

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: P170907

Luminaire Tested: **LDA4A18935D010TE LAR15SP 4LA1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170907  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P25648)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA4A18935D010TE LAR15SP 4LA1 30° Tilt  
Description: PORTFOLIO 4" Adjustable Reflector, Self-flanged Trim Ring, 15° Spot  
Optic, at 30° tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1320.6 lumens  
Efficiency: N/A  
Efficacy: 45.3 lumens/watt  
Spacing Criteria (0/90/45): 2.52 / 1.04 / 1.28  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

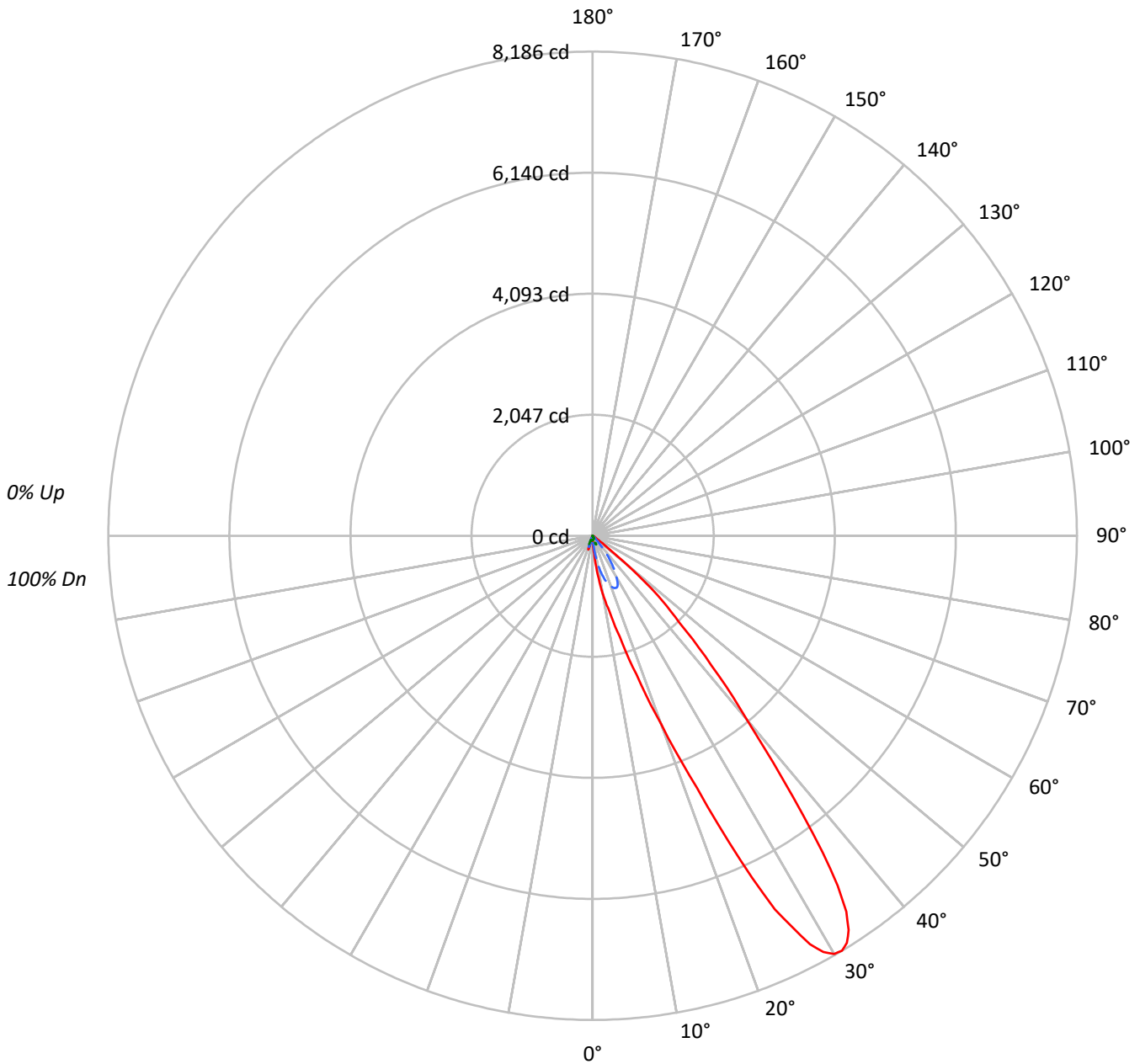
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	112	109	106	104	110	107	104	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	86	84	82																			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74																			
4	92	83	77	71	90	82	76	71	80	74	70	78	73	69	76	72	68	67																			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	70	65	62	60																			
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	56	54																			
7	75	64	56	51	73	63	56	51	62	55	51	60	55	50	59	54	50	49																			
8	70	58	51	46	69	58	51	46	57	50	46	55	50	46	54	49	45	44																			
9	65	54	47	42	64	53	46	42	52	46	41	51	45	41	50	45	41	40																			
10	61	49	42	38	60	49	42	38	48	42	38	47	41	37	46	41	37	36																			

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

	0°	90°	180°
0°	9498	9498	9498
5°	42618	8927	5782
10°	126163	8216	7390
15°	225219	9730	20827
20°	446132	19151	22380
25°	868121	12494	6356
30°	1162862	4672	2222
35°	1088101	1973	858
40°	652035	918	258
45°	361835	576	0
50°	132732	480	0
55°	20279	344	0
60°	4440	395	0
65°	1430	467	0
70°	289	577	0
75°	0	1191	0
80°	0	1776	0
85°	0	3538	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	16.9	1.3
10°-20°	142.6	10.8
20°-30°	425.8	32.2
30°-40°	504.3	38.2
40°-50°	209.2	15.8
50°-60°	16.3	1.2
60°-70°	2.2	0.2
70°-80°	1.7	0.1
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°	585.4	44.3
0°-40°	1089.6	82.5
0°-60°	1315.1	99.6
0°-90°	1320.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1320.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	77	77	77	77	77	
5°	344	174	72	50	47	55
15°	1764	745	76	114	163	582
25°	6379	968	92	53	47	2914
35°	7226	539	13	7	6	4188
45°	2074	48	3	2	0	1691
55°	94	7	2	1	0	138
65°	5	2	2	2	0	6
75°	0	2	2	2	0	0
85°	0	2	2	2	0	0
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0
2.5°	133.6	127.0	130.3	124.6	127.9	122.1	118.0	122.1	122.1	118.8	113.9
5°	344.2	342.6	349.1	333.6	337.7	320.5	305.7	309.8	306.5	295.9	277.0
7.5°	655.7	649.1	656.5	634.3	635.2	606.5	584.4	589.3	574.5	556.5	523.7
10°	1007.3	998.2	1006.4	980.2	975.3	935.1	904.0	908.9	875.3	845.8	795.8
12.5°	1312.1	1311.3	1285.1	1290.0	1280.2	1218.7	1199.0	1200.7	1154.8	1122.0	1062.2
15°	1763.7	1780.9	1785.8	1752.2	1691.6	1580.1	1531.0	1512.1	1437.5	1382.6	1296.6
17.5°	2457.9	2481.7	2400.5	2420.2	2320.2	2145.6	2048.1	1989.9	1849.8	1746.5	1590.8
20°	3398.8	3378.3	3261.1	3246.3	3075.8	2851.3	2646.4	2536.6	2321.0	2170.2	1943.2
22.5°	4613.4	4597.8	4397.0	4307.7	3951.2	3634.8	3369.3	3093.9	2773.4	2571.8	2263.7
25°	6378.7	6307.4	5920.6	5666.5	5039.5	4501.9	4059.3	3631.5	3140.6	2921.8	2530.0
26°	7028.6	7011.4	6608.2	6273.8	5518.2	4851.0	4254.4	3825.8	3284.8	3029.1	2605.4
27°	7418.8	7555.6	7180.3	6801.6	5975.5	5176.4	4484.7	3982.3	3397.1	3104.5	2653.8
28°	7823.6	7912.1	7576.1	7100.8	6341.8	5435.4	4659.3	4088.0	3466.0	3141.4	2670.2
29°	8046.5	8131.8	7819.5	7373.7	6582.0	5603.4	4762.5	4134.7	3491.4	3140.6	2655.4
30°	8164.6	8244.1	7939.2	7506.5	6681.1	5655.9	4784.7	4115.9	3466.8	3102.9	2613.6
31°	8185.9	8252.3	7951.5	7502.4	6643.4	5591.1	4722.4	4038.0	3401.2	3033.2	2550.5
32°	8113.8	8165.4	7859.7	7381.1	6473.8	5427.2	4592.9	3917.5	3301.2	2946.4	2469.4
33°	7944.9	8037.5	7664.6	7136.0	6178.7	5184.6	4409.3	3760.2	3176.7	2833.3	2370.2
34°	7665.4	7724.5	7338.4	6752.4	5785.4	4889.6	4183.9	3577.4	3034.1	2699.7	2257.9
35°	7226.2	7278.6	6851.6	6234.5	5337.0	4556.8	3926.6	3375.8	2874.2	2549.7	2133.3
36°	6618.0	6668.0	6221.4	5659.1	4884.6	4210.1	3655.3	3156.2	2701.3	2389.0	2001.4
37°	5907.5	5950.9	5553.4	5094.5	4440.4	3859.4	3380.7	2933.2	2518.5	2225.1	1876.0
38°	5220.7	5260.0	4938.7	4565.0	4011.8	3516.8	3107.0	2702.1	2330.0	2060.4	1744.0
39°	4601.1	4635.5	4376.5	4068.4	3603.7	3188.1	2834.1	2472.6	2140.7	1895.7	1608.0
40°	4049.5	4079.0	3865.9	3612.7	3233.2	2880.8	2568.5	2250.5	1955.5	1735.9	1481.0
42.5°	2972.6	2979.1	2852.1	2702.9	2407.9	2205.5	1983.4	1753.9	1538.3	1387.5	1225.3
45°	2074.3	2155.5	2072.7	1973.5	1762.1	1635.0	1493.3	1354.8	1230.2	1085.1	924.5
47.5°	1491.6	1494.9	1445.7	1383.4	1216.2	1129.4	1013.0	845.0	721.2	515.5	382.7
50°	691.7	653.2	655.7	613.0	546.7	434.4	363.1	259.0	206.5	147.5	118.8
51°	411.4	382.7	386.8	356.5	312.3	243.4	206.5	165.6	143.4	111.5	91.8
52°	240.1	230.3	229.5	215.5	183.6	168.8	149.2	124.6	109.0	86.1	71.3
53°	174.6	168.0	168.0	159.0	136.9	127.0	113.1	95.9	83.6	65.6	54.1
54°	130.3	125.4	125.4	119.7	110.6	95.1	85.2	71.3	62.3	50.8	40.2
55°	94.3	91.0	91.0	86.9	80.3	68.8	61.5	51.6	45.9	36.9	29.5
57.5°	39.3	37.7	37.7	36.1	34.4	29.5	27.9	23.8	20.5	18.0	14.8
60°	18.0	17.2	18.0	17.2	15.6	16.4	13.9	12.3	11.5	9.8	8.2
61°	13.9	13.1	13.1	13.1	11.5	11.5	10.7	9.8	9.0	7.4	6.6
62°	10.7	9.8	9.8	9.8	9.0	9.0	8.2	7.4	7.4	5.7	4.9
63°	8.2	7.4	7.4	7.4	6.6	6.6	6.6	5.7	5.7	4.9	4.1
64°	5.7	5.7	5.7	5.7	5.7	4.9	4.9	4.9	4.1	3.3	3.3
65°	4.9	4.1	4.9	4.1	4.1	4.1	4.1	4.1	3.3	2.5	2.5
66°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.5	1.6



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**CANDELA DISTRIBUTION (continued):**

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
72.5°	0.0	0.0	0.0	0.0	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	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8
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):**

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0
2.5°	111.5	114.7	112.3	105.7	109.0	107.4	104.1	101.6	86.9	75.4	63.9
5°	263.1	265.5	251.6	227.0	218.8	205.7	186.9	173.7	98.3	72.1	56.6
7.5°	497.5	481.1	468.0	422.1	402.4	372.1	336.0	310.6	112.3	68.0	52.5
10°	753.2	727.0	699.9	632.7	597.5	550.8	499.1	469.6	127.0	65.6	52.5
12.5°	1006.4	971.2	922.0	848.3	798.3	735.2	664.7	612.2	137.7	67.2	60.6
15°	1226.1	1183.5	1129.4	1045.8	987.6	908.9	817.1	745.0	142.6	76.2	84.4
17.5°	1465.4	1388.4	1299.0	1192.5	1128.5	1037.6	934.3	846.6	142.6	96.7	135.2
20°	1740.8	1599.8	1456.4	1307.2	1217.1	1122.0	1011.4	917.1	148.3	145.9	186.0
22.5°	1997.3	1803.1	1600.6	1406.4	1281.0	1177.7	1065.4	957.3	172.1	160.6	123.8
25°	2196.5	1949.8	1711.3	1475.2	1333.4	1218.7	1098.2	967.9	157.4	91.8	67.2
26°	2248.1	1981.7	1733.4	1483.4	1335.9	1217.9	1094.9	956.4	132.0	72.9	54.1
27°	2275.1	1992.4	1735.0	1476.0	1326.1	1203.9	1076.9	932.7	105.7	59.0	44.3
28°	2275.1	1980.1	1717.8	1455.6	1300.7	1177.7	1045.8	895.0	86.1	48.4	35.2
29°	2252.2	1948.1	1683.4	1424.4	1266.2	1140.8	1003.2	850.7	72.9	40.2	28.7
30°	2207.9	1901.4	1637.5	1384.3	1222.0	1099.0	956.4	804.8	63.1	32.8	22.9
31°	2145.6	1849.0	1581.0	1340.8	1181.0	1060.5	913.8	758.1	54.9	26.2	18.9
32°	2071.1	1783.4	1522.8	1295.7	1147.4	1024.5	869.6	708.9	47.5	22.1	16.4
33°	1985.0	1709.6	1462.1	1251.5	1114.6	983.5	821.2	655.7	41.0	18.0	13.9
34°	1889.9	1628.5	1399.8	1203.9	1074.5	931.9	764.7	599.1	35.2	15.6	11.5
35°	1786.7	1537.5	1335.9	1155.6	1029.4	874.5	704.0	539.3	30.3	13.1	9.8
36°	1675.2	1452.3	1273.6	1107.2	973.7	812.2	637.6	477.8	26.2	10.7	9.0
37°	1563.7	1372.0	1212.1	1055.6	908.9	741.7	568.0	413.9	22.9	9.0	7.4
38°	1458.0	1294.1	1151.5	995.8	833.5	663.9	495.8	350.0	19.7	8.2	6.6
39°	1358.8	1218.7	1089.2	924.5	755.6	588.5	426.2	283.6	17.2	7.4	5.7
40°	1269.5	1147.4	1021.2	845.0	675.3	511.4	355.7	211.4	14.8	5.7	4.9
42.5°	1081.0	951.5	785.1	589.3	456.5	296.7	165.6	78.7	10.7	4.1	4.1
45°	713.8	549.1	372.9	222.1	150.0	90.2	67.2	47.5	8.2	3.3	3.3
47.5°	238.5	151.6	110.6	79.5	68.0	54.1	43.4	29.5	5.7	2.5	2.5
50°	91.0	73.8	60.6	45.9	41.0	32.8	26.2	17.2	4.1	2.5	2.5
51°	71.3	58.2	47.5	36.1	32.8	26.2	21.3	14.8	3.3	2.5	2.5
52°	54.9	45.1	36.9	27.9	26.2	21.3	18.0	12.3	3.3	1.6	2.5
53°	41.8	34.4	27.9	21.3	20.5	17.2	14.8	9.8	2.5	1.6	2.5
54°	31.1	26.2	22.1	17.2	17.2	14.8	12.3	8.2	2.5	1.6	2.5
55°	23.8	19.7	17.2	13.1	13.9	12.3	10.7	6.6	2.5	1.6	2.5
57.5°	12.3	11.5	9.8	8.2	9.0	8.2	7.4	4.1	2.5	1.6	2.5
60°	7.4	6.6	5.7	4.9	5.7	5.7	5.7	2.5	2.5	1.6	2.5
61°	5.7	4.9	4.1	4.1	4.9	4.9	4.9	2.5	2.5	1.6	2.5
62°	4.1	4.1	3.3	3.3	4.9	4.1	4.1	2.5	2.5	1.6	2.5
63°	3.3	3.3	3.3	2.5	4.1	4.1	4.1	2.5	2.5	1.6	2.5
64°	2.5	2.5	2.5	2.5	3.3	4.1	4.1	1.6	2.5	1.6	2.5
65°	2.5	2.5	1.6	1.6	3.3	3.3	3.3	1.6	2.5	1.6	2.5
66°	1.6	1.6	1.6	1.6	3.3	3.3	3.3	1.6	2.5	1.6	2.5





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CATALOG NUMBER: LDA4A18935D010TE LAR15SP 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
72.5°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.6	2.5	2.5	2.5
75°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.6	2.5	2.5	2.5
77.5°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.6	2.5	2.5	3.3
80°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.6	2.5	2.5	3.3
82.5°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.6	2.5	2.5	3.3
85°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.6	2.5	2.5	3.3
87.5°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.6	2.5	2.5	2.5
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):**

	135°	157.5°	180°
0°	77.0	77.0	77.0
2.5°	58.2	55.7	54.1
5°	50.0	47.5	46.7
7.5°	46.7	45.9	46.7
10°	51.6	54.9	59.0
12.5°	68.8	81.1	87.7
15°	113.9	148.3	163.1
17.5°	200.8	228.7	245.1
20°	177.0	161.5	170.5
22.5°	95.9	83.6	86.1
25°	53.3	45.9	46.7
26°	42.6	36.9	36.9
27°	34.4	29.5	29.5
28°	27.9	23.8	23.8
29°	22.1	18.9	18.9
30°	18.0	15.6	15.6
31°	14.8	12.3	12.3
32°	12.3	10.7	9.8
33°	10.7	9.0	8.2
34°	9.0	7.4	6.6
35°	7.4	5.7	5.7
36°	6.6	4.9	4.9
37°	5.7	4.1	4.1
38°	4.9	3.3	3.3
39°	4.1	3.3	2.5
40°	3.3	2.5	1.6
42.5°	2.5	1.6	0.8
45°	2.5	0.8	0.0
47.5°	1.6	0.8	0.0
50°	1.6	0.0	0.0
51°	1.6	0.0	0.0
52°	1.6	0.0	0.0
53°	0.8	0.0	0.0
54°	1.6	0.0	0.0
55°	0.8	0.0	0.0
57.5°	1.6	0.0	0.0
60°	1.6	0.0	0.0
61°	1.6	0.0	0.0
62°	1.6	0.0	0.0
63°	1.6	0.0	0.0
64°	1.6	0.8	0.0
65°	1.6	0.8	0.0
66°	1.6	0.8	0.0



TEST NUMBER: P170907

CATALOG NUMBER: LDA4A18935D010TE LAR15SP 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
72.5°	1.6	0.8	0.0
75°	1.6	0.8	0.0
77.5°	1.6	0.8	0.0
80°	1.6	0.8	0.0
82.5°	1.6	0.8	0.0
85°	1.6	0.8	0.0
87.5°	1.6	0.8	0.0
90°	0.0	0.0	0.0



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









67.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.6	1.6
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	0.8	0.8





67.5°	1.6	0.8	1.6	1.6	2.5	3.3	3.3	1.6	2.5	1.6	2.5
70°	0.8	0.8	0.8	0.8	2.5	2.5	3.3	1.6	2.5	1.6	2.5





67.5°	1.6	0.8	0.0
70°	1.6	0.8	0.0



(END OF REPORT)