

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P29174

Luminaire Tested: **H12-LD4-50W-40-CLR-EDC1**

Test Date: 12/21/16



**Test Information**

Test Method: LM-79-08  
Report Number: P29174  
Test Lab: INNOVATION CENTER-P2  
Test Date: 12/21/16  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: H12-LD4-50W-40-CLR-EDC1  
Description: H12 LED FIXTURE WITH CLEAR LENS  
Light Source: (112) NICHIA 4000K LEDS  
1FS402256M8404  
Ballast/Driver: (1) OSRAM ELECTRONIC DRIVER (950mA)  
OT50W-UNV-1250C

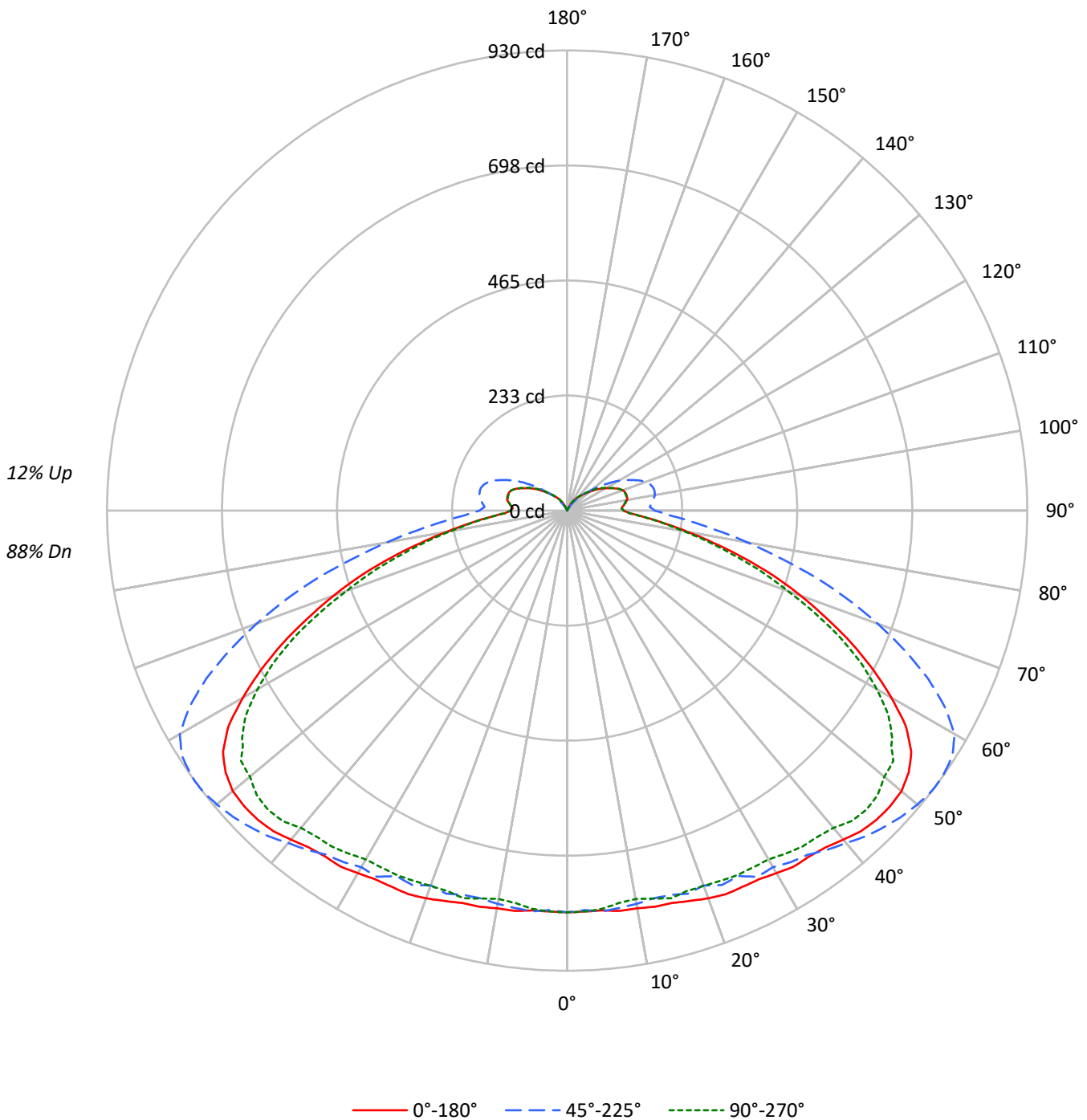
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4703.2 lumens  
Efficiency: N/A  
Efficacy: 101.6 lumens/watt  
Spacing Criteria (0/90/45): 1.62 / 1.57 / 1.87  
Luminous Opening: Rectangular w/ Sides (W: 0.83' x L: 0.83' x H: 0.42')  
CIE Type: Semi-Direct  
  
Input Watts (W): 46.3  
Input Voltage (V): 120.1  
Input Current (A<sub>in</sub>): 0.387  
Voltage Rise (V): NR  
Power Factor: 0.9984  
Total Harmonic Distortion (THDi): 6.11%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): 24.9  
Test Distance: 25 FT

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### Luminous Intensity Polar Plot





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

|     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|
| RF  | 20  |     |     |     | 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 | 0  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |
| 0   | 116 | 116 | 116 | 116 | 112 | 112 | 112 | 112 | 104 | 104 | 104 | 97 | 97 | 97 | 91 | 91 | 91 | 88 |
| 1   | 103 | 97  | 92  | 87  | 99  | 94  | 89  | 85  | 87  | 83  | 80  | 81 | 78 | 75 | 76 | 73 | 71 | 68 |
| 2   | 92  | 83  | 75  | 68  | 88  | 80  | 72  | 66  | 74  | 68  | 63  | 69 | 64 | 59 | 64 | 60 | 56 | 53 |
| 3   | 83  | 71  | 62  | 54  | 79  | 68  | 60  | 53  | 63  | 56  | 50  | 59 | 53 | 48 | 55 | 50 | 46 | 43 |
| 4   | 75  | 62  | 52  | 44  | 72  | 59  | 50  | 43  | 55  | 47  | 41  | 51 | 45 | 39 | 48 | 42 | 38 | 35 |
| 5   | 68  | 54  | 44  | 37  | 65  | 52  | 43  | 36  | 49  | 41  | 35  | 45 | 38 | 33 | 42 | 36 | 32 | 29 |
| 6   | 63  | 48  | 38  | 31  | 60  | 46  | 37  | 31  | 43  | 35  | 29  | 40 | 34 | 28 | 38 | 32 | 27 | 25 |
| 7   | 58  | 43  | 34  | 27  | 55  | 42  | 33  | 26  | 39  | 31  | 25  | 36 | 30 | 24 | 34 | 28 | 23 | 21 |
| 8   | 53  | 39  | 30  | 24  | 51  | 38  | 29  | 23  | 35  | 28  | 22  | 33 | 26 | 21 | 31 | 25 | 21 | 18 |
| 9   | 50  | 35  | 27  | 21  | 48  | 34  | 26  | 20  | 32  | 25  | 20  | 30 | 24 | 19 | 28 | 23 | 18 | 16 |
| 10  | 46  | 32  | 24  | 19  | 44  | 31  | 24  | 18  | 30  | 22  | 18  | 28 | 21 | 17 | 26 | 20 | 16 | 14 |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 12586 | 12586 | 12586 |
| 5°  | 12090 | 11913 | 12045 |
| 10° | 11803 | 11293 | 11528 |
| 15° | 11618 | 10847 | 11476 |
| 20° | 11639 | 10574 | 11262 |
| 25° | 11636 | 10482 | 11275 |
| 30° | 11750 | 10574 | 11305 |
| 35° | 11955 | 10745 | 11619 |
| 40° | 12372 | 11137 | 11930 |
| 45° | 12918 | 11621 | 12495 |
| 50° | 13327 | 12092 | 12647 |
| 55° | 13385 | 12491 | 12644 |
| 60° | 12576 | 12597 | 12011 |
| 65° | 11221 | 11733 | 10796 |
| 70° | 9584  | 10272 | 9050  |
| 75° | 7690  | 8525  | 7293  |
| 80° | 5748  | 6574  | 5539  |
| 85° | 4211  | 4895  | 4185  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 77.2   | 1.6       |
| 10°-20°   | 230.0  | 4.9       |
| 20°-30°   | 380.8  | 8.1       |
| 30°-40°   | 531.9  | 11.3      |
| 40°-50°   | 686.1  | 14.6      |
| 50°-60°   | 787.5  | 16.7      |
| 60°-70°   | 714.4  | 15.2      |
| 70°-80°   | 482.0  | 10.2      |
| 80°-90°   | 242.6  | 5.2       |
| 90°-100°  | 160.4  | 3.4       |
| 100°-110° | 160.5  | 3.4       |
| 110°-120° | 124.2  | 2.6       |
| 120°-130° | 73.8   | 1.6       |
| 130°-140° | 35.5   | 0.8       |
| 140°-150° | 14.2   | 0.3       |
| 150°-160° | 2.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 688.0  | 14.6      |
| 0°-40°    | 1219.9 | 25.9      |
| 0°-60°    | 2693.5 | 57.3      |
| 0°-90°    | 4132.6 | 87.9      |
| 90°-120°  | 445.1  | 9.5       |
| 90°-150°  | 568.6  | 12.1      |
| 90°-180°  | 571.0  | 12.1      |
| 0°-180°   | 4703.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|-----|------|
| 0°   | 812 | 812   | 812 | 812   | 812 |      |
| 5°   | 811 | 808   | 813 | 810   | 808 | 78   |
| 15°  | 821 | 818   | 804 | 804   | 811 | 234  |
| 25°  | 839 | 832   | 815 | 811   | 813 | 389  |
| 35°  | 853 | 850   | 849 | 837   | 829 | 537  |
| 45°  | 884 | 899   | 905 | 882   | 855 | 682  |
| 55°  | 849 | 907   | 929 | 878   | 802 | 751  |
| 65°  | 634 | 737   | 805 | 735   | 610 | 626  |
| 75°  | 368 | 472   | 518 | 466   | 349 | 391  |
| 85°  | 159 | 222   | 250 | 224   | 158 | 148  |
| 90°  | 114 | 151   | 177 | 151   | 114 | 64   |
| 95°  | 114 | 148   | 172 | 148   | 114 | 95   |
| 105° | 124 | 154   | 180 | 155   | 123 | 130  |
| 115° | 106 | 124   | 146 | 124   | 107 | 105  |
| 125° | 75  | 78    | 91  | 80    | 78  | 67   |
| 135° | 46  | 41    | 47  | 42    | 48  | 36   |
| 145° | 27  | 22    | 16  | 23    | 28  | 17   |
| 155° | 7   | 1     | 0   | 2     | 7   | 4    |
| 165° | 0   | 0     | 0   | 0     | 0   | 0    |
| 175° | 0   | 0     | 0   | 0     | 0   | 0    |
| 180° | 0   | 0     | 0   | 0     | 0   | 0    |



TEST NUMBER: P29174

CATALOG NUMBER: H12-LD4-50W-40-CLR-EDC1

**CANDELA DISTRIBUTION (FULL):**

|        | 0°  | 5°  | 15° | 25° | 35° | 38° | 45° | 55° | 65° | 75° | 85° |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0°     | 812 | 812 | 812 | 812 | 812 | 812 | 812 | 812 | 812 | 812 | 812 |
| 2.5°   | 811 | 810 | 808 | 803 | 804 | 808 | 808 | 814 | 815 | 814 | 810 |
| 5°     | 811 | 809 | 802 | 810 | 818 | 819 | 813 | 806 | 808 | 814 | 809 |
| 7.5°   | 816 | 811 | 811 | 819 | 809 | 808 | 810 | 815 | 805 | 806 | 803 |
| 10°    | 816 | 810 | 814 | 804 | 808 | 810 | 807 | 801 | 808 | 801 | 802 |
| 12.5°  | 820 | 813 | 814 | 808 | 807 | 806 | 803 | 803 | 798 | 805 | 809 |
| 15°    | 821 | 815 | 815 | 819 | 811 | 813 | 804 | 806 | 802 | 809 | 816 |
| 17.5°  | 827 | 823 | 824 | 820 | 810 | 816 | 812 | 807 | 812 | 805 | 810 |
| 20°    | 834 | 833 | 831 | 819 | 816 | 820 | 806 | 806 | 811 | 810 | 810 |
| 22.5°  | 839 | 838 | 831 | 825 | 819 | 813 | 819 | 817 | 805 | 811 | 811 |
| 25°    | 839 | 836 | 834 | 831 | 818 | 831 | 815 | 814 | 812 | 807 | 813 |
| 27.5°  | 840 | 839 | 841 | 828 | 835 | 829 | 834 | 820 | 817 | 810 | 812 |
| 30°    | 846 | 846 | 845 | 835 | 833 | 840 | 832 | 829 | 815 | 823 | 813 |
| 32.5°  | 853 | 852 | 847 | 843 | 844 | 852 | 842 | 830 | 830 | 827 | 822 |
| 35°    | 853 | 852 | 851 | 849 | 856 | 859 | 849 | 849 | 840 | 827 | 828 |
| 37.5°  | 858 | 857 | 861 | 862 | 867 | 875 | 864 | 856 | 841 | 835 | 830 |
| 40°    | 868 | 868 | 872 | 877 | 881 | 885 | 877 | 870 | 857 | 848 | 837 |
| 42.5°  | 879 | 879 | 881 | 889 | 891 | 900 | 893 | 881 | 868 | 851 | 852 |
| 45°    | 884 | 884 | 892 | 901 | 902 | 917 | 905 | 897 | 888 | 862 | 854 |
| 47.5°  | 885 | 885 | 897 | 913 | 917 | 932 | 916 | 909 | 892 | 871 | 851 |
| 50°    | 882 | 882 | 897 | 921 | 929 | 944 | 924 | 919 | 897 | 863 | 839 |
| 52.5°  | 870 | 871 | 892 | 924 | 934 | 951 | 930 | 921 | 897 | 861 | 834 |
| 54°    | 858 | 860 | 884 | 919 | 931 | 953 | 930 | 921 | 894 | 848 | 815 |
| 55°    | 849 | 850 | 879 | 916 | 930 | 952 | 929 | 920 | 888 | 848 | 807 |
| 57.5°  | 812 | 816 | 850 | 896 | 916 | 940 | 923 | 911 | 877 | 822 | 777 |
| 60°    | 757 | 761 | 804 | 858 | 888 | 915 | 904 | 887 | 851 | 787 | 733 |
| 62.5°  | 698 | 704 | 752 | 809 | 845 | 874 | 861 | 845 | 806 | 741 | 681 |
| 65°    | 634 | 643 | 696 | 751 | 788 | 813 | 805 | 790 | 752 | 685 | 620 |
| 67.5°  | 566 | 576 | 634 | 689 | 724 | 751 | 739 | 722 | 687 | 628 | 556 |
| 70°    | 502 | 511 | 571 | 623 | 653 | 681 | 667 | 652 | 621 | 561 | 491 |
| 72.5°  | 437 | 445 | 505 | 555 | 583 | 608 | 594 | 580 | 552 | 495 | 425 |
| 75°    | 368 | 377 | 435 | 484 | 507 | 529 | 518 | 504 | 480 | 426 | 360 |
| 77.5°  | 304 | 312 | 368 | 411 | 430 | 449 | 439 | 430 | 411 | 365 | 308 |
| 80°    | 247 | 255 | 307 | 343 | 359 | 376 | 369 | 360 | 345 | 306 | 253 |
| 82.5°  | 199 | 206 | 252 | 282 | 297 | 312 | 305 | 301 | 286 | 254 | 208 |
| 85°    | 159 | 166 | 204 | 228 | 244 | 260 | 250 | 245 | 231 | 205 | 169 |
| 87.5°  | 126 | 133 | 160 | 182 | 198 | 209 | 205 | 199 | 184 | 161 | 135 |
| 90°    | 114 | 117 | 136 | 156 | 170 | 180 | 177 | 171 | 156 | 137 | 118 |
| 92.5°  | 110 | 112 | 129 | 148 | 161 | 170 | 167 | 162 | 149 | 130 | 112 |
| 95°    | 114 | 117 | 134 | 152 | 166 | 173 | 172 | 167 | 153 | 134 | 116 |
| 97.5°  | 119 | 121 | 138 | 157 | 170 | 177 | 176 | 171 | 157 | 137 | 120 |
| 100°   | 123 | 124 | 142 | 160 | 173 | 180 | 180 | 174 | 160 | 140 | 123 |
| 102.5° | 124 | 125 | 143 | 161 | 175 | 181 | 181 | 176 | 161 | 142 | 124 |
| 105°   | 124 | 125 | 141 | 159 | 174 | 179 | 180 | 175 | 160 | 140 | 124 |
| 107.5° | 123 | 124 | 138 | 156 | 170 | 175 | 176 | 171 | 157 | 137 | 123 |



TEST NUMBER: P29174

CATALOG NUMBER: H12-LD4-50W-40-CLR-EDC1

**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 5°  | 15° | 25° | 35° | 38° | 45° | 55° | 65° | 75° | 85° |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 110°   | 120 | 121 | 132 | 150 | 163 | 168 | 169 | 164 | 150 | 131 | 121 |
| 112.5° | 114 | 115 | 123 | 139 | 153 | 159 | 159 | 154 | 140 | 123 | 115 |
| 115°   | 106 | 107 | 113 | 128 | 141 | 147 | 146 | 141 | 128 | 113 | 108 |
| 117.5° | 98  | 99  | 102 | 116 | 128 | 135 | 133 | 129 | 117 | 103 | 100 |
| 120°   | 90  | 91  | 92  | 104 | 115 | 121 | 120 | 116 | 106 | 93  | 92  |
| 122.5° | 83  | 83  | 83  | 92  | 102 | 107 | 106 | 103 | 93  | 85  | 85  |
| 125°   | 75  | 75  | 74  | 79  | 88  | 94  | 91  | 89  | 82  | 76  | 78  |
| 127.5° | 66  | 67  | 65  | 68  | 75  | 80  | 78  | 76  | 70  | 68  | 70  |
| 130°   | 59  | 59  | 57  | 57  | 63  | 68  | 65  | 64  | 59  | 59  | 61  |
| 132.5° | 52  | 52  | 50  | 48  | 53  | 57  | 55  | 54  | 49  | 51  | 54  |
| 135°   | 46  | 46  | 44  | 40  | 45  | 48  | 47  | 45  | 41  | 46  | 48  |
| 137.5° | 41  | 41  | 39  | 34  | 37  | 40  | 39  | 37  | 36  | 40  | 42  |
| 140°   | 36  | 36  | 34  | 30  | 30  | 33  | 31  | 30  | 31  | 35  | 37  |
| 142.5° | 32  | 32  | 30  | 26  | 22  | 25  | 24  | 22  | 27  | 31  | 32  |
| 145°   | 27  | 27  | 25  | 21  | 16  | 16  | 16  | 16  | 22  | 26  | 28  |
| 147.5° | 23  | 22  | 21  | 17  | 11  | 10  | 8   | 12  | 17  | 21  | 23  |
| 150°   | 18  | 18  | 16  | 13  | 7   | 6   | 0   | 7   | 13  | 16  | 18  |
| 152.5° | 13  | 13  | 11  | 8   | 1   | 0   | 0   | 1   | 7   | 11  | 13  |
| 155°   | 7   | 7   | 5   | 0   | 0   | 0   | 0   | 0   | 1   | 5   | 7   |
| 157.5° | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 160°   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 162.5° | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 165°   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 167.5° | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 170°   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 172.5° | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 175°   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 177.5° | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 180°   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |



TEST NUMBER: P29174

CATALOG NUMBER: H12-LD4-50W-40-CLR-EDC1

**CANDELA DISTRIBUTION (continued):**

|        | 90° |
|--------|-----|
| 0°     | 812 |
| 2.5°   | 811 |
| 5°     | 808 |
| 7.5°   | 800 |
| 10°    | 797 |
| 12.5°  | 803 |
| 15°    | 811 |
| 17.5°  | 806 |
| 20°    | 807 |
| 22.5°  | 810 |
| 25°    | 813 |
| 27.5°  | 813 |
| 30°    | 814 |
| 32.5°  | 822 |
| 35°    | 829 |
| 37.5°  | 831 |
| 40°    | 837 |
| 42.5°  | 851 |
| 45°    | 855 |
| 47.5°  | 851 |
| 50°    | 837 |
| 52.5°  | 831 |
| 54°    | 810 |
| 55°    | 802 |
| 57.5°  | 770 |
| 60°    | 723 |
| 62.5°  | 671 |
| 65°    | 610 |
| 67.5°  | 542 |
| 70°    | 474 |
| 72.5°  | 413 |
| 75°    | 349 |
| 77.5°  | 293 |
| 80°    | 238 |
| 82.5°  | 196 |
| 85°    | 158 |
| 87.5°  | 127 |
| 90°    | 114 |
| 92.5°  | 110 |
| 95°    | 114 |
| 97.5°  | 118 |
| 100°   | 121 |
| 102.5° | 123 |
| 105°   | 123 |
| 107.5° | 122 |





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CATALOG NUMBER: H12-LD4-50W-40-CLR-EDC1

**CANDELA DISTRIBUTION (continued):**

|        | 90° |
|--------|-----|
| 110°   | 120 |
| 112.5° | 114 |
| 115°   | 107 |
| 117.5° | 99  |
| 120°   | 92  |
| 122.5° | 85  |
| 125°   | 78  |
| 127.5° | 70  |
| 130°   | 61  |
| 132.5° | 54  |
| 135°   | 48  |
| 137.5° | 42  |
| 140°   | 37  |
| 142.5° | 32  |
| 145°   | 28  |
| 147.5° | 23  |
| 150°   | 18  |
| 152.5° | 13  |
| 155°   | 7   |
| 157.5° | 0   |
| 160°   | 0   |
| 162.5° | 0   |
| 165°   | 0   |
| 167.5° | 0   |
| 170°   | 0   |
| 172.5° | 0   |
| 175°   | 0   |
| 177.5° | 0   |
| 180°   | 0   |

(END OF REPORT)