

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: P182789

Luminaire Tested: **LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182789
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: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 15° SPOT, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1274.4 lumens
Efficiency: N/A
Efficacy: 57.2 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

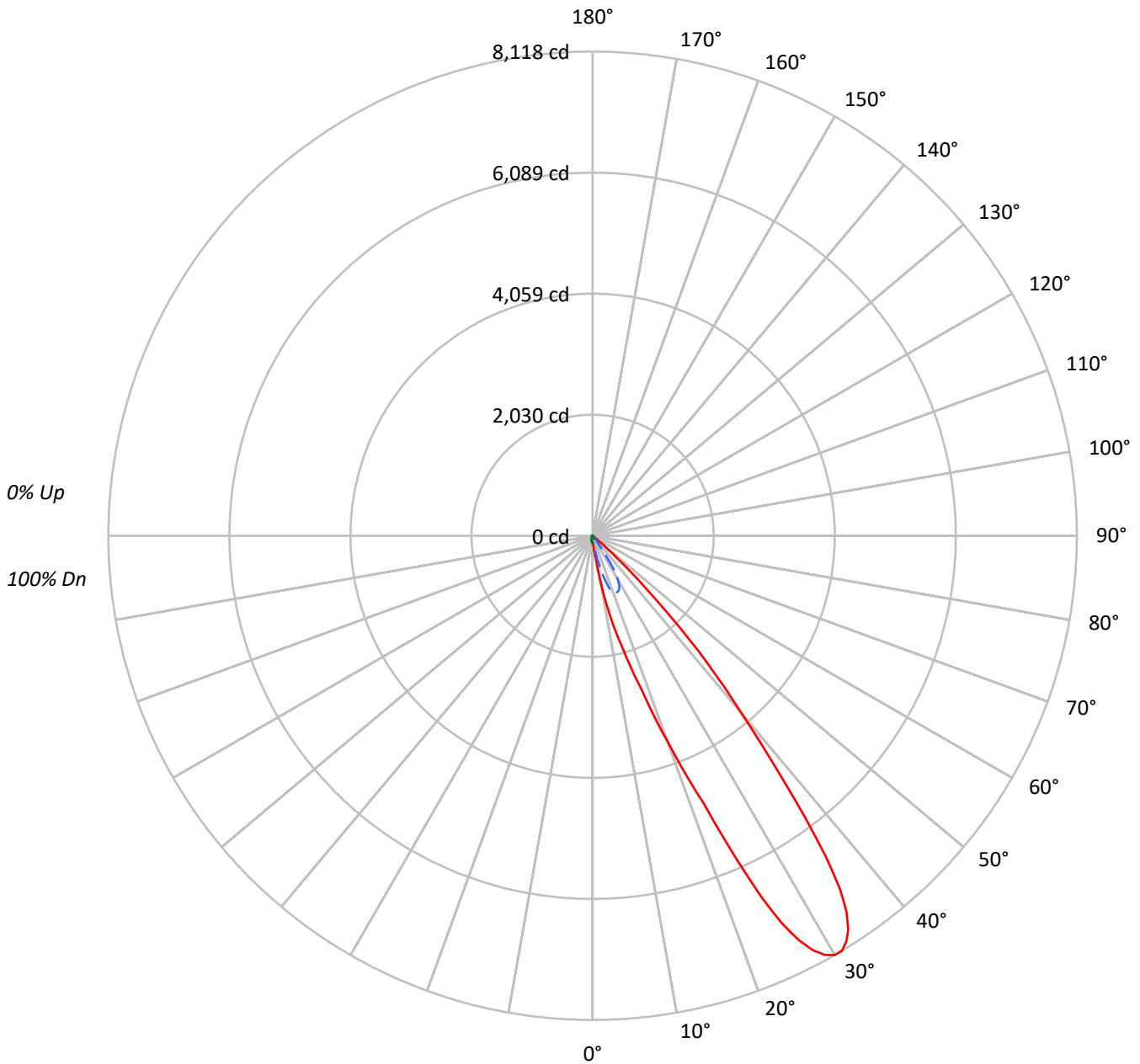
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182789

CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°

Luminous Intensity Polar Plot





TEST NUMBER: P182789

CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°

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 | 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 | 86 | 81 | 97 | 90 | 85 | 80 | 87 | 83 | 79 | 85 | 81 | 78 | 82 | 79 | 76 | 75 | | | | | | | | | | | | | | | | | | | |
| 4 | 93 | 84 | 77 | 72 | 91 | 82 | 76 | 72 | 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° | 11654 | 11654 | 11654 |
| 5° | 18506 | 11076 | 9559 |
| 10° | 81067 | 9807 | 8145 |
| 15° | 198078 | 7943 | 7091 |
| 20° | 377897 | 5907 | 6495 |
| 25° | 712177 | 4233 | 5676 |
| 30° | 908063 | 3009 | 4989 |
| 35° | 854202 | 1845 | 4269 |
| 40° | 490027 | 1252 | 3667 |
| 45° | 189173 | 877 | 3096 |
| 50° | 25154 | 633 | 2562 |
| 55° | 3817 | 591 | 2145 |
| 60° | 1104 | 543 | 1783 |
| 65° | 642 | 642 | 1307 |
| 70° | 397 | 793 | 991 |
| 75° | 524 | 786 | 786 |
| 80° | 0 | 1172 | 781 |
| 85° | 0 | 2334 | 778 |



TEST NUMBER: P182789

CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 15.0 | 1.2 |
| 10°-20° | 136.6 | 10.7 |
| 20°-30° | 435.6 | 34.2 |
| 30°-40° | 504.7 | 39.6 |
| 40°-50° | 164.1 | 12.9 |
| 50°-60° | 10.4 | 0.8 |
| 60°-70° | 3.8 | 0.3 |
| 70°-80° | 2.7 | 0.2 |
| 80°-90° | 1.6 | 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° | 587.1 | 46.1 |
| 0°-40° | 1091.9 | 85.7 |
| 0°-60° | 1266.4 | 99.4 |
| 0°-90° | 1274.4 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1274.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 45° | 90° | 135° | 180° | Flux |
|-----|------|------|-----|------|------|------|
| 0° | 120 | 120 | 120 | 120 | 120 | |
| 5° | 190 | 159 | 114 | 100 | 98 | 37 |
| 15° | 1975 | 712 | 79 | 68 | 71 | 626 |
| 25° | 6663 | 1024 | 40 | 42 | 53 | 2994 |
| 35° | 7223 | 244 | 16 | 24 | 36 | 4156 |
| 45° | 1381 | 30 | 6 | 14 | 23 | 1233 |
| 55° | 23 | 6 | 4 | 8 | 13 | 35 |
| 65° | 3 | 2 | 3 | 6 | 6 | 3 |
| 75° | 1 | 2 | 2 | 4 | 2 | 1 |
| 85° | 0 | 1 | 2 | 2 | 1 | 0 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P182789

CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 10° | 15° | 20° | 22.5° | 25° | 30° | 35° | 40° | 45° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 |
| 2.5° | 146.4 | 147.8 | 147.8 | 145.7 | 145.7 | 143.6 | 142.2 | 141.5 | 140.8 | 138.6 | 137.9 |
| 5° | 190.3 | 191.7 | 192.4 | 186.7 | 184.6 | 180.4 | 176.8 | 173.3 | 169.1 | 164.1 | 159.2 |
| 7.5° | 367.1 | 337.4 | 342.4 | 299.9 | 292.1 | 273.7 | 258.9 | 235.6 | 218.6 | 201.6 | 188.2 |
| 10° | 824.1 | 795.8 | 790.8 | 728.6 | 667.0 | 621.1 | 571.6 | 486.0 | 408.1 | 325.4 | 258.2 |
| 12.5° | 1411.9 | 1370.2 | 1346.8 | 1224.4 | 1152.3 | 1084.4 | 1008.7 | 875.0 | 725.8 | 598.4 | 465.4 |
| 15° | 1975.0 | 1971.4 | 1888.0 | 1751.4 | 1614.2 | 1530.7 | 1433.1 | 1267.6 | 1090.8 | 896.9 | 711.6 |
| 17.5° | 2654.7 | 2682.3 | 2539.4 | 2272.8 | 2055.6 | 1919.8 | 1785.4 | 1526.5 | 1305.8 | 1117.6 | 914.6 |
| 20° | 3665.6 | 3592.0 | 3342.3 | 2924.9 | 2557.8 | 2353.4 | 2144.7 | 1763.5 | 1447.3 | 1219.5 | 1013.7 |
| 22.5° | 4853.2 | 4796.6 | 4329.8 | 3633.7 | 3051.6 | 2764.4 | 2477.2 | 1981.3 | 1569.6 | 1274.7 | 1032.8 |
| 25° | 6662.7 | 6429.9 | 5523.8 | 4394.1 | 3504.3 | 3097.5 | 2729.0 | 2122.8 | 1624.8 | 1281.7 | 1023.6 |
| 26° | 7217.9 | 7054.5 | 6009.1 | 4696.2 | 3643.6 | 3189.5 | 2792.0 | 2151.8 | 1629.1 | 1275.4 | 1005.9 |
| 27° | 7611.9 | 7487.4 | 6413.0 | 4918.3 | 3744.8 | 3253.2 | 2833.0 | 2163.8 | 1619.2 | 1261.9 | 981.8 |
| 28° | 7871.5 | 7771.8 | 6717.8 | 5078.9 | 3806.3 | 3287.1 | 2852.8 | 2161.0 | 1599.3 | 1238.6 | 947.9 |
| 29° | 8036.4 | 7940.2 | 6896.1 | 5170.1 | 3828.3 | 3292.8 | 2847.8 | 2139.8 | 1567.5 | 1203.9 | 899.1 |
| 30° | 8117.7 | 8013.0 | 6956.2 | 5180.0 | 3804.2 | 3260.2 | 2810.4 | 2093.1 | 1523.7 | 1162.2 | 845.3 |
| 31° | 8118.4 | 8002.4 | 6906.0 | 5103.6 | 3732.8 | 3190.9 | 2743.9 | 2015.3 | 1466.4 | 1112.7 | 773.1 |
| 32° | 8024.3 | 7904.8 | 6738.3 | 4948.7 | 3621.0 | 3103.9 | 2654.7 | 1936.1 | 1406.2 | 1057.5 | 669.2 |
| 33° | 7866.6 | 7725.1 | 6447.6 | 4733.7 | 3478.1 | 2985.1 | 2547.9 | 1847.6 | 1346.1 | 969.1 | 532.6 |
| 34° | 7611.9 | 7418.8 | 6041.6 | 4472.7 | 3305.5 | 2846.4 | 2425.6 | 1752.1 | 1285.3 | 846.0 | 380.6 |
| 35° | 7222.9 | 6950.6 | 5571.9 | 4184.1 | 3120.9 | 2696.5 | 2287.6 | 1652.4 | 1211.0 | 693.9 | 244.0 |
| 36° | 6659.8 | 6308.3 | 5083.1 | 3885.6 | 2930.6 | 2538.7 | 2147.6 | 1556.2 | 1093.6 | 526.3 | 159.9 |
| 37° | 5924.9 | 5615.1 | 4615.5 | 3584.9 | 2733.3 | 2370.4 | 2019.5 | 1459.3 | 949.3 | 367.8 | 130.2 |
| 38° | 5170.1 | 4941.6 | 4158.6 | 3286.4 | 2528.8 | 2188.6 | 1863.9 | 1358.1 | 791.5 | 241.9 | 108.9 |
| 39° | 4489.6 | 4336.8 | 3711.5 | 2990.7 | 2318.0 | 2029.4 | 1708.3 | 1229.4 | 623.2 | 171.9 | 92.0 |
| 40° | 3874.9 | 3769.5 | 3279.3 | 2689.4 | 2107.2 | 1837.0 | 1561.9 | 1071.7 | 449.2 | 137.2 | 77.1 |
| 42.5° | 2642.7 | 2590.4 | 2294.0 | 1935.3 | 1559.0 | 1404.1 | 1230.1 | 644.4 | 178.3 | 87.0 | 46.7 |
| 45° | 1380.8 | 1358.1 | 1250.6 | 1133.2 | 1016.5 | 976.2 | 790.8 | 289.3 | 100.4 | 50.9 | 29.7 |
| 47.5° | 537.6 | 539.0 | 445.6 | 380.6 | 361.5 | 336.0 | 254.7 | 104.0 | 56.6 | 31.1 | 19.8 |
| 50° | 166.9 | 179.7 | 165.5 | 156.3 | 119.5 | 99.7 | 82.8 | 51.6 | 30.4 | 19.1 | 12.7 |
| 51° | 102.6 | 108.9 | 102.6 | 102.6 | 84.2 | 73.6 | 63.0 | 39.6 | 24.1 | 15.6 | 11.3 |
| 52° | 66.5 | 70.0 | 66.5 | 62.2 | 58.0 | 52.3 | 45.3 | 29.7 | 19.1 | 12.7 | 9.2 |
| 53° | 45.3 | 47.4 | 45.3 | 42.4 | 38.9 | 36.1 | 31.8 | 21.9 | 15.6 | 10.6 | 7.8 |
| 54° | 31.8 | 33.2 | 31.8 | 29.7 | 27.6 | 25.5 | 23.3 | 17.0 | 12.7 | 9.2 | 7.1 |
| 55° | 22.6 | 24.1 | 23.3 | 21.9 | 19.8 | 19.1 | 17.7 | 13.4 | 10.6 | 7.8 | 5.7 |
| 57.5° | 10.6 | 11.3 | 11.3 | 10.6 | 10.6 | 9.9 | 9.2 | 8.5 | 6.4 | 5.0 | 4.2 |
| 60° | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 4.2 | 3.5 | 3.5 |
| 61° | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 5.0 | 4.2 | 3.5 | 3.5 | 2.8 |
| 62° | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 4.2 | 4.2 | 3.5 | 3.5 | 2.8 | 2.8 |
| 63° | 2.8 | 2.8 | 2.8 | 2.8 | 3.5 | 3.5 | 3.5 | 3.5 | 2.8 | 2.8 | 2.8 |
| 64° | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 |
| 65° | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.8 | 2.1 | 2.8 | 2.1 | 2.1 | 2.1 |
| 66° | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |



TEST NUMBER: P182789

CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

| | 0° | 5° | 10° | 15° | 20° | 22.5° | 25° | 30° | 35° | 40° | 45° |
|-------|-----|-----|-----|-----|-----|-------|-----|-----|-----|-----|-----|
| 72.5° | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 2.1 |
| 75° | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 2.1 |
| 77.5° | 0.0 | 0.0 | 0.0 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.4 | 1.4 | 2.1 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.7 | 0.7 | 0.7 | 1.4 | 1.4 | 1.4 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.4 | 1.4 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.7 | 0.7 | 0.7 | 1.4 | 1.4 | 1.4 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.4 | 1.4 |
| 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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CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

| | 50° | 55° | 60° | 65° | 67.5° | 70° | 75° | 80° | 85° | 90° | 95° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 |
| 2.5° | 133.7 | 130.2 | 128.7 | 127.3 | 126.6 | 125.2 | 123.1 | 121.0 | 120.3 | 117.4 | 114.6 |
| 5° | 150.7 | 144.3 | 139.4 | 134.4 | 133.0 | 129.4 | 125.2 | 120.3 | 118.1 | 113.9 | 110.3 |
| 7.5° | 170.5 | 157.7 | 148.5 | 140.1 | 136.5 | 132.3 | 124.5 | 118.1 | 113.9 | 107.5 | 103.3 |
| 10° | 203.7 | 174.0 | 156.3 | 141.5 | 135.8 | 130.2 | 120.3 | 111.8 | 106.1 | 99.7 | 94.8 |
| 12.5° | 322.6 | 225.6 | 169.8 | 142.2 | 134.4 | 125.9 | 113.9 | 104.0 | 96.9 | 89.8 | 85.6 |
| 15° | 508.6 | 343.8 | 220.0 | 149.3 | 131.6 | 118.8 | 104.7 | 93.4 | 86.3 | 79.2 | 75.0 |
| 17.5° | 679.1 | 462.6 | 287.2 | 166.2 | 133.0 | 112.5 | 93.4 | 82.1 | 74.3 | 67.9 | 65.1 |
| 20° | 761.1 | 518.5 | 319.7 | 169.8 | 124.5 | 100.4 | 80.6 | 70.0 | 63.0 | 57.3 | 54.5 |
| 22.5° | 768.9 | 515.0 | 299.9 | 145.0 | 103.3 | 84.9 | 67.9 | 58.0 | 52.3 | 48.1 | 45.3 |
| 25° | 732.1 | 457.0 | 240.5 | 106.8 | 80.6 | 70.7 | 55.9 | 47.4 | 43.1 | 39.6 | 37.5 |
| 26° | 703.8 | 423.7 | 211.5 | 92.7 | 73.6 | 64.4 | 50.9 | 43.9 | 39.6 | 36.8 | 34.7 |
| 27° | 664.9 | 384.8 | 177.5 | 79.9 | 67.9 | 58.0 | 46.7 | 40.3 | 36.8 | 34.7 | 32.5 |
| 28° | 618.2 | 346.6 | 147.1 | 70.7 | 61.5 | 52.3 | 43.1 | 36.8 | 34.0 | 31.8 | 29.7 |
| 29° | 568.0 | 296.4 | 115.3 | 63.7 | 55.2 | 47.4 | 38.9 | 33.2 | 30.4 | 29.0 | 27.6 |
| 30° | 497.3 | 230.6 | 88.4 | 57.3 | 49.5 | 42.4 | 35.4 | 30.4 | 28.3 | 26.9 | 25.5 |
| 31° | 397.5 | 158.4 | 71.4 | 50.9 | 44.6 | 38.2 | 31.8 | 27.6 | 25.5 | 24.1 | 23.3 |
| 32° | 285.1 | 97.6 | 62.2 | 45.3 | 39.6 | 34.7 | 27.6 | 24.8 | 22.6 | 21.9 | 21.2 |
| 33° | 175.4 | 79.9 | 55.2 | 40.3 | 34.7 | 30.4 | 24.8 | 21.9 | 20.5 | 19.8 | 19.1 |
| 34° | 115.3 | 69.3 | 48.8 | 34.7 | 30.4 | 26.2 | 21.2 | 19.1 | 18.4 | 17.7 | 17.7 |
| 35° | 97.6 | 61.5 | 42.4 | 29.7 | 25.5 | 22.6 | 18.4 | 17.0 | 16.3 | 15.6 | 16.3 |
| 36° | 84.2 | 53.8 | 35.4 | 25.5 | 21.9 | 19.1 | 16.3 | 14.9 | 14.1 | 14.1 | 14.9 |
| 37° | 74.3 | 45.3 | 29.7 | 21.2 | 19.1 | 17.0 | 14.1 | 13.4 | 12.7 | 12.7 | 13.4 |
| 38° | 63.0 | 36.8 | 24.8 | 18.4 | 16.3 | 14.1 | 12.7 | 12.0 | 12.0 | 12.0 | 12.7 |
| 39° | 51.6 | 31.1 | 21.2 | 15.6 | 14.1 | 12.7 | 11.3 | 10.6 | 10.6 | 11.3 | 11.3 |
| 40° | 42.4 | 26.2 | 17.7 | 13.4 | 12.0 | 11.3 | 9.9 | 9.9 | 9.9 | 9.9 | 10.6 |
| 42.5° | 27.6 | 17.7 | 12.7 | 9.9 | 9.2 | 8.5 | 7.8 | 7.8 | 7.8 | 7.8 | 8.5 |
| 45° | 18.4 | 12.7 | 9.9 | 7.8 | 7.1 | 6.4 | 6.4 | 5.7 | 6.4 | 6.4 | 7.1 |
| 47.5° | 12.7 | 9.2 | 7.1 | 5.7 | 5.0 | 4.2 | 4.2 | 4.2 | 5.0 | 5.7 | 5.7 |
| 50° | 9.2 | 6.4 | 5.0 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 4.2 | 4.2 | 5.0 |
| 51° | 7.8 | 5.7 | 4.2 | 3.5 | 3.5 | 2.8 | 2.8 | 2.8 | 3.5 | 4.2 | 5.0 |
| 52° | 6.4 | 5.0 | 3.5 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 3.5 | 3.5 | 4.2 |
| 53° | 5.7 | 4.2 | 3.5 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 3.5 | 3.5 | 4.2 |
| 54° | 5.0 | 3.5 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.8 | 2.8 | 3.5 | 4.2 |
| 55° | 4.2 | 3.5 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.1 | 2.8 | 3.5 | 3.5 |
| 57.5° | 3.5 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.8 | 2.8 | 3.5 |
| 60° | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.8 | 2.8 | 3.5 |
| 61° | 2.8 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.8 | 2.8 | 3.5 |
| 62° | 2.8 | 2.1 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.8 | 2.8 | 3.5 |
| 63° | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.8 | 2.8 | 2.8 |
| 64° | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.8 | 2.8 | 3.5 |
| 65° | 2.1 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.8 | 2.8 | 3.5 |
| 66° | 2.1 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.8 | 2.8 | 2.8 |



TEST NUMBER: P182789

CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

| | 50° | 55° | 60° | 65° | 67.5° | 70° | 75° | 80° | 85° | 90° | 95° |
|-------|-----|-----|-----|-----|-------|-----|-----|-----|-----|-----|-----|
| 72.5° | 2.1 | 2.1 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.8 | 2.8 |
| 75° | 2.1 | 2.1 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.8 |
| 77.5° | 2.1 | 2.1 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.8 |
| 80° | 2.1 | 2.1 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| 82.5° | 2.1 | 2.1 | 2.1 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| 85° | 2.1 | 2.1 | 2.1 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| 87.5° | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| 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: P182789

CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

| | 100° | 105° | 110° | 112.5° | 115° | 120° | 125° | 130° | 135° | 140° | 145° |
|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 |
| 2.5° | 113.2 | 113.2 | 112.5 | 111.1 | 112.5 | 111.1 | 109.6 | 108.9 | 108.2 | 107.5 | 106.1 |
| 5° | 107.5 | 106.8 | 105.4 | 104.7 | 104.7 | 103.3 | 101.9 | 100.4 | 99.7 | 99.0 | 97.6 |
| 7.5° | 100.4 | 99.7 | 97.6 | 96.9 | 96.9 | 95.5 | 93.4 | 92.7 | 92.0 | 91.2 | 89.8 |
| 10° | 92.0 | 91.2 | 89.1 | 88.4 | 88.4 | 87.0 | 85.6 | 84.2 | 83.5 | 82.8 | 81.3 |
| 12.5° | 82.1 | 81.3 | 79.9 | 79.2 | 79.2 | 77.8 | 76.4 | 75.7 | 75.7 | 75.0 | 74.3 |
| 15° | 72.2 | 71.4 | 70.0 | 70.0 | 70.0 | 68.6 | 67.9 | 67.2 | 67.9 | 67.9 | 67.2 |
| 17.5° | 62.2 | 61.5 | 60.1 | 60.1 | 60.1 | 60.1 | 59.4 | 59.4 | 60.1 | 60.8 | 60.8 |
| 20° | 52.3 | 51.6 | 51.6 | 50.9 | 51.6 | 52.3 | 51.6 | 52.3 | 53.8 | 54.5 | 55.2 |
| 22.5° | 43.1 | 43.1 | 43.1 | 43.1 | 43.9 | 44.6 | 44.6 | 46.0 | 47.4 | 48.1 | 49.5 |
| 25° | 36.1 | 36.1 | 36.8 | 36.8 | 37.5 | 38.2 | 38.9 | 39.6 | 41.7 | 43.1 | 43.9 |
| 26° | 33.2 | 34.0 | 34.0 | 34.7 | 35.4 | 36.1 | 36.8 | 37.5 | 39.6 | 41.0 | 41.7 |
| 27° | 31.1 | 31.1 | 31.8 | 32.5 | 33.2 | 34.0 | 34.7 | 36.1 | 37.5 | 38.9 | 40.3 |
| 28° | 29.0 | 29.0 | 29.7 | 30.4 | 31.1 | 31.8 | 32.5 | 34.0 | 35.4 | 37.5 | 38.2 |
| 29° | 26.9 | 27.6 | 27.6 | 28.3 | 29.0 | 29.7 | 31.1 | 31.8 | 34.0 | 35.4 | 36.8 |
| 30° | 24.8 | 25.5 | 26.2 | 26.2 | 26.9 | 27.6 | 29.0 | 30.4 | 31.8 | 34.0 | 34.7 |
| 31° | 23.3 | 24.1 | 24.1 | 24.8 | 25.5 | 26.2 | 27.6 | 29.0 | 30.4 | 31.8 | 33.2 |
| 32° | 21.2 | 22.6 | 22.6 | 22.6 | 23.3 | 24.8 | 26.2 | 26.9 | 29.0 | 30.4 | 31.1 |
| 33° | 19.8 | 20.5 | 21.2 | 21.2 | 21.9 | 23.3 | 24.8 | 25.5 | 27.6 | 29.0 | 29.7 |
| 34° | 18.4 | 19.1 | 19.8 | 19.8 | 20.5 | 21.9 | 23.3 | 24.1 | 26.2 | 26.9 | 28.3 |
| 35° | 17.0 | 17.7 | 18.4 | 18.4 | 19.1 | 20.5 | 21.9 | 22.6 | 24.1 | 25.5 | 26.9 |
| 36° | 15.6 | 16.3 | 17.0 | 17.7 | 18.4 | 19.8 | 20.5 | 21.9 | 22.6 | 24.1 | 25.5 |
| 37° | 14.1 | 14.9 | 16.3 | 16.3 | 17.7 | 18.4 | 19.8 | 20.5 | 21.9 | 22.6 | 24.1 |
| 38° | 12.7 | 14.1 | 14.9 | 15.6 | 16.3 | 17.7 | 18.4 | 19.1 | 20.5 | 21.9 | 22.6 |
| 39° | 12.0 | 13.4 | 14.1 | 14.9 | 15.6 | 16.3 | 17.0 | 18.4 | 19.1 | 20.5 | 21.2 |
| 40° | 11.3 | 12.0 | 13.4 | 13.4 | 14.9 | 15.6 | 16.3 | 17.0 | 18.4 | 19.1 | 20.5 |
| 42.5° | 9.2 | 10.6 | 11.3 | 12.0 | 12.7 | 13.4 | 14.1 | 14.9 | 15.6 | 17.0 | 17.7 |
| 45° | 7.8 | 9.2 | 9.9 | 9.9 | 10.6 | 11.3 | 12.0 | 12.7 | 14.1 | 14.9 | 15.6 |
| 47.5° | 6.4 | 7.8 | 8.5 | 9.2 | 9.2 | 9.9 | 10.6 | 11.3 | 12.0 | 12.7 | 13.4 |
| 50° | 5.7 | 6.4 | 7.1 | 7.8 | 8.5 | 8.5 | 9.2 | 9.9 | 10.6 | 11.3 | 11.3 |
| 51° | 5.7 | 6.4 | 7.1 | 7.1 | 7.8 | 8.5 | 9.2 | 9.2 | 9.9 | 10.6 | 10.6 |
| 52° | 5.0 | 5.7 | 6.4 | 7.1 | 7.8 | 7.8 | 8.5 | 9.2 | 9.2 | 9.9 | 10.6 |
| 53° | 5.0 | 5.7 | 6.4 | 6.4 | 7.1 | 7.8 | 7.8 | 8.5 | 9.2 | 9.2 | 9.9 |
| 54° | 4.2 | 5.7 | 6.4 | 6.4 | 7.1 | 7.1 | 7.8 | 8.5 | 8.5 | 8.5 | 9.2 |
| 55° | 4.2 | 5.0 | 5.7 | 6.4 | 6.4 | 7.1 | 7.1 | 7.8 | 7.8 | 8.5 | 8.5 |
| 57.5° | 4.2 | 5.0 | 5.7 | 5.7 | 6.4 | 6.4 | 7.1 | 7.1 | 7.1 | 7.1 | 7.8 |
| 60° | 3.5 | 4.2 | 5.0 | 5.7 | 5.7 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 | 7.1 |
| 61° | 3.5 | 4.2 | 5.0 | 5.0 | 5.7 | 5.7 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 |
| 62° | 3.5 | 4.2 | 5.0 | 5.0 | 5.7 | 5.7 | 5.7 | 6.4 | 6.4 | 6.4 | 6.4 |
| 63° | 3.5 | 4.2 | 5.0 | 5.0 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 6.4 |
| 64° | 3.5 | 4.2 | 5.0 | 5.0 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| 65° | 3.5 | 4.2 | 5.0 | 5.0 | 5.0 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| 66° | 3.5 | 4.2 | 5.0 | 5.0 | 5.0 | 5.0 | 5.7 | 5.7 | 5.7 | 5.7 | 5.0 |



TEST NUMBER: P182789

CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

| | 100° | 105° | 110° | 112.5° | 115° | 120° | 125° | 130° | 135° | 140° | 145° |
|-------|------|------|------|--------|------|------|------|------|------|------|------|
| 72.5° | 2.8 | 3.5 | 3.5 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 3.5 |
| 75° | 2.8 | 3.5 | 3.5 | 3.5 | 4.2 | 4.2 | 4.2 | 3.5 | 3.5 | 3.5 | 3.5 |
| 77.5° | 2.8 | 2.8 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 2.8 | 2.8 |
| 80° | 2.8 | 2.8 | 2.8 | 3.5 | 3.5 | 3.5 | 3.5 | 2.8 | 2.8 | 2.8 | 2.1 |
| 82.5° | 2.1 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 |
| 85° | 2.1 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 1.4 |
| 87.5° | 2.1 | 2.1 | 2.1 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 1.4 | 1.4 | 1.4 |
| 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: P182789

CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

| | 150° | 155° | 157.5° | 160° | 165° | 170° | 175° | 180° |
|-------|-------|-------|--------|-------|-------|-------|-------|-------|
| 0° | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 | 120.3 |
| 2.5° | 107.5 | 108.2 | 107.5 | 107.5 | 106.1 | 106.8 | 105.4 | 107.5 |
| 5° | 98.3 | 99.0 | 98.3 | 98.3 | 96.9 | 96.9 | 96.2 | 98.3 |
| 7.5° | 90.5 | 91.2 | 89.8 | 89.8 | 88.4 | 89.1 | 88.4 | 89.8 |
| 10° | 82.8 | 82.8 | 82.8 | 82.1 | 81.3 | 82.1 | 81.3 | 82.8 |
| 12.5° | 75.0 | 75.7 | 75.7 | 75.7 | 75.0 | 75.0 | 74.3 | 76.4 |
| 15° | 68.6 | 69.3 | 70.0 | 70.0 | 69.3 | 70.0 | 69.3 | 70.7 |
| 17.5° | 63.0 | 64.4 | 64.4 | 65.1 | 65.1 | 65.8 | 65.8 | 67.2 |
| 20° | 57.3 | 59.4 | 59.4 | 60.1 | 60.1 | 61.5 | 61.5 | 63.0 |
| 22.5° | 51.6 | 53.8 | 54.5 | 54.5 | 55.2 | 56.6 | 56.6 | 58.0 |
| 25° | 46.7 | 48.8 | 49.5 | 49.5 | 50.2 | 51.6 | 51.6 | 53.1 |
| 26° | 44.6 | 46.7 | 47.4 | 48.1 | 48.8 | 50.2 | 50.2 | 51.6 |
| 27° | 42.4 | 44.6 | 45.3 | 46.0 | 46.7 | 48.1 | 48.1 | 49.5 |
| 28° | 41.0 | 43.1 | 43.9 | 44.6 | 45.3 | 46.7 | 46.7 | 47.4 |
| 29° | 38.9 | 41.0 | 41.7 | 42.4 | 43.1 | 44.6 | 44.6 | 46.0 |
| 30° | 37.5 | 38.9 | 39.6 | 40.3 | 41.0 | 43.1 | 43.1 | 44.6 |
| 31° | 35.4 | 37.5 | 38.2 | 38.9 | 39.6 | 41.0 | 41.0 | 43.1 |
| 32° | 34.0 | 35.4 | 36.1 | 36.8 | 38.2 | 38.9 | 39.6 | 41.0 |
| 33° | 31.8 | 34.0 | 34.7 | 35.4 | 36.1 | 37.5 | 38.2 | 39.6 |
| 34° | 30.4 | 31.8 | 33.2 | 34.0 | 34.7 | 36.1 | 36.8 | 38.2 |
| 35° | 29.0 | 30.4 | 31.1 | 31.8 | 33.2 | 34.7 | 34.7 | 36.1 |
| 36° | 27.6 | 29.0 | 29.7 | 30.4 | 31.8 | 33.2 | 33.2 | 34.7 |
| 37° | 26.2 | 27.6 | 28.3 | 29.0 | 30.4 | 31.8 | 31.8 | 33.2 |
| 38° | 24.8 | 26.2 | 26.9 | 27.6 | 29.0 | 30.4 | 31.1 | 32.5 |
| 39° | 23.3 | 25.5 | 26.2 | 26.9 | 27.6 | 29.0 | 29.7 | 30.4 |
| 40° | 22.6 | 24.1 | 24.8 | 25.5 | 26.2 | 27.6 | 28.3 | 29.0 |
| 42.5° | 19.1 | 21.2 | 21.9 | 22.6 | 23.3 | 24.1 | 24.8 | 25.5 |
| 45° | 17.0 | 18.4 | 18.4 | 19.1 | 19.8 | 21.2 | 21.2 | 22.6 |
| 47.5° | 14.9 | 15.6 | 16.3 | 16.3 | 17.0 | 18.4 | 18.4 | 19.1 |
| 50° | 12.7 | 13.4 | 14.1 | 14.1 | 14.9 | 15.6 | 16.3 | 17.0 |
| 51° | 12.0 | 12.7 | 12.7 | 13.4 | 14.1 | 14.9 | 15.6 | 16.3 |
| 52° | 11.3 | 12.0 | 12.0 | 12.7 | 13.4 | 14.1 | 14.1 | 14.9 |
| 53° | 10.6 | 11.3 | 11.3 | 12.0 | 12.0 | 13.4 | 13.4 | 14.1 |
| 54° | 9.9 | 10.6 | 10.6 | 11.3 | 11.3 | 12.7 | 12.7 | 13.4 |
| 55° | 9.2 | 9.9 | 10.6 | 10.6 | 10.6 | 11.3 | 12.0 | 12.7 |
| 57.5° | 8.5 | 9.2 | 9.2 | 9.2 | 9.9 | 9.9 | 10.6 | 10.6 |
| 60° | 7.1 | 7.8 | 7.8 | 7.8 | 8.5 | 8.5 | 8.5 | 9.2 |
| 61° | 7.1 | 7.1 | 7.8 | 7.8 | 7.1 | 7.1 | 7.1 | 7.8 |
| 62° | 6.4 | 7.1 | 7.1 | 6.4 | 6.4 | 6.4 | 6.4 | 7.1 |
| 63° | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 |
| 64° | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| 65° | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.0 | 5.7 |
| 66° | 5.0 | 5.7 | 5.7 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |



TEST NUMBER: P182789

CATALOG NUMBER: LDSQA4A13940D010TE LAR15SP 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

| | 150° | 155° | 157.5° | 160° | 165° | 170° | 175° | 180° |
|-------|------|------|--------|------|------|------|------|------|
| 72.5° | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 2.8 | 2.8 | 2.8 |
| 75° | 3.5 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 |
| 77.5° | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.1 |
| 80° | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.4 | 1.4 |
| 82.5° | 2.1 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 85° | 1.4 | 1.4 | 1.4 | 1.4 | 0.7 | 0.7 | 0.7 | 0.7 |
| 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 |



Report Generated By E9808895 / USPTCWHP6082093





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







| | | | | | | | | | | | |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 67.5° | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 2.1 | 2.1 |
| 70° | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 2.1 | 2.1 |





| | | | | | | | | | | | |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 67.5° | 2.1 | 2.1 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.1 | 2.8 | 2.8 |
| 70° | 2.1 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.1 | 2.1 | 2.8 | 2.8 |





| | | | | | | | | | | | |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 67.5° | 3.5 | 4.2 | 4.2 | 4.2 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| 70° | 3.5 | 3.5 | 4.2 | 4.2 | 4.2 | 5.0 | 5.0 | 4.2 | 4.2 | 4.2 | 4.2 |





| | | | | | | | | |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|
| 67.5° | 5.0 | 5.0 | 5.0 | 5.0 | 4.2 | 4.2 | 4.2 | 4.2 |
| 70° | 4.2 | 4.2 | 4.2 | 4.2 | 3.5 | 3.5 | 3.5 | 3.5 |



(END OF REPORT)