

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: P182766

Luminaire Tested: **LDSQA4A18827D010TE LAR15SP 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182766  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26802)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQA4A18827D010TE LAR15SP 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 15° SPOT, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1734.5 lumens  
Efficiency: N/A  
Efficacy: 59.6 lumens/watt  
Spacing Criteria (0/90/45): 2.26 / 0.62 / 1.11  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

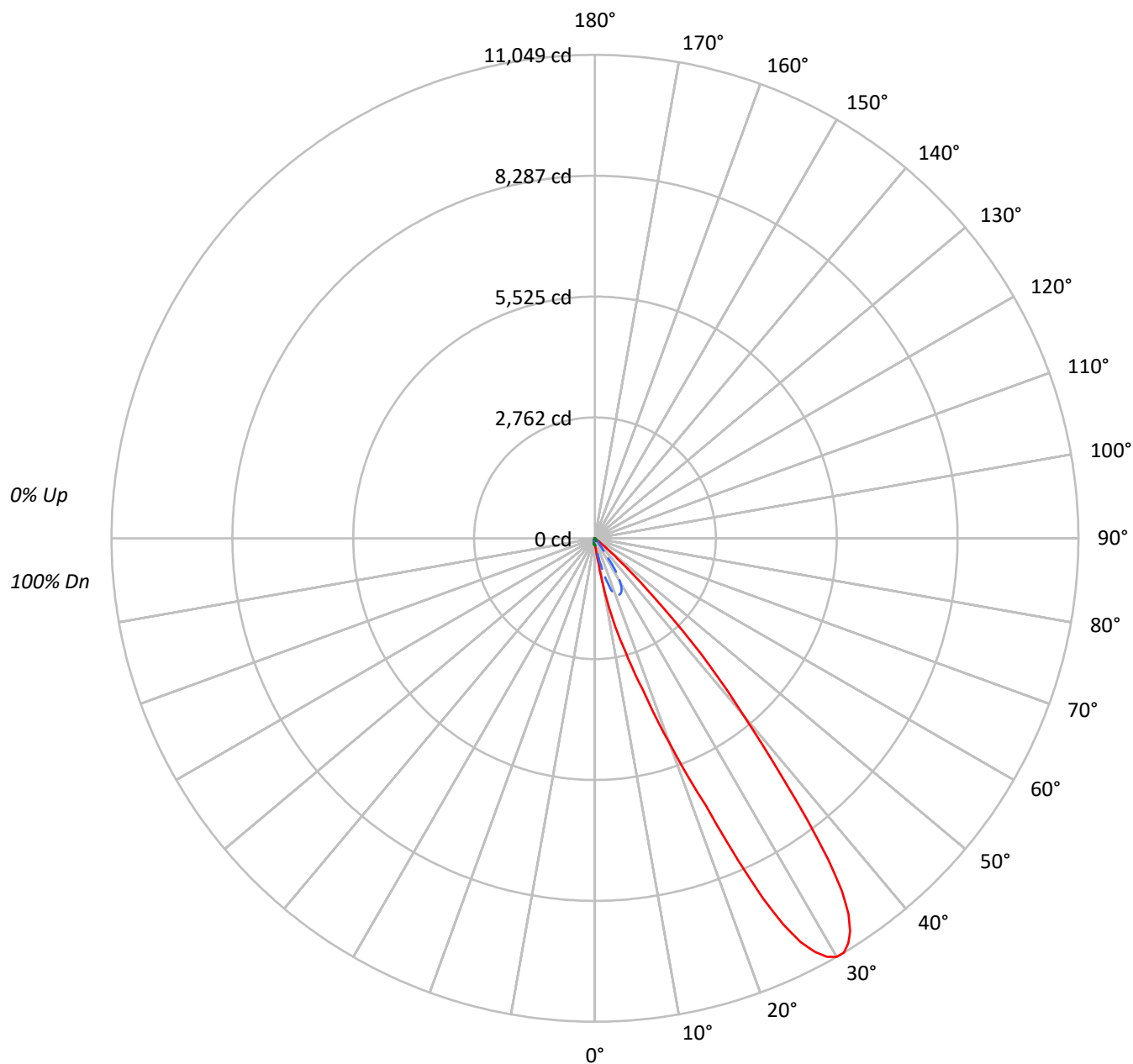
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|
| RF  | 20  |     |     |     | 20  |     |     |     |     | 20  |     |     |     |     | 20  |     |     |     |    | 20 |
| RC  | 80  |     |     |     | 70  |     |     |     |     | 50  |     |     |     |     | 30  |     |     |     |    | 10 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |    |    |
| 1   | 112 | 109 | 106 | 104 | 110 | 107 | 105 | 102 | 103 | 101 | 99  | 99  | 98  | 96  | 96  | 94  | 93  | 91  |    |    |
| 2   | 106 | 100 | 95  | 91  | 103 | 98  | 94  | 90  | 95  | 91  | 88  | 92  | 89  | 86  | 89  | 87  | 84  | 83  |    |    |
| 3   | 99  | 91  | 85  | 81  | 97  | 90  | 85  | 80  | 87  | 83  | 79  | 85  | 81  | 78  | 82  | 79  | 76  | 75  |    |    |
| 4   | 93  | 84  | 77  | 72  | 91  | 82  | 76  | 71  | 80  | 75  | 71  | 78  | 73  | 70  | 76  | 72  | 69  | 67  |    |    |
| 5   | 86  | 76  | 69  | 64  | 85  | 75  | 69  | 64  | 74  | 68  | 63  | 72  | 67  | 63  | 70  | 66  | 62  | 61  |    |    |
| 6   | 81  | 70  | 63  | 58  | 79  | 69  | 62  | 58  | 68  | 62  | 57  | 66  | 61  | 57  | 65  | 60  | 56  | 55  |    |    |
| 7   | 75  | 64  | 57  | 52  | 74  | 63  | 57  | 52  | 62  | 56  | 51  | 61  | 55  | 51  | 60  | 55  | 51  | 49  |    |    |
| 8   | 70  | 59  | 52  | 47  | 69  | 58  | 52  | 47  | 57  | 51  | 47  | 56  | 50  | 46  | 55  | 50  | 46  | 44  |    |    |
| 9   | 66  | 54  | 47  | 42  | 65  | 54  | 47  | 42  | 53  | 46  | 42  | 52  | 46  | 42  | 51  | 46  | 42  | 40  |    |    |
| 10  | 62  | 50  | 43  | 38  | 60  | 50  | 43  | 38  | 49  | 42  | 38  | 48  | 42  | 38  | 47  | 42  | 38  | 36  |    |    |

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

|     | 0°      | 90°   | 180°  |
|-----|---------|-------|-------|
| 0°  | 15859   | 15859 | 15859 |
| 5°  | 25187   | 15073 | 13011 |
| 10° | 110332  | 13349 | 11076 |
| 15° | 269577  | 10812 | 9658  |
| 20° | 514309  | 8041  | 8835  |
| 25° | 969259  | 5761  | 7717  |
| 30° | 1235853 | 4094  | 6790  |
| 35° | 1162550 | 2507  | 5807  |
| 40° | 666922  | 1707  | 4995  |
| 45° | 257455  | 1192  | 4220  |
| 50° | 34242   | 874   | 3481  |
| 55° | 5202    | 811   | 2922  |
| 60° | 1492    | 756   | 2422  |
| 65° | 894     | 894   | 1765  |
| 70° | 538     | 1105  | 1360  |
| 75° | 711     | 1085  | 1085  |
| 80° | 0       | 1618  | 1060  |
| 85° | 0       | 3223  | 1112  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 20.4   | 1.2       |
| 10°-20°   | 185.9  | 10.7      |
| 20°-30°   | 592.8  | 34.2      |
| 30°-40°   | 686.9  | 39.6      |
| 40°-50°   | 223.4  | 12.9      |
| 50°-60°   | 14.1   | 0.8       |
| 60°-70°   | 5.1    | 0.3       |
| 70°-80°   | 3.7    | 0.2       |
| 80°-90°   | 2.2    | 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°    | 799.1  | 46.1      |
| 0°-40°    | 1486.0 | 85.7      |
| 0°-60°    | 1723.5 | 99.4      |
| 0°-90°    | 1734.5 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1734.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45°  | 90° | 135° | 180° | Flux |
|-----|------|------|-----|------|------|------|
| 0°  | 164  | 164  | 164 | 164  | 164  |      |
| 5°  | 259  | 217  | 155 | 136  | 134  | 50   |
| 15° | 2688 | 968  | 108 | 92   | 96   | 852  |
| 25° | 9068 | 1393 | 54  | 57   | 72   | 4074 |
| 35° | 9830 | 332  | 21  | 33   | 49   | 5656 |
| 45° | 1879 | 40   | 9   | 19   | 31   | 1678 |
| 55° | 31   | 8    | 5   | 11   | 17   | 48   |
| 65° | 4    | 3    | 4   | 8    | 8    | 4    |
| 75° | 2    | 3    | 3   | 5    | 3    | 1    |
| 85° | 0    | 2    | 3   | 3    | 1    | 0    |
| 90° | 0    | 0    | 0   | 0    | 0    |      |



TEST NUMBER: P182766

CATALOG NUMBER: LDSQA4A18827D010TE LAR15SP 4LSQAL1H 30°

**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 10°    | 15°    | 20°    | 22.5°  | 25°    | 30°    | 35°    | 40°    | 45°    |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 163.7   | 163.7   | 163.7  | 163.7  | 163.7  | 163.7  | 163.7  | 163.7  | 163.7  | 163.7  | 163.7  |
| 2.5°  | 199.3   | 201.2   | 201.2  | 198.3  | 198.3  | 195.4  | 193.5  | 192.5  | 191.6  | 188.7  | 187.7  |
| 5°    | 259.0   | 260.9   | 261.9  | 254.2  | 251.3  | 245.5  | 240.7  | 235.9  | 230.1  | 223.3  | 216.6  |
| 7.5°  | 499.6   | 459.2   | 466.0  | 408.2  | 397.6  | 372.6  | 352.4  | 320.6  | 297.5  | 274.4  | 256.1  |
| 10°   | 1121.6  | 1083.0  | 1076.3 | 991.6  | 907.8  | 845.3  | 777.9  | 661.4  | 555.5  | 442.8  | 351.4  |
| 12.5° | 1921.6  | 1864.8  | 1833.0 | 1666.4 | 1568.3 | 1475.8 | 1372.8 | 1190.9 | 987.7  | 814.5  | 633.5  |
| 15°   | 2687.9  | 2683.1  | 2569.5 | 2383.7 | 2196.9 | 2083.3 | 1950.4 | 1725.2 | 1484.5 | 1220.7 | 968.5  |
| 17.5° | 3613.0  | 3650.6  | 3456.1 | 3093.2 | 2797.6 | 2612.8 | 2429.9 | 2077.5 | 1777.2 | 1521.1 | 1244.8 |
| 20°   | 4988.8  | 4888.6  | 4548.8 | 3980.8 | 3481.2 | 3202.9 | 2918.9 | 2400.0 | 1969.7 | 1659.7 | 1379.6 |
| 22.5° | 6605.1  | 6528.1  | 5892.7 | 4945.4 | 4153.1 | 3762.3 | 3371.4 | 2696.5 | 2136.3 | 1734.8 | 1405.6 |
| 25°   | 9067.8  | 8751.0  | 7517.8 | 5980.3 | 4769.3 | 4215.7 | 3714.1 | 2889.1 | 2211.3 | 1744.4 | 1393.0 |
| 26°   | 9823.5  | 9601.1  | 8178.2 | 6391.4 | 4958.9 | 4340.9 | 3799.8 | 2928.6 | 2217.1 | 1735.8 | 1369.0 |
| 27°   | 10359.7 | 10190.3 | 8727.9 | 6693.7 | 5096.6 | 4427.5 | 3855.6 | 2944.9 | 2203.6 | 1717.5 | 1336.2 |
| 28°   | 10713.0 | 10577.3 | 9142.8 | 6912.3 | 5180.3 | 4473.7 | 3882.6 | 2941.1 | 2176.7 | 1685.7 | 1290.0 |
| 29°   | 10937.3 | 10806.4 | 9385.5 | 7036.4 | 5210.2 | 4481.4 | 3875.9 | 2912.2 | 2133.4 | 1638.5 | 1223.6 |
| 30°   | 11048.0 | 10905.6 | 9467.3 | 7049.9 | 5177.4 | 4437.1 | 3824.8 | 2848.7 | 2073.7 | 1581.7 | 1150.4 |
| 31°   | 11049.0 | 10891.1 | 9398.9 | 6945.9 | 5080.2 | 4342.8 | 3734.3 | 2742.8 | 1995.7 | 1514.3 | 1052.2 |
| 32°   | 10921.0 | 10758.3 | 9170.8 | 6735.1 | 4928.1 | 4224.4 | 3613.0 | 2634.9 | 1913.9 | 1439.3 | 910.7  |
| 33°   | 10706.3 | 10513.7 | 8775.1 | 6442.4 | 4733.6 | 4062.6 | 3467.7 | 2514.6 | 1832.0 | 1318.9 | 724.9  |
| 34°   | 10359.7 | 10096.9 | 8222.5 | 6087.2 | 4498.7 | 3873.9 | 3301.1 | 2384.6 | 1749.2 | 1151.4 | 517.9  |
| 35°   | 9830.2  | 9459.6  | 7583.3 | 5694.4 | 4247.5 | 3669.8 | 3113.4 | 2248.9 | 1648.2 | 944.4  | 332.1  |
| 36°   | 9063.9  | 8585.4  | 6918.0 | 5288.2 | 3988.5 | 3455.2 | 2922.8 | 2118.0 | 1488.3 | 716.3  | 217.6  |
| 37°   | 8063.7  | 7642.0  | 6281.7 | 4879.0 | 3719.9 | 3226.0 | 2748.5 | 1986.1 | 1292.0 | 500.6  | 177.1  |
| 38°   | 7036.4  | 6725.5  | 5659.8 | 4472.7 | 3441.7 | 2978.6 | 2536.7 | 1848.4 | 1077.3 | 329.2  | 148.3  |
| 39°   | 6110.3  | 5902.4  | 5051.3 | 4070.3 | 3154.8 | 2762.0 | 2324.9 | 1673.2 | 848.1  | 233.9  | 125.2  |
| 40°   | 5273.7  | 5130.3  | 4463.1 | 3660.2 | 2867.9 | 2500.2 | 2125.7 | 1458.5 | 611.3  | 186.8  | 104.9  |
| 42.5° | 3596.7  | 3525.4  | 3122.1 | 2634.0 | 2121.8 | 1911.0 | 1674.2 | 877.0  | 242.6  | 118.4  | 63.5   |
| 45°   | 1879.2  | 1848.4  | 1702.1 | 1542.3 | 1383.4 | 1328.5 | 1076.3 | 393.7  | 136.7  | 69.3   | 40.4   |
| 47.5° | 731.7   | 733.6   | 606.5  | 517.9  | 491.9  | 457.3  | 346.6  | 141.5  | 77.0   | 42.4   | 27.0   |
| 50°   | 227.2   | 244.5   | 225.3  | 212.8  | 162.7  | 135.7  | 112.6  | 70.3   | 41.4   | 26.0   | 17.3   |
| 51°   | 139.6   | 148.3   | 139.6  | 139.6  | 114.6  | 100.1  | 85.7   | 53.9   | 32.7   | 21.2   | 15.4   |
| 52°   | 90.5    | 95.3    | 90.5   | 84.7   | 78.9   | 71.2   | 61.6   | 40.4   | 26.0   | 17.3   | 12.5   |
| 53°   | 61.6    | 64.5    | 61.6   | 57.8   | 52.9   | 49.1   | 43.3   | 29.8   | 21.2   | 14.4   | 10.6   |
| 54°   | 43.3    | 45.2    | 43.3   | 40.4   | 37.5   | 34.7   | 31.8   | 23.1   | 17.3   | 12.5   | 9.6    |
| 55°   | 30.8    | 32.7    | 31.8   | 29.8   | 27.0   | 26.0   | 24.1   | 18.3   | 14.4   | 10.6   | 7.7    |
| 57.5° | 14.4    | 15.4    | 15.4   | 14.4   | 14.4   | 13.5   | 12.5   | 11.6   | 8.7    | 6.7    | 5.8    |
| 60°   | 7.7     | 7.7     | 7.7    | 7.7    | 7.7    | 7.7    | 7.7    | 7.7    | 5.8    | 4.8    | 4.8    |
| 61°   | 5.8     | 5.8     | 5.8    | 5.8    | 5.8    | 5.8    | 6.7    | 5.8    | 4.8    | 4.8    | 3.9    |
| 62°   | 4.8     | 4.8     | 4.8    | 4.8    | 4.8    | 5.8    | 5.8    | 4.8    | 4.8    | 3.9    | 3.9    |
| 63°   | 3.9     | 3.9     | 3.9    | 3.9    | 4.8    | 4.8    | 4.8    | 4.8    | 3.9    | 3.9    | 3.9    |
| 64°   | 3.9     | 3.9     | 3.9    | 3.9    | 3.9    | 3.9    | 3.9    | 3.9    | 3.9    | 3.9    | 2.9    |
| 65°   | 3.9     | 3.9     | 2.9    | 2.9    | 2.9    | 3.9    | 2.9    | 3.9    | 2.9    | 2.9    | 2.9    |
| 66°   | 2.9     | 2.9     | 2.9    | 2.9    | 2.9    | 2.9    | 2.9    | 2.9    | 2.9    | 2.9    | 2.9    |



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**CANDELA DISTRIBUTION (continued):**

|       | 0°  | 5°  | 10° | 15° | 20° | 22.5° | 25° | 30° | 35° | 40° | 45° |
|-------|-----|-----|-----|-----|-----|-------|-----|-----|-----|-----|-----|
| 72.5° | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9   | 1.9 | 1.9 | 1.9 | 1.9 | 2.9 |
| 75°   | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9   | 1.9 | 1.9 | 1.9 | 1.9 | 2.9 |
| 77.5° | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0   | 1.0 | 1.0 | 1.9 | 1.9 | 2.9 |
| 80°   | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0   | 1.0 | 1.0 | 1.9 | 1.9 | 1.9 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0   | 1.0 | 1.0 | 1.0 | 1.9 | 1.9 |
| 85°   | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0   | 1.0 | 1.0 | 1.9 | 1.9 | 1.9 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0   | 1.0 | 1.0 | 1.0 | 1.9 | 1.9 |
| 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):**

|       | 50°    | 55°   | 60°   | 65°   | 67.5° | 70°   | 75°   | 80°   | 85°   | 90°   | 95°   |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 163.7  | 163.7 | 163.7 | 163.7 | 163.7 | 163.7 | 163.7 | 163.7 | 163.7 | 163.7 | 163.7 |
| 2.5°  | 182.0  | 177.1 | 175.2 | 173.3 | 172.3 | 170.4 | 167.5 | 164.6 | 163.7 | 159.8 | 156.0 |
| 5°    | 205.1  | 196.4 | 189.7 | 182.9 | 181.0 | 176.2 | 170.4 | 163.7 | 160.8 | 155.0 | 150.2 |
| 7.5°  | 232.0  | 214.7 | 202.2 | 190.6 | 185.8 | 180.0 | 169.4 | 160.8 | 155.0 | 146.3 | 140.6 |
| 10°   | 277.3  | 236.8 | 212.8 | 192.5 | 184.8 | 177.1 | 163.7 | 152.1 | 144.4 | 135.7 | 129.0 |
| 12.5° | 439.0  | 307.1 | 231.1 | 193.5 | 182.9 | 171.4 | 155.0 | 141.5 | 131.9 | 122.3 | 116.5 |
| 15°   | 692.2  | 467.9 | 299.4 | 203.1 | 179.1 | 161.7 | 142.5 | 127.1 | 117.5 | 107.8 | 102.0 |
| 17.5° | 924.2  | 629.6 | 390.9 | 226.2 | 181.0 | 153.1 | 127.1 | 111.7 | 101.1 | 92.4  | 88.6  |
| 20°   | 1035.9 | 705.7 | 435.1 | 231.1 | 169.4 | 136.7 | 109.7 | 95.3  | 85.7  | 78.0  | 74.1  |
| 22.5° | 1046.5 | 700.9 | 408.2 | 197.4 | 140.6 | 115.5 | 92.4  | 78.9  | 71.2  | 65.5  | 61.6  |
| 25°   | 996.4  | 621.9 | 327.3 | 145.4 | 109.7 | 96.3  | 76.1  | 64.5  | 58.7  | 53.9  | 51.0  |
| 26°   | 957.9  | 576.7 | 287.9 | 126.1 | 100.1 | 87.6  | 69.3  | 59.7  | 53.9  | 50.1  | 47.2  |
| 27°   | 904.9  | 523.7 | 241.6 | 108.8 | 92.4  | 78.9  | 63.5  | 54.9  | 50.1  | 47.2  | 44.3  |
| 28°   | 841.4  | 471.7 | 200.2 | 96.3  | 83.8  | 71.2  | 58.7  | 50.1  | 46.2  | 43.3  | 40.4  |
| 29°   | 773.1  | 403.4 | 156.9 | 86.6  | 75.1  | 64.5  | 52.9  | 45.2  | 41.4  | 39.5  | 37.5  |
| 30°   | 676.8  | 313.8 | 120.3 | 78.0  | 67.4  | 57.8  | 48.1  | 41.4  | 38.5  | 36.6  | 34.7  |
| 31°   | 541.0  | 215.6 | 97.2  | 69.3  | 60.7  | 52.0  | 43.3  | 37.5  | 34.7  | 32.7  | 31.8  |
| 32°   | 388.0  | 132.9 | 84.7  | 61.6  | 53.9  | 47.2  | 37.5  | 33.7  | 30.8  | 29.8  | 28.9  |
| 33°   | 238.8  | 108.8 | 75.1  | 54.9  | 47.2  | 41.4  | 33.7  | 29.8  | 27.9  | 27.0  | 26.0  |
| 34°   | 156.9  | 94.3  | 66.4  | 47.2  | 41.4  | 35.6  | 28.9  | 26.0  | 25.0  | 24.1  | 24.1  |
| 35°   | 132.9  | 83.8  | 57.8  | 40.4  | 34.7  | 30.8  | 25.0  | 23.1  | 22.1  | 21.2  | 22.1  |
| 36°   | 114.6  | 73.2  | 48.1  | 34.7  | 29.8  | 26.0  | 22.1  | 20.2  | 19.3  | 19.3  | 20.2  |
| 37°   | 101.1  | 61.6  | 40.4  | 28.9  | 26.0  | 23.1  | 19.3  | 18.3  | 17.3  | 17.3  | 18.3  |
| 38°   | 85.7   | 50.1  | 33.7  | 25.0  | 22.1  | 19.3  | 17.3  | 16.4  | 16.4  | 16.4  | 17.3  |
| 39°   | 70.3   | 42.4  | 28.9  | 21.2  | 19.3  | 17.3  | 15.4  | 14.4  | 14.4  | 15.4  | 15.4  |
| 40°   | 57.8   | 35.6  | 24.1  | 18.3  | 16.4  | 15.4  | 13.5  | 13.5  | 13.5  | 13.5  | 14.4  |
| 42.5° | 37.5   | 24.1  | 17.3  | 13.5  | 12.5  | 11.6  | 10.6  | 10.6  | 10.6  | 10.6  | 11.6  |
| 45°   | 25.0   | 17.3  | 13.5  | 10.6  | 9.6   | 8.7   | 8.7   | 7.7   | 8.7   | 8.7   | 9.6   |
| 47.5° | 17.3   | 12.5  | 9.6   | 7.7   | 6.7   | 5.8   | 5.8   | 5.8   | 6.7   | 7.7   | 7.7   |
| 50°   | 12.5   | 8.7   | 6.7   | 4.8   | 4.8   | 4.8   | 4.8   | 4.8   | 5.8   | 5.8   | 6.7   |
| 51°   | 10.6   | 7.7   | 5.8   | 4.8   | 4.8   | 3.9   | 3.9   | 3.9   | 4.8   | 5.8   | 6.7   |
| 52°   | 8.7    | 6.7   | 4.8   | 3.9   | 3.9   | 3.9   | 3.9   | 3.9   | 4.8   | 4.8   | 5.8   |
| 53°   | 7.7    | 5.8   | 4.8   | 3.9   | 3.9   | 3.9   | 3.9   | 3.9   | 4.8   | 4.8   | 5.8   |
| 54°   | 6.7    | 4.8   | 3.9   | 3.9   | 3.9   | 2.9   | 2.9   | 3.9   | 3.9   | 4.8   | 5.8   |
| 55°   | 5.8    | 4.8   | 3.9   | 3.9   | 2.9   | 2.9   | 2.9   | 2.9   | 3.9   | 4.8   | 4.8   |
| 57.5° | 4.8    | 3.9   | 3.9   | 2.9   | 2.9   | 2.9   | 2.9   | 2.9   | 3.9   | 3.9   | 4.8   |
| 60°   | 3.9    | 3.9   | 3.9   | 2.9   | 2.9   | 2.9   | 2.9   | 2.9   | 3.9   | 3.9   | 4.8   |
| 61°   | 3.9    | 2.9   | 2.9   | 2.9   | 2.9   | 2.9   | 2.9   | 2.9   | 3.9   | 3.9   | 4.8   |
| 62°   | 3.9    | 2.9   | 3.9   | 3.9   | 3.9   | 2.9   | 2.9   | 2.9   | 3.9   | 3.9   | 4.8   |
| 63°   | 3.9    | 3.9   | 3.9   | 3.9   | 3.9   | 2.9   | 2.9   | 2.9   | 3.9   | 3.9   | 3.9   |
| 64°   | 3.9    | 3.9   | 3.9   | 3.9   | 3.9   | 3.9   | 2.9   | 2.9   | 3.9   | 3.9   | 4.8   |
| 65°   | 2.9    | 3.9   | 3.9   | 3.9   | 3.9   | 3.9   | 2.9   | 2.9   | 3.9   | 3.9   | 4.8   |
| 66°   | 2.9    | 3.9   | 3.9   | 3.9   | 3.9   | 3.9   | 3.9   | 2.9   | 3.9   | 3.9   | 3.9   |



TEST NUMBER: P182766

CATALOG NUMBER: LDSQA4A18827D010TE LAR15SP 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

|       | 50° | 55° | 60° | 65° | 67.5° | 70° | 75° | 80° | 85° | 90° | 95° |
|-------|-----|-----|-----|-----|-------|-----|-----|-----|-----|-----|-----|
| 72.5° | 2.9 | 2.9 | 3.9 | 3.9 | 3.9   | 3.9 | 3.9 | 2.9 | 2.9 | 3.9 | 3.9 |
| 75°   | 2.9 | 2.9 | 3.9 | 3.9 | 3.9   | 3.9 | 3.9 | 2.9 | 2.9 | 2.9 | 3.9 |
| 77.5° | 2.9 | 2.9 | 3.9 | 3.9 | 3.9   | 3.9 | 3.9 | 2.9 | 2.9 | 2.9 | 3.9 |
| 80°   | 2.9 | 2.9 | 3.9 | 3.9 | 3.9   | 3.9 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 |
| 82.5° | 2.9 | 2.9 | 2.9 | 3.9 | 3.9   | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 |
| 85°   | 2.9 | 2.9 | 2.9 | 3.9 | 3.9   | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 |
| 87.5° | 2.9 | 2.9 | 2.9 | 2.9 | 2.9   | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 |
| 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: P182766

CATALOG NUMBER: LDSQA4A18827D010TE LAR15SP 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

|       | 100°  | 105°  | 110°  | 112.5° | 115°  | 120°  | 125°  | 130°  | 135°  | 140°  | 145°  |
|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 163.7 | 163.7 | 163.7 | 163.7  | 163.7 | 163.7 | 163.7 | 163.7 | 163.7 | 163.7 | 163.7 |
| 2.5°  | 154.0 | 154.0 | 153.1 | 151.1  | 153.1 | 151.1 | 149.2 | 148.3 | 147.3 | 146.3 | 144.4 |
| 5°    | 146.3 | 145.4 | 143.4 | 142.5  | 142.5 | 140.6 | 138.6 | 136.7 | 135.7 | 134.8 | 132.9 |
| 7.5°  | 136.7 | 135.7 | 132.9 | 131.9  | 131.9 | 130.0 | 127.1 | 126.1 | 125.2 | 124.2 | 122.3 |
| 10°   | 125.2 | 124.2 | 121.3 | 120.3  | 120.3 | 118.4 | 116.5 | 114.6 | 113.6 | 112.6 | 110.7 |
| 12.5° | 111.7 | 110.7 | 108.8 | 107.8  | 107.8 | 105.9 | 104.0 | 103.0 | 103.0 | 102.0 | 101.1 |
| 15°   | 98.2  | 97.2  | 95.3  | 95.3   | 95.3  | 93.4  | 92.4  | 91.5  | 92.4  | 92.4  | 91.5  |
| 17.5° | 84.7  | 83.8  | 81.8  | 81.8   | 81.8  | 81.8  | 80.9  | 80.9  | 81.8  | 82.8  | 82.8  |
| 20°   | 71.2  | 70.3  | 70.3  | 69.3   | 70.3  | 71.2  | 70.3  | 71.2  | 73.2  | 74.1  | 75.1  |
| 22.5° | 58.7  | 58.7  | 58.7  | 58.7   | 59.7  | 60.7  | 60.7  | 62.6  | 64.5  | 65.5  | 67.4  |
| 25°   | 49.1  | 49.1  | 50.1  | 50.1   | 51.0  | 52.0  | 52.9  | 53.9  | 56.8  | 58.7  | 59.7  |
| 26°   | 45.2  | 46.2  | 46.2  | 47.2   | 48.1  | 49.1  | 50.1  | 51.0  | 53.9  | 55.8  | 56.8  |
| 27°   | 42.4  | 42.4  | 43.3  | 44.3   | 45.2  | 46.2  | 47.2  | 49.1  | 51.0  | 52.9  | 54.9  |
| 28°   | 39.5  | 39.5  | 40.4  | 41.4   | 42.4  | 43.3  | 44.3  | 46.2  | 48.1  | 51.0  | 52.0  |
| 29°   | 36.6  | 37.5  | 37.5  | 38.5   | 39.5  | 40.4  | 42.4  | 43.3  | 46.2  | 48.1  | 50.1  |
| 30°   | 33.7  | 34.7  | 35.6  | 35.6   | 36.6  | 37.5  | 39.5  | 41.4  | 43.3  | 46.2  | 47.2  |
| 31°   | 31.8  | 32.7  | 32.7  | 33.7   | 34.7  | 35.6  | 37.5  | 39.5  | 41.4  | 43.3  | 45.2  |
| 32°   | 28.9  | 30.8  | 30.8  | 30.8   | 31.8  | 33.7  | 35.6  | 36.6  | 39.5  | 41.4  | 42.4  |
| 33°   | 27.0  | 27.9  | 28.9  | 28.9   | 29.8  | 31.8  | 33.7  | 34.7  | 37.5  | 39.5  | 40.4  |
| 34°   | 25.0  | 26.0  | 27.0  | 27.0   | 27.9  | 29.8  | 31.8  | 32.7  | 35.6  | 36.6  | 38.5  |
| 35°   | 23.1  | 24.1  | 25.0  | 25.0   | 26.0  | 27.9  | 29.8  | 30.8  | 32.7  | 34.7  | 36.6  |
| 36°   | 21.2  | 22.1  | 23.1  | 24.1   | 25.0  | 27.0  | 27.9  | 29.8  | 30.8  | 32.7  | 34.7  |
| 37°   | 19.3  | 20.2  | 22.1  | 22.1   | 24.1  | 25.0  | 27.0  | 27.9  | 29.8  | 30.8  | 32.7  |
| 38°   | 17.3  | 19.3  | 20.2  | 21.2   | 22.1  | 24.1  | 25.0  | 26.0  | 27.9  | 29.8  | 30.8  |
| 39°   | 16.4  | 18.3  | 19.3  | 20.2   | 21.2  | 22.1  | 23.1  | 25.0  | 26.0  | 27.9  | 28.9  |
| 40°   | 15.4  | 16.4  | 18.3  | 18.3   | 20.2  | 21.2  | 22.1  | 23.1  | 25.0  | 26.0  | 27.9  |
| 42.5° | 12.5  | 14.4  | 15.4  | 16.4   | 17.3  | 18.3  | 19.3  | 20.2  | 21.2  | 23.1  | 24.1  |
| 45°   | 10.6  | 12.5  | 13.5  | 13.5   | 14.4  | 15.4  | 16.4  | 17.3  | 19.3  | 20.2  | 21.2  |
| 47.5° | 8.7   | 10.6  | 11.6  | 12.5   | 12.5  | 13.5  | 14.4  | 15.4  | 16.4  | 17.3  | 18.3  |
| 50°   | 7.7   | 8.7   | 9.6   | 10.6   | 11.6  | 11.6  | 12.5  | 13.5  | 14.4  | 15.4  | 15.4  |
| 51°   | 7.7   | 8.7   | 9.6   | 9.6    | 10.6  | 11.6  | 12.5  | 12.5  | 13.5  | 14.4  | 14.4  |
| 52°   | 6.7   | 7.7   | 8.7   | 9.6    | 10.6  | 10.6  | 11.6  | 12.5  | 12.5  | 13.5  | 14.4  |
| 53°   | 6.7   | 7.7   | 8.7   | 8.7    | 9.6   | 10.6  | 10.6  | 11.6  | 12.5  | 12.5  | 13.5  |
| 54°   | 5.8   | 7.7   | 8.7   | 8.7    | 9.6   | 9.6   | 10.6  | 11.6  | 11.6  | 11.6  | 12.5  |
| 55°   | 5.8   | 6.7   | 7.7   | 8.7    | 8.7   | 9.6   | 9.6   | 10.6  | 10.6  | 11.6  | 11.6  |
| 57.5° | 5.8   | 6.7   | 7.7   | 7.7    | 8.7   | 8.7   | 9.6   | 9.6   | 9.6   | 9.6   | 10.6  |
| 60°   | 4.8   | 5.8   | 6.7   | 7.7    | 7.7   | 8.7   | 8.7   | 8.7   | 8.7   | 8.7   | 9.6   |
| 61°   | 4.8   | 5.8   | 6.7   | 6.7    | 7.7   | 7.7   | 8.7   | 8.7   | 8.7   | 8.7   | 8.7   |
| 62°   | 4.8   | 5.8   | 6.7   | 6.7    | 7.7   | 7.7   | 7.7   | 8.7   | 8.7   | 8.7   | 8.7   |
| 63°   | 4.8   | 5.8   | 6.7   | 6.7    | 7.7   | 7.7   | 7.7   | 7.7   | 7.7   | 7.7   | 8.7   |
| 64°   | 4.8   | 5.8   | 6.7   | 6.7    | 7.7   | 7.7   | 7.7   | 7.7   | 7.7   | 7.7   | 7.7   |
| 65°   | 4.8   | 5.8   | 6.7   | 6.7    | 6.7   | 7.7   | 7.7   | 7.7   | 7.7   | 7.7   | 7.7   |
| 66°   | 4.8   | 5.8   | 6.7   | 6.7    | 6.7   | 6.7   | 7.7   | 7.7   | 7.7   | 7.7   | 6.7   |



TEST NUMBER: P182766

CATALOG NUMBER: LDSQA4A18827D010TE LAR15SP 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

|       | 100° | 105° | 110° | 112.5° | 115° | 120° | 125° | 130° | 135° | 140° | 145° |
|-------|------|------|------|--------|------|------|------|------|------|------|------|
| 72.5° | 3.9  | 4.8  | 4.8  | 5.8    | 5.8  | 5.8  | 5.8  | 5.8  | 5.8  | 5.8  | 4.8  |
| 75°   | 3.9  | 4.8  | 4.8  | 4.8    | 5.8  | 5.8  | 5.8  | 4.8  | 4.8  | 4.8  | 4.8  |
| 77.5° | 3.9  | 3.9  | 4.8  | 4.8    | 4.8  | 4.8  | 4.8  | 4.8  | 4.8  | 3.9  | 3.9  |
| 80°   | 3.9  | 3.9  | 3.9  | 4.8    | 4.8  | 4.8  | 4.8  | 3.9  | 3.9  | 3.9  | 2.9  |
| 82.5° | 2.9  | 3.9  | 3.9  | 3.9    | 3.9  | 3.9  | 3.9  | 3.9  | 2.9  | 2.9  | 2.9  |
| 85°   | 2.9  | 3.9  | 3.9  | 3.9    | 3.9  | 3.9  | 3.9  | 2.9  | 2.9  | 2.9  | 1.9  |
| 87.5° | 2.9  | 2.9  | 2.9  | 3.9    | 3.9  | 3.9  | 2.9  | 2.9  | 1.9  | 1.9  | 1.9  |
| 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: P182766

CATALOG NUMBER: LDSQA4A18827D010TE LAR15SP 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

|       | 150°  | 155°  | 157.5° | 160°  | 165°  | 170°  | 175°  | 180°  |
|-------|-------|-------|--------|-------|-------|-------|-------|-------|
| 0°    | 163.7 | 163.7 | 163.7  | 163.7 | 163.7 | 163.7 | 163.7 | 163.7 |
| 2.5°  | 146.3 | 147.3 | 146.3  | 146.3 | 144.4 | 145.4 | 143.4 | 146.3 |
| 5°    | 133.8 | 134.8 | 133.8  | 133.8 | 131.9 | 131.9 | 130.9 | 133.8 |
| 7.5°  | 123.2 | 124.2 | 122.3  | 122.3 | 120.3 | 121.3 | 120.3 | 122.3 |
| 10°   | 112.6 | 112.6 | 112.6  | 111.7 | 110.7 | 111.7 | 110.7 | 112.6 |
| 12.5° | 102.0 | 103.0 | 103.0  | 103.0 | 102.0 | 102.0 | 101.1 | 104.0 |
| 15°   | 93.4  | 94.3  | 95.3   | 95.3  | 94.3  | 95.3  | 94.3  | 96.3  |
| 17.5° | 85.7  | 87.6  | 87.6   | 88.6  | 88.6  | 89.5  | 89.5  | 91.5  |
| 20°   | 78.0  | 80.9  | 80.9   | 81.8  | 81.8  | 83.8  | 83.8  | 85.7  |
| 22.5° | 70.3  | 73.2  | 74.1   | 74.1  | 75.1  | 77.0  | 77.0  | 78.9  |
| 25°   | 63.5  | 66.4  | 67.4   | 67.4  | 68.4  | 70.3  | 70.3  | 72.2  |
| 26°   | 60.7  | 63.5  | 64.5   | 65.5  | 66.4  | 68.4  | 68.4  | 70.3  |
| 27°   | 57.8  | 60.7  | 61.6   | 62.6  | 63.5  | 65.5  | 65.5  | 67.4  |
| 28°   | 55.8  | 58.7  | 59.7   | 60.7  | 61.6  | 63.5  | 63.5  | 64.5  |
| 29°   | 52.9  | 55.8  | 56.8   | 57.8  | 58.7  | 60.7  | 60.7  | 62.6  |
| 30°   | 51.0  | 52.9  | 53.9   | 54.9  | 55.8  | 58.7  | 58.7  | 60.7  |
| 31°   | 48.1  | 51.0  | 52.0   | 52.9  | 53.9  | 55.8  | 55.8  | 58.7  |
| 32°   | 46.2  | 48.1  | 49.1   | 50.1  | 52.0  | 52.9  | 53.9  | 55.8  |
| 33°   | 43.3  | 46.2  | 47.2   | 48.1  | 49.1  | 51.0  | 52.0  | 53.9  |
| 34°   | 41.4  | 43.3  | 45.2   | 46.2  | 47.2  | 49.1  | 50.1  | 52.0  |
| 35°   | 39.5  | 41.4  | 42.4   | 43.3  | 45.2  | 47.2  | 47.2  | 49.1  |
| 36°   | 37.5  | 39.5  | 40.4   | 41.4  | 43.3  | 45.2  | 45.2  | 47.2  |
| 37°   | 35.6  | 37.5  | 38.5   | 39.5  | 41.4  | 43.3  | 43.3  | 45.2  |
| 38°   | 33.7  | 35.6  | 36.6   | 37.5  | 39.5  | 41.4  | 42.4  | 44.3  |
| 39°   | 31.8  | 34.7  | 35.6   | 36.6  | 37.5  | 39.5  | 40.4  | 41.4  |
| 40°   | 30.8  | 32.7  | 33.7   | 34.7  | 35.6  | 37.5  | 38.5  | 39.5  |
| 42.5° | 26.0  | 28.9  | 29.8   | 30.8  | 31.8  | 32.7  | 33.7  | 34.7  |
| 45°   | 23.1  | 25.0  | 25.0   | 26.0  | 27.0  | 28.9  | 28.9  | 30.8  |
| 47.5° | 20.2  | 21.2  | 22.1   | 22.1  | 23.1  | 25.0  | 25.0  | 26.0  |
| 50°   | 17.3  | 18.3  | 19.3   | 19.3  | 20.2  | 21.2  | 22.1  | 23.1  |
| 51°   | 16.4  | 17.3  | 17.3   | 18.3  | 19.3  | 20.2  | 21.2  | 22.1  |
| 52°   | 15.4  | 16.4  | 16.4   | 17.3  | 18.3  | 19.3  | 19.3  | 20.2  |
| 53°   | 14.4  | 15.4  | 15.4   | 16.4  | 16.4  | 18.3  | 18.3  | 19.3  |
| 54°   | 13.5  | 14.4  | 14.4   | 15.4  | 15.4  | 17.3  | 17.3  | 18.3  |
| 55°   | 12.5  | 13.5  | 14.4   | 14.4  | 14.4  | 15.4  | 16.4  | 17.3  |
| 57.5° | 11.6  | 12.5  | 12.5   | 12.5  | 13.5  | 13.5  | 14.4  | 14.4  |
| 60°   | 9.6   | 10.6  | 10.6   | 10.6  | 11.6  | 11.6  | 11.6  | 12.5  |
| 61°   | 9.6   | 9.6   | 10.6   | 10.6  | 9.6   | 9.6   | 9.6   | 10.6  |
| 62°   | 8.7   | 9.6   | 9.6    | 8.7   | 8.7   | 8.7   | 8.7   | 9.6   |
| 63°   | 8.7   | 8.7   | 8.7    | 8.7   | 8.7   | 8.7   | 8.7   | 8.7   |
| 64°   | 7.7   | 7.7   | 7.7    | 7.7   | 7.7   | 7.7   | 7.7   | 7.7   |
| 65°   | 7.7   | 7.7   | 7.7    | 7.7   | 7.7   | 7.7   | 6.7   | 7.7   |
| 66°   | 6.7   | 7.7   | 7.7    | 6.7   | 6.7   | 6.7   | 6.7   | 6.7   |



TEST NUMBER: P182766

CATALOG NUMBER: LDSQA4A18827D010TE LAR15SP 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

|       | 150° | 155° | 157.5° | 160° | 165° | 170° | 175° | 180° |
|-------|------|------|--------|------|------|------|------|------|
| 72.5° | 4.8  | 4.8  | 4.8    | 4.8  | 4.8  | 3.9  | 3.9  | 3.9  |
| 75°   | 4.8  | 3.9  | 3.9    | 3.9  | 3.9  | 3.9  | 3.9  | 2.9  |
| 77.5° | 3.9  | 3.9  | 3.9    | 3.9  | 2.9  | 2.9  | 2.9  | 2.9  |
| 80°   | 2.9  | 2.9  | 2.9    | 2.9  | 2.9  | 2.9  | 1.9  | 1.9  |
| 82.5° | 2.9  | 1.9  | 1.9    | 1.9  | 1.9  | 1.9  | 1.9  | 1.9  |
| 85°   | 1.9  | 1.9  | 1.9    | 1.9  | 1.0  | 1.0  | 1.0  | 1.0  |
| 87.5° | 1.0  | 1.0  | 1.0    | 1.0  | 1.0  | 1.0  | 1.0  | 1.0  |
| 90°   | 0.0  | 0.0  | 0.0    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |



Report Generated By E9808895 / USPTCWHP6082093





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







|       |     |     |     |     |     |     |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 67.5° | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.9 | 2.9 |
| 70°   | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.9 | 2.9 |





|       |     |     |     |     |     |     |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 67.5° | 2.9 | 2.9 | 3.9 | 3.9 | 3.9 | 3.9 | 2.9 | 2.9 | 2.9 | 3.9 | 3.9 |
| 70°   | 2.9 | 3.9 | 3.9 | 3.9 | 3.9 | 3.9 | 3.9 | 2.9 | 2.9 | 3.9 | 3.9 |





|       |     |     |     |     |     |     |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 67.5° | 4.8 | 5.8 | 5.8 | 5.8 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 |
| 70°   | 4.8 | 4.8 | 5.8 | 5.8 | 5.8 | 6.7 | 6.7 | 5.8 | 5.8 | 5.8 | 5.8 |





|       |     |     |     |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|
| 67.5° | 6.7 | 6.7 | 6.7 | 6.7 | 5.8 | 5.8 | 5.8 | 5.8 |
| 70°   | 5.8 | 5.8 | 5.8 | 5.8 | 4.8 | 4.8 | 4.8 | 4.8 |



(END OF REPORT)