 19.6 |
| 7.5° | 33.3 | 34.1 | 33.3 | 35.0 | 35.0 | 32.4 | 33.3 | 32.4 | 28.1 | 27.3 | 26.4 |
| 10° | 39.2 | 40.1 | 45.2 | 43.5 | 41.8 | 40.1 | 40.1 | 38.4 | 35.0 | 33.3 | 31.6 |
| 12.5° | 42.6 | 43.5 | 45.2 | 41.8 | 46.1 | 44.4 | 43.5 | 39.2 | 37.5 | 34.1 | 34.1 |
| 15° | 44.4 | 48.6 | 49.5 | 49.5 | 46.9 | 48.6 | 45.2 | 41.8 | 40.9 | 35.0 | 34.1 |
| 17.5° | 52.9 | 52.9 | 55.4 | 54.6 | 50.3 | 53.7 | 51.2 | 47.8 | 43.5 | 37.5 | 37.5 |
| 20° | 54.6 | 60.6 | 61.4 | 62.3 | 59.7 | 59.7 | 61.4 | 57.2 | 50.3 | 46.9 | 46.1 |
| 22.5° | 60.6 | 66.5 | 69.9 | 75.1 | 68.2 | 69.1 | 67.4 | 58.0 | 49.5 | 50.3 | 47.8 |
| 25° | 65.7 | 69.9 | 74.2 | 85.3 | 79.3 | 72.5 | 72.5 | 64.8 | 56.3 | 55.4 | 53.7 |
| 27.5° | 75.1 | 79.3 | 87.9 | 100.7 | 87.0 | 81.9 | 78.5 | 72.5 | 63.1 | 61.4 | 61.4 |
| 30° | 90.4 | 90.4 | 100.7 | 108.3 | 105.8 | 86.2 | 87.0 | 78.5 | 71.7 | 67.4 | 69.1 |
| 32.5° | 104.9 | 103.2 | 114.3 | 118.6 | 117.7 | 94.7 | 93.8 | 88.7 | 86.2 | 79.3 | 78.5 |
| 35° | 115.2 | 122.8 | 124.5 | 129.7 | 127.1 | 110.9 | 101.5 | 98.1 | 98.1 | 94.7 | 94.7 |
| 37.5° | 128.0 | 135.6 | 138.2 | 141.6 | 138.2 | 123.7 | 114.3 | 110.0 | 114.3 | 117.7 | 114.3 |
| 40° | 144.2 | 155.2 | 151.8 | 153.5 | 150.1 | 138.2 | 131.4 | 128.8 | 139.9 | 150.1 | 145.0 |
| 42.5° | 164.6 | 178.3 | 173.2 | 168.9 | 166.3 | 153.5 | 151.8 | 157.8 | 180.0 | 196.2 | 192.8 |
| 45° | 203.0 | 215.0 | 205.6 | 198.7 | 195.3 | 180.0 | 181.7 | 198.7 | 240.5 | 269.5 | 278.9 |
| 47.5° | 242.3 | 244.8 | 236.3 | 224.3 | 220.9 | 199.6 | 203.9 | 235.4 | 297.7 | 340.3 | 353.1 |
| 50° | 306.2 | 307.1 | 280.6 | 255.0 | 244.8 | 228.6 | 236.3 | 283.2 | 362.5 | 412.9 | 433.3 |
| 52.5° | 354.0 | 339.5 | 302.8 | 275.5 | 261.0 | 243.1 | 255.0 | 313.9 | 402.6 | 470.0 | 490.5 |
| 55° | 372.8 | 349.7 | 313.1 | 283.2 | 266.1 | 245.7 | 266.1 | 321.6 | 418.0 | 508.4 | 528.0 |
| 56° | *377.0* | *353.1* | *312.2* | *282.3* | *266.1* | *244.0* | *267.8* | *320.7* | *419.7* | *514.4* | *529.7* |
| 57.5° | 383.8 | 352.3 | 308.8 | 280.6 | 262.7 | 239.7 | 267.0 | 318.2 | 418.0 | 516.9 | 532.3 |
| 60° | 397.5 | 352.3 | 296.8 | 273.8 | 255.0 | 232.0 | 264.4 | 318.2 | 412.0 | 510.1 | 533.1 |
| 62.5° | 399.2 | 348.9 | 278.9 | 257.6 | 244.8 | 220.9 | 254.2 | 315.6 | 396.6 | 503.3 | 530.6 |
| 65° | 380.4 | 339.5 | 253.3 | 235.4 | 223.5 | 203.0 | 237.1 | 303.7 | 370.2 | 481.1 | 495.6 |
| 67.5° | 354.0 | 324.1 | 225.2 | 208.1 | 197.0 | 180.0 | 217.5 | 283.2 | 332.7 | 435.0 | 446.1 |
| 70° | 322.4 | 304.5 | 196.2 | 177.4 | 168.9 | 155.2 | 194.5 | 259.3 | 283.2 | 383.8 | 399.2 |
| 72.5° | 273.8 | 267.8 | 171.5 | 144.2 | 136.5 | 129.7 | 165.5 | 229.5 | 230.3 | 329.3 | 345.5 |
| 75° | 216.7 | 217.5 | 139.0 | 110.0 | 103.2 | 102.4 | 131.4 | 188.5 | 176.6 | 262.7 | 275.5 |
| 77.5° | 154.4 | 158.7 | 102.4 | 79.3 | 70.8 | 74.2 | 93.8 | 141.6 | 123.7 | 190.2 | 198.7 |
| 80° | 87.9 | 90.4 | 63.1 | 52.0 | 43.5 | 47.8 | 57.2 | 87.9 | 72.5 | 115.2 | 120.3 |
| 82.5° | 30.7 | 31.6 | 30.7 | 29.9 | 26.4 | 25.6 | 28.1 | 35.0 | 30.7 | 45.2 | 48.6 |
| 85° | 11.9 | 11.1 | 15.4 | 15.4 | 12.8 | 12.8 | 13.6 | 13.6 | 16.2 | 15.4 | 14.5 |
| 87.5° | 9.4 | 7.7 | 11.9 | 11.9 | 10.2 | 10.2 | 10.2 | 10.2 | 12.8 | 11.9 | 11.9 |
| 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):**

| | 185° | 195° | 205° | 215° | 225° | 235° | 245° | 255° | 265° | 270° | 275° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 |
| 2.5° | 23.9 | 24.7 | 24.7 | 23.9 | 22.2 | 22.2 | 22.2 | 22.2 | 23.0 | 23.9 | 23.9 |
| 5° | 20.5 | 22.2 | 23.9 | 23.9 | 26.4 | 27.3 | 26.4 | 24.7 | 20.5 | 19.6 | 20.5 |
| 7.5° | 27.3 | 30.7 | 27.3 | 27.3 | 29.9 | 35.8 | 33.3 | 32.4 | 29.0 | 25.6 | 23.9 |
| 10° | 33.3 | 40.1 | 35.8 | 39.2 | 41.8 | 40.1 | 36.7 | 33.3 | 39.2 | 37.5 | 36.7 |
| 12.5° | 34.1 | 37.5 | 39.2 | 46.1 | 50.3 | 39.2 | 36.7 | 40.1 | 40.9 | 38.4 | 35.8 |
| 15° | 35.0 | 41.8 | 44.4 | 48.6 | 52.9 | 46.9 | 38.4 | 42.6 | 46.1 | 43.5 | 41.8 |
| 17.5° | 38.4 | 44.4 | 46.9 | 53.7 | 58.0 | 54.6 | 44.4 | 46.9 | 50.3 | 53.7 | 50.3 |
| 20° | 43.5 | 46.9 | 49.5 | 57.2 | 59.7 | 64.0 | 53.7 | 53.7 | 52.0 | 56.3 | 54.6 |
| 22.5° | 50.3 | 56.3 | 55.4 | 63.1 | 64.0 | 76.8 | 69.9 | 57.2 | 53.7 | 58.0 | 58.9 |
| 25° | 52.9 | 58.9 | 62.3 | 68.2 | 71.7 | 83.6 | 79.3 | 68.2 | 62.3 | 63.1 | 63.1 |
| 27.5° | 61.4 | 66.5 | 70.8 | 75.1 | 84.4 | 89.6 | 95.5 | 75.9 | 70.8 | 69.9 | 69.9 |
| 30° | 66.5 | 73.4 | 78.5 | 87.9 | 96.4 | 101.5 | 109.2 | 83.6 | 76.8 | 75.9 | 76.8 |
| 32.5° | 78.5 | 80.2 | 87.9 | 100.7 | 104.9 | 115.2 | 116.9 | 94.7 | 86.2 | 84.4 | 84.4 |
| 35° | 90.4 | 91.3 | 96.4 | 114.3 | 116.9 | 129.7 | 124.5 | 107.5 | 95.5 | 93.0 | 93.8 |
| 37.5° | 112.6 | 105.8 | 109.2 | 126.2 | 131.4 | 141.6 | 135.6 | 120.3 | 108.3 | 105.8 | 107.5 |
| 40° | 139.0 | 127.1 | 122.0 | 144.2 | 144.2 | 153.5 | 147.6 | 135.6 | 124.5 | 120.3 | 124.5 |
| 42.5° | 184.2 | 151.0 | 145.0 | 163.8 | 163.8 | 168.9 | 162.1 | 153.5 | 145.9 | 145.9 | 152.7 |
| 45° | 271.3 | 207.3 | 189.4 | 200.5 | 197.0 | 196.2 | 188.5 | 184.2 | 176.6 | 178.3 | 191.1 |
| 47.5° | 354.0 | 261.9 | 222.6 | 236.3 | 229.5 | 216.7 | 210.7 | 205.6 | 197.9 | 205.6 | 226.0 |
| 50° | 423.1 | 335.2 | 287.5 | 273.8 | 262.7 | 242.3 | 239.7 | 234.6 | 236.3 | 253.3 | 277.2 |
| 52.5° | 493.9 | 397.5 | 321.6 | 296.0 | 279.8 | 259.3 | 255.0 | 249.9 | 257.6 | 287.5 | 313.1 |
| 55° | 532.3 | 430.8 | 333.5 | 299.4 | 281.5 | 266.1 | 261.9 | 254.2 | 268.7 | 302.0 | 333.5 |
| 56° | *533.1* | *435.0* | *335.2* | *297.7* | *279.8* | *264.4* | *261.9* | *253.3* | *268.7* | *303.7* | *335.2* |
| 57.5° | 529.7 | 438.4 | 333.5 | 296.0 | 274.7 | 261.0 | 259.3 | 249.1 | 268.7 | 306.2 | 338.6 |
| 60° | 520.3 | 435.0 | 326.7 | 295.1 | 262.7 | 250.8 | 251.6 | 237.1 | 264.4 | 309.6 | 342.9 |
| 62.5° | 523.7 | 423.9 | 313.1 | 285.8 | 243.1 | 235.4 | 240.5 | 224.3 | 253.3 | 310.5 | 339.5 |
| 65° | 499.0 | 406.9 | 290.0 | 269.5 | 220.1 | 211.5 | 220.9 | 202.2 | 238.8 | 297.7 | 324.1 |
| 67.5° | 452.1 | 371.9 | 261.9 | 250.8 | 194.5 | 186.0 | 196.2 | 177.4 | 218.4 | 278.9 | 306.2 |
| 70° | 399.2 | 325.8 | 230.3 | 222.6 | 169.7 | 157.0 | 168.0 | 151.0 | 194.5 | 257.6 | 285.8 |
| 72.5° | 345.5 | 273.0 | 188.5 | 186.8 | 145.0 | 125.4 | 136.5 | 128.8 | 168.0 | 226.0 | 253.3 |
| 75° | 276.4 | 213.2 | 144.2 | 145.0 | 114.3 | 94.7 | 101.5 | 98.1 | 135.6 | 186.0 | 210.7 |
| 77.5° | 200.5 | 150.1 | 98.9 | 100.7 | 81.9 | 65.7 | 69.9 | 74.2 | 99.8 | 140.7 | 162.1 |
| 80° | 119.4 | 86.2 | 57.2 | 60.6 | 49.5 | 42.6 | 42.6 | 45.2 | 61.4 | 87.9 | 101.5 |
| 82.5° | 44.4 | 28.1 | 25.6 | 23.0 | 23.9 | 23.0 | 24.7 | 25.6 | 28.1 | 35.8 | 35.0 |
| 85° | 14.5 | 9.4 | 11.9 | 10.2 | 12.8 | 12.8 | 11.9 | 11.1 | 11.9 | 11.9 | 11.9 |
| 87.5° | 11.9 | 7.7 | 9.4 | 7.7 | 10.2 | 11.1 | 9.4 | 8.5 | 9.4 | 9.4 | 8.5 |
| 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: P1442038
CATALOG NUMBER: ABB-C2-835-X-U-S-GM

**CANDELA DISTRIBUTION (continued):**

| | 285° | 295° | 301° | 305° | 315° | 325° | 335° | 345° | 355° | 360° |
|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 | 23.9 |
| 2.5° | 23.0 | 23.9 | 23.9 | 24.7 | 27.3 | 28.1 | 28.1 | 28.1 | 28.1 | 28.1 |
| 5° | 21.3 | 19.6 | 19.6 | 18.8 | 20.5 | 23.0 | 26.4 | 29.9 | 35.8 | 40.9 |
| 7.5° | 25.6 | 25.6 | 25.6 | 24.7 | 24.7 | 26.4 | 29.9 | 34.1 | 39.2 | 40.1 |
| 10° | 35.0 | 34.1 | 32.4 | 34.1 | 34.1 | 30.7 | 35.8 | 41.8 | 45.2 | 40.9 |
| 12.5° | 35.8 | 33.3 | 30.7 | 31.6 | 33.3 | 34.1 | 41.8 | 46.9 | 38.4 | 39.2 |
| 15° | 38.4 | 36.7 | 35.0 | 34.1 | 34.1 | 40.1 | 45.2 | 49.5 | 40.1 | 40.1 |
| 17.5° | 42.6 | 37.5 | 35.8 | 36.7 | 39.2 | 43.5 | 49.5 | 50.3 | 45.2 | 46.1 |
| 20° | 46.1 | 40.9 | 40.1 | 40.9 | 42.6 | 50.3 | 51.2 | 54.6 | 53.7 | 53.7 |
| 22.5° | 50.3 | 43.5 | 42.6 | 42.6 | 47.8 | 54.6 | 58.0 | 65.7 | 58.0 | 62.3 |
| 25° | 54.6 | 48.6 | 48.6 | 47.8 | 52.0 | 58.9 | 65.7 | 70.8 | 72.5 | 77.6 |
| 27.5° | 62.3 | 57.2 | 56.3 | 56.3 | 57.2 | 64.8 | 75.9 | 79.3 | 89.6 | 93.0 |
| 30° | 70.8 | 69.9 | 65.7 | 64.8 | 65.7 | 69.9 | 83.6 | 95.5 | 105.8 | 100.7 |
| 32.5° | 82.7 | 83.6 | 78.5 | 81.0 | 75.1 | 79.3 | 93.8 | 107.5 | 112.6 | 110.9 |
| 35° | 97.2 | 98.9 | 94.7 | 94.7 | 88.7 | 91.3 | 104.9 | 121.1 | 127.1 | 125.4 |
| 37.5° | 120.3 | 120.3 | 115.2 | 113.4 | 103.2 | 103.2 | 119.4 | 132.2 | 139.0 | 136.5 |
| 40° | 146.7 | 154.4 | 145.9 | 138.2 | 122.0 | 118.6 | 135.6 | 144.2 | 151.8 | 147.6 |
| 42.5° | 186.0 | 197.0 | 195.3 | 186.0 | 145.0 | 135.6 | 154.4 | 162.9 | 166.3 | 161.2 |
| 45° | 249.9 | 284.9 | 291.7 | 279.8 | 202.2 | 176.6 | 195.3 | 201.3 | 199.6 | 193.6 |
| 47.5° | 308.8 | 360.0 | 371.1 | 368.5 | 267.8 | 209.8 | 225.2 | 230.3 | 224.3 | 215.8 |
| 50° | 399.2 | 478.5 | 483.7 | 482.8 | 364.2 | 267.8 | 271.3 | 267.8 | 255.9 | 248.2 |
| 52.5° | 448.7 | 554.4 | 569.0 | 564.7 | 426.5 | 313.1 | 302.0 | 286.6 | 276.4 | 266.1 |
| 55° | 476.0 | 603.1 | 627.0 | 620.1 | 470.0 | 339.5 | 315.6 | 294.3 | 284.0 | 277.2 |
| 56° | *482.8* | *609.0* | *629.5* | *624.4* | *480.2* | *342.1* | *316.5* | *292.6* | *285.8* | *279.8* |
| 57.5° | 485.4 | 609.9 | 623.5 | 621.0 | 489.6 | 342.9 | 316.5 | 289.2 | 283.2 | 278.9 |
| 60° | 472.6 | 601.4 | 613.3 | 607.3 | 493.0 | 341.2 | 314.8 | 277.2 | 275.5 | 272.1 |
| 62.5° | 442.7 | 594.5 | 619.3 | 610.7 | 487.1 | 329.3 | 313.9 | 259.3 | 261.9 | 261.9 |
| 65° | 410.3 | 564.7 | 591.1 | 585.2 | 466.6 | 305.4 | 307.1 | 237.1 | 237.1 | 243.1 |
| 67.5° | 368.5 | 516.1 | 537.4 | 537.4 | 432.5 | 271.3 | 291.7 | 214.1 | 208.1 | 217.5 |
| 70° | 313.9 | 458.9 | 483.7 | 481.1 | 389.0 | 236.3 | 272.1 | 189.4 | 177.4 | 187.7 |
| 72.5° | 256.8 | 394.9 | 426.5 | 423.1 | 337.8 | 198.7 | 240.5 | 165.5 | 145.0 | 155.2 |
| 75° | 197.9 | 320.7 | 349.7 | 347.2 | 280.6 | 157.8 | 198.7 | 139.0 | 112.6 | 119.4 |
| 77.5° | 132.2 | 240.5 | 263.6 | 261.9 | 212.4 | 112.6 | 149.3 | 104.9 | 81.0 | 85.3 |
| 80° | 75.9 | 155.2 | 171.5 | 170.6 | 136.5 | 69.1 | 93.0 | 67.4 | 55.4 | 55.4 |
| 82.5° | 29.0 | 70.8 | 77.6 | 77.6 | 59.7 | 32.4 | 38.4 | 34.1 | 32.4 | 32.4 |
| 85° | 13.6 | 15.4 | 15.4 | 15.4 | 11.9 | 12.8 | 12.8 | 16.2 | 16.2 | 16.2 |
| 87.5° | 11.1 | 11.1 | 11.1 | 11.9 | 8.5 | 9.4 | 8.5 | 11.9 | 12.8 | 11.9 |
| 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: SP1-2509-539-7

Test Date: 04/15/2026

Luminaire Tested: Luxscape Bollard

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.05

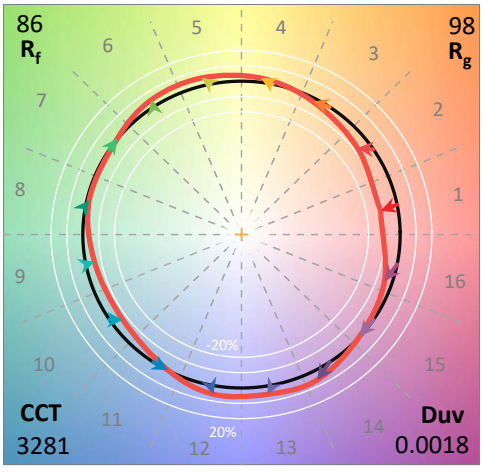
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2509-539-7 |
| 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-C1-835-LED-XX-Dx-S-GM-SPECULAR REFLECTOR |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 3281 |
| CIE u': | 0.2408 |
| CIE v': | 0.5181 |
| Duv: | 0.0018 |
| CIE x: | 0.4204 |
| CIE y: | 0.4020 |
| CIE z: | 0.1776 |
| Peak Wavelength (nm): | 601 |
| Dominant Wavelength (nm): | 581 |
| Purity: | 46.84629 |
| Rf: | 85.8 |
| Rg: | 97.6 |

| | | | | | |
|---|---|---|---|---|---|
| CRI (Ra): | 83.9 | | | | |
| R1: | 82.0 | R9: | 9.4 |
| R2: | 89.5 | R10: | 76.7 |
| R3: | 96.9 | R11: | 85.1 |
| R4: | 84.3 | R12: | 73.1 |
| R5: | 82.6 | R13: | 83.6 |
| R6: | 87.7 | R14: | 98.3 |
| R7: | 85.4 | R15: | 74.0 |
| R8: | 62.6 | | |




## Test Conditions

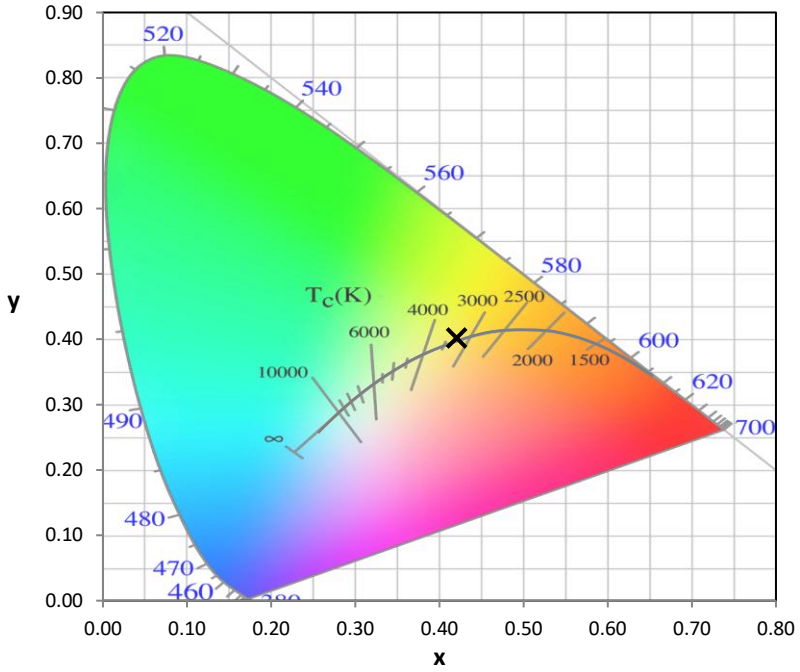
| | |
|---|---|
| Stabilization Time: | 31M |
| Operation Time: | 1H 31M |
| Sphere Temperature (°C): | 25.1 |

REPORT NUMBER: SP1-2509-539-7

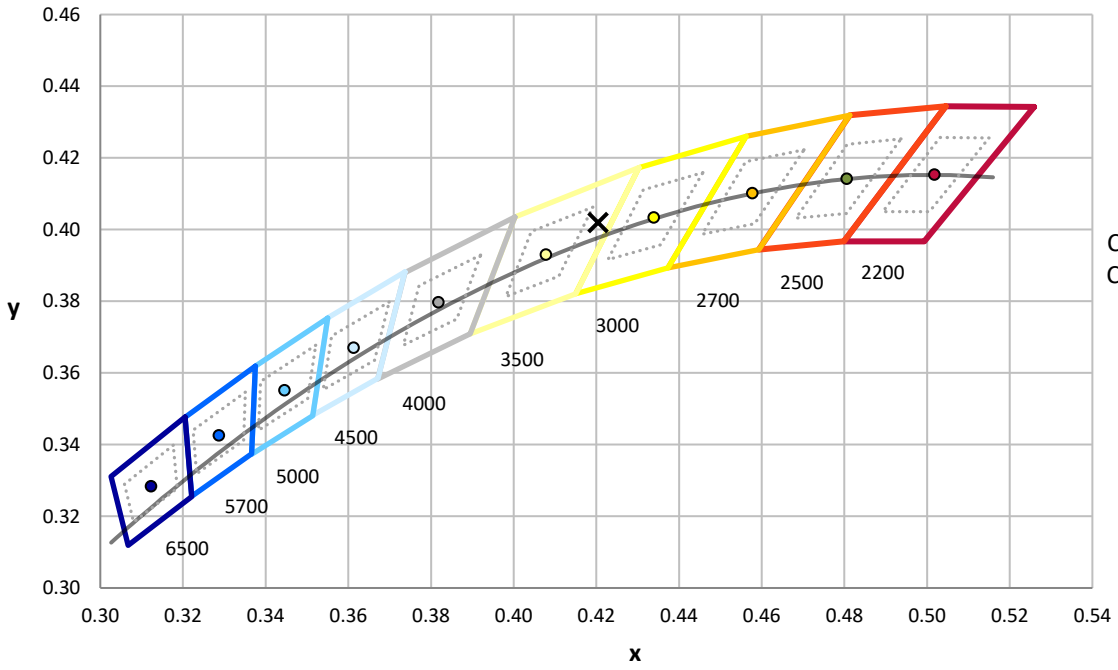
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 12/16/2025 | 6/16/2026 |
| Power Meter | XITRON INXT2011004 | 10/21/2025 | 10/21/2026 |
| AC Power Source | CHROMA 61603 IN0063 | 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: SP1-2509-539-7

## CIE 1931 Chromaticity Diagram




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

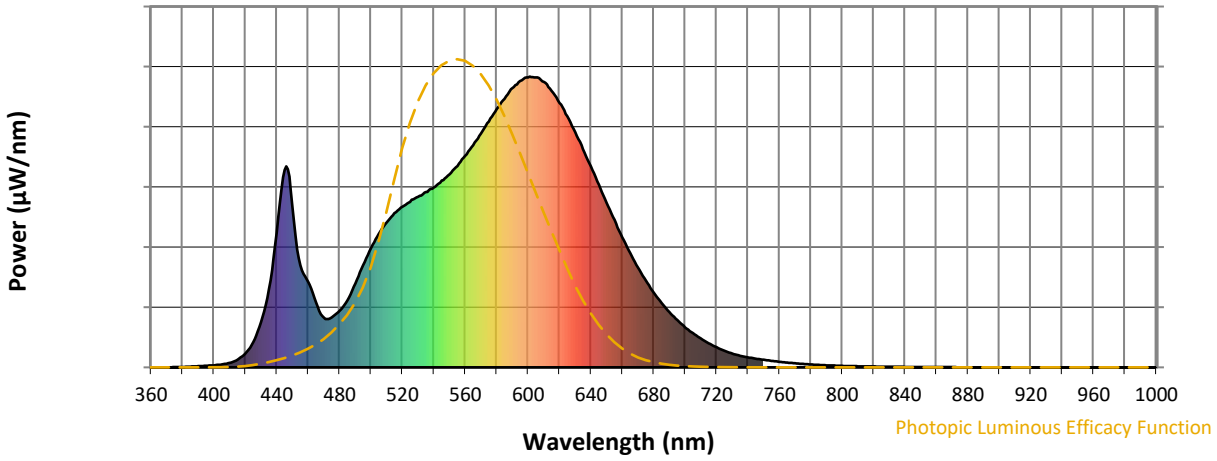



CCT = 3281K
CIE x = 0.4204
CIE y = 0.4020
Duv = 0.0018

Point lies inside the ANSI 3500K 7-step quadrangle

REPORT NUMBER: SP1-2509-539-7

## Photopic Flux vs. Wavelength

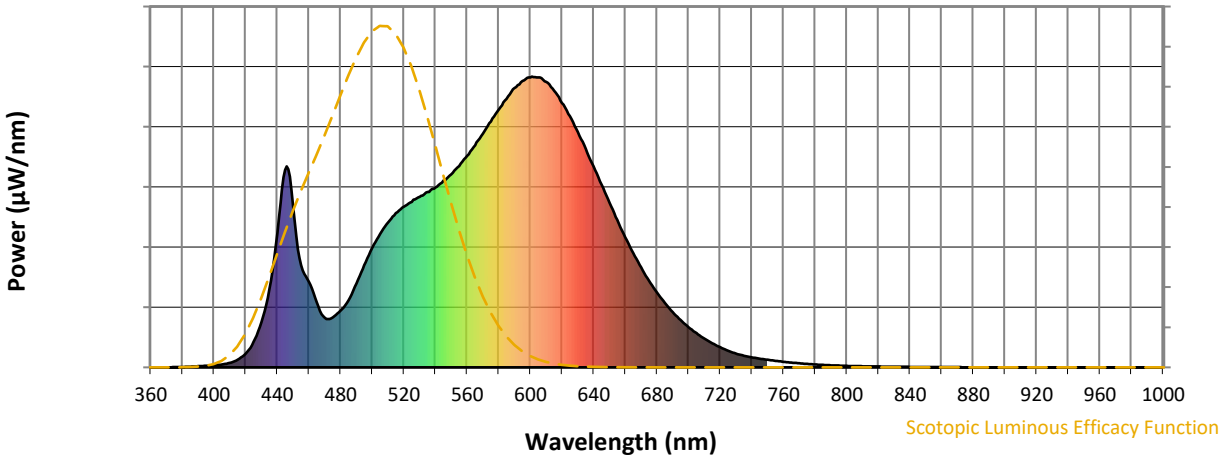



## Photopic Lumens: NR

| 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 | 288 | NR | 620 | 909 | NR | 750 | 26 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 351 | NR | 625 | 864 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 411 | NR | 630 | 809 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 1 | NR | 505 | 459 | NR | 635 | 750 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 2 | NR | 510 | 498 | NR | 640 | 691 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 3 | NR | 515 | 530 | NR | 645 | 629 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 4 | NR | 520 | 553 | NR | 650 | 566 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 569 | NR | 655 | 507 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 586 | NR | 660 | 447 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 10 | NR | 535 | 603 | NR | 665 | 393 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 619 | NR | 670 | 343 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 27 | NR | 545 | 642 | NR | 675 | 298 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 48 | NR | 550 | 663 | NR | 680 | 257 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 87 | NR | 555 | 692 | NR | 685 | 221 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 155 | NR | 560 | 728 | NR | 690 | 190 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 270 | NR | 565 | 763 | NR | 695 | 163 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 462 | NR | 570 | 804 | NR | 700 | 138 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 679 | NR | 575 | 845 | NR | 705 | 117 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 553 | NR | 580 | 886 | NR | 710 | 99 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 351 | NR | 585 | 924 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 295 | NR | 590 | 960 | NR | 720 | 69 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 223 | NR | 595 | 985 | NR | 725 | 57 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 170 | NR | 600 | 997 | NR | 730 | 47 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 171 | NR | 605 | 997 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 195 | NR | 610 | 982 | NR | 740 | 34 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 230 | NR | 615 | 951 | NR | 745 | 30 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2509-539-7

## Scotopic Flux vs. Wavelength

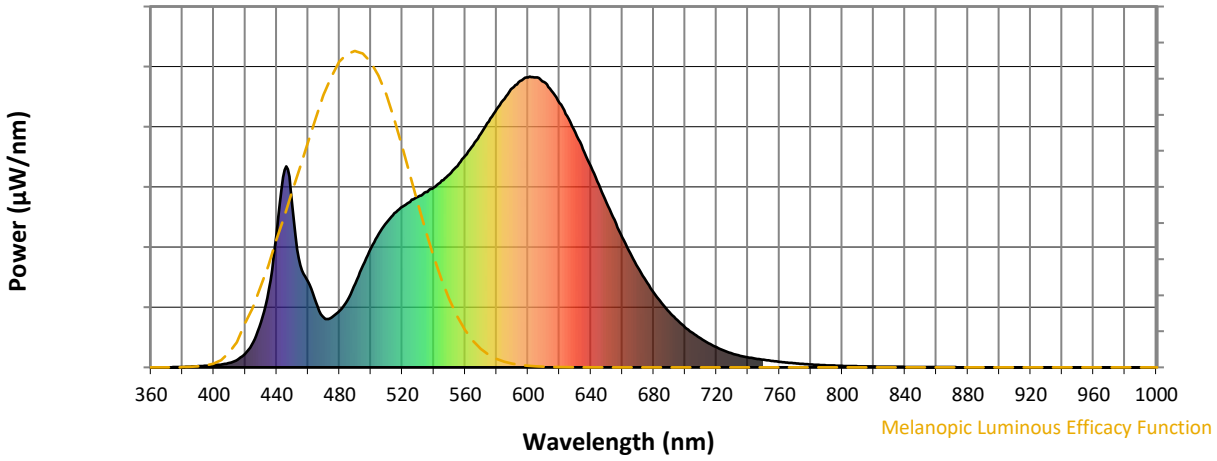



**Scotopic Lumens: NR** **S/P: 1.44**

| 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 | 288 | NR | 620 | 909 | NR | 750 | 26 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 351 | NR | 625 | 864 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 411 | NR | 630 | 809 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 1 | NR | 505 | 459 | NR | 635 | 750 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 2 | NR | 510 | 498 | NR | 640 | 691 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 3 | NR | 515 | 530 | NR | 645 | 629 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 4 | NR | 520 | 553 | NR | 650 | 566 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 569 | NR | 655 | 507 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 586 | NR | 660 | 447 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 10 | NR | 535 | 603 | NR | 665 | 393 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 619 | NR | 670 | 343 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 27 | NR | 545 | 642 | NR | 675 | 298 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 48 | NR | 550 | 663 | NR | 680 | 257 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 87 | NR | 555 | 692 | NR | 685 | 221 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 155 | NR | 560 | 728 | NR | 690 | 190 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 270 | NR | 565 | 763 | NR | 695 | 163 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 462 | NR | 570 | 804 | NR | 700 | 138 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 679 | NR | 575 | 845 | NR | 705 | 117 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 553 | NR | 580 | 886 | NR | 710 | 99 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 351 | NR | 585 | 924 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 295 | NR | 590 | 960 | NR | 720 | 69 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 223 | NR | 595 | 985 | NR | 725 | 57 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 170 | NR | 600 | 997 | NR | 730 | 47 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 171 | NR | 605 | 997 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 195 | NR | 610 | 982 | NR | 740 | 34 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 230 | NR | 615 | 951 | NR | 745 | 30 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2509-539-7

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.79**

| 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 | 288 | NR | 620 | 909 | NR | 750 | 26 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 351 | NR | 625 | 864 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 411 | NR | 630 | 809 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 1 | NR | 505 | 459 | NR | 635 | 750 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 2 | NR | 510 | 498 | NR | 640 | 691 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 3 | NR | 515 | 530 | NR | 645 | 629 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 4 | NR | 520 | 553 | NR | 650 | 566 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 569 | NR | 655 | 507 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 586 | NR | 660 | 447 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 10 | NR | 535 | 603 | NR | 665 | 393 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 619 | NR | 670 | 343 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 27 | NR | 545 | 642 | NR | 675 | 298 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 48 | NR | 550 | 663 | NR | 680 | 257 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 87 | NR | 555 | 692 | NR | 685 | 221 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 155 | NR | 560 | 728 | NR | 690 | 190 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 270 | NR | 565 | 763 | NR | 695 | 163 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 462 | NR | 570 | 804 | NR | 700 | 138 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 679 | NR | 575 | 845 | NR | 705 | 117 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 553 | NR | 580 | 886 | NR | 710 | 99 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 351 | NR | 585 | 924 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 295 | NR | 590 | 960 | NR | 720 | 69 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 223 | NR | 595 | 985 | NR | 725 | 57 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 170 | NR | 600 | 997 | NR | 730 | 47 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 171 | NR | 605 | 997 | NR | 735 | 40 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 195 | NR | 610 | 982 | NR | 740 | 34 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 230 | NR | 615 | 951 | NR | 745 | 30 | NR | 875 | 1 | NR | | | |

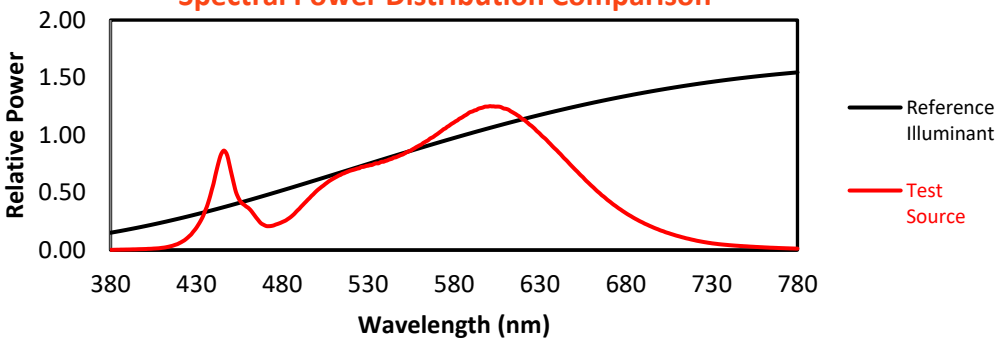
REPORT NUMBER: SP1-2509-539-7

# TM-30-18

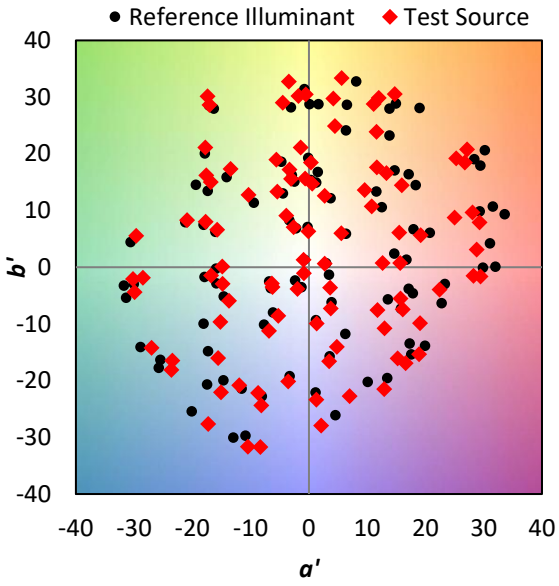
## Summary

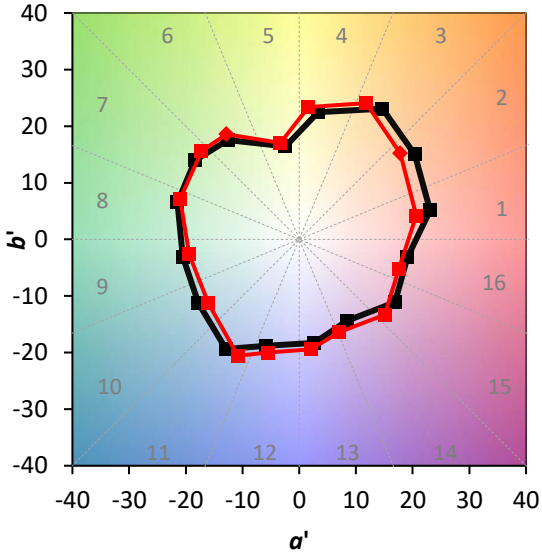
$R_f$ = 85.8
$R_g$ = 97.6
CIE $R_a$ = 83.9
$R_9$ = 9.4

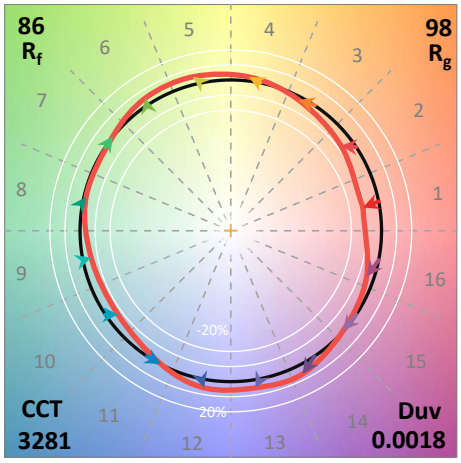
## Spectral Power Distribution Comparison

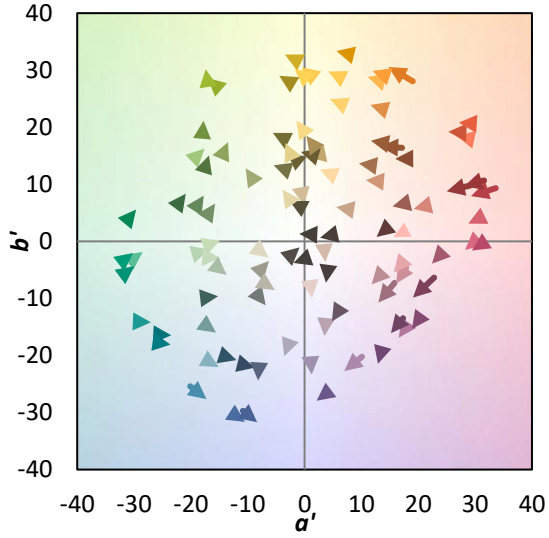



## Color Vector Graphics



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

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| CES01 = 86 | CES26 = 82 | CES51 = 96 | CES76 = 79 |
| CES02 = 62 | CES27 = 95 | CES52 = 96 | CES77 = 87 |
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| CES07 = 42 | CES32 = 80 | CES57 = 86 | CES82 = 96 |
| CES08 = 40 | CES33 = 84 | CES58 = 88 | CES83 = 94 |
| CES09 = 29 | CES34 = 89 | CES59 = 93 | CES84 = 93 |
| CES10 = 75 | CES35 = 94 | CES60 = 96 | CES85 = 81 |
| CES11 = 58 | CES36 = 95 | CES61 = 92 | CES86 = 72 |
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| CES13 = 43 | CES38 = 93 | CES63 = 87 | CES88 = 87 |
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| CES15 = 71 | CES40 = 93 | CES65 = 81 | CES90 = 87 |
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| CES17 = 50 | CES42 = 93 | CES67 = 84 | CES92 = 69 |
| CES18 = 56 | CES43 = 89 | CES68 = 86 | CES93 = 82 |
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| CES20 = 66 | CES45 = 93 | CES70 = 81 | CES95 = 77 |
| CES21 = 86 | CES46 = 89 | CES71 = 80 | CES96 = 85 |
| CES22 = 79 | CES47 = 88 | CES72 = 93 | CES97 = 91 |
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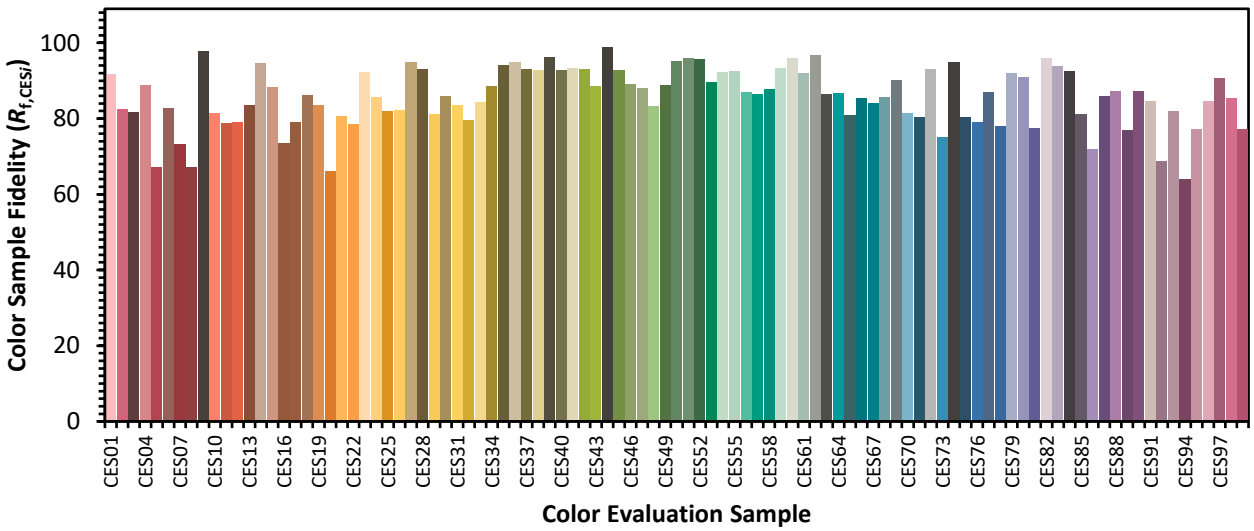

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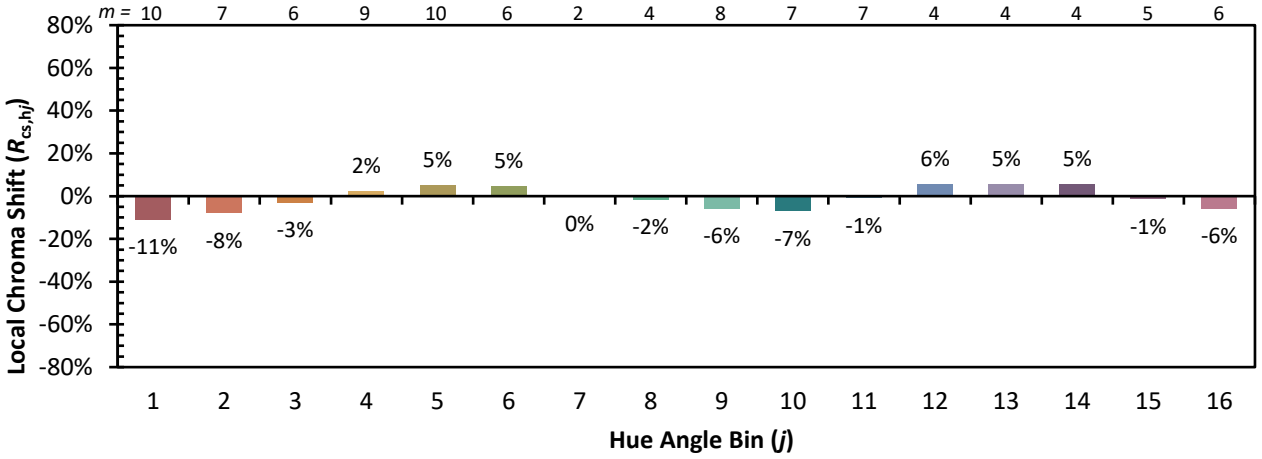
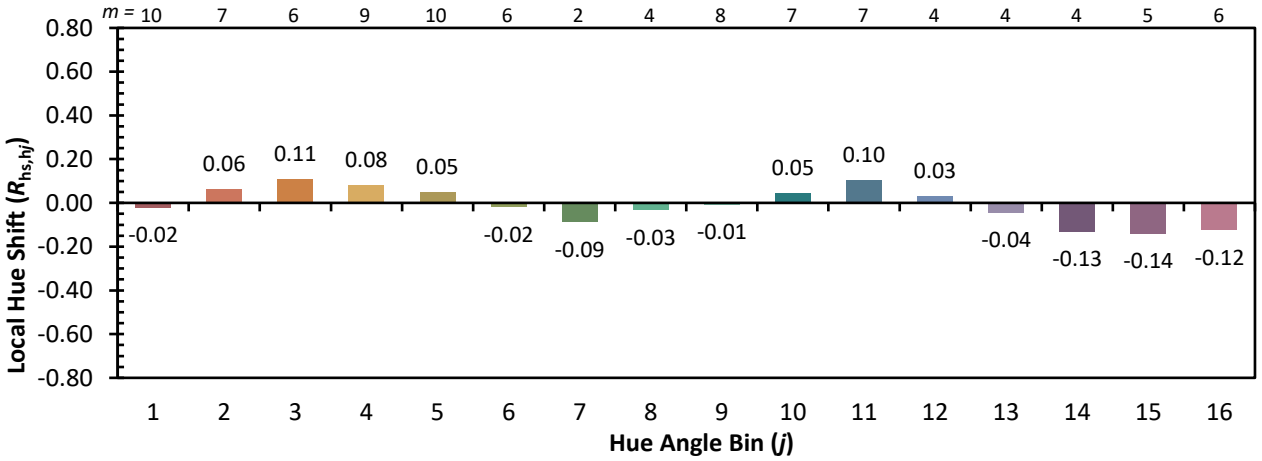
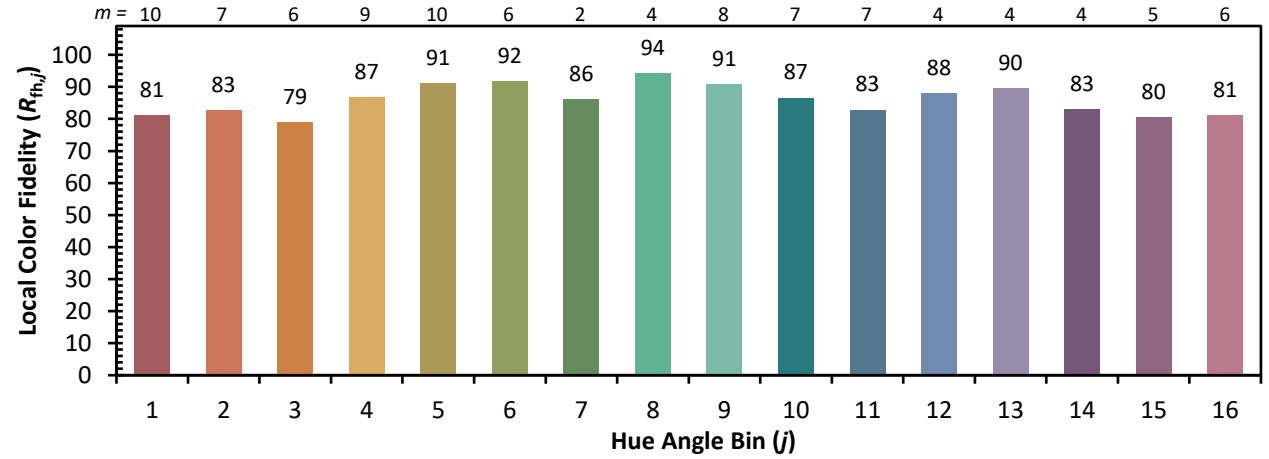
## Color Rendition by Hue-Angle Bin



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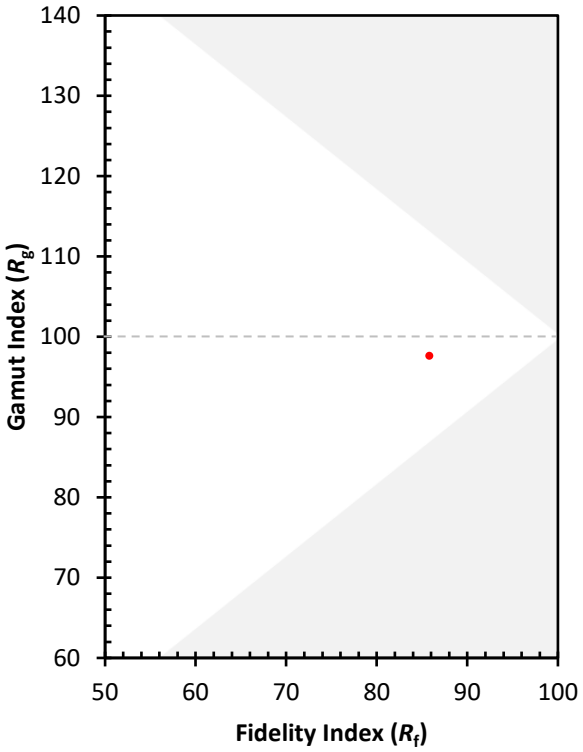
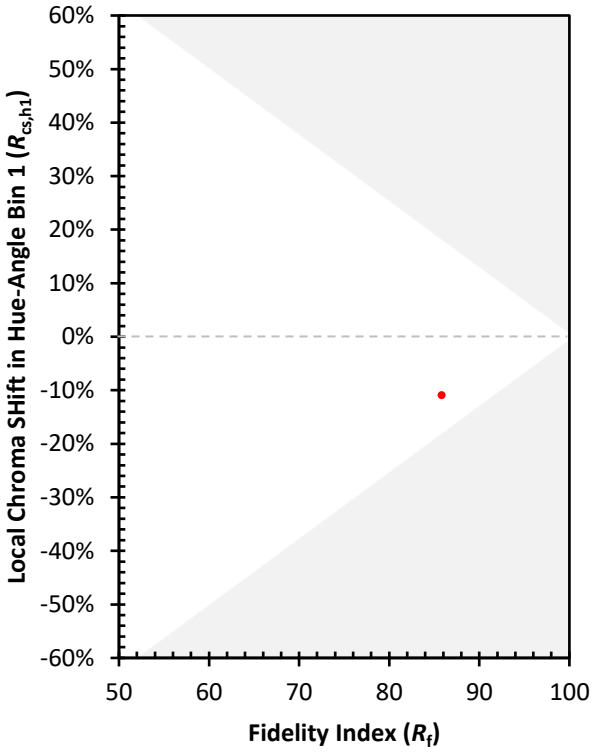
## Measure Comparisons




(END OF REPORT)