

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: io LED

Report Number: P209102

Luminaire Tested: **LDSQ4B10D010 EU4B10208035 4LBSQ1LI**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P209102  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35088)  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQ4B10D010 EU4B10208035 4LBSQ1LI  
Description: PORTFOLIO LD4 SERIES 4" RECESSED FIXTURE WITH A SQUARE LOW  
IRIDESCENT TRIM.  
MEDIUM DISTRIBUTION WITH SPECULAR CLEAR TRIM  
WATTAGE D010TR-10.05 W DE010-10.58 W D5LT-10.2 W DMX-10.6 W DL2-11.8 W  
DL3-11.1 W DLE-11.39 W  
Light Source: HIGH LUMEN LED 3500 K  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1042.9 lumens  
Efficiency: N/A  
Efficacy: 103.8 lumens/watt  
Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
CIE Type: Direct

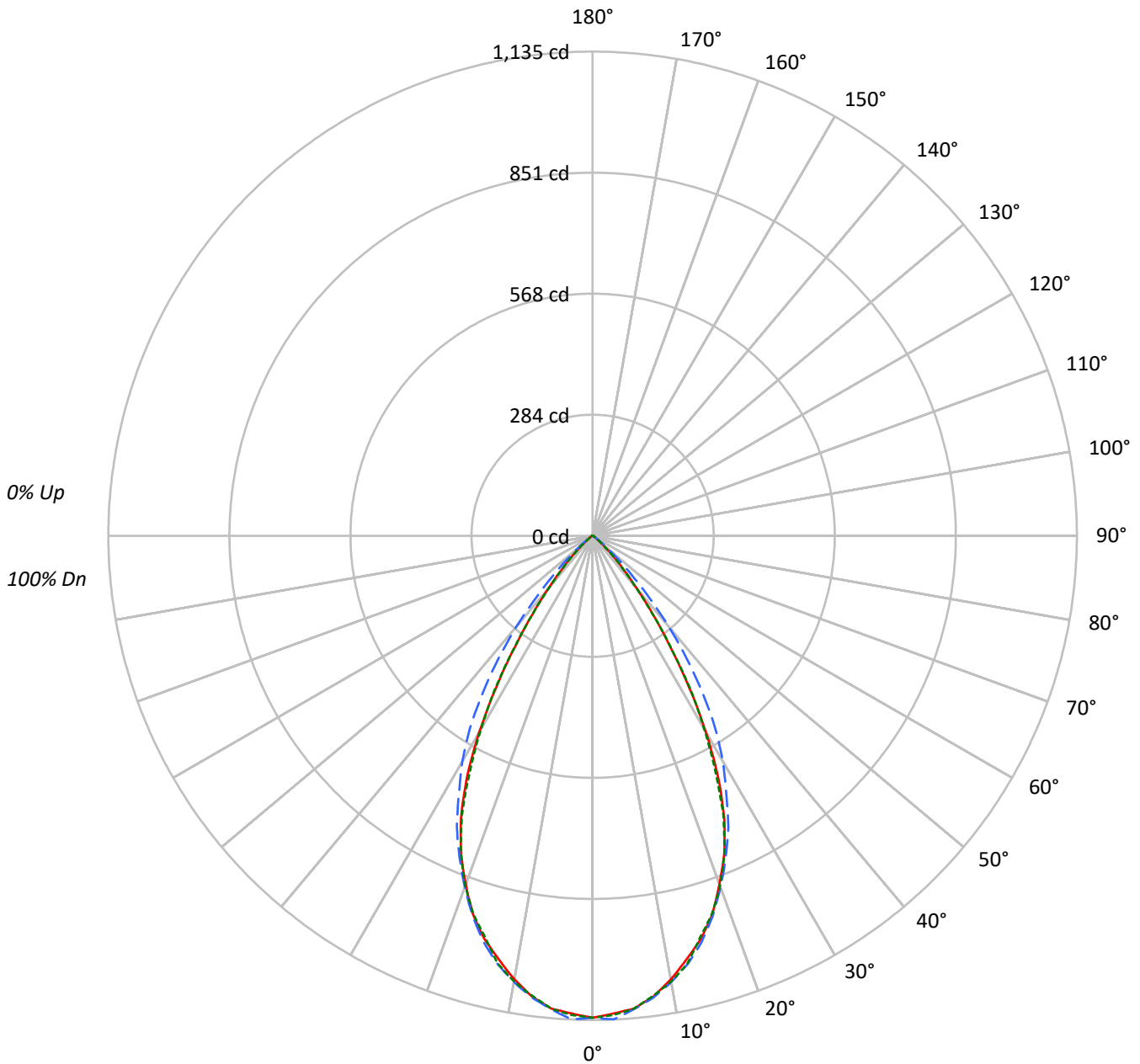
Input Watts (W): 10.05  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|---|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|---|
| RF  | 20  |     |     |     |     |     |     |     |     | 20  |     |     |     |     |     |     |     |     | 20 |    |   |  |  |  |  |  |  | 20 |  |  |  |  |  |  |  |  |   |
| RC  | 80  |     |     |     |     |     |     |     |     | 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 | 0 |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 1   | 113 | 111 | 108 | 106 | 111 | 108 | 106 | 104 | 104 | 103 | 101 | 101 | 99  | 98  | 97  | 96  | 95  | 93  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 108 | 103 | 99  | 95  | 105 | 101 | 97  | 94  | 98  | 95  | 92  | 95  | 92  | 90  | 92  | 90  | 88  | 87  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 102 | 96  | 91  | 87  | 100 | 94  | 90  | 86  | 92  | 88  | 84  | 89  | 86  | 83  | 87  | 84  | 82  | 80  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 97  | 89  | 84  | 79  | 95  | 88  | 83  | 79  | 86  | 81  | 78  | 84  | 80  | 77  | 82  | 79  | 76  | 75  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 92  | 83  | 77  | 73  | 90  | 82  | 77  | 73  | 81  | 76  | 72  | 79  | 75  | 71  | 77  | 74  | 71  | 69  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 87  | 78  | 72  | 68  | 86  | 77  | 71  | 67  | 76  | 71  | 67  | 74  | 70  | 66  | 73  | 69  | 66  | 65  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 83  | 73  | 67  | 63  | 81  | 73  | 67  | 63  | 71  | 66  | 62  | 70  | 65  | 62  | 69  | 65  | 62  | 60  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 79  | 69  | 63  | 59  | 77  | 68  | 62  | 58  | 67  | 62  | 58  | 66  | 61  | 58  | 65  | 61  | 58  | 56  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 75  | 65  | 59  | 55  | 74  | 64  | 59  | 55  | 63  | 58  | 55  | 63  | 58  | 54  | 62  | 57  | 54  | 53  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 71  | 61  | 55  | 51  | 70  | 61  | 55  | 51  | 60  | 55  | 51  | 59  | 54  | 51  | 58  | 54  | 51  | 50  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 12233 | 12233 | 12233 |
| 5°  | 12092 | 12108 | 12092 |
| 10° | 11608 | 11680 | 11664 |
| 15° | 10974 | 11055 | 10918 |
| 20° | 10015 | 10090 | 10065 |
| 25° | 8721  | 8996  | 8661  |
| 30° | 6632  | 7627  | 6533  |
| 35° | 4175  | 5930  | 4213  |
| 40° | 2252  | 3916  | 2212  |
| 45° | 1066  | 1934  | 1055  |
| 50° | 399   | 726   | 399   |
| 55° | 189   | 230   | 176   |
| 60° | 123   | 108   | 123   |
| 65° | 74    | 74    | 74    |
| 70° | 44    | 70    | 44    |
| 75° | 29    | 29    | 29    |
| 80° | 44    | 44    | 44    |
| 85° | 0     | 0     | 0     |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 104.7  | 10.0      |
| 10°-20°   | 274.5  | 26.3      |
| 20°-30°   | 335.3  | 32.2      |
| 30°-40°   | 234.5  | 22.5      |
| 40°-50°   | 76.9   | 7.4       |
| 50°-60°   | 12.2   | 1.2       |
| 60°-70°   | 3.3    | 0.3       |
| 70°-80°   | 1.1    | 0.1       |
| 80°-90°   | 0.3    | 0.0       |
| 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°    | 714.6  | 68.5      |
| 0°-40°    | 949.1  | 91.0      |
| 0°-60°    | 1038.2 | 99.5      |
| 0°-90°    | 1042.9 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1042.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1130 | 1130  | 1130 | 1130  | 1130 |      |
| 5°  | 1112 | 1113  | 1114 | 1107  | 1112 | 104  |
| 15° | 979  | 983   | 986  | 980   | 974  | 273  |
| 25° | 730  | 741   | 753  | 739   | 725  | 328  |
| 35° | 316  | 373   | 449  | 367   | 319  | 202  |
| 45° | 70   | 86    | 126  | 85    | 69   | 58   |
| 55° | 10   | 11    | 12   | 11    | 9    | 10   |
| 65° | 3    | 4     | 3    | 4     | 3    | 3    |
| 75° | 1    | 1     | 1    | 1     | 1    | 1    |
| 85° | 0    | 0     | 0    | 0     | 0    | 0    |
| 90° | 0    | 0     | 0    | 0     | 0    | 0    |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 10°    | 15°    | 20°    | 25°    | 30°    | 35°    | 40°    | 45°    | 50°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1129.7 | 1129.7 | 1129.7 | 1129.7 | 1129.7 | 1129.7 | 1129.7 | 1129.7 | 1129.7 | 1129.7 | 1129.7 |
| 2.5°  | 1121.0 | 1128.9 | 1126.8 | 1131.8 | 1131.8 | 1126.1 | 1127.5 | 1129.7 | 1132.5 | 1134.7 | 1117.5 |
| 5°    | 1112.4 | 1119.6 | 1113.1 | 1120.3 | 1116.0 | 1109.6 | 1120.3 | 1114.6 | 1118.2 | 1113.9 | 1116.7 |
| 7.5°  | 1089.5 | 1100.9 | 1088.0 | 1096.6 | 1093.8 | 1090.2 | 1094.5 | 1093.1 | 1095.2 | 1091.6 | 1083.7 |
| 10°   | 1055.7 | 1065.1 | 1056.4 | 1068.7 | 1062.9 | 1059.3 | 1062.9 | 1066.5 | 1065.8 | 1062.2 | 1066.5 |
| 12.5° | 1017.0 | 1027.7 | 1023.4 | 1030.6 | 1024.2 | 1024.2 | 1032.8 | 1030.6 | 1031.3 | 1028.5 | 1033.5 |
| 15°   | 978.9  | 986.8  | 980.4  | 989.7  | 986.8  | 978.9  | 982.5  | 982.5  | 988.3  | 986.1  | 980.4  |
| 17.5° | 931.6  | 938.0  | 930.9  | 933.0  | 930.1  | 928.7  | 943.8  | 933.7  | 939.5  | 935.2  | 935.9  |
| 20°   | 869.1  | 872.0  | 869.8  | 875.6  | 872.0  | 876.3  | 874.9  | 873.4  | 873.4  | 875.6  | 870.6  |
| 22.5° | 806.0  | 806.0  | 808.1  | 809.6  | 812.4  | 808.1  | 816.7  | 809.6  | 810.3  | 815.3  | 813.9  |
| 25°   | 729.9  | 727.7  | 732.8  | 739.9  | 742.8  | 739.2  | 750.7  | 745.0  | 749.3  | 752.9  | 745.0  |
| 27.5° | 637.3  | 637.3  | 642.3  | 654.5  | 656.7  | 661.0  | 676.8  | 676.8  | 682.5  | 677.5  | 683.2  |
| 30°   | 530.4  | 538.3  | 544.7  | 560.5  | 565.5  | 574.9  | 591.4  | 599.3  | 612.2  | 610.0  | 607.2  |
| 32.5° | 420.6  | 431.3  | 432.1  | 448.6  | 462.2  | 478.0  | 500.2  | 518.9  | 528.2  | 534.7  | 527.5  |
| 35°   | 315.8  | 322.2  | 328.0  | 339.5  | 362.4  | 383.3  | 403.3  | 427.7  | 444.3  | 448.6  | 442.1  |
| 37.5° | 231.1  | 232.5  | 238.3  | 249.0  | 266.3  | 286.4  | 310.8  | 337.3  | 354.5  | 361.0  | 353.8  |
| 40°   | 159.3  | 160.8  | 163.6  | 173.0  | 187.3  | 201.7  | 221.1  | 248.3  | 264.1  | 277.0  | 267.7  |
| 42.5° | 106.9  | 108.4  | 111.2  | 118.4  | 126.3  | 140.0  | 155.0  | 172.2  | 187.3  | 193.1  | 188.0  |
| 45°   | 69.6   | 69.6   | 71.1   | 76.1   | 80.4   | 91.1   | 101.9  | 112.7  | 122.7  | 126.3  | 122.7  |
| 47.5° | 40.9   | 41.6   | 43.1   | 46.7   | 51.7   | 56.0   | 63.9   | 71.1   | 73.9   | 76.8   | 75.4   |
| 50°   | 23.7   | 23.7   | 25.8   | 28.0   | 31.6   | 34.4   | 37.3   | 40.2   | 41.6   | 43.1   | 41.6   |
| 52.5° | 12.9   | 13.6   | 14.4   | 15.1   | 16.5   | 19.4   | 21.5   | 21.5   | 22.2   | 23.0   | 22.2   |
| 55°   | 10.0   | 10.0   | 10.0   | 10.0   | 10.8   | 10.8   | 10.8   | 11.5   | 11.5   | 12.2   | 11.5   |
| 57.5° | 7.2    | 7.2    | 7.2    | 7.9    | 7.9    | 7.9    | 7.2    | 7.2    | 7.2    | 7.2    | 7.2    |
| 60°   | 5.7    | 5.7    | 5.7    | 5.7    | 5.7    | 5.7    | 5.7    | 5.0    | 5.0    | 5.0    | 5.0    |
| 62.5° | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    |
| 65°   | 2.9    | 2.9    | 3.6    | 3.6    | 3.6    | 3.6    | 3.6    | 2.9    | 2.9    | 2.9    | 2.9    |
| 67.5° | 2.2    | 2.2    | 2.2    | 2.2    | 2.9    | 2.9    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    |
| 70°   | 1.4    | 1.4    | 1.4    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    |
| 72.5° | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    |
| 75°   | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    |
| 77.5° | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    |
| 80°   | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    |
| 82.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.7    | 0.0    | 0.0    | 0.0    |
| 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° | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    |
| 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):**

|       | 55°    | 60°    | 65°    | 70°    | 75°    | 80°    | 85°    | 90°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1129.7 | 1129.7 | 1129.7 | 1129.7 | 1129.7 | 1129.7 | 1129.7 | 1129.7 |
| 2.5°  | 1129.7 | 1117.5 | 1118.9 | 1125.3 | 1121.8 | 1125.3 | 1124.6 | 1124.6 |
| 5°    | 1117.5 | 1113.9 | 1108.1 | 1106.0 | 1110.3 | 1119.6 | 1118.2 | 1112.4 |
| 7.5°  | 1094.5 | 1085.2 | 1091.6 | 1094.5 | 1090.9 | 1096.6 | 1099.5 | 1087.3 |
| 10°   | 1067.2 | 1063.6 | 1062.2 | 1063.6 | 1062.2 | 1067.9 | 1060.8 | 1060.8 |
| 12.5° | 1028.5 | 1022.7 | 1022.7 | 1031.3 | 1026.3 | 1022.0 | 1027.7 | 1027.0 |
| 15°   | 989.7  | 978.2  | 978.2  | 981.1  | 983.2  | 980.4  | 981.1  | 973.9  |
| 17.5° | 932.3  | 928.7  | 923.7  | 931.6  | 933.7  | 930.9  | 933.0  | 929.4  |
| 20°   | 878.5  | 878.5  | 869.1  | 872.7  | 875.6  | 877.7  | 879.2  | 873.4  |
| 22.5° | 809.6  | 811.0  | 804.5  | 811.7  | 813.9  | 806.7  | 808.1  | 806.7  |
| 25°   | 746.4  | 745.7  | 740.7  | 737.8  | 739.2  | 736.4  | 735.6  | 724.9  |
| 27.5° | 676.8  | 669.6  | 658.8  | 661.7  | 649.5  | 639.5  | 639.5  | 623.0  |
| 30°   | 601.4  | 589.2  | 574.9  | 560.5  | 549.8  | 538.3  | 531.8  | 522.5  |
| 32.5° | 513.2  | 496.6  | 478.7  | 459.3  | 447.1  | 429.9  | 420.6  | 425.6  |
| 35°   | 425.6  | 401.2  | 376.8  | 357.4  | 338.8  | 328.7  | 317.2  | 318.7  |
| 37.5° | 340.9  | 306.5  | 284.9  | 264.1  | 248.3  | 235.4  | 230.4  | 228.9  |
| 40°   | 249.0  | 221.8  | 200.2  | 185.2  | 174.4  | 164.4  | 158.6  | 156.5  |
| 42.5° | 172.2  | 152.9  | 135.6  | 123.4  | 116.3  | 109.8  | 106.9  | 106.2  |
| 45°   | 112.0  | 100.5  | 89.0   | 80.4   | 74.6   | 70.3   | 69.6   | 68.9   |
| 47.5° | 70.3   | 64.6   | 57.4   | 51.0   | 45.9   | 43.1   | 40.9   | 40.9   |
| 50°   | 40.2   | 38.0   | 34.4   | 30.9   | 28.0   | 26.6   | 24.4   | 23.7   |
| 52.5° | 21.5   | 21.5   | 20.1   | 17.2   | 15.1   | 13.6   | 13.6   | 12.9   |
| 55°   | 11.5   | 11.5   | 10.8   | 10.8   | 10.0   | 10.0   | 10.0   | 9.3    |
| 57.5° | 7.2    | 7.2    | 7.9    | 7.9    | 7.2    | 7.2    | 7.2    | 7.2    |
| 60°   | 5.0    | 5.7    | 5.7    | 5.7    | 5.7    | 5.7    | 5.7    | 5.7    |
| 62.5° | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    | 4.3    |
| 65°   | 2.9    | 3.6    | 3.6    | 3.6    | 3.6    | 2.9    | 2.9    | 2.9    |
| 67.5° | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    |
| 70°   | 2.2    | 2.2    | 2.2    | 2.2    | 2.2    | 1.4    | 1.4    | 1.4    |
| 72.5° | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    |
| 75°   | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    |
| 77.5° | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    |
| 80°   | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    |
| 82.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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— 0°-180°    - - 45°-225°    - - - - 90°-270°









(END OF REPORT)