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

Scaled data based on original data using

LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P640406

Luminaire Tested: GWS-SA5D-827-U-SLL-W-HSS

Issue Date: 1/10/2023

Report Generated By 670246102 / DESKTOP-G35701P

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Peachtree City, GA 30269

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P640406 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-40) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 1/10/2023 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GWS-SA5D-827-U-SLL-W-HSS |
| Description: | GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND SPILL LIGHT ELIMINATOR LEFT OPTICS WITH HOUSE SIDE SHIELD |
| Light Source: | (80) 2700K CCT, 80 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 13370.9 lumens |
| Efficiency: | N/A |
| Efficacy: | 65.4 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B1 - U0 - G3 |

| | |
|---|---|
| Input Watts (W): | 204.6 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 0 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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REPORT NUMBER: P640406
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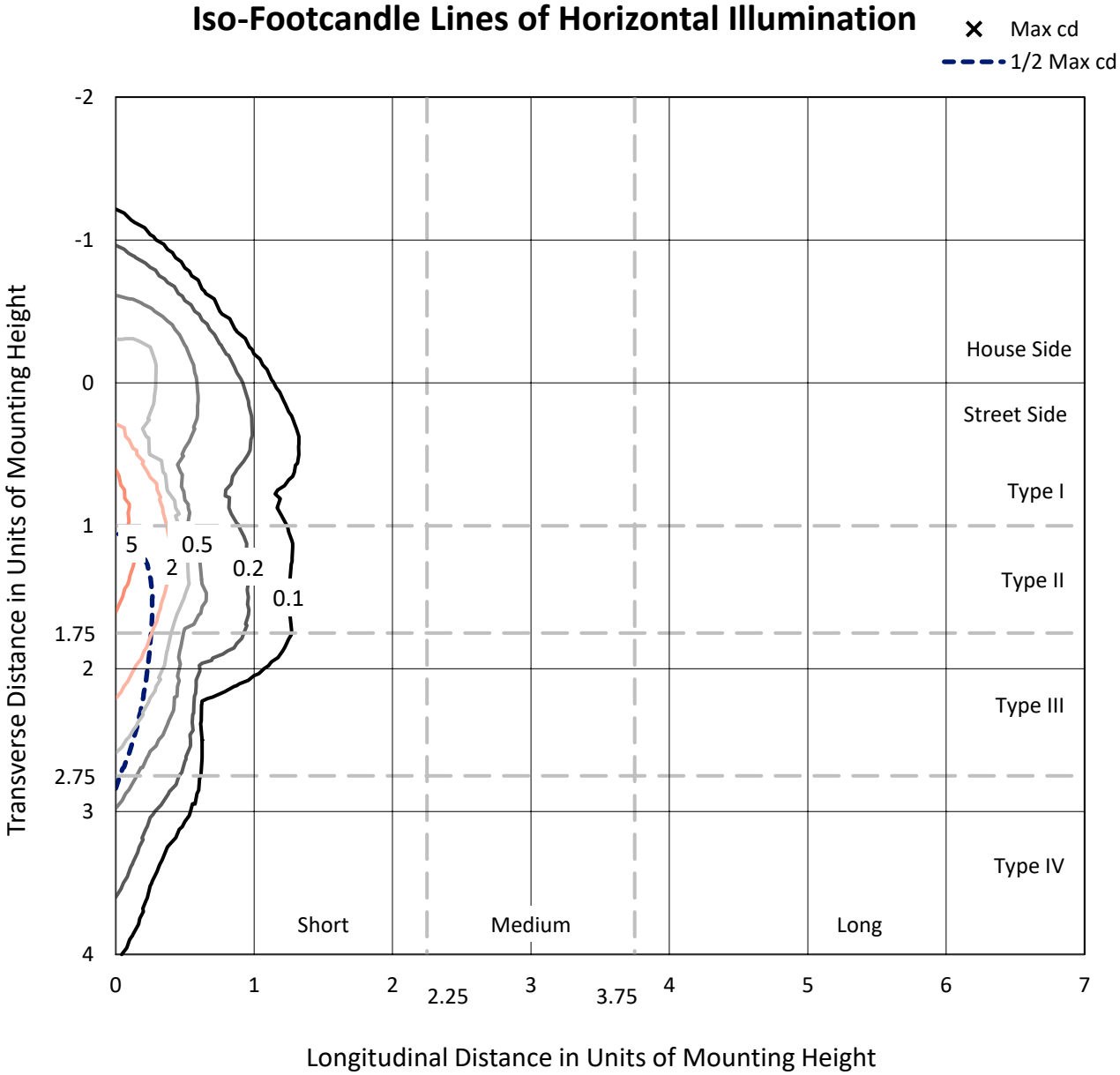
## Iso-Footcandle Lines of Horizontal Illumination




Based on 20 foot mounting height. Maximum calculated value = 6 fc
Type III - Short - N/A

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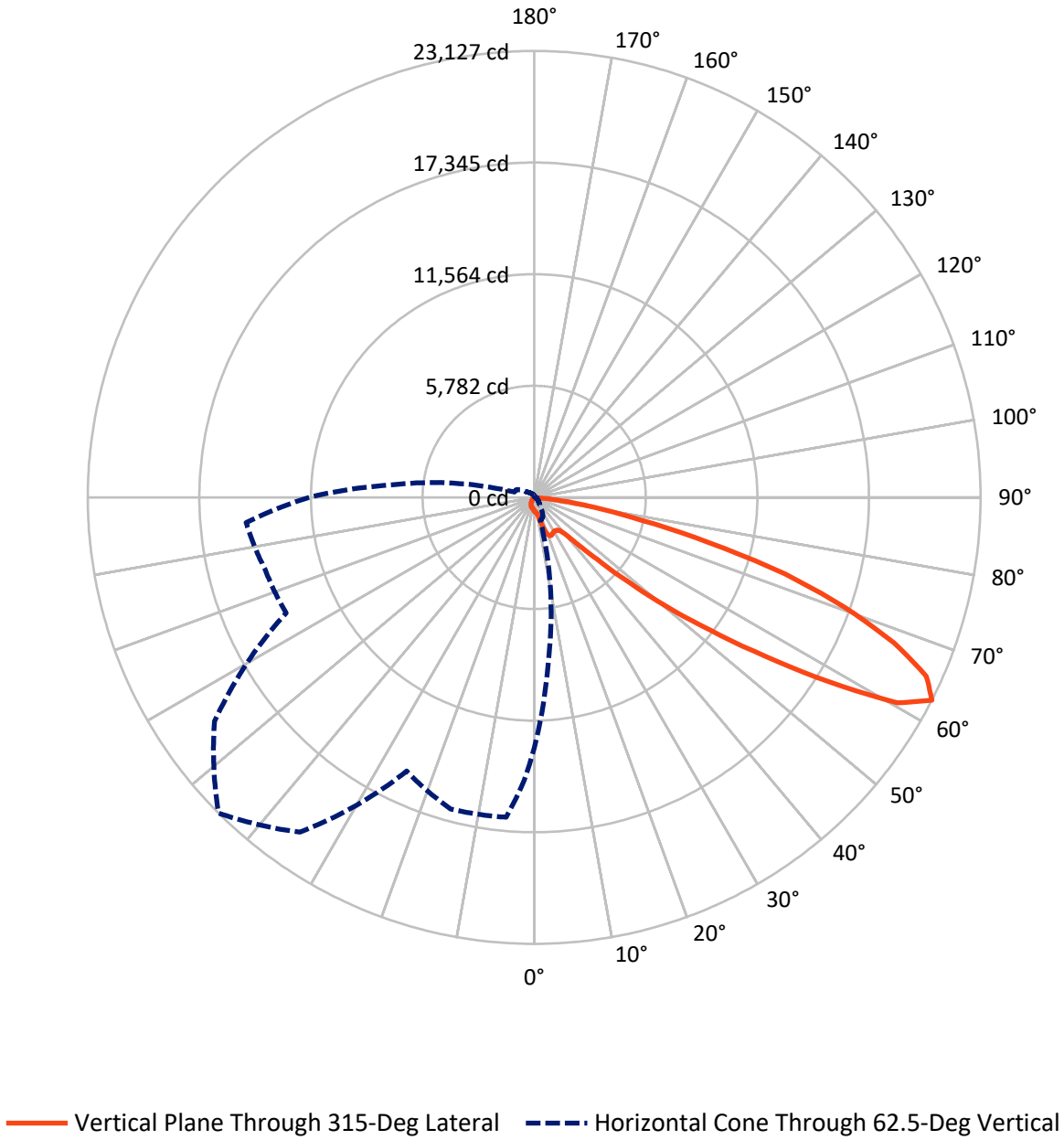
## Luminous Intensity Polar Plot



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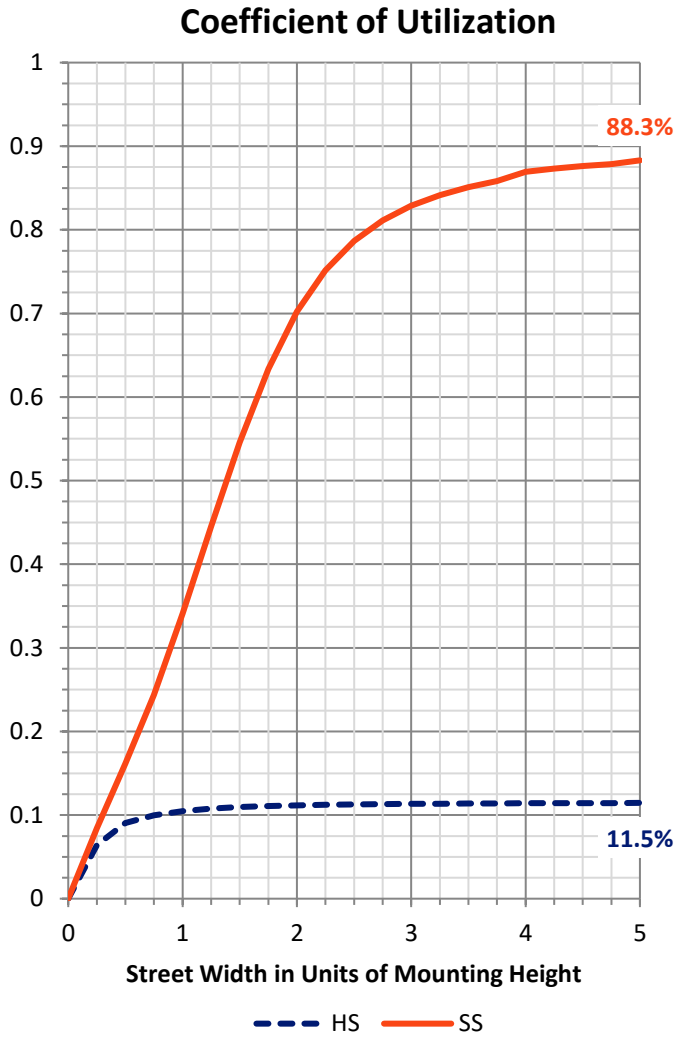
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1553.5 | 0.0 | 1553.5 |
| | % Fixture | 11.6 | 0.0 | 11.6 |
| **Street Side** | Lumens | 11817.4 | 0.0 | 11817.4 |
| | % Fixture | 88.4 | 0.0 | 88.4 |
| **Total** | Lumens | 13370.9 | 0.0 | 13370.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 59.9 | 0.4 |
| 10°-20° | 205.2 | 1.5 |
| 20°-30° | 463.7 | 3.5 |
| 30°-40° | 798.8 | 6.0 |
| 40°-50° | 1506.8 | 11.3 |
| 50°-60° | 3364.2 | 25.2 |
| 60°-70° | 4499.6 | 33.7 |
| 70°-80° | 2256.4 | 16.9 |
| 80°-90° | 216.3 | 1.6 |
| 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° | 13370.9 | 100.0 |
| 0°-180° | 13370.9 | 100.0 |



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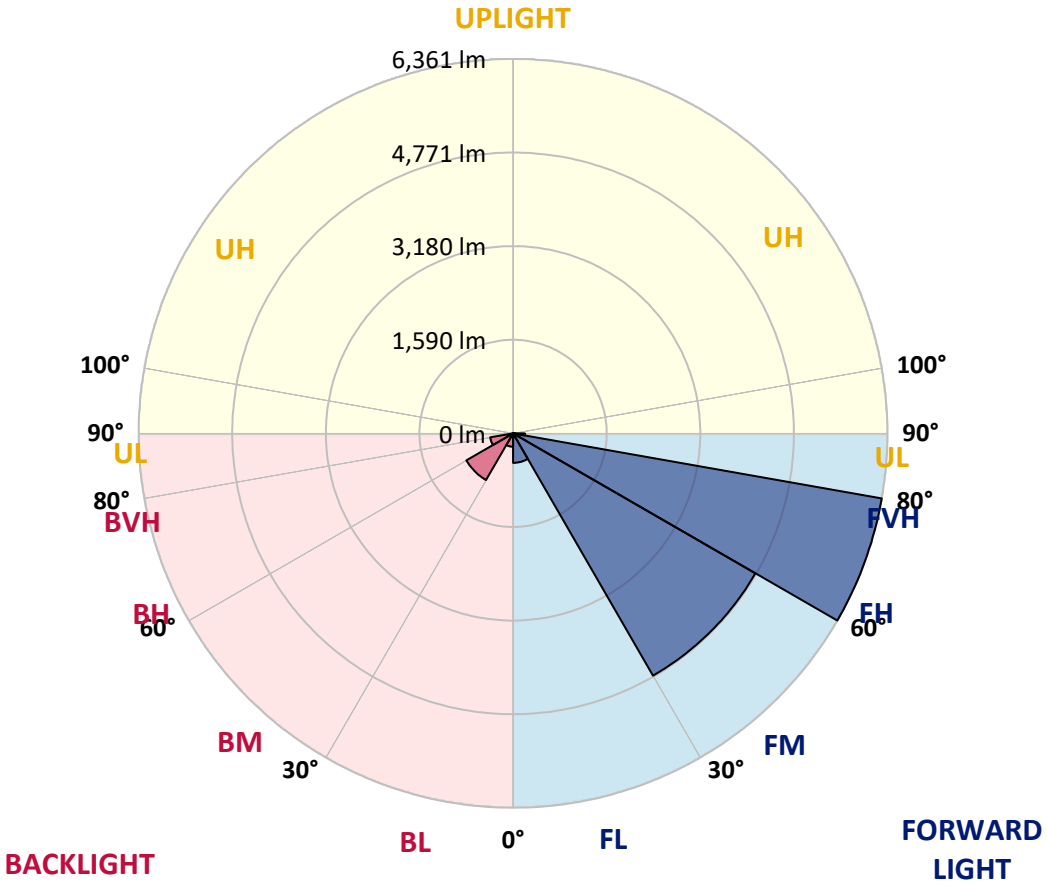
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 500.8 | 3.7 | | | |
| FM | (30°-60°) | 4753.8 | 35.6 | | | |
| FH | (60°-80°) | 6361.0 | 47.6 | | | G3/7500 |
| FVH | (80°-90°) | 201.9 | 1.5 | | | G2/225 |
| BL | (0°-30°) | 228.0 | 1.7 | B1/500 | | |
| BM | (30°-60°) | 916.1 | 6.9 | B1/1000 | | |
| BH | (60°-80°) | 395.1 | 3.0 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 14.4 | 0.1 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B1-U0-G3**
Type III Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 2° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 |
| 2.5° | 685.5 | 683.9 | 680.8 | 671.3 | 663.4 | 658.6 | 649.1 | 649.1 | 647.5 | 644.4 | 638.0 |
| 5° | 663.4 | 657.0 | 650.7 | 633.3 | 614.3 | 603.2 | 590.5 | 588.9 | 588.9 | 585.8 | 584.2 |
| 7.5° | 628.5 | 622.2 | 614.3 | 585.8 | 568.4 | 557.3 | 546.2 | 544.6 | 539.9 | 539.9 | 539.9 |
| 10° | 609.5 | 600.0 | 587.4 | 555.7 | 538.3 | 528.8 | 520.9 | 516.1 | 513.0 | 508.2 | 506.6 |
| 12.5° | 650.7 | 633.3 | 606.4 | 549.4 | 525.6 | 513.0 | 503.5 | 500.3 | 490.8 | 484.5 | 479.7 |
| 15° | 778.9 | 736.2 | 682.4 | 563.6 | 520.9 | 501.9 | 489.2 | 482.9 | 475.0 | 463.9 | 456.0 |
| 17.5° | 989.5 | 927.7 | 837.5 | 609.5 | 516.1 | 492.4 | 476.5 | 465.5 | 454.4 | 441.7 | 432.2 |
| 20° | 1280.8 | 1189.0 | 1081.3 | 693.4 | 516.1 | 481.3 | 462.3 | 448.0 | 432.2 | 418.0 | 406.9 |
| 22.5° | 1651.3 | 1559.4 | 1375.8 | 835.9 | 522.5 | 467.0 | 444.9 | 425.9 | 406.9 | 394.2 | 381.5 |
| 25° | 2066.1 | 1936.2 | 1765.2 | 1008.5 | 539.9 | 448.0 | 424.3 | 405.3 | 387.9 | 372.0 | 357.8 |
| 27.5° | 2528.3 | 2387.4 | 2159.5 | 1253.9 | 577.9 | 429.0 | 402.1 | 384.7 | 368.9 | 353.0 | 334.1 |
| 30° | 2954.2 | 2870.3 | 2637.6 | 1548.4 | 639.6 | 416.4 | 384.7 | 368.9 | 353.0 | 332.5 | 315.1 |
| 32.5° | 3465.6 | 3316.8 | 3125.2 | 1884.0 | 721.9 | 403.7 | 370.5 | 348.3 | 335.6 | 316.6 | 297.6 |
| 35° | 3980.1 | 3853.5 | 3601.7 | 2297.2 | 813.8 | 391.0 | 353.0 | 332.5 | 321.4 | 299.2 | 278.6 |
| 37.5° | 4510.5 | 4482.0 | 4233.4 | 2754.7 | 904.0 | 376.8 | 332.5 | 319.8 | 308.7 | 283.4 | 259.6 |
| 40° | 5032.9 | 4980.7 | 4751.1 | 3277.2 | 959.4 | 361.0 | 315.1 | 307.1 | 294.5 | 266.0 | 239.1 |
| 42.5° | 5533.2 | 5493.6 | 5270.4 | 3777.5 | 951.5 | 346.7 | 297.6 | 288.1 | 278.6 | 250.1 | 216.9 |
| 45° | 6147.5 | 6082.6 | 5800.8 | 4147.9 | 870.8 | 362.5 | 280.2 | 264.4 | 262.8 | 235.9 | 194.7 |
| 47.5° | 7296.9 | 7083.2 | 6605.0 | 4432.9 | 790.0 | 403.7 | 261.2 | 242.2 | 253.3 | 221.6 | 172.6 |
| 50° | 8907.0 | 8655.3 | 7963.4 | 4654.6 | 788.4 | 457.5 | 258.1 | 221.6 | 245.4 | 210.6 | 153.6 |
| 52.5° | 10525.0 | 10081.7 | 9241.0 | 4773.3 | 847.0 | 497.1 | 286.6 | 201.1 | 235.9 | 199.5 | 139.3 |
| 55° | 12074.9 | 11155.1 | 9776.2 | 4380.7 | 892.9 | 539.9 | 338.8 | 190.0 | 218.5 | 186.8 | 131.4 |
| 57.5° | 13552.0 | 12017.9 | 10008.9 | 3465.6 | 1046.5 | 557.3 | 370.5 | 194.7 | 193.1 | 171.0 | 125.1 |
| 60° | 13754.7 | 11976.8 | 9538.7 | 2015.4 | 1154.1 | 527.2 | 357.8 | 216.9 | 169.4 | 152.0 | 114.0 |
| 62.5° | *12988.4* | *11180.4* | *8466.9* | *1257.0* | *1071.8* | *516.1* | *318.2* | *247.0* | *153.6* | *134.6* | *99.7* |
| 65° | 11824.8 | 9931.3 | 7059.4 | 810.6 | 812.2 | 573.1 | 278.6 | 242.2 | 144.1 | 118.7 | 85.5 |
| 67.5° | 10005.7 | 8311.7 | 5561.7 | 543.0 | 459.1 | 489.2 | 243.8 | 166.2 | 140.9 | 101.3 | 66.5 |
| 70° | 7303.2 | 5916.4 | 3620.7 | 362.5 | 273.9 | 391.0 | 204.2 | 118.7 | 133.0 | 83.9 | 47.5 |
| 72.5° | 5338.5 | 3975.4 | 2021.7 | 237.5 | 155.2 | 228.0 | 150.4 | 85.5 | 102.9 | 61.7 | 33.2 |
| 75° | 3842.4 | 2735.7 | 1154.1 | 152.0 | 102.9 | 125.1 | 98.2 | 58.6 | 66.5 | 49.1 | 30.1 |
| 77.5° | 1849.2 | 1333.0 | 524.0 | 83.9 | 69.7 | 63.3 | 52.2 | 36.4 | 41.2 | 44.3 | 26.9 |
| 80° | 69.7 | 52.2 | 39.6 | 41.2 | 44.3 | 28.5 | 23.7 | 19.0 | 23.7 | 30.1 | 14.2 |
| 82.5° | 0.0 | 0.0 | 0.0 | 4.7 | 6.3 | 7.9 | 9.5 | 7.9 | 9.5 | 11.1 | 1.6 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 |
| 2.5° | 642.8 | 639.6 | 642.8 | 645.9 | 649.1 | 652.3 | 647.5 | 650.7 | 653.9 | 645.9 | 649.1 |
| 5° | 592.1 | 590.5 | 600.0 | 604.8 | 611.1 | 614.3 | 611.1 | 611.1 | 609.5 | 600.0 | 600.0 |
| 7.5° | 547.8 | 549.4 | 557.3 | 568.4 | 576.3 | 581.0 | 577.9 | 576.3 | 571.5 | 557.3 | 557.3 |
| 10° | 514.5 | 514.5 | 527.2 | 536.7 | 547.8 | 552.5 | 549.4 | 544.6 | 539.9 | 525.6 | 524.0 |
| 12.5° | 487.6 | 487.6 | 497.1 | 513.0 | 525.6 | 531.9 | 530.4 | 524.0 | 516.1 | 501.9 | 500.3 |
| 15° | 462.3 | 460.7 | 475.0 | 489.2 | 506.6 | 514.5 | 511.4 | 506.6 | 492.4 | 479.7 | 476.5 |
| 17.5° | 437.0 | 435.4 | 448.0 | 467.0 | 486.0 | 497.1 | 495.5 | 484.5 | 471.8 | 456.0 | 452.8 |
| 20° | 411.6 | 408.5 | 424.3 | 443.3 | 462.3 | 473.4 | 470.2 | 460.7 | 444.9 | 429.0 | 425.9 |
| 22.5° | 386.3 | 384.7 | 395.8 | 411.6 | 429.0 | 438.5 | 437.0 | 429.0 | 413.2 | 399.0 | 399.0 |
| 25° | 357.8 | 357.8 | 365.7 | 376.8 | 389.5 | 394.2 | 395.8 | 392.6 | 383.1 | 375.2 | 375.2 |
| 27.5° | 334.1 | 329.3 | 332.5 | 335.6 | 342.0 | 349.9 | 349.9 | 353.0 | 354.6 | 351.5 | 353.0 |
| 30° | 315.1 | 307.1 | 302.4 | 296.1 | 292.9 | 296.1 | 299.2 | 310.3 | 321.4 | 327.7 | 330.9 |
| 32.5° | 292.9 | 283.4 | 270.7 | 253.3 | 242.2 | 239.1 | 248.6 | 269.1 | 289.7 | 304.0 | 311.9 |
| 35° | 270.7 | 258.1 | 234.3 | 209.0 | 194.7 | 190.0 | 201.1 | 224.8 | 254.9 | 280.2 | 291.3 |
| 37.5° | 248.6 | 231.1 | 197.9 | 167.8 | 152.0 | 148.8 | 159.9 | 185.2 | 220.1 | 254.9 | 269.1 |
| 40° | 223.2 | 202.6 | 163.1 | 131.4 | 118.7 | 115.6 | 125.1 | 150.4 | 186.8 | 226.4 | 248.6 |
| 42.5° | 197.9 | 172.6 | 131.4 | 104.5 | 91.8 | 91.8 | 104.5 | 123.5 | 156.7 | 199.5 | 226.4 |
| 45° | 172.6 | 145.7 | 107.7 | 83.9 | 76.0 | 77.6 | 85.5 | 104.5 | 131.4 | 175.7 | 201.1 |
| 47.5° | 148.8 | 125.1 | 88.7 | 69.7 | 63.3 | 64.9 | 74.4 | 90.2 | 112.4 | 152.0 | 178.9 |
| 50° | 128.2 | 106.1 | 77.6 | 58.6 | 53.8 | 57.0 | 66.5 | 80.7 | 99.7 | 134.6 | 156.7 |
| 52.5° | 115.6 | 95.0 | 71.2 | 50.7 | 47.5 | 50.7 | 60.2 | 72.8 | 90.2 | 118.7 | 140.9 |
| 55° | 109.2 | 93.4 | 71.2 | 45.9 | 41.2 | 44.3 | 53.8 | 66.5 | 80.7 | 107.7 | 126.7 |
| 57.5° | 107.7 | 96.6 | 76.0 | 41.2 | 34.8 | 38.0 | 47.5 | 60.2 | 74.4 | 98.2 | 114.0 |
| 60° | 101.3 | 91.8 | 74.4 | 33.2 | 26.9 | 31.7 | 39.6 | 52.2 | 68.1 | 91.8 | 106.1 |
| 62.5° | *88.7* | *80.7* | *64.9* | *26.9* | *20.6* | *23.7* | *33.2* | *45.9* | *61.7* | *83.9* | *99.7* |
| 65° | 72.8 | 64.9 | 50.7 | 17.4 | 12.7 | 15.8 | 25.3 | 39.6 | 53.8 | 76.0 | 90.2 |
| 67.5° | 53.8 | 45.9 | 34.8 | 11.1 | 6.3 | 11.1 | 20.6 | 33.2 | 49.1 | 68.1 | 82.3 |
| 70° | 33.2 | 26.9 | 19.0 | 6.3 | 4.7 | 9.5 | 19.0 | 31.7 | 44.3 | 63.3 | 77.6 |
| 72.5° | 19.0 | 12.7 | 7.9 | 3.2 | 4.7 | 9.5 | 19.0 | 31.7 | 42.7 | 60.2 | 72.8 |
| 75° | 14.2 | 7.9 | 3.2 | 1.6 | 3.2 | 7.9 | 17.4 | 28.5 | 41.2 | 57.0 | 69.7 |
| 77.5° | 9.5 | 4.7 | 1.6 | 0.0 | 1.6 | 6.3 | 15.8 | 26.9 | 38.0 | 53.8 | 66.5 |
| 80° | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 14.2 | 23.7 | 34.8 | 47.5 | 58.6 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 11.1 | 20.6 | 30.1 | 39.6 | 47.5 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.3 | 15.8 | 23.7 | 30.1 | 33.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.9 | 15.8 | 19.0 | 22.2 |
| 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):**

| | 185° | 195° | 205° | 215° | 225° | 235° | 245° | 255° | 265° | 270° | 275° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 |
| 2.5° | 647.5 | 657.0 | 657.0 | 663.4 | 671.3 | 685.5 | 693.4 | 704.5 | 712.4 | 720.3 | 723.5 |
| 5° | 598.4 | 600.0 | 601.6 | 604.8 | 614.3 | 630.1 | 644.4 | 661.8 | 682.4 | 698.2 | 707.7 |
| 7.5° | 557.3 | 557.3 | 557.3 | 562.0 | 571.5 | 582.6 | 596.9 | 620.6 | 644.4 | 663.4 | 679.2 |
| 10° | 522.5 | 527.2 | 528.8 | 536.7 | 547.8 | 562.0 | 577.9 | 598.4 | 625.4 | 650.7 | 679.2 |
| 12.5° | 500.3 | 505.0 | 513.0 | 520.9 | 531.9 | 547.8 | 565.2 | 592.1 | 647.5 | 699.8 | 759.9 |
| 15° | 479.7 | 486.0 | 495.5 | 506.6 | 519.3 | 536.7 | 555.7 | 611.1 | 740.9 | 839.1 | 934.1 |
| 17.5° | 457.5 | 467.0 | 479.7 | 490.8 | 506.6 | 525.6 | 549.4 | 657.0 | 911.9 | 1075.0 | 1236.5 |
| 20° | 429.0 | 441.7 | 456.0 | 473.4 | 492.4 | 514.5 | 549.4 | 752.0 | 1158.9 | 1393.2 | 1606.9 |
| 22.5° | 402.1 | 414.8 | 432.2 | 454.4 | 476.5 | 498.7 | 557.3 | 896.1 | 1477.1 | 1773.2 | 2043.9 |
| 25° | 380.0 | 395.8 | 413.2 | 432.2 | 457.5 | 482.9 | 576.3 | 1098.7 | 1860.2 | 2241.8 | 2433.4 |
| 27.5° | 359.4 | 378.4 | 395.8 | 411.6 | 433.8 | 462.3 | 619.0 | 1369.5 | 2313.0 | 2700.9 | 2851.3 |
| 30° | 338.8 | 361.0 | 378.4 | 394.2 | 416.4 | 446.5 | 683.9 | 1714.6 | 2816.5 | 3193.3 | 3209.1 |
| 32.5° | 321.4 | 342.0 | 362.5 | 378.4 | 399.0 | 433.8 | 774.2 | 2118.3 | 3332.6 | 3696.7 | 3547.9 |
| 35° | 302.4 | 326.1 | 345.1 | 362.5 | 384.7 | 422.7 | 878.7 | 2553.7 | 3853.5 | 4159.0 | 3885.1 |
| 37.5° | 283.4 | 310.3 | 334.1 | 346.7 | 368.9 | 411.6 | 954.7 | 3008.0 | 4385.4 | 4610.2 | 4181.2 |
| 40° | 266.0 | 296.1 | 323.0 | 335.6 | 346.7 | 397.4 | 965.7 | 3473.5 | 4925.3 | 5055.1 | 4459.8 |
| 42.5° | 247.0 | 280.2 | 304.0 | 321.4 | 330.9 | 387.9 | 899.2 | 3866.1 | 5378.1 | 5498.4 | 4824.0 |
| 45° | 226.4 | 266.0 | 285.0 | 297.6 | 316.6 | 394.2 | 813.8 | 4170.1 | 5895.8 | 6103.2 | 5424.0 |
| 47.5° | 205.8 | 250.1 | 266.0 | 275.5 | 300.8 | 432.2 | 782.1 | 4372.8 | 6749.1 | 7179.7 | 6435.6 |
| 50° | 186.8 | 235.9 | 253.3 | 251.7 | 297.6 | 481.3 | 816.9 | 4526.3 | 8031.5 | 8538.1 | 7822.5 |
| 52.5° | 166.2 | 220.1 | 240.6 | 234.3 | 321.4 | 519.3 | 886.6 | 4648.2 | 9017.8 | 10130.8 | 9685.9 |
| 55° | 148.8 | 202.6 | 221.6 | 220.1 | 365.7 | 547.8 | 940.4 | 4005.5 | 9426.3 | 11611.1 | 11785.2 |
| 57.5° | 136.2 | 183.6 | 199.5 | 226.4 | 394.2 | 547.8 | 1087.6 | 2843.4 | 9434.2 | 12700.3 | 14571.6 |
| 60° | 125.1 | 166.2 | 177.3 | 248.6 | 383.1 | 519.3 | 1076.6 | 1741.5 | 8694.8 | 12625.9 | 16053.5 |
| 62.5° | *115.6* | *150.4* | *164.7* | *254.9* | *338.8* | *514.5* | *972.1* | *1079.7* | *7415.6* | *11664.9* | *14978.5* |
| 65° | 107.7 | 137.7 | 158.3 | 234.3 | 307.1 | 550.9 | 655.4 | 775.8 | 6014.5 | 10569.3 | 13745.2 |
| 67.5° | 99.7 | 126.7 | 167.8 | 191.6 | 278.6 | 492.4 | 473.4 | 550.9 | 4721.1 | 9367.7 | 12613.2 |
| 70° | 93.4 | 120.3 | 177.3 | 156.7 | 243.8 | 384.7 | 335.6 | 418.0 | 3614.4 | 7816.2 | 11019.0 |
| 72.5° | 88.7 | 112.4 | 148.8 | 123.5 | 197.9 | 297.6 | 234.3 | 304.0 | 2362.1 | 6101.6 | 8983.0 |
| 75° | 83.9 | 102.9 | 109.2 | 99.7 | 147.2 | 194.7 | 177.3 | 204.2 | 1407.4 | 4459.8 | 6815.6 |
| 77.5° | 82.3 | 96.6 | 88.7 | 80.7 | 99.7 | 115.6 | 134.6 | 137.7 | 687.1 | 2230.7 | 3571.7 |
| 80° | 72.8 | 87.1 | 76.0 | 66.5 | 68.1 | 76.0 | 99.7 | 91.8 | 156.7 | 566.8 | 953.1 |
| 82.5° | 57.0 | 68.1 | 63.3 | 55.4 | 55.4 | 55.4 | 66.5 | 61.7 | 50.7 | 254.9 | 430.6 |
| 85° | 39.6 | 47.5 | 47.5 | 44.3 | 42.7 | 42.7 | 41.2 | 39.6 | 14.2 | 15.8 | 23.7 |
| 87.5° | 26.9 | 33.2 | 34.8 | 33.2 | 28.5 | 25.3 | 22.2 | 19.0 | 6.3 | 0.0 | 3.2 |
| 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: P640406
CATALOG NUMBER: GWS-SA5D-827-U-SLL-W-HSS

**CANDELA DISTRIBUTION (continued):**

| | 285° | 295° | 305° | 315° | 325° | 335° | 345° | 355° | 358° | 360° |
|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 693.4 | 693.4 | 693.4 | *693.4* | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 | 693.4 |
| 2.5° | 734.6 | 739.3 | 739.3 | *733.0* | 728.3 | 715.6 | 702.9 | 690.3 | 687.1 | 685.5 |
| 5° | 734.6 | 753.6 | 763.1 | *761.5* | 750.4 | 729.8 | 702.9 | 674.4 | 666.5 | 663.4 |
| 7.5° | 723.5 | 759.9 | 788.4 | *793.2* | 772.6 | 736.2 | 687.1 | 644.4 | 633.3 | 628.5 |
| 10° | 748.8 | 820.1 | 877.1 | *885.0* | 861.3 | 790.0 | 710.8 | 638.0 | 620.6 | 609.5 |
| 12.5° | 885.0 | 1002.2 | 1071.8 | *1105.1* | 1059.1 | 968.9 | 837.5 | 707.7 | 668.1 | 650.7 |
| 15° | 1160.5 | 1326.7 | 1459.7 | *1459.7* | 1416.9 | 1257.0 | 1090.8 | 880.2 | 826.4 | 778.9 |
| 17.5° | 1513.5 | 1722.5 | 1839.7 | *1827.0* | 1762.1 | 1649.7 | 1450.2 | 1147.8 | 1038.6 | 989.5 |
| 20° | 1915.7 | 2040.7 | 2067.6 | *2059.7* | 2031.2 | 1966.3 | 1828.6 | 1504.0 | 1356.8 | 1280.8 |
| 22.5° | 2264.0 | 2230.7 | 2191.1 | *2159.5* | 2151.5 | 2170.5 | 2151.5 | 1901.4 | 1785.8 | 1651.3 |
| 25° | 2499.8 | 2311.4 | 2192.7 | *2135.7* | 2162.6 | 2271.9 | 2390.6 | 2297.2 | 2205.4 | 2066.1 |
| 27.5° | 2628.1 | 2301.9 | 2131.0 | *2072.4* | 2118.3 | 2273.5 | 2531.5 | 2689.8 | 2594.8 | 2528.3 |
| 30° | 2697.7 | 2294.0 | 2091.4 | *2034.4* | 2104.0 | 2298.8 | 2629.7 | 3057.1 | 3060.3 | 2954.2 |
| 32.5° | 2797.5 | 2344.7 | 2099.3 | *2047.1* | 2140.5 | 2374.8 | 2753.2 | 3430.8 | 3522.6 | 3465.6 |
| 35° | 2909.9 | 2422.3 | 2135.7 | *2088.2* | 2203.8 | 2476.1 | 2890.9 | 3807.6 | 3999.1 | 3980.1 |
| 37.5° | 3016.0 | 2509.3 | 2221.2 | *2175.3* | 2300.4 | 2563.2 | 3023.9 | 4178.0 | 4444.0 | 4510.5 |
| 40° | 3126.8 | 2631.2 | 2484.0 | *2528.3* | 2598.0 | 2700.9 | 3142.6 | 4499.4 | 4933.2 | 5032.9 |
| 42.5° | 3388.0 | 3054.0 | 3278.8 | *3362.7* | 3372.2 | 3160.0 | 3402.3 | 4911.0 | 5414.5 | 5533.2 |
| 45° | 3970.6 | 3806.0 | 4450.3 | *4569.1* | 4507.3 | 3864.5 | 4027.6 | 5504.7 | 6087.3 | 6147.5 |
| 47.5° | 4706.8 | 4782.8 | 6054.1 | *6464.1* | 6093.7 | 4695.7 | 4786.0 | 6753.9 | 7319.1 | 7296.9 |
| 50° | 5564.9 | 5924.3 | 7874.8 | *8842.1* | 7955.5 | 5775.5 | 5659.9 | 8289.5 | 8975.1 | 8907.0 |
| 52.5° | 6579.7 | 7251.0 | 10062.7 | *11436.9* | 10597.8 | 6989.8 | 6942.3 | 10323.9 | 10741.9 | 10525.0 |
| 55° | 7857.3 | 8531.8 | 12580.0 | *14500.4* | 13306.7 | 8471.6 | 8634.7 | 12682.9 | 12763.6 | 12074.9 |
| 57.5° | 9763.5 | 10202.0 | 15546.9 | *18013.5* | 16134.2 | 10485.4 | 11668.1 | 15822.3 | 14856.6 | 13552.0 |
| 60° | 13224.3 | 12350.4 | 18414.0 | *21607.3* | 19142.3 | 13317.7 | 15668.8 | 17682.6 | 15553.2 | 13754.7 |
| 62.5° | *14429.1* | *14174.2* | *20209.3* | *23127.1* | *21165.6* | *15643.4* | *16708.9* | *16628.2* | *14650.8* | *12988.4* |
| 65° | 12603.7 | 13719.9 | 19887.9 | *22324.5* | 20905.9 | 15260.3 | 14994.3 | 15464.5 | 13634.4 | 11824.8 |
| 67.5° | 11642.7 | 12652.8 | 18670.5 | *20109.6* | 19466.8 | 13960.5 | 13365.2 | 13237.0 | 11446.4 | 10005.7 |
| 70° | 10673.8 | 11674.4 | 16905.2 | *17084.1* | 16784.9 | 11842.2 | 11060.1 | 10200.4 | 8555.5 | 7303.2 |
| 72.5° | 9508.6 | 10059.5 | 14456.0 | *13607.5* | 13268.7 | 9301.2 | 9136.5 | 7681.6 | 6413.5 | 5338.5 |
| 75° | 8292.7 | 8132.8 | 11270.7 | *9339.2* | 9592.5 | 7236.7 | 7716.4 | 5640.9 | 4698.9 | 3842.4 |
| 77.5° | 6031.9 | 5913.2 | 7548.6 | *5672.5* | 6282.1 | 4740.0 | 4258.8 | 2251.3 | 2143.6 | 1849.2 |
| 80° | 3365.8 | 4057.7 | 4076.7 | *3179.0* | 3965.9 | 3090.4 | 1065.5 | 74.4 | 47.5 | 69.7 |
| 82.5° | 1564.2 | 1744.7 | 2210.1 | *1473.9* | 2262.4 | 1530.9 | 220.1 | 0.0 | 0.0 | 0.0 |
| 85° | 506.6 | 740.9 | 620.6 | *216.9* | 547.8 | 517.7 | 36.4 | 0.0 | 0.0 | 0.0 |
| 87.5° | 30.1 | 61.7 | 15.8 | *0.0* | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | *0.0* | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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: SP1-2407-157-9

Test Date: 10/03/2024

Luminaire Tested: EMM2-HTN-SA1A-827-U-5WQ

Data applicable to all product families utilizing light square engine

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

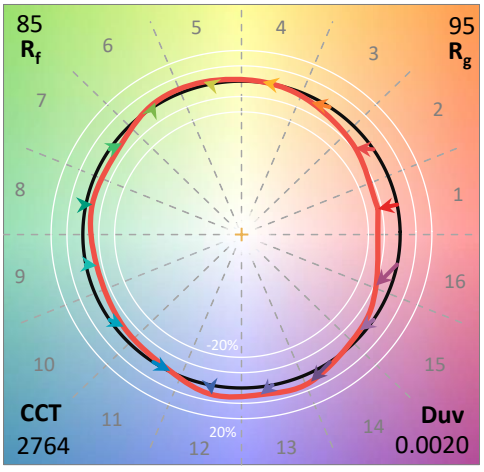
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-157-9 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/03/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | Invue |
| Catalog Number: | **EMM2-HTN-SA1A-827-U-5WQ** |
| Description: | Epic Modern Light Square 40W 5WQ Optic |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 2764 |
| CIE u': | 0.2591 |
| CIE v': | 0.5290 |
| Duv: | 0.0020 |
| CIE x: | 0.4581 |
| CIE y: | 0.4156 |
| CIE z: | 0.1263 |
| Peak Wavelength (nm): | 603 |
| Dominant Wavelength (nm): | 583 |
| Purity: | 62.2537 |
| Rf: | 84.7 |
| Rg: | 94.6 |

| | |
|---|---|
| CRI (Ra): | 80.9 |
| R1: | 78.8 |
| R2: | 89.9 |
| R3: | 96.2 |
| R4: | 79.1 |
| R5: | 79.1 |
| R6: | 88.8 |
| R7: | 81.3 |
| R8: | 54.3 |
| R9: | -1.5 |
| R10: | 77.9 |
| R11: | 78.9 |
| R12: | 71.6 |
| R13: | 81.2 |
| R14: | 98.5 |
| R15: | 69.9 |




## Test Conditions

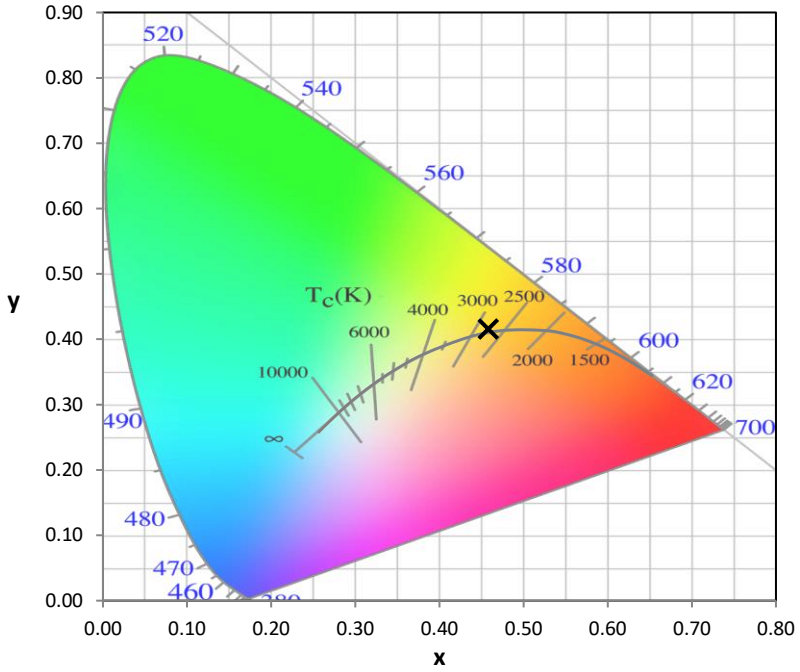
| | |
|---|---|
| Stabilization Time: | 81M |
| Operation Time: | 2H 21M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-157-9

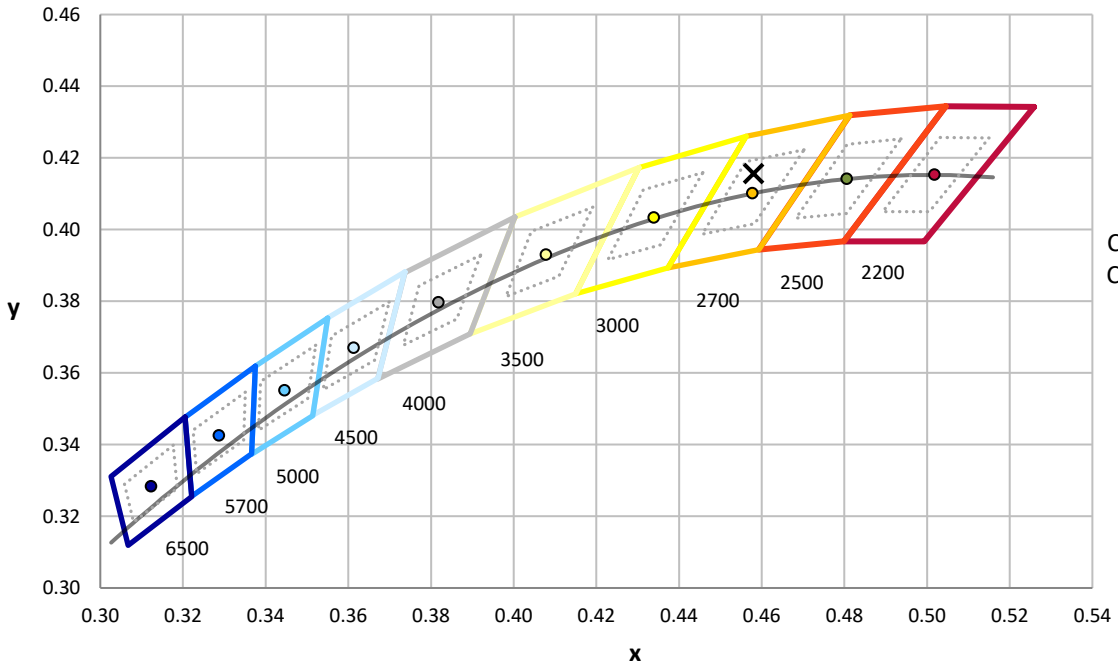
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC 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 |

REPORT NUMBER: SP1-2407-157-9

## CIE 1931 Chromaticity Diagram




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

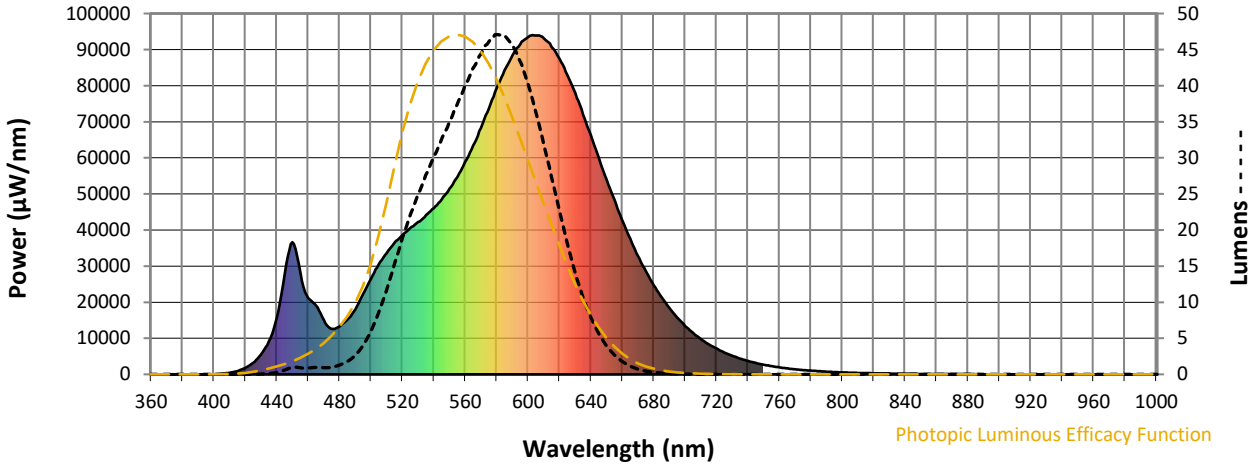



CCT = 2764K
CIE x = 0.4581
CIE y = 0.4156
Duv = 0.0020

Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-9

## Photopic Flux vs. Wavelength

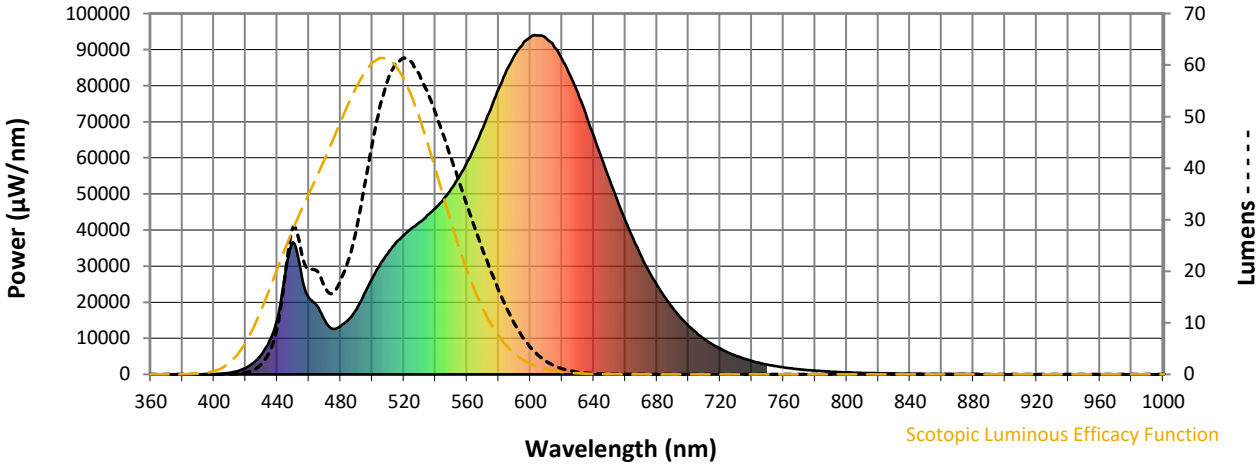



**Photopic Lumens: 4337.9**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | 0.0 | 490 | 18018 | 2.6 | 620 | 87426 | 22.8 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 3.9 | 625 | 83013 | 18.2 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 5.8 | 630 | 78077 | 14.1 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 8.5 | 635 | 72080 | 10.7 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 11.5 | 640 | 66249 | 7.9 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 15.2 | 645 | 59973 | 5.7 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 18.7 | 650 | 53972 | 3.9 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 21.9 | 655 | 48369 | 2.7 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 24.9 | 660 | 42641 | 1.8 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 27.6 | 665 | 37602 | 1.1 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.0 | 540 | 46032 | 30.0 | 670 | 32798 | 0.7 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.0 | 545 | 48553 | 32.5 | 675 | 28558 | 0.5 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 0.0 | 550 | 51408 | 34.9 | 680 | 24782 | 0.3 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 0.0 | 555 | 54711 | 37.4 | 685 | 21386 | 0.2 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 0.0 | 560 | 58847 | 40.0 | 690 | 18413 | 0.1 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 0.1 | 565 | 63386 | 42.4 | 695 | 15721 | 0.1 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 0.2 | 570 | 68196 | 44.3 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 0.6 | 575 | 73613 | 46.0 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 0.9 | 580 | 79207 | 47.1 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 0.9 | 585 | 84248 | 47.0 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 0.9 | 590 | 88397 | 45.7 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 1.0 | 595 | 91428 | 43.4 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 0.9 | 600 | 93452 | 40.3 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 1.0 | 605 | 93959 | 36.4 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 1.3 | 610 | 93079 | 32.0 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 1.8 | 615 | 90707 | 27.3 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

REPORT NUMBER: SP1-2407-157-9

## Scotopic Flux vs. Wavelength

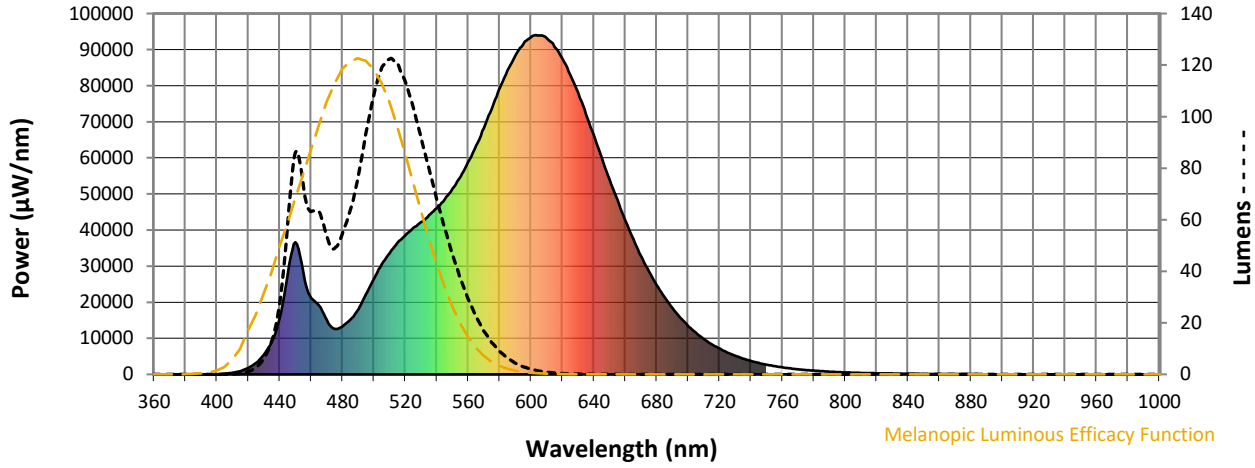



**Scotopic Lumens: 5286.7** **S/P: 1.22**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | 0.0 | 490 | 18018 | 75.9 | 620 | 87426 | 0.4 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 93.2 | 625 | 83013 | 0.2 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 107.8 | 630 | 78077 | 0.1 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 118.7 | 635 | 72080 | 0.1 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 122.2 | 640 | 66249 | 0.1 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 120.8 | 645 | 59973 | 0.0 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 113.9 | 650 | 53972 | 0.0 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 104.1 | 655 | 48369 | 0.0 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 92.4 | 660 | 42641 | 0.0 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 80.5 | 665 | 37602 | 0.0 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.1 | 540 | 46032 | 68.2 | 670 | 32798 | 0.0 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.3 | 545 | 48553 | 57.1 | 675 | 28558 | 0.0 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 1.1 | 550 | 51408 | 46.7 | 680 | 24782 | 0.0 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 2.5 | 555 | 54711 | 37.4 | 685 | 21386 | 0.0 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 5.9 | 560 | 58847 | 29.4 | 690 | 18413 | 0.0 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 12.5 | 565 | 63386 | 22.5 | 695 | 15721 | 0.0 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 26.3 | 570 | 68196 | 16.9 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 55.2 | 575 | 73613 | 12.4 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 85.4 | 580 | 79207 | 9.0 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 75.1 | 585 | 84248 | 6.3 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 63.2 | 590 | 88397 | 4.4 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 63.2 | 595 | 91428 | 3.0 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 54.2 | 600 | 93452 | 2.0 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 48.8 | 605 | 93959 | 1.3 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 54.2 | 610 | 93079 | 0.9 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 63.3 | 615 | 90707 | 0.5 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

REPORT NUMBER: SP1-2407-157-9

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: 9797** **M/P: 2.26**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | 0.0 | 490 | 18018 | 27.7 | 620 | 87426 | 1.1 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 36.0 | 625 | 83013 | 0.7 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 44.2 | 630 | 78077 | 0.4 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 51.8 | 635 | 72080 | 0.3 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 57.0 | 640 | 66249 | 0.2 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 60.5 | 645 | 59973 | 0.1 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 61.4 | 650 | 53972 | 0.1 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 60.6 | 655 | 48369 | 0.0 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 58.2 | 660 | 42641 | 0.0 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 55.0 | 665 | 37602 | 0.0 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.0 | 540 | 46032 | 50.9 | 670 | 32798 | 0.0 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.1 | 545 | 48553 | 46.6 | 675 | 28558 | 0.0 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 0.3 | 550 | 51408 | 42.0 | 680 | 24782 | 0.0 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 0.8 | 555 | 54711 | 37.4 | 685 | 21386 | 0.0 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 1.9 | 560 | 58847 | 32.9 | 690 | 18413 | 0.0 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 4.1 | 565 | 63386 | 28.4 | 695 | 15721 | 0.0 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 8.7 | 570 | 68196 | 24.1 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 18.5 | 575 | 73613 | 20.0 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 28.3 | 580 | 79207 | 16.3 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 24.7 | 585 | 84248 | 12.9 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 20.4 | 590 | 88397 | 9.8 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 20.1 | 595 | 91428 | 7.3 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 17.2 | 600 | 93452 | 5.3 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 15.7 | 605 | 93959 | 3.7 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 18.0 | 610 | 93079 | 2.5 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 21.9 | 615 | 90707 | 1.7 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

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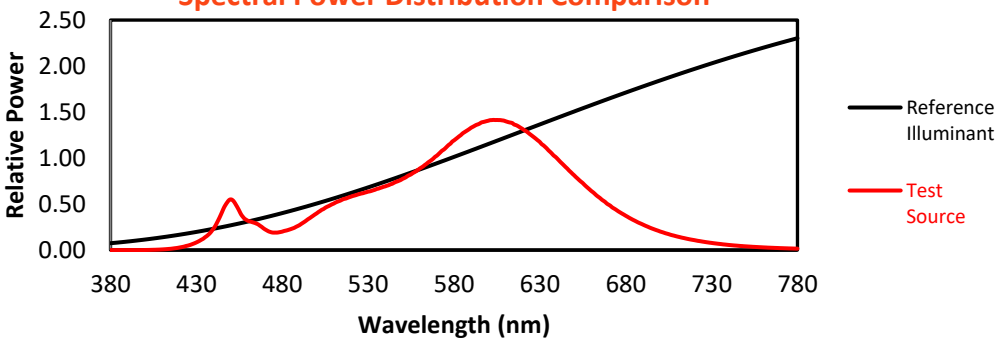
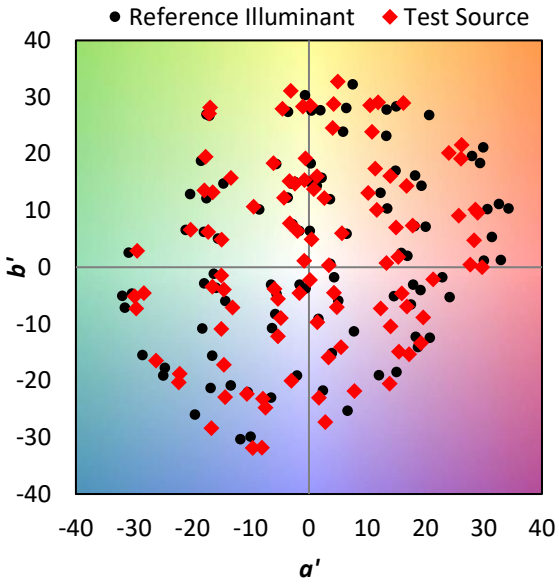
## Summary

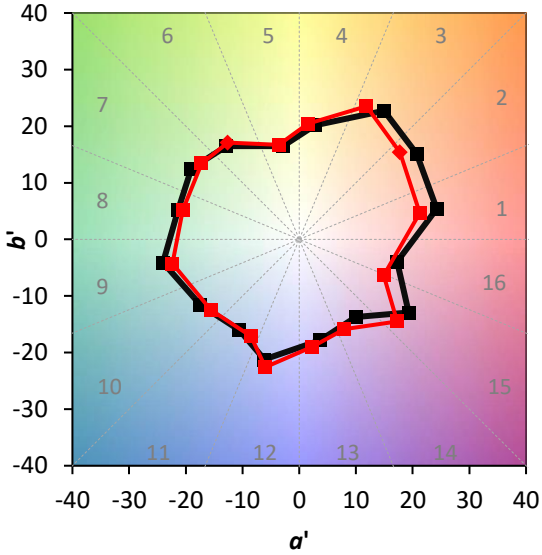
$R_f$ = 84.7
$R_g$ = 94.6
CIE $R_a$ = 80.9
$R_9$ = -1.5

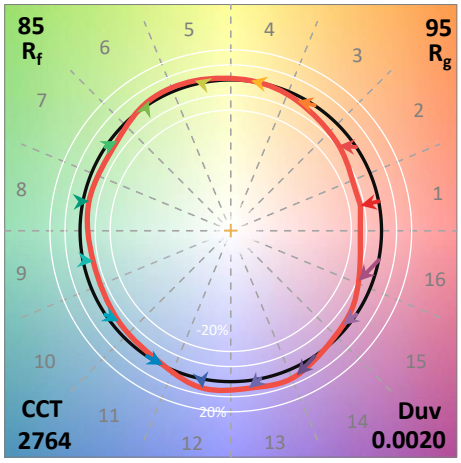
## Spectral Power Distribution Comparison

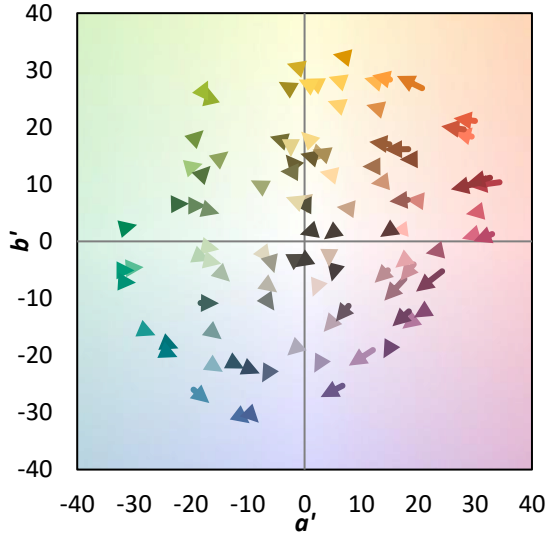



## Color Vector Graphics



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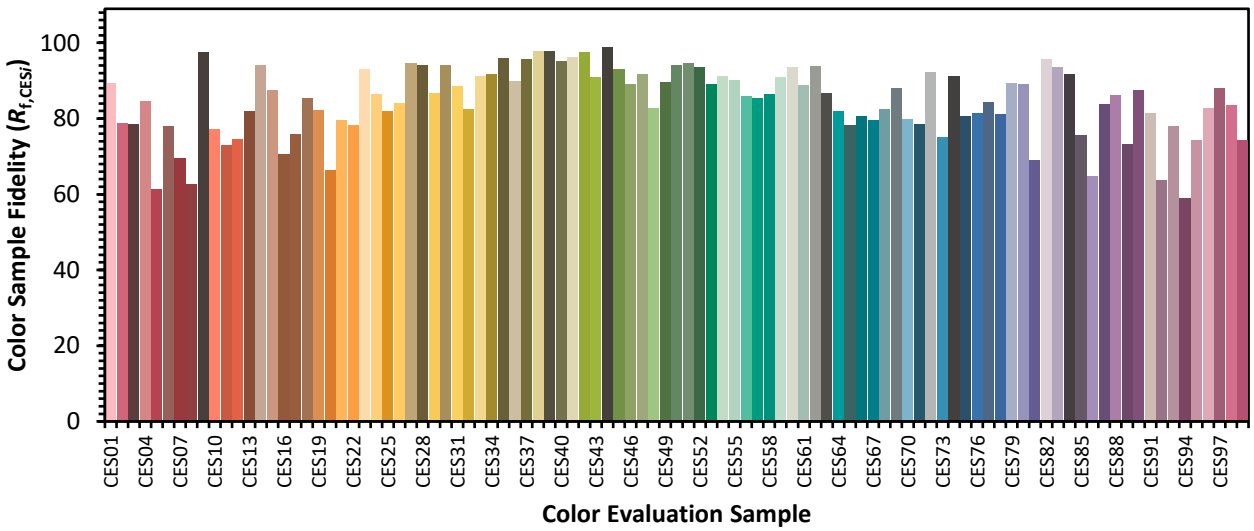
**Individual Sample Fidelity Index ($R_{f,i}$)**

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 84 | CES51 = 95 | CES76 = 81 |
| CES02 = 63 | CES27 = 95 | CES52 = 94 | CES77 = 84 |
| CES03 = 31 | CES28 = 94 | CES53 = 89 | CES78 = 81 |
| CES04 = 71 | CES29 = 87 | CES54 = 91 | CES79 = 89 |
| CES05 = 50 | CES30 = 94 | CES55 = 90 | CES80 = 89 |
| CES06 = 52 | CES31 = 89 | CES56 = 86 | CES81 = 69 |
| CES07 = 43 | CES32 = 82 | CES57 = 85 | CES82 = 96 |
| CES08 = 41 | CES33 = 91 | CES58 = 86 | CES83 = 93 |
| CES09 = 29 | CES34 = 92 | CES59 = 91 | CES84 = 92 |
| CES10 = 77 | CES35 = 96 | CES60 = 94 | CES85 = 76 |
| CES11 = 60 | CES36 = 90 | CES61 = 89 | CES86 = 65 |
| CES12 = 66 | CES37 = 96 | CES62 = 94 | CES87 = 84 |
| CES13 = 44 | CES38 = 98 | CES63 = 87 | CES88 = 86 |
| CES14 = 74 | CES39 = 98 | CES64 = 82 | CES89 = 73 |
| CES15 = 72 | CES40 = 95 | CES65 = 78 | CES90 = 88 |
| CES16 = 48 | CES41 = 96 | CES66 = 81 | CES91 = 82 |
| CES17 = 50 | CES42 = 97 | CES67 = 80 | CES92 = 64 |
| CES18 = 57 | CES43 = 91 | CES68 = 83 | CES93 = 78 |
| CES19 = 73 | CES44 = 99 | CES69 = 88 | CES94 = 59 |
| CES20 = 67 | CES45 = 93 | CES70 = 80 | CES95 = 74 |
| CES21 = 87 | CES46 = 89 | CES71 = 79 | CES96 = 83 |
| CES22 = 79 | CES47 = 92 | CES72 = 92 | CES97 = 88 |
| CES23 = 92 | CES48 = 83 | CES73 = 75 | CES98 = 83 |
| CES24 = 91 | CES49 = 90 | CES74 = 91 | CES99 = 74 |
| CES25 = 72 | CES50 = 94 | CES75 = 81 | |



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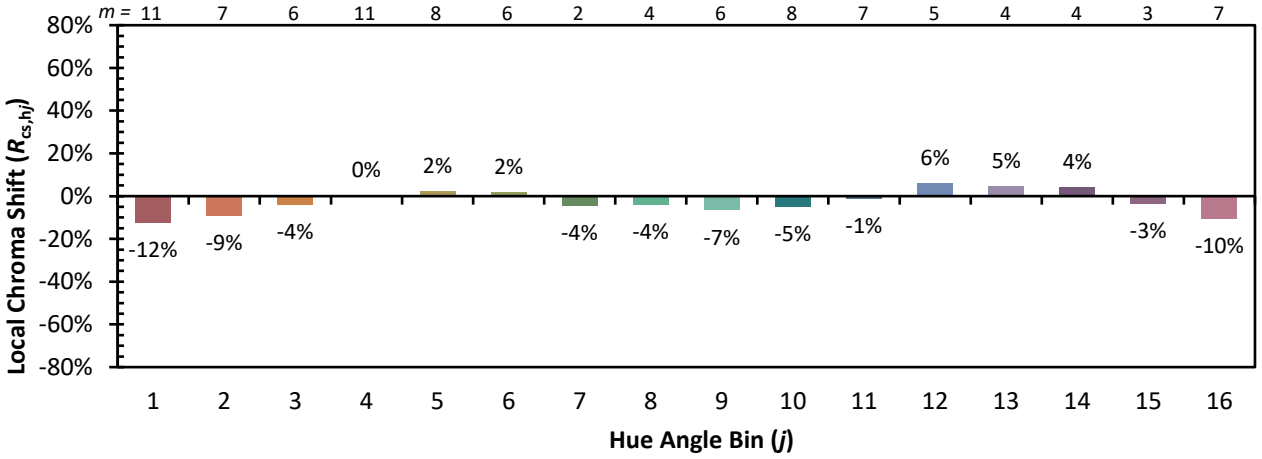
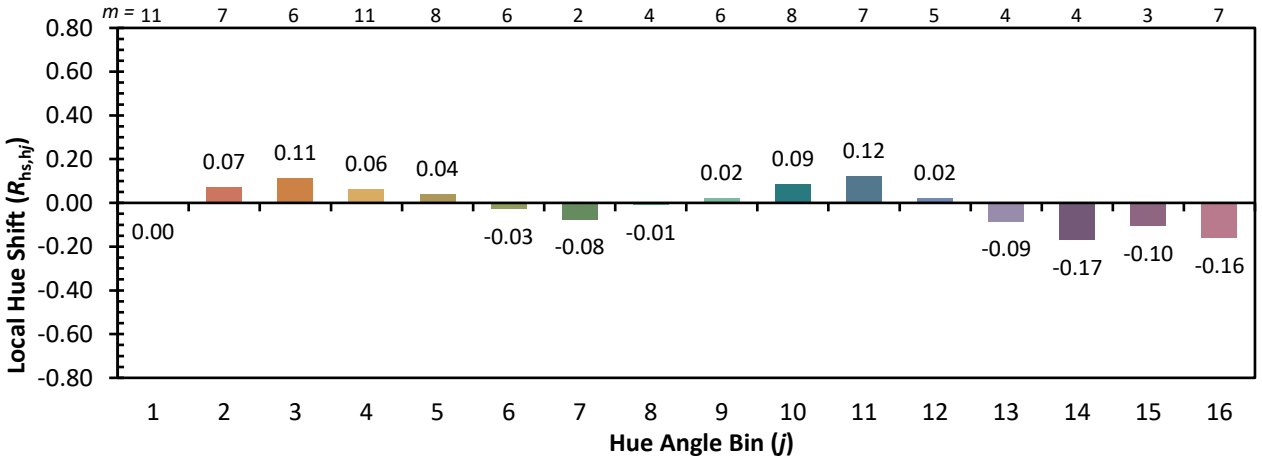
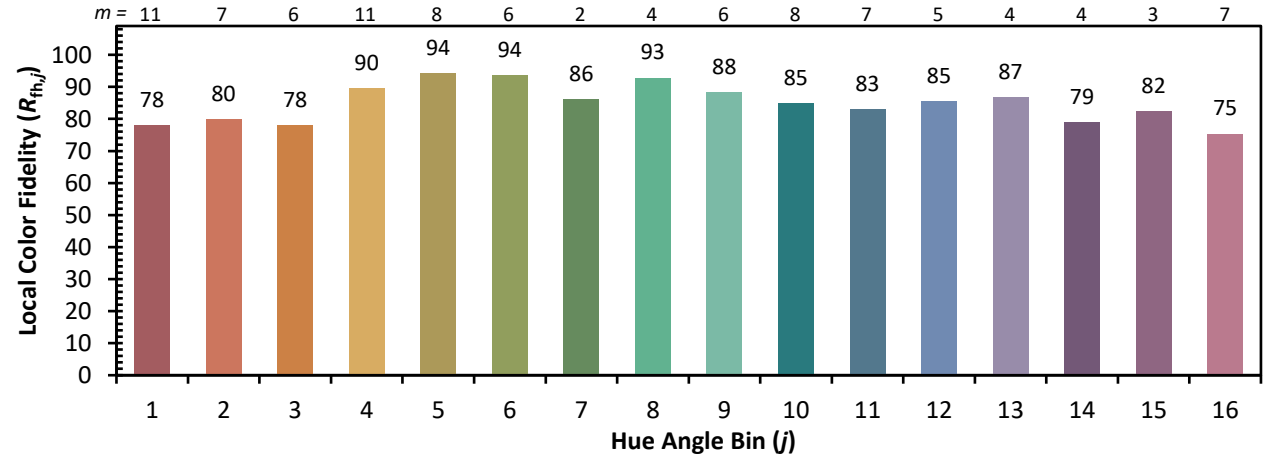
## Color Rendition by Hue-Angle Bin



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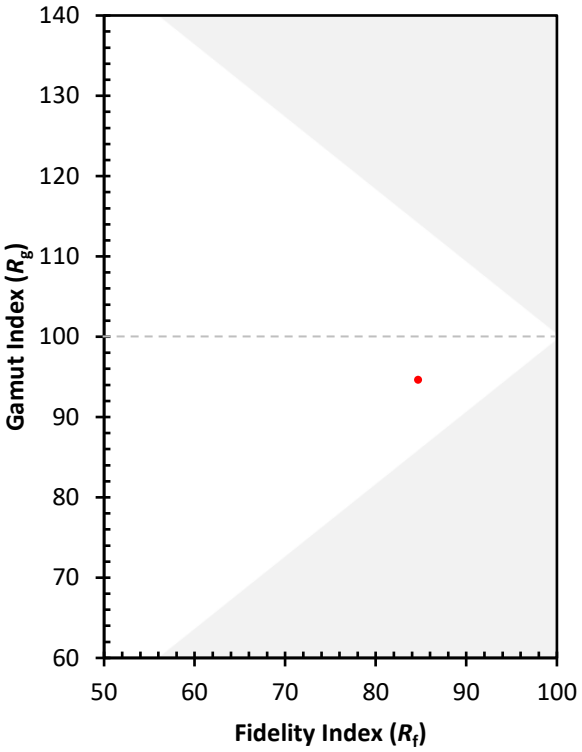
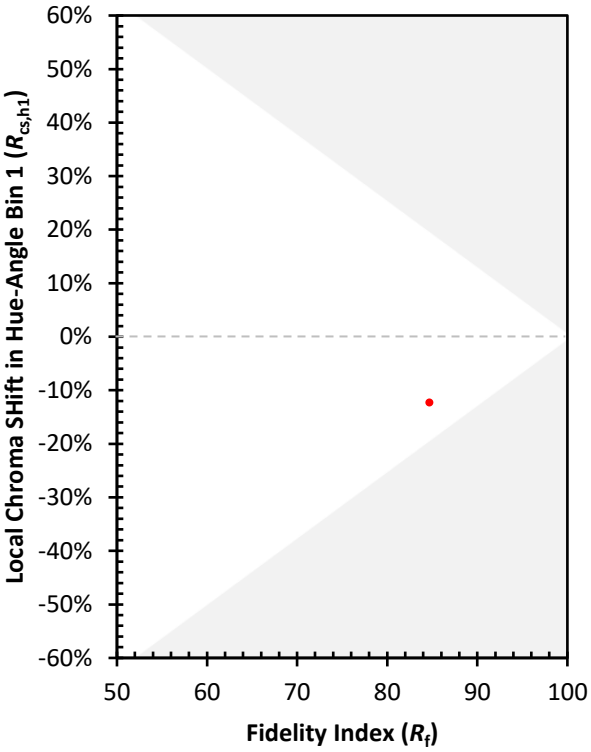
### Measure Comparisons




(END OF REPORT)