

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: P28165

Luminaire Tested: **G12-BLK-LD4-30W-40-CL-UNV-ED1C**

Test Date: 08/15/16



**Test Information**

Test Method: LM-79-08  
Report Number: P28165  
Test Lab: INNOVATION CENTER-P2  
Test Date: 08/15/16  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: G12-BLK-LD4-30W-40-CL-UNV-ED1C  
Description: G12 FLAT MOUNT OPEN CLEAR LENS  
Light Source: (112) NICHIA 4000K LEDS  
NF2L757DRT  
Ballast/Driver: (1) OSRAM ELECTRONIC DRIVER (700mA)  
OT40W

**Summary**

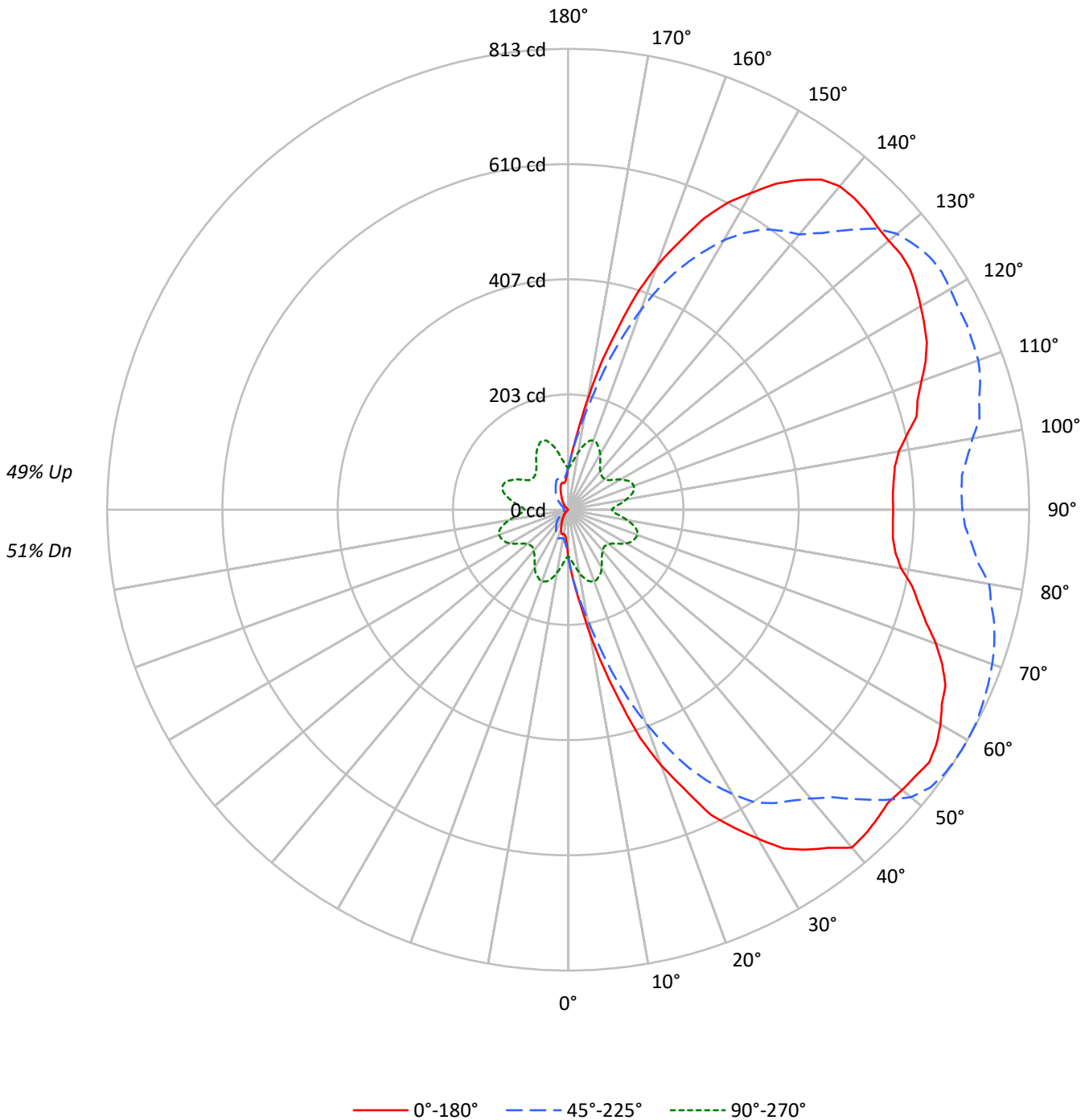
Lumens per Lamp: N/A  
Luminaire Lumens: 3757.0 lumens  
Efficiency: N/A  
Efficacy: 115.6 lumens/watt  
Spacing Criteria (0/90/45): 3.67 / 1.72 / 3.56  
Luminous Opening: Rectangular w/ Sides (W: 0.83' x L: 0.42' x H: 0.83')  
CIE Type: General Diffuse

Input Watts (W): 32.5  
Input Voltage (V): 120.0  
Input Current (A<sub>in</sub>): 0.272  
Voltage Rise (V): NR  
Power Factor: 0.9991  
Total Harmonic Distortion (THDi): 7.43%  
Frequency (hertz): 60  
Stabilization Time: 0.5 HR  
Operation Time: 24 HR  
Ambient Temperature (°C): 25.4  
Test Distance: 25 FT

TEST NUMBER: P28165

CATALOG NUMBER: G12-BLK-LD4-30W-40-CL-UNV-ED1C

### Luminous Intensity Polar Plot





TEST NUMBER: P28165

CATALOG NUMBER: G12-BLK-LD4-30W-40-CL-UNV-ED1C

**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   | 107 | 107 | 107 | 107 | 99 | 99 | 99 | 99 | 84 | 84 | 84 |  | 70 | 70 | 70 |  | 57 | 57 | 57 | 51 |
| 1   | 94  | 87  | 82  | 77  | 86 | 80 | 75 | 71 | 67 | 63 | 60 |  | 55 | 52 | 49 |  | 43 | 41 | 39 | 34 |
| 2   | 83  | 74  | 66  | 59  | 76 | 67 | 60 | 54 | 56 | 50 | 46 |  | 45 | 41 | 37 |  | 35 | 32 | 30 | 25 |
| 3   | 75  | 63  | 54  | 47  | 68 | 58 | 50 | 43 | 48 | 41 | 36 |  | 38 | 34 | 30 |  | 30 | 26 | 23 | 19 |
| 4   | 68  | 55  | 45  | 38  | 61 | 50 | 42 | 35 | 41 | 35 | 30 |  | 33 | 28 | 24 |  | 26 | 22 | 19 | 15 |
| 5   | 62  | 48  | 39  | 32  | 56 | 44 | 36 | 29 | 36 | 30 | 24 |  | 29 | 24 | 20 |  | 23 | 19 | 15 | 12 |
| 6   | 56  | 43  | 33  | 27  | 51 | 39 | 31 | 25 | 32 | 26 | 21 |  | 26 | 21 | 17 |  | 20 | 16 | 13 | 10 |
| 7   | 52  | 38  | 29  | 23  | 47 | 35 | 27 | 21 | 29 | 22 | 18 |  | 23 | 18 | 14 |  | 18 | 14 | 11 | 8  |
| 8   | 48  | 34  | 26  | 20  | 44 | 31 | 24 | 18 | 26 | 20 | 15 |  | 21 | 16 | 12 |  | 16 | 12 | 9  | 7  |
| 9   | 44  | 31  | 23  | 17  | 40 | 28 | 21 | 16 | 24 | 18 | 13 |  | 19 | 14 | 11 |  | 15 | 11 | 8  | 6  |
| 10  | 41  | 28  | 20  | 15  | 38 | 26 | 19 | 14 | 22 | 16 | 12 |  | 18 | 13 | 9  |  | 14 | 10 | 7  | 5  |

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

|     | 0°    | 90°  | 180° |
|-----|-------|------|------|
| 0°  | 2542  | 2542 | 2542 |
| 5°  | 3575  | 2690 | 1298 |
| 10° | 5166  | 3024 | 1024 |
| 15° | 7251  | 3265 | 919  |
| 20° | 9164  | 3265 | 687  |
| 25° | 10495 | 3009 | 496  |
| 30° | 11131 | 2678 | 349  |
| 35° | 11540 | 2293 | 236  |
| 40° | 11756 | 2090 | 151  |
| 45° | 11267 | 1995 | 73   |
| 50° | 10961 | 2068 | 0    |
| 55° | 10890 | 2315 | 0    |
| 60° | 10528 | 2701 | 0    |
| 65° | 10180 | 2963 | 0    |
| 70° | 9629  | 3144 | 0    |
| 75° | 9057  | 3113 | 0    |
| 80° | 8621  | 2837 | 0    |
| 85° | 8572  | 2461 | 0    |



TEST NUMBER: P28165

CATALOG NUMBER: G12-BLK-LD4-30W-40-CL-UNV-ED1C

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 10.0   | 0.3       |
| 10°-20°   | 48.8   | 1.3       |
| 20°-30°   | 114.8  | 3.1       |
| 30°-40°   | 184.9  | 4.9       |
| 40°-50°   | 249.0  | 6.6       |
| 50°-60°   | 306.2  | 8.1       |
| 60°-70°   | 338.4  | 9.0       |
| 70°-80°   | 339.6  | 9.0       |
| 80°-90°   | 321.3  | 8.6       |
| 90°-100°  | 317.3  | 8.4       |
| 100°-110° | 329.6  | 8.8       |
| 110°-120° | 325.3  | 8.7       |
| 120°-130° | 293.2  | 7.8       |
| 130°-140° | 238.5  | 6.3       |
| 140°-150° | 176.7  | 4.7       |
| 150°-160° | 109.0  | 2.9       |
| 160°-170° | 45.6   | 1.2       |
| 170°-180° | 8.9    | 0.2       |
| 0°-30°    | 173.6  | 4.6       |
| 0°-40°    | 358.5  | 9.5       |
| 0°-60°    | 913.6  | 24.3      |
| 0°-90°    | 1913.0 | 50.9      |
| 90°-120°  | 972.2  | 25.9      |
| 90°-150°  | 1680.6 | 44.7      |
| 90°-180°  | 1844.0 | 49.1      |
| 0°-180°   | 3757.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°  | 45° | 90° | 135° | 180° | Flux |
|------|-----|-----|-----|------|------|------|
| 0°   | 82  | 82  | 82  | 82   | 82   |      |
| 5°   | 135 | 133 | 94  | 59   | 49   | 15   |
| 15°  | 347 | 294 | 129 | 52   | 44   | 103  |
| 25°  | 593 | 502 | 129 | 50   | 28   | 272  |
| 35°  | 732 | 632 | 103 | 37   | 15   | 459  |
| 45°  | 771 | 722 | 91  | 27   | 5    | 597  |
| 55°  | 777 | 811 | 104 | 15   | 0    | 691  |
| 65°  | 734 | 807 | 127 | 8    | 0    | 723  |
| 75°  | 640 | 778 | 123 | 7    | 0    | 678  |
| 85°  | 575 | 715 | 86  | 7    | 0    | 474  |
| 90°  | 573 | 695 | 77  | 8    | 0    | 314  |
| 95°  | 576 | 697 | 87  | 8    | 0    | 474  |
| 105° | 636 | 750 | 118 | 8    | 0    | 667  |
| 115° | 698 | 775 | 119 | 9    | 0    | 689  |
| 125° | 737 | 778 | 91  | 16   | 0    | 658  |
| 135° | 744 | 698 | 84  | 28   | 5    | 575  |
| 145° | 710 | 604 | 98  | 38   | 16   | 444  |
| 155° | 567 | 472 | 124 | 51   | 29   | 262  |
| 165° | 322 | 266 | 121 | 56   | 47   | 96   |
| 175° | 113 | 110 | 83  | 58   | 51   | 13   |
| 180° | 74  | 74  | 74  | 74   | 74   |      |



TEST NUMBER: P28165

CATALOG NUMBER: G12-BLK-LD4-30W-40-CL-UNV-ED1C

**CANDELA DISTRIBUTION (FULL):**

|        | 0°  | 5°  | 10° | 15° | 20° | 25° | 30° | 35° | 40° | 45° | 50° |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0°     | 82  | 82  | 82  | 82  | 82  | 82  | 82  | 82  | 82  | 82  | 82  |
| 2.5°   | 105 | 105 | 107 | 107 | 107 | 107 | 107 | 106 | 106 | 105 | 104 |
| 5°     | 135 | 135 | 137 | 138 | 137 | 136 | 136 | 135 | 135 | 133 | 131 |
| 7.5°   | 170 | 170 | 172 | 173 | 171 | 169 | 167 | 165 | 164 | 162 | 158 |
| 10°    | 222 | 222 | 223 | 222 | 217 | 215 | 210 | 204 | 200 | 196 | 191 |
| 12.5°  | 282 | 283 | 284 | 286 | 279 | 273 | 268 | 259 | 251 | 240 | 229 |
| 15°    | 347 | 346 | 344 | 348 | 342 | 333 | 326 | 319 | 306 | 294 | 281 |
| 17.5°  | 422 | 419 | 413 | 409 | 401 | 394 | 383 | 375 | 362 | 348 | 332 |
| 20°    | 480 | 480 | 477 | 472 | 460 | 457 | 445 | 429 | 419 | 400 | 383 |
| 22.5°  | 531 | 534 | 537 | 529 | 514 | 504 | 500 | 487 | 479 | 452 | 430 |
| 25°    | 593 | 589 | 583 | 587 | 573 | 555 | 552 | 537 | 530 | 502 | 477 |
| 27.5°  | 632 | 638 | 629 | 630 | 626 | 606 | 597 | 587 | 574 | 543 | 519 |
| 30°    | 670 | 676 | 672 | 667 | 667 | 652 | 636 | 632 | 611 | 579 | 552 |
| 32.5°  | 709 | 710 | 698 | 702 | 693 | 692 | 671 | 666 | 640 | 612 | 577 |
| 35°    | 732 | 737 | 722 | 730 | 719 | 722 | 702 | 689 | 662 | 632 | 596 |
| 37.5°  | 752 | 766 | 751 | 750 | 747 | 744 | 731 | 708 | 681 | 647 | 610 |
| 40°    | 778 | 780 | 776 | 777 | 779 | 772 | 762 | 731 | 702 | 665 | 629 |
| 42.5°  | 776 | 770 | 775 | 787 | 794 | 796 | 795 | 752 | 727 | 688 | 655 |
| 45°    | 771 | 774 | 774 | 792 | 795 | 805 | 813 | 782 | 757 | 722 | 688 |
| 47.5°  | 765 | 776 | 777 | 795 | 796 | 813 | 816 | 798 | 782 | 758 | 719 |
| 50°    | 769 | 774 | 782 | 794 | 799 | 820 | 817 | 806 | 796 | 789 | 751 |
| 52.5°  | 772 | 771 | 784 | 792 | 804 | 821 | 815 | 813 | 805 | 805 | 778 |
| 55°    | 777 | 773 | 783 | 790 | 807 | 818 | 818 | 821 | 811 | 811 | 796 |
| 57.5°  | 770 | 768 | 769 | 784 | 806 | 815 | 815 | 826 | 817 | 813 | 805 |
| 60°    | 758 | 757 | 751 | 772 | 792 | 805 | 808 | 827 | 821 | 813 | 808 |
| 62.5°  | 743 | 743 | 730 | 754 | 772 | 797 | 803 | 823 | 818 | 812 | 805 |
| 65°    | 734 | 729 | 712 | 733 | 756 | 787 | 798 | 816 | 812 | 807 | 801 |
| 67.5°  | 714 | 711 | 688 | 709 | 741 | 774 | 790 | 807 | 801 | 802 | 796 |
| 70°    | 690 | 684 | 664 | 690 | 724 | 766 | 783 | 798 | 792 | 796 | 790 |
| 72.5°  | 662 | 662 | 649 | 673 | 714 | 763 | 778 | 797 | 785 | 788 | 782 |
| 75°    | 640 | 636 | 632 | 657 | 712 | 758 | 775 | 790 | 777 | 778 | 774 |
| 77.5°  | 621 | 626 | 634 | 656 | 702 | 748 | 763 | 781 | 764 | 764 | 764 |
| 80°    | 596 | 606 | 623 | 648 | 697 | 738 | 750 | 770 | 757 | 754 | 755 |
| 82.5°  | 582 | 589 | 608 | 639 | 690 | 731 | 735 | 753 | 733 | 730 | 734 |
| 85°    | 575 | 580 | 595 | 626 | 682 | 723 | 730 | 743 | 720 | 715 | 721 |
| 87.5°  | 573 | 576 | 588 | 617 | 675 | 716 | 725 | 738 | 710 | 701 | 708 |
| 90°    | 573 | 576 | 586 | 613 | 672 | 713 | 725 | 737 | 707 | 695 | 699 |
| 92.5°  | 573 | 575 | 586 | 615 | 676 | 715 | 726 | 736 | 708 | 694 | 697 |
| 95°    | 576 | 578 | 592 | 624 | 684 | 722 | 728 | 736 | 707 | 697 | 703 |
| 97.5°  | 581 | 586 | 603 | 635 | 689 | 726 | 732 | 739 | 716 | 710 | 713 |
| 100°   | 592 | 599 | 614 | 644 | 694 | 731 | 734 | 742 | 731 | 724 | 724 |
| 102.5° | 612 | 615 | 621 | 651 | 696 | 736 | 741 | 757 | 745 | 743 | 740 |
| 105°   | 636 | 634 | 630 | 658 | 703 | 744 | 757 | 766 | 758 | 750 | 748 |
| 107.5° | 646 | 639 | 627 | 653 | 699 | 749 | 760 | 774 | 767 | 762 | 755 |
| 110°   | 663 | 657 | 645 | 672 | 714 | 757 | 767 | 781 | 774 | 770 | 762 |



TEST NUMBER: P28165

CATALOG NUMBER: G12-BLK-LD4-30W-40-CL-UNV-ED1C

**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 5°  | 10° | 15° | 20° | 25° | 30° | 35° | 40° | 45° | 50° |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 112.5° | 682 | 675 | 661 | 685 | 725 | 763 | 778 | 786 | 782 | 772 | 767 |
| 115°   | 698 | 693 | 683 | 705 | 737 | 774 | 786 | 793 | 788 | 775 | 770 |
| 117.5° | 708 | 704 | 702 | 724 | 748 | 783 | 792 | 797 | 789 | 775 | 774 |
| 120°   | 718 | 717 | 721 | 741 | 762 | 791 | 800 | 804 | 791 | 778 | 778 |
| 122.5° | 728 | 728 | 738 | 752 | 773 | 800 | 803 | 806 | 791 | 781 | 774 |
| 125°   | 737 | 738 | 752 | 763 | 780 | 805 | 801 | 804 | 786 | 778 | 763 |
| 127.5° | 740 | 744 | 759 | 764 | 776 | 799 | 798 | 794 | 775 | 769 | 747 |
| 130°   | 738 | 745 | 757 | 764 | 776 | 795 | 793 | 784 | 765 | 757 | 724 |
| 132.5° | 739 | 748 | 753 | 762 | 772 | 787 | 786 | 769 | 752 | 734 | 693 |
| 135°   | 744 | 744 | 751 | 759 | 766 | 778 | 780 | 753 | 735 | 698 | 660 |
| 137.5° | 746 | 743 | 750 | 749 | 760 | 765 | 768 | 726 | 704 | 662 | 624 |
| 140°   | 745 | 744 | 747 | 746 | 750 | 747 | 735 | 699 | 674 | 634 | 598 |
| 142.5° | 734 | 735 | 731 | 725 | 723 | 718 | 704 | 679 | 652 | 620 | 578 |
| 145°   | 710 | 711 | 707 | 703 | 696 | 692 | 675 | 657 | 631 | 604 | 563 |
| 147.5° | 682 | 680 | 676 | 674 | 667 | 661 | 643 | 630 | 606 | 579 | 546 |
| 150°   | 645 | 648 | 645 | 639 | 631 | 618 | 607 | 595 | 575 | 549 | 518 |
| 152.5° | 611 | 605 | 601 | 600 | 591 | 573 | 564 | 553 | 533 | 511 | 484 |
| 155°   | 567 | 559 | 558 | 554 | 537 | 524 | 514 | 507 | 490 | 472 | 446 |
| 157.5° | 510 | 506 | 507 | 503 | 484 | 475 | 466 | 456 | 445 | 427 | 402 |
| 160°   | 458 | 448 | 446 | 439 | 433 | 422 | 416 | 403 | 390 | 375 | 354 |
| 162.5° | 396 | 388 | 385 | 381 | 373 | 363 | 355 | 344 | 334 | 320 | 303 |
| 165°   | 322 | 318 | 318 | 313 | 310 | 303 | 297 | 288 | 278 | 266 | 250 |
| 167.5° | 260 | 258 | 257 | 252 | 248 | 244 | 238 | 230 | 221 | 211 | 200 |
| 170°   | 197 | 195 | 194 | 190 | 187 | 185 | 182 | 177 | 174 | 170 | 163 |
| 172.5° | 146 | 145 | 146 | 144 | 144 | 143 | 142 | 141 | 139 | 136 | 132 |
| 175°   | 113 | 113 | 114 | 113 | 113 | 113 | 113 | 112 | 111 | 110 | 107 |
| 177.5° | 88  | 88  | 89  | 89  | 89  | 89  | 89  | 88  | 88  | 87  | 87  |
| 180°   | 74  | 74  | 74  | 74  | 74  | 74  | 74  | 74  | 74  | 74  | 74  |



TEST NUMBER: P28165

CATALOG NUMBER: G12-BLK-LD4-30W-40-CL-UNV-ED1C

**CANDELA DISTRIBUTION (continued):**

|        | 55° | 60° | 65° | 70° | 75° | 80° | 85° | 90° | 95° | 100° | 105° |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| 0°     | 82  | 82  | 82  | 82  | 82  | 82  | 82  | 82  | 82  | 82   | 82   |
| 2.5°   | 102 | 100 | 98  | 97  | 94  | 91  | 89  | 86  | 84  | 82   | 79   |
| 5°     | 127 | 123 | 120 | 116 | 111 | 105 | 100 | 94  | 89  | 84   | 80   |
| 7.5°   | 155 | 150 | 145 | 139 | 130 | 120 | 112 | 103 | 96  | 89   | 82   |
| 10°    | 183 | 178 | 171 | 162 | 150 | 137 | 125 | 113 | 103 | 94   | 85   |
| 12.5°  | 217 | 208 | 196 | 184 | 169 | 154 | 137 | 122 | 109 | 97   | 87   |
| 15°    | 262 | 243 | 223 | 205 | 187 | 168 | 148 | 129 | 113 | 100  | 87   |
| 17.5°  | 310 | 284 | 255 | 226 | 202 | 180 | 156 | 133 | 114 | 98   | 85   |
| 20°    | 358 | 322 | 287 | 250 | 215 | 188 | 161 | 135 | 113 | 96   | 82   |
| 22.5°  | 402 | 359 | 318 | 275 | 228 | 195 | 164 | 133 | 109 | 91   | 78   |
| 25°    | 445 | 396 | 348 | 300 | 245 | 199 | 164 | 129 | 104 | 86   | 74   |
| 27.5°  | 484 | 428 | 376 | 324 | 264 | 204 | 161 | 125 | 98  | 81   | 70   |
| 30°    | 514 | 456 | 400 | 343 | 278 | 207 | 156 | 118 | 92  | 77   | 67   |
| 32.5°  | 536 | 476 | 417 | 356 | 288 | 209 | 148 | 110 | 87  | 73   | 69   |
| 35°    | 552 | 488 | 427 | 366 | 295 | 208 | 140 | 103 | 83  | 73   | 71   |
| 37.5°  | 565 | 497 | 433 | 372 | 299 | 209 | 134 | 98  | 81  | 75   | 74   |
| 40°    | 582 | 510 | 441 | 379 | 308 | 212 | 133 | 95  | 80  | 77   | 76   |
| 42.5°  | 599 | 530 | 453 | 388 | 320 | 219 | 133 | 92  | 81  | 79   | 78   |
| 45°    | 628 | 552 | 471 | 400 | 332 | 227 | 136 | 91  | 81  | 80   | 79   |
| 47.5°  | 660 | 577 | 493 | 416 | 341 | 239 | 141 | 92  | 81  | 80   | 80   |
| 50°    | 693 | 605 | 518 | 432 | 354 | 252 | 148 | 94  | 81  | 80   | 79   |
| 52.5°  | 720 | 633 | 544 | 451 | 369 | 269 | 159 | 98  | 80  | 79   | 79   |
| 55°    | 745 | 661 | 567 | 474 | 388 | 287 | 172 | 104 | 80  | 78   | 78   |
| 57.5°  | 757 | 687 | 592 | 499 | 406 | 302 | 187 | 112 | 81  | 76   | 76   |
| 60°    | 769 | 705 | 621 | 524 | 422 | 312 | 197 | 119 | 82  | 74   | 74   |
| 62.5°  | 773 | 713 | 645 | 544 | 433 | 317 | 203 | 124 | 85  | 74   | 72   |
| 65°    | 776 | 718 | 652 | 557 | 438 | 315 | 203 | 127 | 87  | 74   | 70   |
| 67.5°  | 775 | 719 | 649 | 563 | 438 | 312 | 201 | 129 | 88  | 74   | 68   |
| 70°    | 768 | 717 | 644 | 554 | 435 | 306 | 200 | 130 | 89  | 74   | 66   |
| 72.5°  | 760 | 708 | 633 | 540 | 424 | 300 | 197 | 128 | 88  | 73   | 64   |
| 75°    | 750 | 693 | 617 | 523 | 410 | 293 | 190 | 123 | 84  | 71   | 61   |
| 77.5°  | 740 | 676 | 600 | 504 | 390 | 279 | 181 | 115 | 79  | 67   | 58   |
| 80°    | 724 | 658 | 581 | 486 | 373 | 262 | 171 | 106 | 72  | 62   | 55   |
| 82.5°  | 703 | 641 | 566 | 470 | 356 | 244 | 158 | 96  | 65  | 58   | 54   |
| 85°    | 685 | 621 | 549 | 456 | 342 | 228 | 144 | 86  | 60  | 57   | 54   |
| 87.5°  | 673 | 610 | 540 | 446 | 333 | 216 | 132 | 79  | 59  | 56   | 54   |
| 90°    | 666 | 603 | 532 | 440 | 328 | 211 | 127 | 77  | 59  | 57   | 54   |
| 92.5°  | 663 | 602 | 532 | 437 | 325 | 211 | 131 | 80  | 60  | 57   | 55   |
| 95°    | 668 | 608 | 537 | 441 | 329 | 219 | 140 | 87  | 62  | 58   | 55   |
| 97.5°  | 678 | 619 | 547 | 451 | 339 | 233 | 152 | 96  | 67  | 60   | 57   |
| 100°   | 691 | 632 | 559 | 464 | 353 | 247 | 164 | 104 | 74  | 64   | 58   |
| 102.5° | 708 | 646 | 570 | 479 | 369 | 262 | 173 | 112 | 80  | 69   | 61   |
| 105°   | 718 | 658 | 584 | 494 | 386 | 274 | 179 | 118 | 85  | 72   | 64   |
| 107.5° | 726 | 670 | 596 | 510 | 401 | 281 | 184 | 122 | 88  | 75   | 67   |
| 110°   | 732 | 674 | 608 | 523 | 413 | 285 | 186 | 123 | 88  | 76   | 70   |





TEST NUMBER: P28165

CATALOG NUMBER: G12-BLK-LD4-30W-40-CL-UNV-ED1C

**CANDELA DISTRIBUTION (continued):**

|        | 55° | 60° | 65° | 70° | 75° | 80° | 85° | 90° | 95° | 100° | 105° |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| 112.5° | 735 | 675 | 613 | 531 | 416 | 289 | 187 | 122 | 86  | 76   | 72   |
| 115°   | 735 | 674 | 609 | 529 | 412 | 291 | 186 | 119 | 84  | 75   | 74   |
| 117.5° | 732 | 669 | 601 | 509 | 405 | 287 | 182 | 113 | 80  | 75   | 76   |
| 120°   | 727 | 662 | 579 | 488 | 390 | 281 | 175 | 107 | 77  | 75   | 78   |
| 122.5° | 719 | 649 | 556 | 462 | 369 | 266 | 163 | 99  | 75  | 77   | 80   |
| 125°   | 707 | 626 | 532 | 437 | 349 | 250 | 149 | 91  | 76  | 79   | 82   |
| 127.5° | 688 | 597 | 510 | 414 | 332 | 235 | 137 | 86  | 77  | 80   | 83   |
| 130°   | 665 | 571 | 487 | 398 | 318 | 221 | 129 | 84  | 78  | 82   | 84   |
| 132.5° | 632 | 545 | 461 | 381 | 306 | 212 | 124 | 83  | 79  | 82   | 85   |
| 135°   | 597 | 519 | 439 | 365 | 297 | 203 | 121 | 84  | 79  | 82   | 84   |
| 137.5° | 565 | 495 | 419 | 353 | 287 | 197 | 120 | 85  | 79  | 80   | 82   |
| 140°   | 547 | 476 | 408 | 344 | 279 | 191 | 120 | 88  | 79  | 78   | 80   |
| 142.5° | 534 | 463 | 400 | 341 | 272 | 189 | 123 | 92  | 79  | 76   | 77   |
| 145°   | 518 | 457 | 394 | 335 | 269 | 189 | 130 | 98  | 81  | 74   | 74   |
| 147.5° | 498 | 443 | 387 | 326 | 260 | 190 | 138 | 105 | 86  | 75   | 72   |
| 150°   | 477 | 423 | 371 | 314 | 251 | 189 | 145 | 113 | 91  | 77   | 71   |
| 152.5° | 449 | 400 | 348 | 295 | 238 | 188 | 150 | 119 | 97  | 82   | 73   |
| 155°   | 414 | 372 | 325 | 274 | 223 | 184 | 152 | 124 | 102 | 87   | 77   |
| 157.5° | 374 | 338 | 297 | 252 | 211 | 180 | 155 | 129 | 107 | 92   | 81   |
| 160°   | 331 | 301 | 265 | 226 | 198 | 174 | 152 | 130 | 111 | 96   | 85   |
| 162.5° | 284 | 259 | 231 | 205 | 185 | 165 | 146 | 128 | 111 | 98   | 86   |
| 165°   | 234 | 217 | 201 | 184 | 168 | 152 | 137 | 121 | 108 | 96   | 86   |
| 167.5° | 193 | 183 | 174 | 161 | 150 | 137 | 125 | 113 | 102 | 93   | 84   |
| 170°   | 159 | 153 | 148 | 138 | 130 | 121 | 112 | 103 | 94  | 87   | 80   |
| 172.5° | 131 | 128 | 123 | 117 | 111 | 105 | 99  | 92  | 86  | 81   | 76   |
| 175°   | 106 | 103 | 101 | 97  | 94  | 90  | 87  | 83  | 79  | 76   | 73   |
| 177.5° | 86  | 85  | 85  | 83  | 81  | 80  | 78  | 77  | 75  | 74   | 72   |
| 180°   | 74  | 74  | 74  | 74  | 74  | 74  | 74  | 74  | 74  | 74   | 74   |



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**CANDELA DISTRIBUTION (continued):**

|        | 110° | 115° | 120° | 125° | 130° | 135° | 140° | 145° | 150° | 155° | 160° |
|--------|------|------|------|------|------|------|------|------|------|------|------|
| 0°     | 82   | 82   | 82   | 82   | 82   | 82   | 82   | 82   | 82   | 82   | 82   |
| 2.5°   | 77   | 75   | 73   | 71   | 69   | 67   | 67   | 65   | 64   | 64   | 63   |
| 5°     | 76   | 72   | 68   | 65   | 61   | 59   | 57   | 55   | 54   | 53   | 52   |
| 7.5°   | 76   | 70   | 65   | 61   | 57   | 53   | 51   | 50   | 48   | 47   | 47   |
| 10°    | 77   | 70   | 64   | 59   | 54   | 51   | 49   | 47   | 46   | 46   | 45   |
| 12.5°  | 78   | 70   | 63   | 58   | 54   | 51   | 48   | 47   | 47   | 46   | 46   |
| 15°    | 77   | 69   | 63   | 58   | 54   | 52   | 50   | 49   | 48   | 47   | 46   |
| 17.5°  | 75   | 68   | 62   | 58   | 56   | 53   | 51   | 49   | 47   | 46   | 44   |
| 20°    | 73   | 66   | 62   | 59   | 56   | 54   | 51   | 48   | 45   | 42   | 40   |
| 22.5°  | 70   | 64   | 61   | 59   | 57   | 53   | 48   | 44   | 41   | 38   | 35   |
| 25°    | 67   | 63   | 62   | 60   | 56   | 50   | 45   | 40   | 36   | 33   | 31   |
| 27.5°  | 65   | 64   | 63   | 60   | 54   | 47   | 41   | 36   | 32   | 29   | 27   |
| 30°    | 66   | 66   | 64   | 59   | 51   | 43   | 37   | 32   | 28   | 26   | 24   |
| 32.5°  | 68   | 67   | 64   | 57   | 48   | 40   | 33   | 28   | 25   | 23   | 21   |
| 35°    | 71   | 69   | 64   | 56   | 46   | 37   | 30   | 25   | 22   | 20   | 18   |
| 37.5°  | 73   | 70   | 64   | 55   | 44   | 35   | 27   | 22   | 19   | 17   | 15   |
| 40°    | 75   | 71   | 64   | 54   | 42   | 32   | 25   | 19   | 16   | 14   | 13   |
| 42.5°  | 77   | 72   | 63   | 52   | 40   | 30   | 22   | 16   | 14   | 12   | 10   |
| 45°    | 78   | 72   | 63   | 50   | 37   | 27   | 19   | 14   | 11   | 9    | 8    |
| 47.5°  | 78   | 71   | 60   | 47   | 34   | 24   | 16   | 11   | 9    | 7    | 5    |
| 50°    | 77   | 69   | 57   | 43   | 31   | 21   | 13   | 9    | 6    | 4    | 3    |
| 52.5°  | 76   | 66   | 53   | 39   | 27   | 18   | 11   | 6    | 4    | 2    | 1    |
| 55°    | 74   | 62   | 48   | 36   | 24   | 15   | 9    | 4    | 2    | 1    | 0    |
| 57.5°  | 70   | 57   | 44   | 32   | 21   | 13   | 6    | 2    | 0    | 0    | 0    |
| 60°    | 66   | 52   | 39   | 28   | 18   | 11   | 5    | 1    | 0    | 0    | 0    |
| 62.5°  | 62   | 48   | 36   | 25   | 16   | 9    | 4    | 1    | 0    | 0    | 0    |
| 65°    | 58   | 44   | 32   | 23   | 15   | 8    | 3    | 0    | 0    | 0    | 0    |
| 67.5°  | 55   | 41   | 30   | 21   | 14   | 8    | 3    | 0    | 0    | 0    | 0    |
| 70°    | 51   | 38   | 28   | 20   | 13   | 8    | 3    | 0    | 0    | 0    | 0    |
| 72.5°  | 49   | 36   | 27   | 19   | 13   | 7    | 3    | 0    | 0    | 0    | 0    |
| 75°    | 46   | 34   | 26   | 19   | 13   | 7    | 3    | 0    | 0    | 0    | 0    |
| 77.5°  | 44   | 33   | 25   | 18   | 12   | 7    | 2    | 0    | 0    | 0    | 0    |
| 80°    | 43   | 33   | 25   | 18   | 12   | 7    | 2    | 0    | 0    | 0    | 0    |
| 82.5°  | 43   | 32   | 24   | 18   | 12   | 7    | 2    | 0    | 0    | 0    | 0    |
| 85°    | 43   | 33   | 25   | 18   | 13   | 7    | 3    | 0    | 0    | 0    | 0    |
| 87.5°  | 44   | 33   | 25   | 19   | 13   | 7    | 3    | 0    | 0    | 0    | 0    |
| 90°    | 45   | 34   | 25   | 19   | 13   | 8    | 4    | 1    | 0    | 0    | 0    |
| 92.5°  | 45   | 34   | 25   | 19   | 13   | 8    | 4    | 1    | 0    | 0    | 0    |
| 95°    | 45   | 34   | 26   | 19   | 13   | 8    | 4    | 1    | 0    | 0    | 0    |
| 97.5°  | 45   | 34   | 26   | 20   | 14   | 8    | 4    | 1    | 0    | 0    | 0    |
| 100°   | 46   | 35   | 26   | 20   | 14   | 8    | 4    | 1    | 0    | 0    | 0    |
| 102.5° | 47   | 36   | 27   | 20   | 14   | 8    | 4    | 1    | 0    | 0    | 0    |
| 105°   | 49   | 37   | 28   | 20   | 14   | 8    | 4    | 1    | 0    | 0    | 0    |
| 107.5° | 52   | 38   | 28   | 21   | 14   | 8    | 4    | 1    | 0    | 0    | 0    |
| 110°   | 55   | 41   | 30   | 21   | 14   | 9    | 4    | 1    | 0    | 0    | 0    |



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**CANDELA DISTRIBUTION (continued):**

|        | 110° | 115° | 120° | 125° | 130° | 135° | 140° | 145° | 150° | 155° | 160° |
|--------|------|------|------|------|------|------|------|------|------|------|------|
| 112.5° | 59   | 44   | 32   | 23   | 15   | 9    | 4    | 1    | 0    | 0    | 0    |
| 115°   | 62   | 47   | 34   | 24   | 16   | 9    | 4    | 1    | 0    | 0    | 0    |
| 117.5° | 66   | 51   | 37   | 26   | 17   | 9    | 4    | 1    | 0    | 0    | 0    |
| 120°   | 71   | 56   | 42   | 29   | 19   | 11   | 5    | 1    | 0    | 0    | 0    |
| 122.5° | 75   | 61   | 46   | 33   | 22   | 13   | 7    | 3    | 1    | 0    | 0    |
| 125°   | 78   | 66   | 51   | 37   | 25   | 16   | 9    | 5    | 2    | 1    | 0    |
| 127.5° | 81   | 70   | 55   | 41   | 28   | 18   | 11   | 7    | 4    | 2    | 1    |
| 130°   | 82   | 73   | 59   | 45   | 32   | 21   | 14   | 9    | 6    | 4    | 3    |
| 132.5° | 83   | 75   | 63   | 48   | 35   | 24   | 17   | 12   | 9    | 7    | 5    |
| 135°   | 83   | 76   | 65   | 51   | 39   | 28   | 20   | 14   | 11   | 9    | 8    |
| 137.5° | 82   | 76   | 66   | 53   | 41   | 31   | 23   | 17   | 14   | 12   | 11   |
| 140°   | 80   | 76   | 66   | 55   | 43   | 33   | 26   | 20   | 17   | 15   | 13   |
| 142.5° | 78   | 74   | 67   | 56   | 45   | 36   | 28   | 23   | 20   | 18   | 16   |
| 145°   | 75   | 73   | 67   | 57   | 47   | 38   | 31   | 26   | 23   | 20   | 19   |
| 147.5° | 72   | 71   | 67   | 59   | 50   | 41   | 35   | 29   | 26   | 24   | 22   |
| 150°   | 70   | 70   | 67   | 60   | 52   | 44   | 38   | 33   | 29   | 27   | 25   |
| 152.5° | 69   | 69   | 67   | 62   | 55   | 48   | 41   | 36   | 33   | 30   | 28   |
| 155°   | 71   | 68   | 66   | 63   | 58   | 51   | 46   | 41   | 37   | 34   | 32   |
| 157.5° | 74   | 70   | 66   | 64   | 60   | 55   | 50   | 46   | 42   | 39   | 37   |
| 160°   | 77   | 71   | 67   | 64   | 61   | 57   | 53   | 50   | 47   | 44   | 42   |
| 162.5° | 78   | 72   | 67   | 63   | 60   | 57   | 55   | 52   | 50   | 48   | 47   |
| 165°   | 78   | 72   | 66   | 62   | 59   | 56   | 54   | 53   | 52   | 50   | 50   |
| 167.5° | 77   | 71   | 65   | 61   | 57   | 55   | 53   | 52   | 51   | 51   | 50   |
| 170°   | 74   | 69   | 64   | 60   | 57   | 54   | 52   | 51   | 50   | 50   | 50   |
| 172.5° | 72   | 68   | 64   | 60   | 57   | 55   | 53   | 52   | 51   | 50   | 50   |
| 175°   | 70   | 67   | 65   | 62   | 60   | 58   | 57   | 56   | 55   | 54   | 53   |
| 177.5° | 71   | 70   | 69   | 68   | 66   | 65   | 64   | 63   | 62   | 62   | 61   |
| 180°   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   | 74   |



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**CANDELA DISTRIBUTION (continued):**

|        | 165° | 170° | 175° | 180° |
|--------|------|------|------|------|
| 0°     | 82   | 82   | 82   | 82   |
| 2.5°   | 62   | 61   | 60   | 59   |
| 5°     | 51   | 50   | 49   | 49   |
| 7.5°   | 46   | 45   | 45   | 45   |
| 10°    | 45   | 44   | 44   | 44   |
| 12.5°  | 45   | 45   | 44   | 44   |
| 15°    | 45   | 44   | 44   | 44   |
| 17.5°  | 43   | 42   | 41   | 41   |
| 20°    | 39   | 37   | 36   | 36   |
| 22.5°  | 34   | 33   | 32   | 32   |
| 25°    | 30   | 29   | 28   | 28   |
| 27.5°  | 26   | 25   | 24   | 24   |
| 30°    | 23   | 21   | 21   | 21   |
| 32.5°  | 20   | 18   | 18   | 18   |
| 35°    | 17   | 16   | 15   | 15   |
| 37.5°  | 14   | 13   | 13   | 12   |
| 40°    | 12   | 11   | 10   | 10   |
| 42.5°  | 9    | 8    | 7    | 7    |
| 45°    | 6    | 5    | 5    | 5    |
| 47.5°  | 4    | 3    | 3    | 2    |
| 50°    | 2    | 1    | 0    | 0    |
| 52.5°  | 0    | 0    | 0    | 0    |
| 55°    | 0    | 0    | 0    | 0    |
| 57.5°  | 0    | 0    | 0    | 0    |
| 60°    | 0    | 0    | 0    | 0    |
| 62.5°  | 0    | 0    | 0    | 0    |
| 65°    | 0    | 0    | 0    | 0    |
| 67.5°  | 0    | 0    | 0    | 0    |
| 70°    | 0    | 0    | 0    | 0    |
| 72.5°  | 0    | 0    | 0    | 0    |
| 75°    | 0    | 0    | 0    | 0    |
| 77.5°  | 0    | 0    | 0    | 0    |
| 80°    | 0    | 0    | 0    | 0    |
| 82.5°  | 0    | 0    | 0    | 0    |
| 85°    | 0    | 0    | 0    | 0    |
| 87.5°  | 0    | 0    | 0    | 0    |
| 90°    | 0    | 0    | 0    | 0    |
| 92.5°  | 0    | 0    | 0    | 0    |
| 95°    | 0    | 0    | 0    | 0    |
| 97.5°  | 0    | 0    | 0    | 0    |
| 100°   | 0    | 0    | 0    | 0    |
| 102.5° | 0    | 0    | 0    | 0    |
| 105°   | 0    | 0    | 0    | 0    |
| 107.5° | 0    | 0    | 0    | 0    |
| 110°   | 0    | 0    | 0    | 0    |



TEST NUMBER: P28165

CATALOG NUMBER: G12-BLK-LD4-30W-40-CL-UNV-ED1C

**CANDELA DISTRIBUTION (continued):**

|        | 165° | 170° | 175° | 180° |
|--------|------|------|------|------|
| 112.5° | 0    | 0    | 0    | 0    |
| 115°   | 0    | 0    | 0    | 0    |
| 117.5° | 0    | 0    | 0    | 0    |
| 120°   | 0    | 0    | 0    | 0    |
| 122.5° | 0    | 0    | 0    | 0    |
| 125°   | 0    | 0    | 0    | 0    |
| 127.5° | 0    | 0    | 0    | 0    |
| 130°   | 2    | 1    | 1    | 0    |
| 132.5° | 4    | 3    | 3    | 2    |
| 135°   | 7    | 6    | 5    | 5    |
| 137.5° | 9    | 8    | 8    | 7    |
| 140°   | 12   | 11   | 10   | 10   |
| 142.5° | 15   | 14   | 13   | 13   |
| 145°   | 18   | 17   | 16   | 16   |
| 147.5° | 21   | 20   | 19   | 19   |
| 150°   | 24   | 22   | 22   | 22   |
| 152.5° | 27   | 26   | 25   | 25   |
| 155°   | 31   | 30   | 29   | 29   |
| 157.5° | 36   | 35   | 34   | 34   |
| 160°   | 41   | 40   | 39   | 39   |
| 162.5° | 45   | 44   | 44   | 44   |
| 165°   | 49   | 48   | 47   | 47   |
| 167.5° | 50   | 49   | 49   | 49   |
| 170°   | 49   | 49   | 48   | 48   |
| 172.5° | 49   | 49   | 48   | 48   |
| 175°   | 52   | 52   | 51   | 51   |
| 177.5° | 60   | 60   | 59   | 59   |
| 180°   | 74   | 74   | 74   | 74   |

(END OF REPORT)