

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: HALO COMMERCIAL

Report Number: P775836

Luminaire Tested: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775836  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B044)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBL510CSD-HCD81TRMW-1000lm-3000K  
Description: 8 INCH ROUND SHALLOW-WIDE MATTE WHITE TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

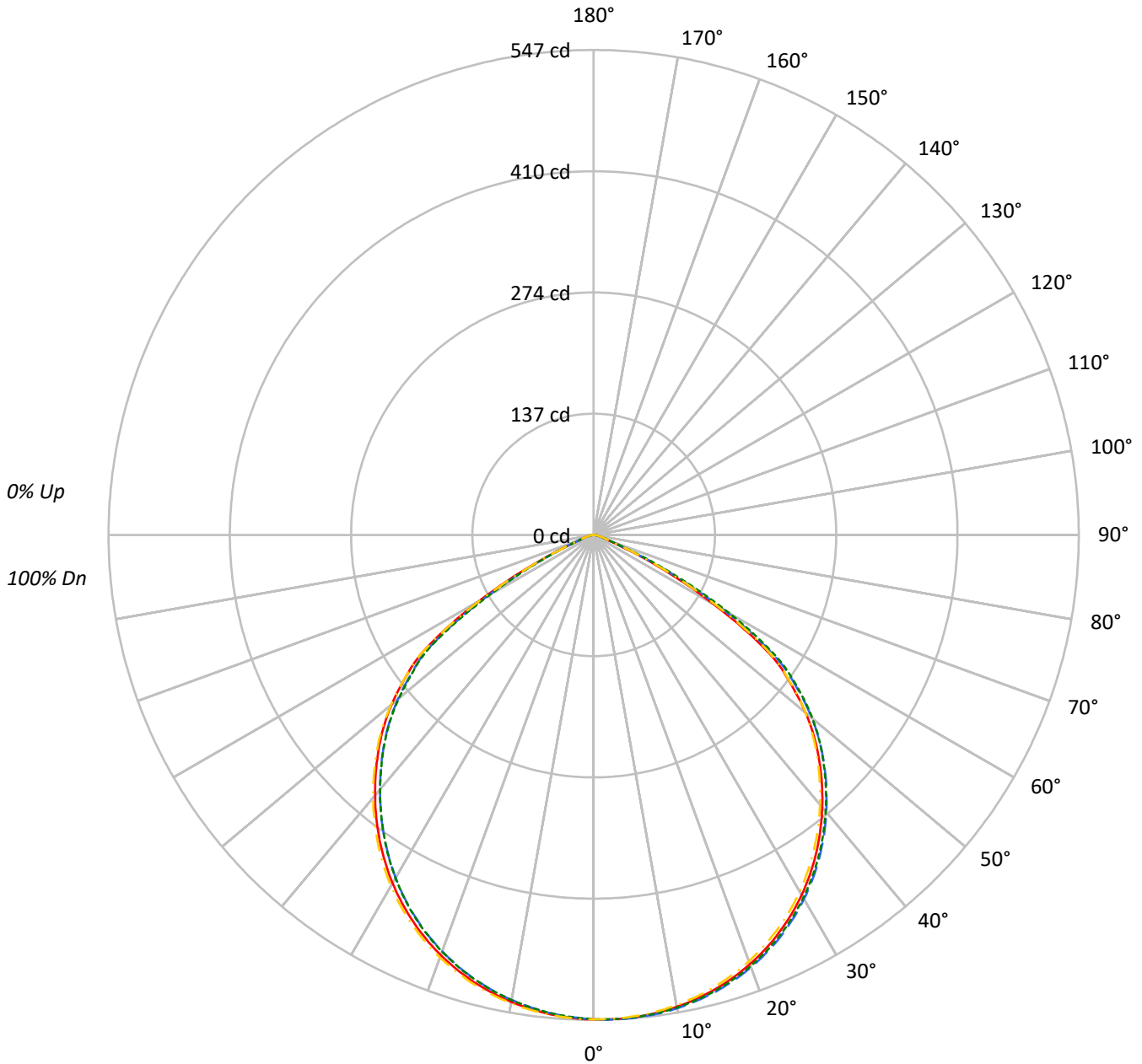
Lumens per Lamp: N/A  
Luminaire Lumens: 1259.3 lumens  
Efficiency: N/A  
Efficacy: 125.9 lumens/watt  
Spacing Criteria (0/90/45): 1.25 / 1.25 / 1.35  
Luminous Opening: Circular (Dia: 0.67' x H: 0')  
CIE Type: Direct

Input Watts (W): 10  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



TEST NUMBER: P775836  
CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

### Luminous Intensity Polar Plot





TEST NUMBER: P775836

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |   |
|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|---|
| RF  | 20 |     |     |     |     | 20  |     |     |     |     | 20  |     |     |     |     | 20  |     |     |     |     |     |     |     |     |  |   |
| RC  | 80 |     |     |     |     | 70  |     |     |     |     | 50  |     |     |     |     | 30  |     |     |     |     | 10  |     |     |     |  | 0 |
| RW  | 70 | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 0   |  |   |
| RCR | 0  | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | 100 | 100 | 100 | 100 | 100 |  |   |
|     | 1  | 111 | 107 | 104 | 101 | 109 | 105 | 102 | 99  | 101 | 98  | 96  | 97  | 95  | 93  | 94  | 92  | 91  | 89  | 89  | 89  | 89  | 89  | 89  |  |   |
|     | 2  | 103 | 96  | 90  | 85  | 100 | 94  | 89  | 84  | 91  | 86  | 83  | 87  | 84  | 81  | 85  | 82  | 79  | 77  | 77  | 77  | 77  | 77  | 77  |  |   |
|     | 3  | 95  | 86  | 79  | 73  | 92  | 84  | 78  | 72  | 81  | 76  | 71  | 79  | 74  | 70  | 76  | 72  | 69  | 67  | 67  | 67  | 67  | 67  | 67  |  |   |
|     | 4  | 87  | 77  | 69  | 63  | 85  | 75  | 68  | 63  | 73  | 67  | 62  | 71  | 65  | 61  | 69  | 64  | 60  | 58  | 58  | 58  | 58  | 58  | 58  |  |   |
|     | 5  | 81  | 69  | 61  | 55  | 79  | 68  | 60  | 55  | 66  | 59  | 54  | 64  | 58  | 54  | 62  | 57  | 53  | 51  | 51  | 51  | 51  | 51  | 51  |  |   |
|     | 6  | 75  | 62  | 54  | 48  | 73  | 62  | 54  | 48  | 60  | 53  | 48  | 58  | 52  | 47  | 57  | 51  | 47  | 45  | 45  | 45  | 45  | 45  | 45  |  |   |
|     | 7  | 69  | 57  | 49  | 43  | 68  | 56  | 48  | 43  | 55  | 48  | 43  | 53  | 47  | 42  | 52  | 46  | 42  | 40  | 40  | 40  | 40  | 40  | 40  |  |   |
|     | 8  | 65  | 52  | 44  | 39  | 63  | 51  | 44  | 38  | 50  | 43  | 38  | 49  | 43  | 38  | 48  | 42  | 38  | 36  | 36  | 36  | 36  | 36  | 36  |  |   |
|     | 9  | 60  | 48  | 40  | 35  | 59  | 47  | 40  | 35  | 46  | 39  | 35  | 45  | 39  | 34  | 44  | 38  | 34  | 32  | 32  | 32  | 32  | 32  | 32  |  |   |
|     | 10 | 57  | 44  | 37  | 32  | 55  | 44  | 36  | 32  | 43  | 36  | 31  | 42  | 36  | 31  | 41  | 35  | 31  | 29  | 29  | 29  | 29  | 29  | 29  |  |   |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°    | 90°   | 180°  | 270°  |
|-----|-------|-------|-------|-------|
| 0°  | 16685 | 16685 | 16685 | 16685 |
| 5°  | 16730 | 16736 | 16644 | 16601 |
| 10° | 16753 | 16784 | 16583 | 16514 |
| 15° | 16761 | 16812 | 16499 | 16401 |
| 20° | 16739 | 16813 | 16385 | 16248 |
| 25° | 16665 | 16769 | 16217 | 16038 |
| 30° | 16530 | 16664 | 15987 | 15751 |
| 35° | 16310 | 16485 | 15680 | 15374 |
| 40° | 15982 | 16217 | 15280 | 14929 |
| 45° | 15535 | 15850 | 14809 | 14412 |
| 50° | 14809 | 15294 | 14126 | 13617 |
| 55° | 13520 | 14180 | 12886 | 12344 |
| 60° | 9562  | 10765 | 9110  | 8335  |
| 65° | 4696  | 5613  | 4241  | 3829  |
| 70° | 1491  | 1651  | 1500  | 1473  |
| 75° | 1085  | 1215  | 1097  | 1121  |
| 80° | 756   | 897   | 756   | 809   |
| 85° | 420   | 596   | 420   | 490   |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 15885 cd/sqm



TEST NUMBER: P775836

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 51.7   | 4.1       |
| 10°-20°   | 148.4  | 11.8      |
| 20°-30°   | 224.6  | 17.8      |
| 30°-40°   | 267.7  | 21.3      |
| 40°-50°   | 270.2  | 21.5      |
| 50°-60°   | 214.6  | 17.0      |
| 60°-70°   | 69.6   | 5.5       |
| 70°-80°   | 10.7   | 0.8       |
| 80°-90°   | 1.9    | 0.1       |
| 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°-30°    | 424.7  | 33.7      |
| 0°-40°    | 692.4  | 55.0      |
| 0°-60°    | 1177.2 | 93.5      |
| 0°-90°    | 1259.3 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1259.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 90° | 180° | 270° | 360° | Flux |
|-----|-----|-----|------|------|------|------|
| 0°  | 546 | 546 | 546  | 546  | 546  |      |
| 5°  | 546 | 546 | 543  | 542  | 546  | 52   |
| 15° | 530 | 532 | 522  | 519  | 530  | 150  |
| 25° | 495 | 498 | 481  | 476  | 495  | 228  |
| 35° | 438 | 442 | 421  | 412  | 438  | 273  |
| 45° | 360 | 367 | 343  | 334  | 360  | 277  |
| 55° | 254 | 266 | 242  | 232  | 254  | 219  |
| 65° | 65  | 78  | 59   | 53   | 65   | 70   |
| 75° | 9   | 10  | 9    | 10   | 9    | 10   |
| 85° | 1   | 2   | 1    | 1    | 1    | 2    |
| 90° | 0   | 0   | 0    | 0    | 0    |      |



TEST NUMBER: P775836

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   | 112.5° | 135°  | 157.5° | 180°  | 202.5° | 225°  |
|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|
| 0°    | 546.5 | 546.5 | 546.5 | 546.5 | 546.5 | 546.5  | 546.5 | 546.5  | 546.5 | 546.5  | 546.5 |
| 0.5°  | 546.8 | 546.7 | 546.7 | 546.8 | 546.3 | 546.4  | 546.6 | 546.6  | 546.5 | 546.3  | 546.2 |
| 1°    | 546.8 | 546.8 | 546.9 | 547.0 | 546.5 | 546.5  | 546.5 | 546.5  | 546.3 | 546.0  | 545.9 |
| 1.5°  | 546.9 | 546.9 | 547.0 | 547.1 | 546.6 | 546.5  | 546.5 | 546.4  | 546.0 | 545.6  | 545.4 |
| 2°    | 546.8 | 546.9 | 547.1 | 547.2 | 546.7 | 546.5  | 546.4 | 546.2  | 545.7 | 545.2  | 545.0 |
| 2.5°  | 546.7 | 546.9 | 547.1 | 547.2 | 546.7 | 546.5  | 546.2 | 545.9  | 545.3 | 544.9  | 544.6 |
| 3°    | 546.7 | 546.9 | 547.1 | 547.2 | 546.6 | 546.4  | 546.1 | 545.5  | 545.0 | 544.4  | 544.2 |
| 3.5°  | 546.5 | 546.8 | 547.0 | 547.2 | 546.6 | 546.2  | 545.7 | 545.2  | 544.6 | 543.9  | 543.6 |
| 4°    | 546.4 | 546.7 | 546.9 | 547.0 | 546.5 | 546.1  | 545.4 | 544.8  | 544.1 | 543.4  | 543.1 |
| 4.5°  | 546.1 | 546.5 | 546.8 | 546.9 | 546.3 | 545.7  | 545.1 | 544.4  | 543.6 | 542.8  | 542.4 |
| 5°    | 545.9 | 546.3 | 546.7 | 546.7 | 546.1 | 545.5  | 544.7 | 543.9  | 543.1 | 542.2  | 541.8 |
| 5.5°  | 545.5 | 546.0 | 546.4 | 546.5 | 545.7 | 545.2  | 544.3 | 543.4  | 542.4 | 541.5  | 541.1 |
| 6°    | 545.1 | 545.6 | 546.1 | 546.2 | 545.4 | 544.8  | 543.8 | 542.9  | 541.8 | 540.7  | 540.3 |
| 6.5°  | 544.7 | 545.3 | 545.7 | 545.9 | 545.1 | 544.4  | 543.3 | 542.3  | 541.1 | 539.9  | 539.5 |
| 7°    | 544.2 | 544.9 | 545.4 | 545.4 | 544.7 | 543.9  | 542.8 | 541.7  | 540.3 | 539.1  | 538.6 |
| 7.5°  | 543.7 | 544.4 | 545.0 | 545.0 | 544.3 | 543.4  | 542.3 | 540.9  | 539.5 | 538.3  | 537.8 |
| 8°    | 543.2 | 543.9 | 544.5 | 544.6 | 543.8 | 542.9  | 541.6 | 540.1  | 538.7 | 537.4  | 536.8 |
| 8.5°  | 542.5 | 543.4 | 544.0 | 544.0 | 543.3 | 542.2  | 540.9 | 539.3  | 537.8 | 536.5  | 535.9 |
| 9°    | 541.9 | 542.9 | 543.5 | 543.5 | 542.7 | 541.6  | 540.0 | 538.5  | 536.9 | 535.4  | 534.8 |
| 9.5°  | 541.2 | 542.2 | 542.9 | 542.9 | 542.1 | 541.0  | 539.3 | 537.6  | 536.0 | 534.4  | 533.7 |
| 10°   | 540.4 | 541.6 | 542.2 | 542.2 | 541.4 | 540.1  | 538.5 | 536.7  | 534.9 | 533.3  | 532.6 |
| 10.5° | 539.6 | 540.9 | 541.5 | 541.5 | 540.6 | 539.3  | 537.7 | 535.6  | 533.8 | 532.2  | 531.4 |
| 11°   | 538.8 | 540.0 | 540.7 | 540.7 | 539.8 | 538.5  | 536.7 | 534.6  | 532.7 | 531.0  | 530.1 |
| 11.5° | 537.9 | 539.2 | 539.9 | 539.9 | 539.0 | 537.6  | 535.6 | 533.6  | 531.6 | 529.7  | 528.9 |
| 12°   | 537.0 | 538.4 | 539.1 | 539.1 | 538.1 | 536.7  | 534.6 | 532.4  | 530.3 | 528.5  | 527.6 |
| 12.5° | 536.1 | 537.5 | 538.2 | 538.2 | 537.3 | 535.6  | 533.6 | 531.3  | 529.0 | 527.1  | 526.2 |
| 13°   | 534.9 | 536.5 | 537.3 | 537.2 | 536.3 | 534.6  | 532.5 | 530.0  | 527.7 | 525.8  | 524.8 |
| 13.5° | 533.8 | 535.3 | 536.3 | 536.2 | 535.2 | 533.5  | 531.4 | 528.7  | 526.4 | 524.3  | 523.3 |
| 14°   | 532.7 | 534.3 | 535.2 | 535.1 | 534.1 | 532.4  | 530.1 | 527.5  | 524.9 | 522.9  | 521.8 |
| 14.5° | 531.6 | 533.2 | 534.2 | 534.0 | 533.1 | 531.2  | 528.8 | 526.1  | 523.5 | 521.4  | 520.2 |
| 15°   | 530.3 | 532.2 | 533.1 | 532.9 | 531.9 | 530.0  | 527.5 | 524.6  | 522.0 | 519.7  | 518.7 |
| 15.5° | 529.0 | 530.9 | 531.9 | 531.7 | 530.6 | 528.7  | 526.2 | 523.3  | 520.4 | 518.2  | 517.0 |
| 16°   | 527.7 | 529.6 | 530.6 | 530.3 | 529.3 | 527.4  | 524.7 | 521.7  | 518.8 | 516.5  | 515.2 |
| 16.5° | 526.4 | 528.3 | 529.3 | 529.0 | 528.1 | 526.1  | 523.3 | 520.1  | 517.2 | 514.8  | 513.5 |
| 17°   | 524.8 | 527.0 | 528.0 | 527.7 | 526.8 | 524.6  | 521.8 | 518.5  | 515.5 | 513.1  | 511.7 |
| 17.5° | 523.4 | 525.5 | 526.7 | 526.3 | 525.3 | 523.2  | 520.1 | 516.9  | 513.7 | 511.2  | 509.8 |
| 18°   | 521.9 | 524.0 | 525.1 | 524.8 | 523.9 | 521.7  | 518.6 | 515.1  | 512.0 | 509.3  | 507.9 |
| 18.5° | 520.3 | 522.6 | 523.7 | 523.2 | 522.4 | 520.0  | 517.0 | 513.4  | 510.1 | 507.4  | 506.0 |
| 19°   | 518.6 | 521.1 | 522.1 | 521.8 | 520.8 | 518.4  | 515.2 | 511.6  | 508.2 | 505.3  | 503.9 |
| 19.5° | 517.0 | 519.4 | 520.5 | 520.1 | 519.1 | 516.8  | 513.5 | 509.7  | 506.3 | 503.4  | 501.9 |
| 20°   | 515.2 | 517.7 | 518.9 | 518.5 | 517.5 | 515.0  | 511.7 | 507.9  | 504.3 | 501.4  | 499.7 |
| 20.5° | 513.5 | 516.0 | 517.2 | 516.8 | 515.8 | 513.3  | 509.8 | 505.9  | 502.2 | 499.2  | 497.6 |
| 21°   | 511.6 | 514.2 | 515.3 | 515.0 | 513.9 | 511.5  | 507.8 | 503.8  | 500.1 | 497.0  | 495.3 |



TEST NUMBER: P775836

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   | 112.5° | 135°  | 157.5° | 180°  | 202.5° | 225°  |
|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|
| 22.5° | 505.8 | 508.5 | 509.8 | 509.3 | 508.3 | 505.7  | 501.8 | 497.6  | 493.5 | 490.1  | 488.4 |
| 23°   | 503.6 | 506.6 | 507.8 | 507.4 | 506.4 | 503.6  | 499.7 | 495.2  | 491.2 | 487.9  | 486.0 |
| 23.5° | 501.6 | 504.5 | 505.9 | 505.3 | 504.2 | 501.6  | 497.5 | 493.1  | 488.8 | 485.3  | 483.5 |
| 24°   | 499.3 | 502.4 | 503.7 | 503.3 | 502.2 | 499.4  | 495.2 | 490.8  | 486.5 | 483.0  | 481.0 |
| 24.5° | 497.1 | 500.2 | 501.6 | 501.1 | 500.0 | 497.2  | 493.0 | 488.4  | 483.9 | 480.3  | 478.3 |
| 25°   | 494.7 | 498.0 | 499.3 | 498.8 | 497.8 | 494.8  | 490.8 | 486.0  | 481.4 | 477.8  | 475.7 |
| 25.5° | 492.5 | 495.8 | 497.1 | 496.6 | 495.6 | 492.6  | 488.4 | 483.4  | 478.9 | 475.2  | 473.0 |
| 26°   | 490.1 | 493.4 | 494.7 | 494.3 | 493.2 | 490.2  | 486.0 | 481.0  | 476.3 | 472.5  | 470.3 |
| 26.5° | 487.7 | 491.1 | 492.5 | 492.0 | 490.8 | 487.9  | 483.4 | 478.4  | 473.6 | 469.7  | 467.5 |
| 27°   | 485.1 | 488.6 | 489.9 | 489.5 | 488.3 | 485.4  | 481.0 | 475.8  | 470.9 | 467.0  | 464.6 |
| 27.5° | 482.6 | 486.1 | 487.6 | 487.0 | 486.0 | 482.9  | 478.3 | 473.1  | 468.1 | 464.1  | 461.8 |
| 28°   | 479.9 | 483.5 | 485.0 | 484.4 | 483.4 | 480.3  | 475.7 | 470.2  | 465.2 | 461.3  | 458.9 |
| 28.5° | 477.3 | 480.9 | 482.4 | 481.9 | 480.8 | 477.7  | 473.0 | 467.5  | 462.4 | 458.2  | 455.9 |
| 29°   | 474.6 | 478.3 | 479.7 | 479.2 | 478.1 | 474.9  | 470.1 | 464.6  | 459.5 | 455.4  | 452.8 |
| 29.5° | 471.8 | 475.7 | 477.1 | 476.6 | 475.5 | 472.3  | 467.4 | 461.8  | 456.5 | 452.2  | 449.7 |
| 30°   | 468.9 | 472.8 | 474.2 | 473.8 | 472.7 | 469.4  | 464.5 | 458.8  | 453.5 | 449.1  | 446.6 |
| 30.5° | 466.2 | 469.9 | 471.5 | 471.0 | 469.9 | 466.7  | 461.7 | 455.9  | 450.4 | 446.0  | 443.3 |
| 31°   | 463.1 | 467.1 | 468.6 | 468.1 | 467.0 | 463.7  | 458.6 | 452.8  | 447.3 | 442.8  | 440.1 |
| 31.5° | 460.1 | 464.1 | 465.7 | 465.1 | 464.1 | 460.8  | 455.7 | 449.6  | 444.1 | 439.5  | 436.9 |
| 32°   | 457.1 | 461.1 | 462.7 | 462.2 | 461.2 | 457.8  | 452.6 | 446.6  | 440.9 | 436.3  | 433.6 |
| 32.5° | 453.9 | 458.0 | 459.7 | 459.1 | 458.1 | 454.7  | 449.4 | 443.3  | 437.6 | 432.9  | 430.0 |
| 33°   | 450.9 | 454.9 | 456.7 | 456.1 | 455.1 | 451.7  | 446.3 | 440.1  | 434.2 | 429.5  | 426.8 |
| 33.5° | 447.6 | 451.8 | 453.5 | 453.0 | 452.0 | 448.5  | 443.0 | 436.8  | 431.0 | 426.0  | 423.2 |
| 34°   | 444.2 | 448.5 | 450.4 | 449.7 | 448.7 | 445.4  | 439.8 | 433.4  | 427.5 | 422.5  | 419.7 |
| 34.5° | 441.0 | 445.3 | 447.1 | 446.5 | 445.5 | 442.0  | 436.5 | 430.0  | 424.0 | 419.0  | 416.1 |
| 35°   | 437.6 | 441.9 | 443.8 | 443.2 | 442.3 | 438.7  | 433.1 | 426.7  | 420.7 | 415.5  | 412.6 |
| 35.5° | 434.1 | 438.5 | 440.5 | 439.8 | 438.9 | 435.4  | 429.6 | 423.1  | 417.1 | 411.8  | 408.9 |
| 36°   | 430.7 | 435.1 | 437.0 | 436.6 | 435.7 | 432.0  | 426.3 | 419.5  | 413.4 | 408.2  | 405.3 |
| 36.5° | 427.1 | 431.6 | 433.5 | 433.1 | 432.1 | 428.5  | 422.8 | 416.1  | 409.8 | 404.5  | 401.6 |
| 37°   | 423.5 | 428.0 | 430.0 | 429.6 | 428.7 | 425.0  | 419.2 | 412.6  | 406.1 | 400.8  | 397.9 |
| 37.5° | 419.9 | 424.4 | 426.6 | 426.1 | 425.2 | 421.4  | 415.7 | 408.8  | 402.4 | 397.1  | 394.0 |
| 38°   | 416.2 | 420.8 | 422.9 | 422.5 | 421.6 | 417.9  | 412.0 | 405.2  | 398.7 | 393.2  | 390.3 |
| 38.5° | 412.5 | 417.1 | 419.2 | 418.9 | 417.9 | 414.2  | 408.3 | 401.5  | 395.0 | 389.4  | 386.4 |
| 39°   | 408.7 | 413.3 | 415.6 | 415.2 | 414.3 | 410.6  | 404.6 | 397.7  | 391.2 | 385.6  | 382.6 |
| 39.5° | 404.8 | 409.5 | 411.8 | 411.5 | 410.7 | 406.8  | 400.8 | 393.9  | 387.3 | 381.7  | 378.7 |
| 40°   | 401.0 | 405.7 | 408.1 | 407.7 | 406.9 | 403.1  | 397.0 | 390.0  | 383.4 | 377.8  | 374.7 |
| 40.5° | 397.1 | 401.8 | 404.1 | 403.9 | 403.1 | 399.2  | 393.1 | 386.1  | 379.5 | 373.7  | 370.9 |
| 41°   | 393.0 | 397.8 | 400.3 | 400.1 | 399.1 | 395.4  | 389.2 | 382.2  | 375.6 | 369.9  | 366.8 |
| 41.5° | 388.9 | 393.8 | 396.3 | 396.2 | 395.4 | 391.5  | 385.4 | 378.3  | 371.7 | 365.9  | 362.8 |
| 42°   | 385.0 | 389.8 | 392.4 | 392.3 | 391.5 | 387.5  | 381.4 | 374.4  | 367.6 | 361.8  | 358.7 |
| 42.5° | 380.9 | 385.8 | 388.4 | 388.3 | 387.5 | 383.5  | 377.4 | 370.4  | 363.5 | 357.8  | 354.8 |
| 43°   | 376.8 | 381.6 | 384.3 | 384.3 | 383.6 | 379.5  | 373.4 | 366.4  | 359.5 | 353.6  | 350.7 |
| 43.5° | 372.6 | 377.5 | 380.3 | 380.4 | 379.5 | 375.5  | 369.3 | 362.3  | 355.5 | 349.5  | 346.6 |



TEST NUMBER: P775836

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   | 112.5° | 135°  | 157.5° | 180°  | 202.5° | 225°  |
|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|
| 45°   | 359.8 | 364.6 | 367.7 | 367.9 | 367.1 | 363.0  | 357.0 | 350.1  | 343.0 | 337.0  | 334.1 |
| 45.5° | 355.3 | 360.3 | 363.3 | 363.7 | 362.9 | 358.7  | 352.7 | 345.7  | 338.8 | 332.8  | 330.0 |
| 46°   | 350.9 | 356.0 | 359.0 | 359.4 | 358.6 | 354.4  | 348.5 | 341.5  | 334.6 | 328.5  | 325.7 |
| 46.5° | 346.4 | 351.3 | 354.6 | 355.1 | 354.3 | 350.2  | 344.1 | 337.2  | 330.2 | 324.2  | 321.4 |
| 47°   | 341.7 | 346.8 | 350.2 | 350.7 | 350.1 | 345.7  | 339.7 | 332.7  | 325.8 | 319.9  | 316.9 |
| 47.5° | 337.0 | 342.1 | 345.6 | 346.2 | 345.7 | 341.2  | 335.2 | 328.2  | 321.4 | 315.3  | 312.4 |
| 48°   | 332.3 | 337.3 | 341.0 | 341.6 | 341.0 | 336.7  | 331.0 | 323.8  | 316.9 | 310.8  | 307.9 |
| 48.5° | 327.3 | 332.4 | 336.1 | 336.9 | 336.5 | 332.2  | 326.1 | 319.2  | 312.2 | 306.2  | 303.2 |
| 49°   | 322.4 | 327.6 | 331.3 | 332.3 | 331.8 | 327.3  | 321.4 | 314.5  | 307.3 | 301.3  | 298.3 |
| 49.5° | 317.2 | 322.5 | 326.3 | 327.3 | 327.0 | 322.5  | 316.5 | 309.6  | 302.5 | 296.4  | 293.3 |
| 50°   | 311.8 | 317.2 | 321.2 | 322.3 | 322.0 | 317.6  | 311.7 | 304.7  | 297.4 | 291.3  | 288.1 |
| 50.5° | 306.3 | 311.6 | 315.9 | 316.9 | 316.8 | 312.6  | 306.5 | 299.4  | 292.2 | 285.9  | 282.8 |
| 51°   | 300.9 | 306.2 | 310.4 | 311.7 | 311.6 | 307.1  | 301.0 | 293.9  | 286.7 | 280.5  | 277.4 |
| 51.5° | 295.0 | 300.4 | 304.7 | 306.1 | 306.3 | 301.7  | 295.6 | 288.4  | 281.4 | 275.3  | 272.0 |
| 52°   | 289.1 | 294.8 | 299.0 | 300.5 | 300.6 | 296.1  | 290.0 | 282.7  | 275.6 | 269.6  | 266.3 |
| 52.5° | 283.3 | 288.7 | 293.2 | 294.6 | 294.9 | 290.3  | 284.1 | 277.0  | 270.1 | 263.9  | 260.8 |
| 53°   | 277.5 | 282.8 | 287.3 | 288.9 | 289.0 | 284.6  | 278.3 | 271.3  | 264.5 | 258.4  | 255.4 |
| 53.5° | 271.8 | 276.9 | 281.5 | 283.0 | 283.3 | 278.9  | 272.6 | 265.9  | 259.2 | 253.3  | 250.4 |
| 54°   | 266.3 | 271.5 | 275.9 | 277.6 | 277.7 | 273.2  | 267.2 | 260.5  | 254.0 | 248.1  | 245.1 |
| 54.5° | 260.6 | 265.9 | 270.3 | 272.0 | 272.1 | 267.9  | 261.8 | 254.9  | 248.4 | 242.5  | 239.6 |
| 55°   | 254.0 | 259.3 | 263.9 | 265.8 | 266.4 | 261.9  | 255.8 | 248.7  | 242.1 | 236.3  | 233.3 |
| 55.5° | 246.8 | 252.0 | 257.0 | 258.8 | 259.8 | 255.4  | 248.9 | 241.8  | 234.6 | 228.5  | 225.9 |
| 56°   | 238.3 | 244.3 | 248.8 | 250.8 | 252.3 | 248.0  | 241.2 | 233.4  | 226.1 | 220.3  | 217.4 |
| 56.5° | 229.4 | 235.5 | 240.2 | 242.3 | 244.1 | 239.9  | 232.9 | 224.8  | 217.4 | 211.2  | 208.3 |
| 57°   | 219.8 | 225.8 | 231.0 | 233.2 | 235.3 | 230.7  | 223.7 | 215.7  | 208.0 | 201.8  | 198.8 |
| 57.5° | 209.7 | 215.4 | 221.4 | 224.1 | 226.1 | 221.2  | 214.3 | 206.3  | 198.5 | 192.4  | 189.0 |
| 58°   | 199.2 | 205.0 | 211.5 | 214.7 | 216.7 | 211.2  | 204.1 | 196.3  | 188.9 | 182.5  | 179.1 |
| 58.5° | 188.9 | 194.5 | 201.2 | 205.0 | 207.1 | 201.3  | 194.1 | 186.5  | 179.2 | 173.0  | 169.2 |
| 59°   | 177.9 | 184.1 | 191.0 | 195.1 | 196.9 | 190.5  | 183.4 | 176.1  | 169.1 | 163.0  | 159.0 |
| 59.5° | 167.4 | 173.3 | 180.5 | 184.7 | 186.6 | 180.1  | 172.8 | 165.7  | 159.1 | 153.1  | 149.1 |
| 60°   | 156.6 | 163.0 | 170.0 | 174.5 | 176.3 | 169.6  | 162.2 | 155.1  | 149.2 | 143.5  | 139.5 |
| 60.5° | 146.4 | 152.7 | 159.4 | 163.9 | 166.0 | 159.5  | 151.6 | 145.0  | 139.3 | 133.7  | 129.8 |
| 61°   | 136.1 | 142.6 | 148.8 | 153.2 | 155.3 | 149.2  | 141.3 | 134.5  | 129.3 | 124.3  | 120.4 |
| 61.5° | 126.1 | 132.8 | 138.6 | 142.4 | 145.1 | 139.5  | 131.2 | 124.5  | 119.6 | 115.1  | 111.1 |
| 62°   | 116.4 | 122.8 | 128.6 | 131.9 | 135.0 | 129.3  | 121.4 | 114.6  | 110.1 | 106.1  | 102.3 |
| 62.5° | 107.0 | 113.4 | 118.7 | 121.3 | 124.6 | 119.5  | 111.6 | 104.9  | 101.3 | 97.7   | 94.2  |
| 63°   | 97.9  | 104.0 | 109.0 | 111.2 | 114.7 | 109.9  | 103.0 | 96.2   | 92.5  | 89.4   | 85.9  |
| 63.5° | 89.1  | 94.9  | 99.2  | 100.9 | 105.1 | 101.1  | 94.4  | 87.4   | 83.8  | 80.9   | 77.6  |
| 64°   | 80.5  | 85.9  | 90.0  | 91.3  | 96.0  | 92.2   | 85.7  | 78.7   | 75.0  | 72.5   | 69.5  |
| 64.5° | 72.4  | 77.5  | 81.0  | 82.0  | 86.9  | 83.5   | 77.0  | 70.0   | 66.3  | 64.1   | 62.1  |
| 65°   | 65.0  | 69.4  | 72.3  | 73.3  | 77.7  | 74.6   | 68.5  | 62.3   | 58.7  | 56.7   | 55.4  |
| 65.5° | 57.4  | 61.5  | 64.2  | 65.1  | 68.7  | 65.8   | 60.7  | 55.3   | 51.7  | 49.8   | 49.2  |
| 66°   | 49.8  | 54.0  | 56.2  | 57.1  | 60.3  | 57.7   | 53.7  | 48.9   | 45.1  | 43.5   | 43.4  |





TEST NUMBER: P775836

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

|       | 0°   | 22.5° | 45°  | 67.5° | 90°  | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|-------|------|-------|------|-------|------|--------|------|--------|------|--------|------|
| 67.5° | 32.6 | 34.8  | 36.2 | 37.0  | 38.9 | 37.8   | 35.4 | 32.5   | 28.5 | 28.6   | 29.2 |
| 68°   | 28.9 | 30.8  | 32.4 | 33.2  | 33.2 | 32.1   | 30.3 | 28.4   | 24.6 | 25.1   | 25.6 |
| 68.5° | 25.1 | 26.9  | 28.8 | 29.3  | 28.3 | 27.2   | 26.1 | 24.7   | 21.5 | 22.4   | 22.7 |
| 69°   | 21.4 | 23.1  | 25.1 | 25.5  | 24.2 | 23.3   | 22.8 | 21.6   | 19.3 | 20.2   | 20.2 |
| 69.5° | 17.7 | 19.2  | 21.4 | 21.6  | 20.9 | 20.3   | 19.9 | 19.2   | 17.8 | 18.4   | 18.3 |
| 70°   | 16.7 | 17.3  | 17.8 | 17.8  | 18.5 | 18.2   | 17.9 | 17.4   | 16.8 | 16.9   | 17.0 |
| 70.5° | 15.9 | 16.2  | 16.5 | 16.5  | 16.9 | 16.8   | 16.7 | 16.4   | 16.0 | 16.1   | 16.1 |
| 71°   | 15.0 | 15.4  | 15.7 | 15.7  | 16.0 | 16.0   | 15.9 | 15.6   | 15.2 | 15.3   | 15.4 |
| 71.5° | 14.2 | 14.7  | 15.0 | 15.0  | 15.3 | 15.2   | 15.1 | 14.8   | 14.3 | 14.5   | 14.6 |
| 72°   | 13.4 | 13.9  | 14.2 | 14.2  | 14.5 | 14.5   | 14.4 | 14.1   | 13.6 | 13.8   | 13.9 |
| 72.5° | 12.7 | 13.1  | 13.5 | 13.5  | 13.8 | 13.7   | 13.6 | 13.3   | 12.8 | 13.0   | 13.2 |
| 73°   | 11.8 | 12.3  | 12.7 | 12.8  | 13.1 | 13.0   | 12.9 | 12.5   | 12.0 | 12.2   | 12.4 |
| 73.5° | 11.1 | 11.6  | 11.9 | 12.0  | 12.3 | 12.2   | 12.1 | 11.8   | 11.3 | 11.5   | 11.7 |
| 74°   | 10.5 | 10.9  | 11.3 | 11.3  | 11.6 | 11.5   | 11.5 | 11.1   | 10.6 | 10.8   | 11.0 |
| 74.5° | 9.8  | 10.2  | 10.6 | 10.6  | 10.9 | 10.9   | 10.8 | 10.4   | 9.9  | 10.2   | 10.4 |
| 75°   | 9.2  | 9.6   | 10.0 | 10.0  | 10.3 | 10.2   | 10.2 | 9.8    | 9.3  | 9.5    | 9.8  |
| 75.5° | 8.6  | 9.0   | 9.4  | 9.4   | 9.7  | 9.6    | 9.6  | 9.2    | 8.8  | 8.9    | 9.2  |
| 76°   | 8.0  | 8.4   | 8.8  | 8.8   | 9.1  | 9.1    | 9.0  | 8.6    | 8.2  | 8.4    | 8.7  |
| 76.5° | 7.4  | 7.8   | 8.2  | 8.3   | 8.6  | 8.5    | 8.5  | 8.1    | 7.7  | 7.9    | 8.1  |
| 77°   | 6.9  | 7.2   | 7.7  | 7.8   | 8.0  | 8.0    | 7.9  | 7.6    | 7.0  | 7.2    | 7.6  |
| 77.5° | 6.4  | 6.7   | 7.1  | 7.2   | 7.4  | 7.4    | 7.3  | 6.9    | 6.5  | 6.7    | 7.0  |
| 78°   | 5.9  | 6.2   | 6.6  | 6.7   | 6.9  | 6.9    | 6.8  | 6.4    | 6.0  | 6.2    | 6.4  |
| 78.5° | 5.5  | 5.8   | 6.1  | 6.2   | 6.4  | 6.4    | 6.3  | 5.9    | 5.5  | 5.7    | 6.0  |
| 79°   | 5.1  | 5.3   | 5.7  | 5.8   | 5.9  | 5.9    | 5.8  | 5.4    | 5.1  | 5.2    | 5.5  |
| 79.5° | 4.6  | 4.9   | 5.3  | 5.3   | 5.5  | 5.5    | 5.4  | 5.0    | 4.7  | 4.8    | 5.1  |
| 80°   | 4.3  | 4.5   | 4.8  | 4.9   | 5.1  | 5.1    | 5.0  | 4.6    | 4.3  | 4.4    | 4.7  |
| 80.5° | 3.9  | 4.1   | 4.4  | 4.5   | 4.7  | 4.7    | 4.6  | 4.2    | 3.9  | 4.0    | 4.3  |
| 81°   | 3.5  | 3.7   | 4.1  | 4.2   | 4.3  | 4.3    | 4.2  | 3.8    | 3.5  | 3.6    | 3.9  |
| 81.5° | 3.2  | 3.4   | 3.7  | 3.8   | 3.9  | 3.9    | 3.8  | 3.5    | 3.2  | 3.3    | 3.5  |
| 82°   | 2.9  | 3.1   | 3.4  | 3.4   | 3.6  | 3.6    | 3.5  | 3.1    | 2.9  | 2.9    | 3.2  |
| 82.5° | 2.4  | 2.7   | 3.0  | 3.1   | 3.2  | 3.2    | 3.1  | 2.8    | 2.4  | 2.6    | 2.9  |
| 83°   | 2.1  | 2.3   | 2.7  | 2.8   | 2.9  | 2.9    | 2.8  | 2.4    | 2.1  | 2.2    | 2.6  |
| 83.5° | 1.9  | 2.0   | 2.3  | 2.4   | 2.6  | 2.6    | 2.4  | 2.1    | 1.9  | 1.9    | 2.2  |
| 84°   | 1.6  | 1.7   | 2.0  | 2.1   | 2.2  | 2.2    | 2.1  | 1.8    | 1.6  | 1.7    | 1.9  |
| 84.5° | 1.4  | 1.5   | 1.7  | 1.8   | 1.9  | 1.9    | 1.8  | 1.5    | 1.4  | 1.4    | 1.6  |
| 85°   | 1.2  | 1.3   | 1.5  | 1.6   | 1.7  | 1.7    | 1.6  | 1.3    | 1.2  | 1.2    | 1.4  |
| 85.5° | 0.9  | 1.0   | 1.3  | 1.4   | 1.4  | 1.4    | 1.3  | 1.0    | 1.0  | 0.9    | 1.2  |
| 86°   | 0.8  | 0.8   | 1.1  | 1.1   | 1.2  | 1.2    | 1.1  | 0.8    | 0.8  | 0.7    | 1.0  |
| 86.5° | 0.6  | 0.6   | 0.9  | 0.9   | 1.0  | 1.0    | 0.9  | 0.7    | 0.6  | 0.6    | 0.8  |
| 87°   | 0.4  | 0.5   | 0.7  | 0.8   | 0.8  | 0.8    | 0.7  | 0.5    | 0.4  | 0.4    | 0.6  |
| 87.5° | 0.3  | 0.4   | 0.5  | 0.6   | 0.6  | 0.6    | 0.6  | 0.4    | 0.3  | 0.3    | 0.5  |
| 88°   | 0.2  | 0.3   | 0.4  | 0.4   | 0.5  | 0.5    | 0.4  | 0.3    | 0.2  | 0.2    | 0.3  |
| 88.5° | 0.1  | 0.2   | 0.2  | 0.3   | 0.3  | 0.3    | 0.3  | 0.2    | 0.1  | 0.1    | 0.2  |



TEST NUMBER: P775836  
CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|-----|-----|-------|-----|-------|-----|--------|------|--------|------|--------|------|
| 90° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 | 0.0    | 0.0  | 0.0    | 0.0  | 0.0    | 0.0  |



TEST NUMBER: P775836

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

|       | 247.5° | 270°  | 292.5° | 315°  | 337.5° | 360°  |
|-------|--------|-------|--------|-------|--------|-------|
| 0°    | 546.5  | 546.5 | 546.5  | 546.5 | 546.5  | 546.5 |
| 0.5°  | 546.3  | 545.9 | 546.1  | 546.4 | 546.7  | 546.8 |
| 1°    | 546.0  | 545.5 | 545.9  | 546.3 | 546.7  | 546.8 |
| 1.5°  | 545.6  | 545.2 | 545.5  | 546.2 | 546.7  | 546.9 |
| 2°    | 545.2  | 544.9 | 545.2  | 546.0 | 546.6  | 546.8 |
| 2.5°  | 544.8  | 544.5 | 544.9  | 545.6 | 546.4  | 546.7 |
| 3°    | 544.3  | 544.0 | 544.5  | 545.3 | 546.2  | 546.7 |
| 3.5°  | 543.8  | 543.5 | 544.1  | 545.0 | 546.0  | 546.5 |
| 4°    | 543.2  | 543.0 | 543.6  | 544.6 | 545.6  | 546.4 |
| 4.5°  | 542.6  | 542.4 | 543.1  | 544.2 | 545.3  | 546.1 |
| 5°    | 542.0  | 541.7 | 542.6  | 543.7 | 544.9  | 545.9 |
| 5.5°  | 541.2  | 541.1 | 542.0  | 543.2 | 544.5  | 545.5 |
| 6°    | 540.4  | 540.3 | 541.3  | 542.7 | 544.0  | 545.1 |
| 6.5°  | 539.7  | 539.5 | 540.5  | 542.0 | 543.5  | 544.7 |
| 7°    | 538.8  | 538.7 | 539.9  | 541.4 | 543.0  | 544.2 |
| 7.5°  | 538.0  | 537.8 | 539.1  | 540.6 | 542.4  | 543.7 |
| 8°    | 537.0  | 536.9 | 538.2  | 539.8 | 541.8  | 543.2 |
| 8.5°  | 536.1  | 535.9 | 537.3  | 539.1 | 541.0  | 542.5 |
| 9°    | 535.0  | 534.8 | 536.3  | 538.2 | 540.2  | 541.9 |
| 9.5°  | 533.9  | 533.8 | 535.3  | 537.3 | 539.4  | 541.2 |
| 10°   | 532.8  | 532.7 | 534.3  | 536.4 | 538.6  | 540.4 |
| 10.5° | 531.6  | 531.6 | 533.2  | 535.3 | 537.7  | 539.6 |
| 11°   | 530.4  | 530.3 | 532.1  | 534.3 | 536.8  | 538.8 |
| 11.5° | 529.1  | 529.1 | 530.9  | 533.2 | 535.9  | 537.9 |
| 12°   | 527.8  | 527.8 | 529.6  | 532.1 | 534.7  | 537.0 |
| 12.5° | 526.5  | 526.5 | 528.4  | 530.9 | 533.7  | 536.1 |
| 13°   | 525.0  | 525.0 | 527.1  | 529.6 | 532.6  | 534.9 |
| 13.5° | 523.5  | 523.6 | 525.6  | 528.3 | 531.4  | 533.8 |
| 14°   | 522.0  | 522.0 | 524.2  | 527.0 | 530.1  | 532.7 |
| 14.5° | 520.4  | 520.4 | 522.8  | 525.6 | 528.8  | 531.6 |
| 15°   | 518.9  | 518.9 | 521.3  | 524.2 | 527.5  | 530.3 |
| 15.5° | 517.2  | 517.3 | 519.5  | 522.7 | 526.2  | 529.0 |
| 16°   | 515.4  | 515.5 | 517.9  | 521.2 | 524.7  | 527.7 |
| 16.5° | 513.7  | 513.8 | 516.3  | 519.5 | 523.2  | 526.4 |
| 17°   | 512.0  | 512.1 | 514.5  | 517.9 | 521.7  | 524.8 |
| 17.5° | 509.9  | 510.1 | 512.8  | 516.3 | 520.1  | 523.4 |
| 18°   | 508.1  | 508.3 | 510.9  | 514.5 | 518.4  | 521.9 |
| 18.5° | 506.2  | 506.3 | 509.0  | 512.7 | 516.8  | 520.3 |
| 19°   | 504.1  | 504.3 | 507.1  | 510.9 | 515.0  | 518.6 |
| 19.5° | 502.1  | 502.2 | 505.0  | 509.0 | 513.3  | 517.0 |
| 20°   | 499.9  | 500.1 | 503.0  | 507.1 | 511.4  | 515.2 |
| 20.5° | 497.7  | 497.9 | 501.0  | 505.0 | 509.5  | 513.5 |
| 21°   | 495.4  | 495.7 | 498.7  | 503.0 | 507.6  | 511.6 |

TEST NUMBER: P775836

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

|       | 247.5° | 270°  | 292.5° | 315°  | 337.5° | 360°  |
|-------|--------|-------|--------|-------|--------|-------|
| 22.5° | 488.4  | 488.7 | 492.1  | 496.5 | 501.5  | 505.8 |
| 23°   | 486.1  | 486.3 | 489.6  | 494.2 | 499.3  | 503.6 |
| 23.5° | 483.5  | 483.8 | 487.3  | 492.0 | 497.1  | 501.6 |
| 24°   | 481.0  | 481.3 | 484.8  | 489.5 | 494.8  | 499.3 |
| 24.5° | 478.4  | 478.7 | 482.2  | 487.2 | 492.5  | 497.1 |
| 25°   | 475.8  | 476.1 | 479.6  | 484.6 | 490.1  | 494.7 |
| 25.5° | 473.0  | 473.4 | 477.1  | 482.2 | 487.7  | 492.5 |
| 26°   | 470.3  | 470.7 | 474.4  | 479.5 | 485.2  | 490.1 |
| 26.5° | 467.5  | 467.9 | 471.8  | 477.0 | 482.6  | 487.7 |
| 27°   | 464.6  | 465.0 | 468.9  | 474.2 | 480.0  | 485.1 |
| 27.5° | 461.8  | 462.1 | 466.1  | 471.5 | 477.4  | 482.6 |
| 28°   | 458.8  | 459.1 | 463.2  | 468.7 | 474.7  | 479.9 |
| 28.5° | 455.8  | 456.2 | 460.4  | 465.9 | 472.0  | 477.3 |
| 29°   | 452.7  | 453.1 | 457.2  | 463.0 | 469.1  | 474.6 |
| 29.5° | 449.5  | 450.0 | 454.2  | 460.0 | 466.3  | 471.8 |
| 30°   | 446.3  | 446.8 | 451.2  | 457.0 | 463.4  | 468.9 |
| 30.5° | 443.1  | 443.6 | 447.9  | 453.9 | 460.4  | 466.2 |
| 31°   | 439.9  | 440.4 | 444.8  | 450.9 | 457.3  | 463.1 |
| 31.5° | 436.6  | 437.1 | 441.6  | 447.7 | 454.2  | 460.1 |
| 32°   | 433.2  | 433.6 | 438.2  | 444.5 | 451.2  | 457.1 |
| 32.5° | 429.7  | 430.3 | 434.8  | 441.2 | 448.0  | 453.9 |
| 33°   | 426.4  | 426.9 | 431.6  | 437.9 | 444.8  | 450.9 |
| 33.5° | 422.9  | 423.3 | 428.0  | 434.6 | 441.5  | 447.6 |
| 34°   | 419.3  | 419.7 | 424.5  | 431.2 | 438.1  | 444.2 |
| 34.5° | 415.7  | 416.3 | 421.1  | 427.7 | 434.7  | 441.0 |
| 35°   | 412.1  | 412.5 | 417.5  | 424.2 | 431.3  | 437.6 |
| 35.5° | 408.5  | 409.0 | 413.8  | 420.7 | 427.8  | 434.1 |
| 36°   | 404.8  | 405.3 | 410.3  | 417.1 | 424.2  | 430.7 |
| 36.5° | 401.1  | 401.7 | 406.6  | 413.5 | 420.8  | 427.1 |
| 37°   | 397.4  | 397.9 | 402.8  | 409.8 | 417.1  | 423.5 |
| 37.5° | 393.5  | 394.0 | 399.0  | 406.1 | 413.4  | 419.9 |
| 38°   | 389.7  | 390.2 | 395.2  | 402.3 | 409.6  | 416.2 |
| 38.5° | 386.0  | 386.4 | 391.4  | 398.5 | 405.9  | 412.5 |
| 39°   | 382.0  | 382.5 | 387.5  | 394.7 | 402.1  | 408.7 |
| 39.5° | 378.1  | 378.5 | 383.6  | 390.8 | 398.3  | 404.8 |
| 40°   | 374.2  | 374.6 | 379.6  | 386.9 | 394.4  | 401.0 |
| 40.5° | 370.3  | 370.7 | 375.6  | 382.9 | 390.6  | 397.1 |
| 41°   | 366.4  | 366.7 | 371.7  | 378.9 | 386.5  | 393.0 |
| 41.5° | 362.3  | 362.5 | 367.5  | 374.9 | 382.5  | 388.9 |
| 42°   | 358.3  | 358.6 | 363.5  | 371.0 | 378.5  | 385.0 |
| 42.5° | 354.3  | 354.4 | 359.4  | 366.9 | 374.3  | 380.9 |
| 43°   | 350.2  | 350.5 | 355.5  | 362.7 | 370.3  | 376.8 |
| 43.5° | 346.1  | 346.3 | 351.2  | 358.5 | 366.1  | 372.6 |



TEST NUMBER: P775836

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

|       | 247.5° | 270°  | 292.5° | 315°  | 337.5° | 360°  |
|-------|--------|-------|--------|-------|--------|-------|
| 45°   | 333.7  | 333.8 | 338.5  | 345.9 | 353.4  | 359.8 |
| 45.5° | 329.6  | 329.6 | 334.2  | 341.6 | 348.9  | 355.3 |
| 46°   | 325.3  | 325.2 | 329.9  | 337.2 | 344.5  | 350.9 |
| 46.5° | 321.0  | 320.7 | 325.5  | 332.7 | 340.1  | 346.4 |
| 47°   | 316.6  | 316.4 | 320.9  | 328.1 | 335.5  | 341.7 |
| 47.5° | 312.0  | 311.7 | 316.1  | 323.4 | 330.8  | 337.0 |
| 48°   | 307.4  | 307.0 | 311.4  | 318.6 | 325.9  | 332.3 |
| 48.5° | 302.7  | 302.1 | 306.6  | 313.7 | 321.0  | 327.3 |
| 49°   | 297.8  | 297.2 | 301.6  | 308.6 | 316.1  | 322.4 |
| 49.5° | 292.8  | 292.1 | 296.4  | 303.6 | 310.9  | 317.2 |
| 50°   | 287.6  | 286.7 | 291.1  | 298.1 | 305.6  | 311.8 |
| 50.5° | 282.3  | 281.5 | 285.7  | 292.7 | 300.0  | 306.3 |
| 51°   | 276.9  | 276.0 | 280.3  | 287.3 | 294.5  | 300.9 |
| 51.5° | 271.4  | 270.5 | 274.6  | 281.8 | 288.8  | 295.0 |
| 52°   | 265.7  | 265.0 | 269.2  | 276.1 | 283.0  | 289.1 |
| 52.5° | 260.2  | 259.5 | 263.6  | 270.4 | 276.9  | 283.3 |
| 53°   | 254.9  | 254.3 | 258.3  | 265.0 | 271.5  | 277.5 |
| 53.5° | 249.7  | 249.3 | 253.3  | 259.8 | 266.1  | 271.8 |
| 54°   | 244.7  | 244.2 | 248.1  | 254.7 | 260.8  | 266.3 |
| 54.5° | 239.1  | 238.4 | 242.5  | 248.8 | 255.0  | 260.6 |
| 55°   | 233.0  | 231.9 | 236.3  | 242.6 | 248.7  | 254.0 |
| 55.5° | 225.9  | 224.2 | 228.5  | 234.9 | 241.1  | 246.8 |
| 56°   | 217.2  | 215.6 | 220.1  | 226.3 | 232.6  | 238.3 |
| 56.5° | 208.1  | 206.4 | 210.8  | 217.3 | 223.4  | 229.4 |
| 57°   | 198.8  | 196.7 | 201.2  | 207.7 | 214.2  | 219.8 |
| 57.5° | 189.0  | 186.6 | 191.5  | 198.0 | 204.3  | 209.7 |
| 58°   | 179.1  | 176.4 | 181.6  | 188.2 | 194.3  | 199.2 |
| 58.5° | 168.8  | 166.4 | 171.6  | 178.3 | 183.3  | 188.9 |
| 59°   | 158.4  | 156.1 | 161.5  | 167.9 | 173.2  | 177.9 |
| 59.5° | 148.3  | 146.4 | 151.6  | 157.9 | 162.8  | 167.4 |
| 60°   | 138.2  | 136.5 | 141.8  | 147.7 | 152.1  | 156.6 |
| 60.5° | 128.5  | 126.8 | 132.0  | 137.5 | 141.4  | 146.4 |
| 61°   | 118.7  | 117.1 | 122.2  | 127.3 | 131.3  | 136.1 |
| 61.5° | 109.6  | 108.3 | 112.8  | 117.6 | 121.4  | 126.1 |
| 62°   | 101.3  | 99.1  | 103.9  | 107.7 | 111.3  | 116.4 |
| 62.5° | 93.2   | 90.5  | 94.9   | 98.3  | 101.9  | 107.0 |
| 63°   | 85.0   | 82.2  | 86.1   | 89.1  | 92.5   | 97.9  |
| 63.5° | 76.8   | 74.3  | 77.8   | 80.3  | 83.8   | 89.1  |
| 64°   | 68.7   | 66.6  | 69.6   | 71.8  | 75.1   | 80.5  |
| 64.5° | 61.8   | 59.7  | 61.9   | 64.0  | 67.3   | 72.4  |
| 65°   | 55.4   | 53.0  | 54.7   | 56.4  | 59.8   | 65.0  |
| 65.5° | 49.4   | 46.9  | 47.9   | 49.5  | 52.7   | 57.4  |
| 66°   | 43.7   | 41.2  | 41.4   | 43.2  | 46.3   | 49.8  |



TEST NUMBER: P775836

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

|       | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|-------|--------|------|--------|------|--------|------|
| 67.5° | 29.8   | 29.4 | 29.2   | 30.5 | 31.5   | 32.6 |
| 68°   | 26.0   | 26.0 | 25.9   | 26.9 | 27.9   | 28.9 |
| 68.5° | 22.9   | 22.7 | 22.7   | 23.4 | 24.3   | 25.1 |
| 69°   | 20.3   | 19.3 | 19.4   | 19.8 | 20.6   | 21.4 |
| 69.5° | 18.3   | 17.5 | 17.7   | 18.0 | 18.4   | 17.7 |
| 70°   | 16.9   | 16.5 | 16.6   | 16.8 | 16.9   | 16.7 |
| 70.5° | 16.1   | 15.8 | 15.9   | 16.0 | 16.0   | 15.9 |
| 71°   | 15.4   | 15.0 | 15.1   | 15.3 | 15.3   | 15.0 |
| 71.5° | 14.6   | 14.3 | 14.4   | 14.5 | 14.5   | 14.2 |
| 72°   | 13.9   | 13.5 | 13.6   | 13.8 | 13.7   | 13.4 |
| 72.5° | 13.1   | 12.8 | 12.9   | 13.1 | 13.0   | 12.7 |
| 73°   | 12.3   | 12.0 | 12.1   | 12.2 | 12.1   | 11.8 |
| 73.5° | 11.7   | 11.4 | 11.4   | 11.6 | 11.4   | 11.1 |
| 74°   | 11.0   | 10.7 | 10.8   | 10.9 | 10.8   | 10.5 |
| 74.5° | 10.4   | 10.1 | 10.2   | 10.3 | 10.1   | 9.8  |
| 75°   | 9.8    | 9.5  | 9.6    | 9.6  | 9.5    | 9.2  |
| 75.5° | 9.2    | 8.9  | 9.0    | 9.1  | 8.9    | 8.6  |
| 76°   | 8.7    | 8.4  | 8.4    | 8.5  | 8.3    | 8.0  |
| 76.5° | 8.1    | 7.8  | 7.9    | 7.9  | 7.7    | 7.4  |
| 77°   | 7.6    | 7.2  | 7.3    | 7.3  | 7.1    | 6.9  |
| 77.5° | 7.0    | 6.7  | 6.8    | 6.8  | 6.6    | 6.4  |
| 78°   | 6.5    | 6.3  | 6.3    | 6.4  | 6.1    | 5.9  |
| 78.5° | 6.0    | 5.8  | 5.9    | 5.9  | 5.7    | 5.5  |
| 79°   | 5.6    | 5.4  | 5.4    | 5.5  | 5.2    | 5.1  |
| 79.5° | 5.2    | 5.0  | 5.0    | 5.0  | 4.8    | 4.6  |
| 80°   | 4.8    | 4.6  | 4.6    | 4.6  | 4.4    | 4.3  |
| 80.5° | 4.4    | 4.2  | 4.2    | 4.2  | 4.0    | 3.9  |
| 81°   | 4.0    | 3.9  | 3.9    | 3.9  | 3.7    | 3.5  |
| 81.5° | 3.6    | 3.5  | 3.6    | 3.5  | 3.3    | 3.2  |
| 82°   | 3.3    | 3.2  | 3.2    | 3.2  | 3.0    | 2.9  |
| 82.5° | 3.0    | 2.9  | 2.9    | 2.9  | 2.6    | 2.4  |
| 83°   | 2.7    | 2.4  | 2.6    | 2.4  | 2.2    | 2.1  |
| 83.5° | 2.3    | 2.2  | 2.2    | 2.1  | 1.9    | 1.9  |
| 84°   | 2.0    | 1.9  | 1.9    | 1.9  | 1.7    | 1.6  |
| 84.5° | 1.7    | 1.6  | 1.7    | 1.6  | 1.4    | 1.4  |
| 85°   | 1.5    | 1.4  | 1.4    | 1.4  | 1.2    | 1.2  |
| 85.5° | 1.3    | 1.2  | 1.2    | 1.2  | 0.9    | 0.9  |
| 86°   | 1.0    | 1.0  | 1.0    | 1.0  | 0.8    | 0.8  |
| 86.5° | 0.9    | 0.8  | 0.8    | 0.8  | 0.6    | 0.6  |
| 87°   | 0.7    | 0.6  | 0.6    | 0.6  | 0.5    | 0.4  |
| 87.5° | 0.5    | 0.4  | 0.4    | 0.4  | 0.4    | 0.3  |
| 88°   | 0.3    | 0.3  | 0.3    | 0.3  | 0.2    | 0.2  |
| 88.5° | 0.2    | 0.1  | 0.1    | 0.1  | 0.1    | 0.1  |



TEST NUMBER: P775836

CATALOG NUMBER: HCDJBL510CSD-HCD81TRMW-1000lm-3000K

**CANDELA DISTRIBUTION (continued):**

|     | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|-----|--------|------|--------|------|--------|------|
| 90° | 0.0    | 0.0  | 0.0    | 0.0  | 0.0    | 0.0  |

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report



Report Generated By 670245859 / DESKTOP-T8S5UU9



Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report





— 0°-180°    - - 45°-225°    - - - - 90°-270°    - · - 135°-315°

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report





|       |       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 21.5° | 509.6 | 512.4 | 513.6 | 513.2 | 512.1 | 509.5 | 505.9 | 501.8 | 498.0 | 494.7 | 493.1 |
| 22°   | 507.7 | 510.5 | 511.7 | 511.4 | 510.2 | 507.6 | 503.8 | 499.7 | 495.9 | 492.6 | 490.8 |



|       |       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 44°   | 368.3 | 373.3 | 376.1 | 376.2 | 375.4 | 371.4 | 365.3 | 358.3 | 351.3 | 345.4 | 342.5 |
| 44.5° | 364.0 | 368.9 | 371.8 | 372.1 | 371.4 | 367.1 | 361.1 | 354.1 | 347.2 | 341.3 | 338.3 |



|       |      |      |      |      |      |      |      |      |      |      |      |
|-------|------|------|------|------|------|------|------|------|------|------|------|
| 66.5° | 42.7 | 47.2 | 49.0 | 49.9 | 52.6 | 50.5 | 46.9 | 42.7 | 38.9 | 37.8 | 38.2 |
| 67°   | 36.4 | 40.7 | 42.2 | 43.1 | 45.6 | 43.9 | 40.8 | 37.4 | 33.2 | 32.8 | 33.4 |



|       |     |     |     |     |     |     |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 89°   | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| 89.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report





|       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|
| 21.5° | 493.2 | 493.5 | 496.6 | 501.0 | 505.5 | 509.6 |
| 22°   | 490.9 | 491.2 | 494.3 | 498.7 | 503.5 | 507.7 |



|       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|
| 44°   | 342.0 | 342.2 | 347.1 | 354.4 | 361.9 | 368.3 |
| 44.5° | 337.9 | 338.0 | 342.8 | 350.3 | 357.7 | 364.0 |

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report



|       |      |      |      |      |      |      |
|-------|------|------|------|------|------|------|
| 66.5° | 38.6 | 36.2 | 35.8 | 37.5 | 40.7 | 42.7 |
| 67°   | 34.1 | 32.9 | 32.4 | 34.0 | 35.2 | 36.4 |

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report



|       |     |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|-----|
| 89°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 89.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report



(END OF REPORT)