

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: P170810

Luminaire Tested: **LDA4A18930D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170810  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26106)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA4A18930D010TE LAR35FL 4LAL1 30° Tilt  
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 35° Flood Optic, at 30° tilt. --- 27.9W  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1661.8 lumens  
Efficiency: N/A  
Efficacy: 57.1 lumens/watt  
Spacing Criteria (0/90/45): 2.71 / 1.11 / 1.33  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

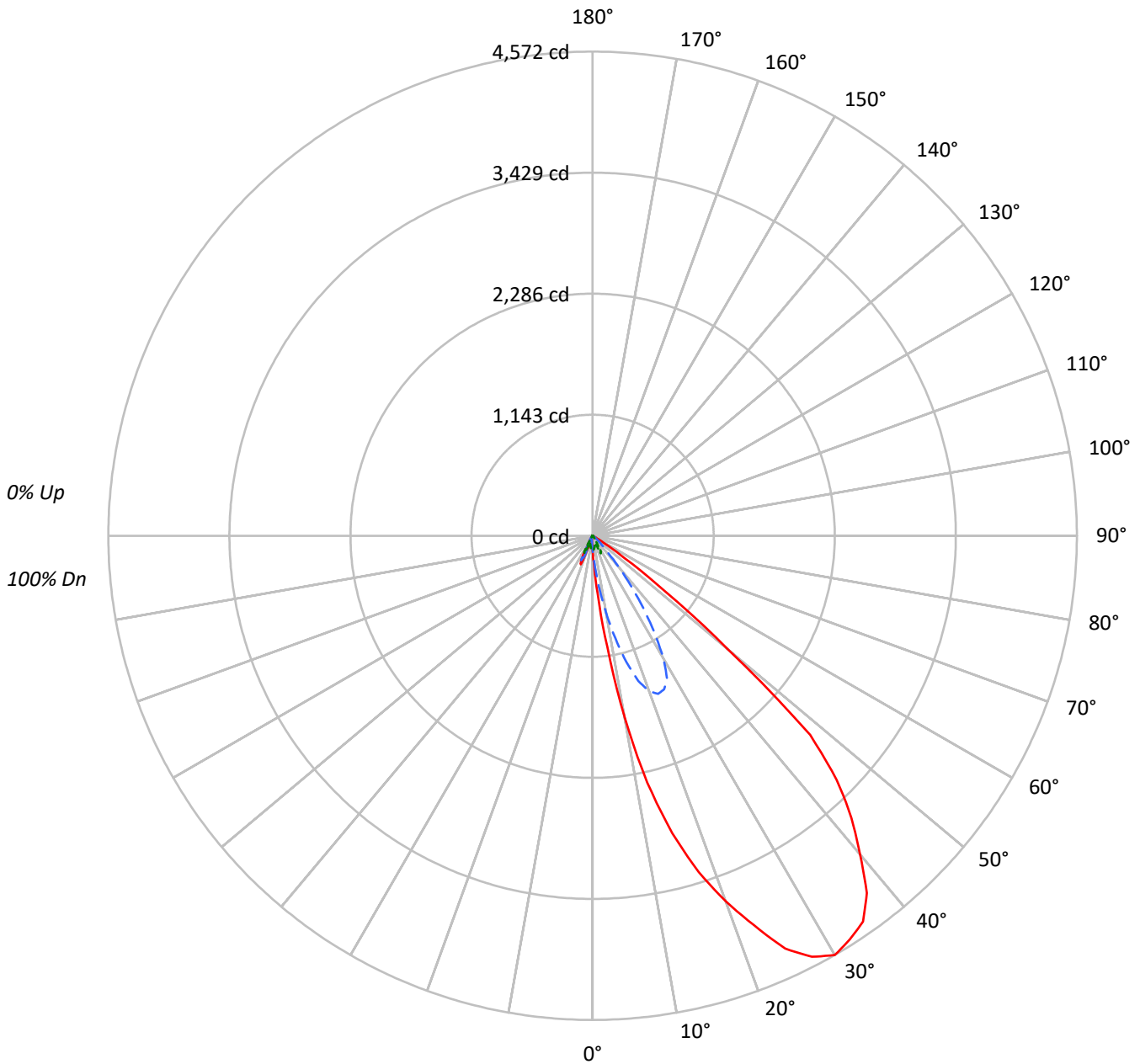
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|---|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|---|
| RF  | 20  |     |     |     |     |     |     |     |     | 20  |     |     |     |     |     |     |     |     | 20 |    |   |  |  |  |  |  |  | 20 |  |  |  |  |  |  |  |  |   |
| 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 | 103 | 110 | 107 | 104 | 102 | 103 | 101 | 99  | 99  | 97  | 96  | 95  | 94  | 93  | 91  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 105 | 99  | 94  | 90  | 103 | 97  | 93  | 89  | 94  | 90  | 87  | 91  | 88  | 85  | 88  | 86  | 83  | 82  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 98  | 90  | 84  | 79  | 96  | 89  | 83  | 79  | 86  | 81  | 77  | 84  | 79  | 76  | 81  | 78  | 75  | 73  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 91  | 82  | 75  | 70  | 89  | 81  | 75  | 70  | 79  | 73  | 69  | 77  | 72  | 68  | 75  | 70  | 67  | 65  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 85  | 75  | 68  | 62  | 83  | 74  | 67  | 62  | 72  | 66  | 61  | 70  | 65  | 61  | 68  | 64  | 60  | 58  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 79  | 68  | 61  | 56  | 78  | 67  | 60  | 55  | 66  | 60  | 55  | 64  | 59  | 55  | 63  | 58  | 54  | 52  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 74  | 62  | 55  | 50  | 72  | 62  | 55  | 50  | 60  | 54  | 49  | 59  | 53  | 49  | 58  | 53  | 49  | 47  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 69  | 57  | 50  | 45  | 68  | 57  | 50  | 45  | 55  | 49  | 44  | 54  | 48  | 44  | 53  | 48  | 44  | 42  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 64  | 53  | 45  | 40  | 63  | 52  | 45  | 40  | 51  | 45  | 40  | 50  | 44  | 40  | 49  | 44  | 40  | 38  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 60  | 48  | 41  | 37  | 59  | 48  | 41  | 37  | 47  | 41  | 36  | 46  | 40  | 36  | 45  | 40  | 36  | 35  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

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

|     | 0°     | 90°   | 180°  |
|-----|--------|-------|-------|
| 0°  | 16849  | 16849 | 16849 |
| 5°  | 67876  | 15910 | 7454  |
| 10° | 218809 | 13339 | 4283  |
| 15° | 371176 | 10599 | 3320  |
| 20° | 482426 | 9503  | 10028 |
| 25° | 585421 | 25015 | 35535 |
| 30° | 651234 | 8802  | 9386  |
| 35° | 669873 | 5270  | 4412  |
| 40° | 632504 | 2222  | 1578  |
| 45° | 568473 | 1273  | 419   |
| 50° | 319941 | 787   | 0     |
| 55° | 79395  | 516   | 0     |
| 60° | 12236  | 592   | 0     |
| 65° | 2860   | 700   | 0     |
| 70° | 577    | 866   | 0     |
| 75° | 0      | 1144  | 0     |
| 80° | 0      | 2344  | 0     |
| 85° | 0      | 4670  | 1132  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 27.4   | 1.7       |
| 10°-20°   | 204.0  | 12.3      |
| 20°-30°   | 471.1  | 28.3      |
| 30°-40°   | 528.4  | 31.8      |
| 40°-50°   | 368.7  | 22.2      |
| 50°-60°   | 55.0   | 3.3       |
| 60°-70°   | 3.6    | 0.2       |
| 70°-80°   | 1.8    | 0.1       |
| 80°-90°   | 1.7    | 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°    | 702.5  | 42.3      |
| 0°-40°    | 1231.0 | 74.1      |
| 0°-60°    | 1654.7 | 99.6      |
| 0°-90°    | 1661.8 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1661.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45°  | 90° | 135° | 180° | Flux |
|-----|------|------|-----|------|------|------|
| 0°  | 137  | 137  | 137 | 137  | 137  |      |
| 5°  | 548  | 320  | 128 | 75   | 60   | 91   |
| 15° | 2907 | 1237 | 83  | 32   | 26   | 831  |
| 25° | 4302 | 1599 | 184 | 256  | 261  | 1967 |
| 35° | 4449 | 831  | 35  | 29   | 29   | 2737 |
| 45° | 3259 | 125  | 7   | 4    | 2    | 2391 |
| 55° | 369  | 16   | 2   | 2    | 0    | 485  |
| 65° | 10   | 2    | 2   | 2    | 0    | 15   |
| 75° | 0    | 2    | 2   | 2    | 0    | 0    |
| 85° | 0    | 2    | 3   | 2    | 1    | 0    |
| 90° | 0    | 0    | 0   | 0    | 0    |      |



TEST NUMBER: P170810

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 1°     | 2°     | 3°     | 4°     | 5°     | 6°     | 7°     | 8°     | 9°     | 10°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  |
| 2.5°  | 248.9  | 246.4  | 239.9  | 238.3  | 244.0  | 239.1  | 241.5  | 246.4  | 241.5  | 235.9  | 241.5  |
| 5°    | 548.2  | 562.0  | 548.2  | 545.7  | 555.5  | 546.5  | 550.6  | 559.5  | 547.3  | 536.0  | 544.1  |
| 7.5°  | 1058.1 | 1067.0 | 1028.0 | 1041.8 | 1038.6 | 1041.0 | 1043.5 | 1043.5 | 1036.1 | 1015.8 | 1027.2 |
| 10°   | 1747.0 | 1753.5 | 1701.4 | 1719.3 | 1695.7 | 1719.3 | 1715.2 | 1697.3 | 1701.4 | 1673.8 | 1688.4 |
| 12.5° | 2386.2 | 2407.4 | 2355.3 | 2372.4 | 2343.9 | 2370.8 | 2360.2 | 2355.3 | 2313.8 | 2313.8 | 2329.3 |
| 15°   | 2906.7 | 2954.7 | 2907.5 | 2925.4 | 2892.9 | 2930.3 | 2901.0 | 2914.0 | 2876.6 | 2830.3 | 2870.9 |
| 17.5° | 3328.0 | 3375.2 | 3331.3 | 3353.2 | 3323.1 | 3352.4 | 3318.2 | 3345.9 | 3297.9 | 3264.6 | 3292.2 |
| 20°   | 3675.3 | 3710.3 | 3658.2 | 3689.1 | 3653.3 | 3682.6 | 3645.2 | 3681.8 | 3625.7 | 3601.3 | 3617.5 |
| 22.5° | 3977.8 | 3991.7 | 3964.8 | 4016.9 | 3946.9 | 3977.8 | 3933.1 | 3970.5 | 3903.8 | 3872.9 | 3877.0 |
| 25°   | 4301.5 | 4332.4 | 4281.2 | 4300.7 | 4251.9 | 4273.1 | 4222.6 | 4257.6 | 4174.6 | 4130.7 | 4121.8 |
| 27.5° | 4481.3 | 4525.2 | 4479.6 | 4501.6 | 4452.0 | 4469.9 | 4419.5 | 4469.9 | 4385.3 | 4342.2 | 4332.4 |
| 30°   | 4572.4 | 4593.5 | 4564.2 | 4578.9 | 4522.7 | 4531.7 | 4479.6 | 4534.1 | 4449.5 | 4411.3 | 4406.4 |
| 32.5° | 4519.5 | 4561.8 | 4523.6 | 4542.3 | 4490.2 | 4499.2 | 4448.7 | 4507.3 | 4422.7 | 4387.7 | 4370.7 |
| 35°   | 4448.7 | 4491.8 | 4456.1 | 4475.6 | 4427.6 | 4434.1 | 4380.4 | 4431.7 | 4334.1 | 4291.0 | 4254.4 |
| 37.5° | 4252.7 | 4293.4 | 4263.3 | 4269.8 | 4223.4 | 4218.6 | 4160.8 | 4203.9 | 4108.8 | 4072.2 | 4047.8 |
| 40°   | 3928.2 | 3964.8 | 3940.4 | 3954.2 | 3907.9 | 3897.3 | 3858.3 | 3898.1 | 3824.1 | 3797.3 | 3763.1 |
| 42.5° | 3617.5 | 3647.6 | 3624.9 | 3646.8 | 3594.8 | 3580.9 | 3546.0 | 3596.4 | 3512.6 | 3490.7 | 3466.3 |
| 45°   | 3258.9 | 3277.6 | 3259.7 | 3278.4 | 3228.8 | 3206.8 | 3175.1 | 3218.2 | 3136.1 | 3115.7 | 3062.9 |
| 47.5° | 2784.7 | 2764.4 | 2761.1 | 2779.0 | 2717.2 | 2671.7 | 2642.4 | 2697.7 | 2579.0 | 2539.1 | 2478.1 |
| 50°   | 1667.3 | 1701.4 | 1716.1 | 1703.9 | 1661.6 | 1598.9 | 1551.8 | 1619.3 | 1555.8 | 1458.2 | 1360.6 |
| 52.5° | 858.8  | 820.6  | 828.7  | 832.8  | 782.4  | 763.7  | 748.2  | 763.7  | 714.1  | 688.9  | 627.1  |
| 55°   | 369.2  | 351.3  | 357.9  | 360.3  | 350.5  | 327.8  | 319.6  | 329.4  | 306.6  | 296.9  | 271.6  |
| 57.5° | 136.6  | 136.6  | 132.6  | 134.2  | 130.9  | 122.8  | 121.2  | 125.2  | 117.9  | 115.5  | 105.7  |
| 60°   | 49.6   | 49.6   | 49.6   | 49.6   | 45.5   | 44.7   | 44.7   | 46.4   | 43.9   | 43.1   | 39.9   |
| 62.5° | 21.1   | 22.0   | 20.3   | 21.1   | 20.3   | 19.5   | 20.3   | 19.5   | 19.5   | 18.7   | 18.7   |
| 65°   | 9.8    | 9.8    | 9.8    | 9.8    | 9.8    | 9.8    | 9.8    | 9.8    | 9.8    | 8.9    | 8.9    |
| 67.5° | 4.9    | 4.9    | 4.9    | 4.9    | 4.9    | 4.9    | 4.9    | 4.9    | 4.1    | 4.1    | 4.1    |
| 70°   | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    |
| 72.5° | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    |
| 75°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 77.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 80°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 0.0    | 0.0    | 0.0    | 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    | 0.0    | 0.0    | 0.0    |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 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):**

|       | 11°    | 12°    | 13°    | 14°    | 15°    | 17.5°  | 20°    | 22.5°  | 45°    | 67.5° | 90°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|
| 0°    | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  | 136.6  | 136.6 | 136.6 |
| 2.5°  | 234.2  | 233.4  | 236.7  | 233.4  | 227.7  | 224.5  | 228.5  | 220.4  | 188.7  | 157.0 | 133.4 |
| 5°    | 529.5  | 525.4  | 519.7  | 521.3  | 507.5  | 496.1  | 496.1  | 474.2  | 320.4  | 182.2 | 128.5 |
| 7.5°  | 1003.6 | 993.8  | 952.4  | 982.5  | 953.2  | 930.4  | 915.0  | 870.2  | 518.1  | 209.0 | 118.7 |
| 10°   | 1657.5 | 1640.4 | 1611.1 | 1616.8 | 1568.8 | 1530.6 | 1484.3 | 1409.4 | 745.0  | 232.6 | 106.5 |
| 12.5° | 2302.4 | 2285.4 | 2207.3 | 2252.0 | 2187.8 | 2150.4 | 2072.3 | 1984.4 | 989.8  | 244.0 | 95.2  |
| 15°   | 2849.8 | 2835.2 | 2749.8 | 2792.0 | 2713.2 | 2678.2 | 2577.3 | 2479.7 | 1237.0 | 239.9 | 83.0  |
| 17.5° | 3275.1 | 3272.7 | 3174.3 | 3216.6 | 3129.6 | 3101.1 | 2983.2 | 2887.2 | 1437.1 | 222.0 | 74.8  |
| 20°   | 3602.9 | 3597.2 | 3498.0 | 3540.3 | 3445.1 | 3417.5 | 3267.8 | 3167.0 | 1564.0 | 197.6 | 72.4  |
| 22.5° | 3861.5 | 3850.1 | 3743.6 | 3780.2 | 3673.7 | 3637.9 | 3472.8 | 3367.9 | 1616.0 | 182.2 | 89.5  |
| 25°   | 4094.1 | 4073.8 | 3952.6 | 3981.1 | 3864.0 | 3871.3 | 3623.2 | 3507.7 | 1598.9 | 205.0 | 183.8 |
| 27.5° | 4299.1 | 4262.5 | 4140.5 | 4148.6 | 4011.2 | 3939.6 | 3726.5 | 3598.8 | 1520.9 | 228.5 | 170.8 |
| 30°   | 4375.5 | 4339.7 | 4210.4 | 4215.3 | 4072.2 | 3971.3 | 3743.6 | 3601.3 | 1333.8 | 143.1 | 61.8  |
| 32.5° | 4333.2 | 4294.2 | 4159.2 | 4160.8 | 4013.6 | 3911.1 | 3684.2 | 3527.3 | 1084.9 | 94.3  | 47.2  |
| 35°   | 4210.4 | 4169.8 | 4035.6 | 4042.1 | 3899.8 | 3798.1 | 3576.1 | 3408.5 | 831.2  | 74.8  | 35.0  |
| 37.5° | 4003.0 | 3974.6 | 3846.9 | 3858.3 | 3737.1 | 3628.9 | 3403.6 | 3222.3 | 586.4  | 53.7  | 22.0  |
| 40°   | 3736.3 | 3714.3 | 3590.7 | 3608.6 | 3476.8 | 3376.8 | 3135.3 | 2938.4 | 365.2  | 36.6  | 13.8  |
| 42.5° | 3424.0 | 3400.4 | 3278.4 | 3292.2 | 3180.0 | 3036.8 | 2790.4 | 2567.6 | 191.1  | 26.0  | 9.8   |
| 45°   | 3034.4 | 3006.8 | 2883.1 | 2890.5 | 2757.9 | 2590.3 | 2335.0 | 2138.2 | 125.2  | 17.9  | 7.3   |
| 47.5° | 2422.0 | 2372.4 | 2211.4 | 2204.8 | 2096.7 | 1822.6 | 1459.9 | 1181.7 | 83.0   | 12.2  | 4.9   |
| 50°   | 1331.4 | 1280.1 | 1138.6 | 1123.2 | 1002.8 | 823.1  | 608.3  | 473.3  | 48.0   | 8.1   | 4.1   |
| 52.5° | 605.9  | 579.1  | 513.2  | 502.6  | 451.4  | 374.1  | 287.9  | 236.7  | 27.7   | 5.7   | 3.3   |
| 55°   | 262.7  | 252.9  | 225.3  | 223.7  | 200.1  | 173.2  | 138.3  | 117.1  | 16.3   | 4.1   | 2.4   |
| 57.5° | 103.3  | 100.0  | 94.3   | 90.3   | 81.3   | 72.4   | 60.2   | 50.4   | 10.6   | 3.3   | 2.4   |
| 60°   | 39.0   | 38.2   | 35.0   | 35.8   | 32.5   | 30.9   | 26.8   | 22.8   | 6.5    | 2.4   | 2.4   |
| 62.5° | 17.9   | 17.9   | 17.1   | 17.1   | 16.3   | 14.6   | 13.0   | 12.2   | 4.1    | 2.4   | 2.4   |
| 65°   | 8.9    | 8.9    | 8.1    | 8.1    | 8.1    | 7.3    | 6.5    | 6.5    | 2.4    | 2.4   | 2.4   |
| 67.5° | 4.1    | 4.1    | 4.1    | 4.1    | 4.1    | 3.3    | 3.3    | 3.3    | 1.6    | 2.4   | 2.4   |
| 70°   | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | 1.6    | 2.4   | 2.4   |
| 72.5° | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 1.6    | 2.4   | 2.4   |
| 75°   | 0.0    | 0.0    | 0.0    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 1.6    | 2.4   | 2.4   |
| 77.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.8    | 0.8    | 0.8    | 0.8    | 1.6    | 2.4   | 3.3   |
| 80°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.8    | 0.8    | 0.8    | 0.8    | 1.6    | 2.4   | 3.3   |
| 82.5° | 0.0    | 0.0    | 0.0    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 1.6    | 2.4   | 3.3   |
| 85°   | 0.0    | 0.0    | 0.0    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 1.6    | 2.4   | 3.3   |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 1.6    | 2.4   | 3.3   |
| 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: P170810

CATALOG NUMBER: LDA4A18930D010TE LAR35FL 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

|       | 112.5° | 135°  | 157.5° | 180°  |
|-------|--------|-------|--------|-------|
| 0°    | 136.6  | 136.6 | 136.6  | 136.6 |
| 2.5°  | 114.7  | 101.7 | 90.3   | 87.8  |
| 5°    | 94.3   | 74.8  | 62.6   | 60.2  |
| 7.5°  | 76.4   | 54.5  | 45.5   | 43.9  |
| 10°   | 62.6   | 43.9  | 35.8   | 34.2  |
| 12.5° | 52.1   | 35.8  | 28.5   | 26.8  |
| 15°   | 44.7   | 31.7  | 26.0   | 26.0  |
| 17.5° | 43.1   | 35.0  | 33.3   | 34.2  |
| 20°   | 56.1   | 63.4  | 75.6   | 76.4  |
| 22.5° | 130.1  | 211.5 | 279.8  | 292.8 |
| 25°   | 234.2  | 256.2 | 249.7  | 261.1 |
| 27.5° | 123.6  | 96.8  | 98.4   | 100.8 |
| 30°   | 53.7   | 59.4  | 62.6   | 65.9  |
| 32.5° | 44.7   | 46.4  | 47.2   | 49.6  |
| 35°   | 29.3   | 29.3  | 28.5   | 29.3  |
| 37.5° | 17.9   | 17.1  | 16.3   | 16.3  |
| 40°   | 11.4   | 10.6  | 9.8    | 9.8   |
| 42.5° | 8.1    | 6.5   | 5.7    | 5.7   |
| 45°   | 5.7    | 4.1   | 3.3    | 2.4   |
| 47.5° | 4.1    | 2.4   | 1.6    | 0.8   |
| 50°   | 3.3    | 2.4   | 0.8    | 0.0   |
| 52.5° | 2.4    | 1.6   | 0.8    | 0.0   |
| 55°   | 2.4    | 1.6   | 0.0    | 0.0   |
| 57.5° | 2.4    | 1.6   | 0.0    | 0.0   |
| 60°   | 2.4    | 1.6   | 0.0    | 0.0   |
| 62.5° | 2.4    | 1.6   | 0.0    | 0.0   |
| 65°   | 2.4    | 1.6   | 0.8    | 0.0   |
| 67.5° | 2.4    | 1.6   | 0.8    | 0.0   |
| 70°   | 2.4    | 1.6   | 0.8    | 0.0   |
| 72.5° | 2.4    | 1.6   | 0.8    | 0.0   |
| 75°   | 2.4    | 2.4   | 0.8    | 0.0   |
| 77.5° | 3.3    | 2.4   | 0.8    | 0.0   |
| 80°   | 3.3    | 2.4   | 0.8    | 0.0   |
| 82.5° | 3.3    | 2.4   | 0.8    | 0.0   |
| 85°   | 3.3    | 2.4   | 0.8    | 0.8   |
| 87.5° | 3.3    | 2.4   | 0.8    | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0    | 0.0   |





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











(END OF REPORT)