

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: P170684

Luminaire Tested: **LDA4A18940D010TE LAR25NF 4LA1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170684  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P25649)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA4A18940D010TE LAR25NF 4LA1 30° Tilt  
Description: PORTFOLIO 4" Adjustable Reflector, Self-flanged Trim Ring, 25°  
Narrow Flood Optic, at 30° tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1540.2 lumens  
Efficiency: N/A  
Efficacy: 52.9 lumens/watt  
Spacing Criteria (0/90/45): 2.56 / 1.01 / 1.3  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

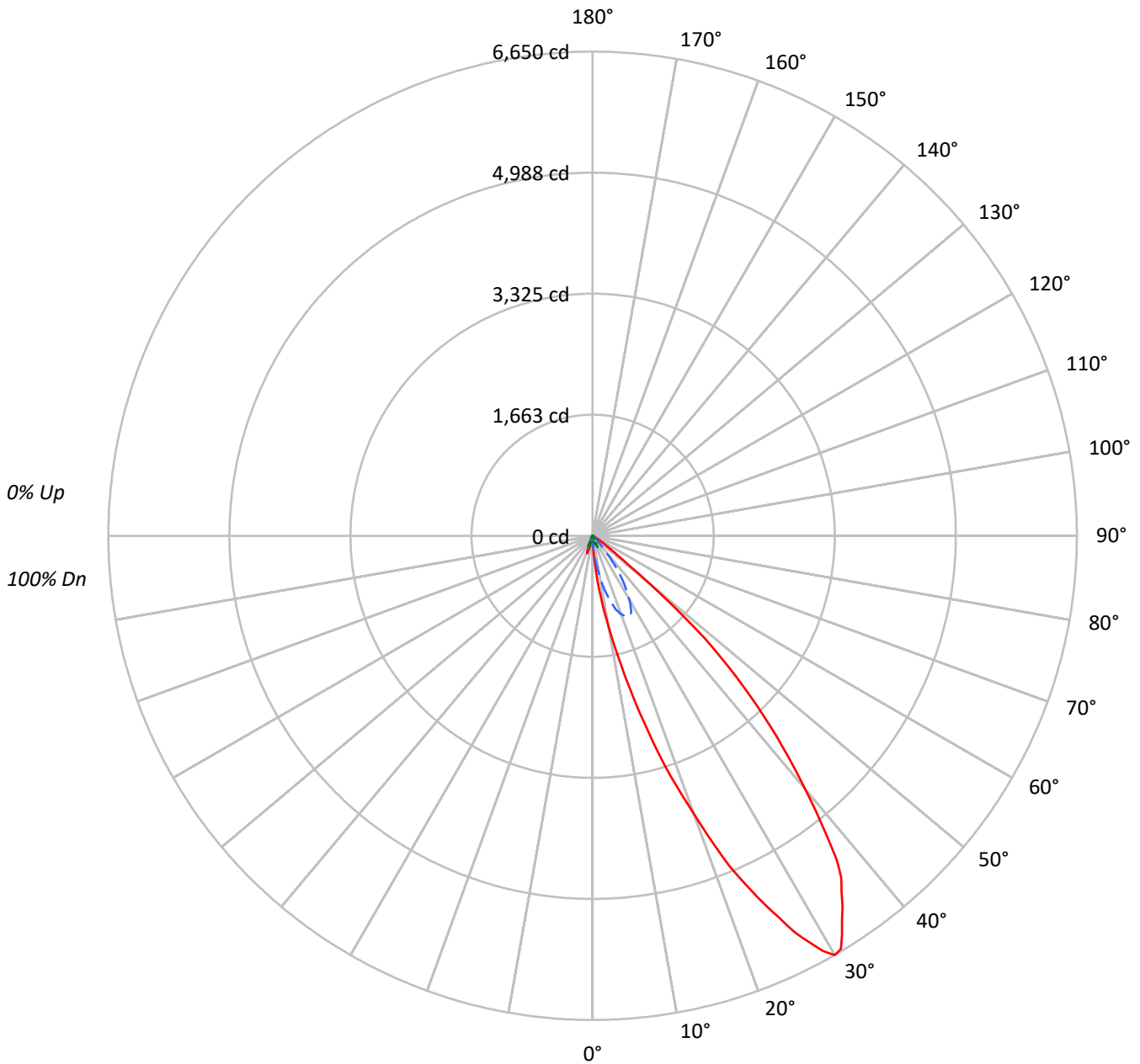
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P170684

CATALOG NUMBER: LDA4A18940D010TE LAR25NF 4LA1 30° Tilt

### Luminous Intensity Polar Plot





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CATALOG NUMBER: LDA4A18940D010TE LAR25NF 4LA1 30° Tilt

**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	97	96	96	94	93	91																			
2	105	100	95	91	103	98	93	90	95	91	88	91	88	86	89	86	84	82																			
3	99	91	85	80	96	89	84	79	87	82	78	84	80	77	82	78	76	74																			
4	92	83	76	71	90	82	75	71	79	74	70	77	73	69	75	71	68	66																			
5	86	76	69	63	84	75	68	63	73	67	62	71	66	62	69	65	61	60																			
6	80	69	62	57	78	68	61	56	67	61	56	65	60	56	64	59	55	53																			
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48																			
8	70	58	51	46	68	58	51	46	56	50	46	55	49	45	54	49	45	43																			
9	65	53	46	41	64	53	46	41	52	46	41	51	45	41	50	45	41	39																			
10	61	49	42	38	60	49	42	38	48	42	37	47	41	37	46	41	37	36																			

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

	0°	90°	180°
0°	12594	12594	12594
5°	54702	11874	7194
10°	157738	10696	7828
15°	323226	11799	22590
20°	533264	21947	22879
25°	759638	14018	7662
30°	947156	6139	3005
35°	897455	2786	1325
40°	730950	1417	419
45°	511990	768	0
50°	191853	499	0
55°	40880	559	0
60°	7820	444	0
65°	2306	759	0
70°	649	938	0
75°	0	1239	0
80°	0	1847	0
85°	0	3680	0



TEST NUMBER: P170684

CATALOG NUMBER: LDA4A18940D010TE LAR25NF 4LA1 30° Tilt

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	21.4	1.4
10°-20°	184.5	12.0
20°-30°	471.2	30.6
30°-40°	545.7	35.4
40°-50°	281.5	18.3
50°-60°	29.1	1.9
60°-70°	3.1	0.2
70°-80°	2.0	0.1
80°-90°	1.8	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°	677.0	44.0
0°-40°	1222.7	79.4
0°-60°	1533.3	99.6
0°-90°	1540.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1540.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	102	102	102	102	102	
5°	442	230	96	63	58	69
15°	2531	927	92	123	177	775
25°	5582	1210	103	64	56	2593
35°	5960	662	18	11	9	3650
45°	2935	77	4	3	0	2198
55°	190	11	3	2	0	238
65°	8	3	3	2	0	10
75°	0	2	3	3	0	0
85°	0	2	3	3	0	0
90°	0	0	0	0	0	



TEST NUMBER: P170684

CATALOG NUMBER: LDA4A18940D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (FULL):**

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
2.5°	176.0	169.9	165.5	167.2	176.9	166.3	167.2	163.7	161.9	160.2	155.8
5°	441.8	424.2	412.8	413.6	388.1	407.5	405.7	390.8	381.1	362.6	352.0
7.5°	829.1	791.2	778.0	773.6	776.3	757.8	749.8	730.5	705.0	671.5	652.2
10°	1259.4	1236.5	1228.6	1214.5	1213.7	1181.1	1161.7	1137.1	1086.0	1039.4	1005.1
12.5°	1835.0	1764.6	1752.3	1725.9	1718.8	1663.4	1622.9	1586.8	1501.5	1439.8	1385.3
15°	2531.2	2474.0	2487.2	2406.2	2384.2	2293.5	2217.9	2140.4	2002.2	1908.1	1811.3
17.5°	3321.5	3248.5	3257.3	3156.0	2973.9	2990.6	2880.6	2774.1	2579.6	2453.7	2304.1
20°	4062.6	4010.6	4014.1	3879.5	3817.9	3650.7	3503.7	3377.0	3118.2	2958.0	2760.0
22.5°	4915.4	4780.7	4755.2	4572.1	4463.9	4239.5	4034.4	3866.3	3553.0	3372.6	3129.6
25°	5581.6	5489.2	5418.8	5202.3	5051.8	4759.6	4522.0	4272.9	3896.2	3696.4	3407.8
26°	5831.6	5744.4	5653.8	5420.6	5251.6	4942.7	4683.9	4416.4	4013.3	3799.4	3485.2
27°	6114.1	5971.5	5862.4	5601.0	5417.9	5093.2	4786.0	4533.4	4102.2	3865.4	3534.5
28°	6313.9	6171.3	6026.9	5742.7	5544.6	5204.9	4885.4	4610.0	4154.1	3897.1	3554.7
29°	6518.9	6367.5	6157.2	5847.4	5631.8	5274.5	4942.7	4647.8	4169.0	3895.3	3544.2
30°	6650.1	6497.8	6225.8	5906.4	5678.4	5302.6	4958.5	4640.8	4145.3	3860.1	3505.4
31°	6619.2	6479.3	6209.1	5912.5	5674.0	5285.9	4929.5	4590.6	4085.4	3797.6	3435.0
32°	6465.2	6346.4	6141.4	5871.2	5625.6	5228.7	4861.7	4511.4	3999.2	3724.6	3349.7
33°	6286.6	6188.0	6046.3	5787.6	5541.1	5142.4	4768.4	4413.7	3899.7	3625.1	3246.7
34°	6137.0	6048.1	5916.9	5674.9	5425.8	5027.1	4650.5	4290.5	3786.2	3508.1	3125.2
35°	5960.1	5879.1	5757.6	5522.6	5265.7	4872.2	4502.6	4147.9	3652.4	3369.0	2984.4
36°	5806.0	5678.4	5555.2	5326.4	5070.3	4684.8	4328.3	3980.7	3501.0	3209.7	2826.0
37°	5567.5	5439.9	5307.9	5091.4	4838.8	4470.0	4134.7	3802.0	3328.5	3090.0	2657.0
38°	5211.1	5152.1	5020.1	4814.2	4579.2	4233.3	3922.6	3598.7	3134.0	2858.6	2477.5
39°	4878.4	4830.0	4701.5	4513.2	4295.8	3978.9	3687.6	3369.9	2914.9	2654.4	2288.3
40°	4539.6	4491.2	4370.6	4200.7	4005.3	3714.0	3437.7	3126.1	2685.2	2444.0	2098.2
42.5°	3736.9	3686.7	3661.2	3487.8	3281.0	3031.1	2775.0	2493.3	2118.4	1920.4	1649.3
45°	2935.1	2889.4	2793.4	2722.2	2537.3	2329.6	2121.0	1891.3	1615.0	1419.6	1166.1
47.5°	2098.2	2076.2	2079.7	1947.7	1771.6	1607.9	1435.4	1227.7	983.1	737.5	541.3
50°	999.8	1006.0	1030.6	938.2	806.2	710.2	608.2	477.0	348.5	273.7	212.1
51°	647.8	654.8	675.9	609.9	514.0	448.9	383.7	309.8	247.3	210.3	168.1
52°	438.3	438.3	442.7	404.0	356.4	319.5	281.6	238.5	192.7	165.5	132.9
53°	329.2	328.3	330.0	304.5	272.0	244.7	218.3	186.6	152.3	129.4	103.0
54°	251.7	250.8	252.6	233.2	210.3	190.1	169.9	146.1	117.9	96.8	77.4
55°	190.1	190.1	192.7	177.8	160.2	144.3	129.4	109.1	87.1	70.4	56.3
57.5°	76.6	76.6	79.2	73.9	66.0	59.8	54.6	46.6	38.7	32.6	26.4
60°	31.7	32.6	33.4	30.8	29.0	27.3	25.5	22.9	20.2	16.7	14.1
61°	23.8	23.8	24.6	22.9	22.0	20.2	19.4	17.6	15.8	13.2	11.4
62°	17.6	17.6	18.5	17.6	16.7	15.8	15.0	14.1	12.3	10.6	8.8
63°	13.2	13.2	14.1	13.2	13.2	12.3	11.4	10.6	9.7	7.9	7.0
64°	10.6	10.6	10.6	9.7	9.7	9.7	8.8	8.8	7.0	6.2	5.3
65°	7.9	7.9	7.9	7.9	7.0	7.0	7.0	6.2	6.2	4.4	4.4
66°	6.2	6.2	6.2	5.3	5.3	5.3	5.3	5.3	4.4	3.5	2.6



TEST NUMBER: P170684

CATALOG NUMBER: LDA4A18940D010TE LAR25NF 4LA1 30° Tilt

**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	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
80°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9
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):**

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
2.5°	157.5	156.7	147.9	147.9	151.4	146.1	143.5	137.3	117.9	100.3	84.5
5°	348.5	338.8	308.9	300.1	299.2	274.6	260.5	229.7	134.7	95.9	73.0
7.5°	643.4	614.3	563.3	536.0	502.5	483.2	448.9	396.0	153.1	89.8	66.0
10°	951.4	918.8	843.1	794.7	769.2	706.7	649.5	577.3	171.6	85.4	65.1
12.5°	1304.3	1231.3	1159.1	1072.8	996.3	940.8	845.8	761.3	183.9	84.5	71.3
15°	1686.3	1594.7	1471.5	1355.4	1247.1	1167.9	1040.3	926.7	188.3	92.4	93.3
17.5°	2114.0	1942.4	1764.6	1606.2	1457.4	1351.0	1192.5	1058.8	185.7	113.5	148.7
20°	2514.5	2286.5	2045.4	1825.3	1615.0	1476.8	1293.8	1148.5	186.6	167.2	200.7
22.5°	2832.2	2554.9	2261.0	1992.6	1725.9	1560.4	1360.6	1196.1	209.5	178.7	136.4
25°	3066.3	2739.8	2402.7	2093.8	1813.0	1627.3	1408.2	1210.1	195.4	103.0	77.4
26°	3128.8	2784.6	2429.1	2108.7	1823.6	1627.3	1401.1	1195.2	169.0	81.8	64.2
27°	3164.0	2804.9	2433.5	2101.7	1810.4	1608.8	1375.6	1165.3	138.2	68.6	54.6
28°	3168.4	2796.1	2411.5	2072.6	1773.4	1569.2	1329.8	1119.5	114.4	58.1	44.9
29°	3144.6	2763.5	2369.2	2024.2	1717.1	1511.1	1267.3	1063.2	97.7	50.2	37.8
30°	3094.4	2706.3	2305.0	1959.1	1644.0	1440.7	1194.3	1000.7	85.4	43.1	31.7
31°	3022.3	2628.0	2235.5	1881.7	1567.5	1370.3	1125.7	937.3	75.7	36.1	26.4
32°	2929.0	2535.6	2145.7	1798.0	1498.8	1303.4	1059.6	873.1	67.8	30.8	22.0
33°	2825.1	2430.8	2048.0	1710.9	1432.8	1234.8	990.1	805.3	60.7	25.5	18.5
34°	2705.4	2315.5	1944.1	1623.8	1362.4	1159.1	915.3	735.8	52.8	21.1	15.8
35°	2569.0	2187.1	1832.4	1544.6	1284.1	1077.2	837.0	661.8	46.6	18.5	13.2
36°	2421.2	2053.3	1719.7	1453.9	1199.6	991.9	754.2	587.0	40.5	15.8	11.4
37°	2266.3	1914.2	1607.1	1351.0	1106.3	901.2	668.9	506.1	35.2	13.2	9.7
38°	2102.6	1774.3	1497.9	1253.3	1007.7	803.5	581.7	417.2	30.8	11.4	8.8
39°	1935.3	1636.1	1389.7	1145.9	906.5	707.6	498.1	323.9	27.3	9.7	7.9
40°	1771.6	1505.9	1275.3	1028.8	805.3	613.4	417.2	238.5	23.8	8.8	6.2
42.5°	1402.9	1156.5	915.3	686.5	561.5	389.0	231.5	125.0	16.7	6.2	4.4
45°	917.9	683.8	493.7	334.4	290.4	164.6	107.4	77.4	12.3	4.4	3.5
47.5°	380.2	277.2	192.7	139.1	112.7	88.0	68.6	50.2	8.8	3.5	3.5
50°	167.2	132.0	104.7	81.8	71.3	57.2	44.0	30.8	5.3	2.6	2.6
51°	133.8	106.5	81.8	65.1	58.1	46.6	36.1	24.6	5.3	2.6	2.6
52°	105.6	82.7	64.2	50.2	46.6	37.8	29.9	20.2	4.4	2.6	2.6
53°	81.0	62.5	48.4	39.6	37.0	30.8	24.6	16.7	3.5	2.6	2.6
54°	59.8	47.5	37.8	30.8	29.9	24.6	20.2	14.1	3.5	2.6	2.6
55°	44.0	37.0	29.0	24.6	23.8	20.2	16.7	11.4	3.5	2.6	2.6
57.5°	22.9	19.4	15.8	14.1	14.1	13.2	11.4	7.0	2.6	1.8	2.6
60°	12.3	10.6	8.8	7.9	9.7	8.8	7.9	4.4	2.6	1.8	2.6
61°	9.7	8.8	7.0	6.2	7.9	7.0	7.0	3.5	2.6	2.6	2.6
62°	7.9	7.0	6.2	5.3	7.0	6.2	6.2	3.5	2.6	2.6	2.6
63°	6.2	5.3	4.4	4.4	6.2	6.2	5.3	2.6	2.6	2.6	2.6
64°	4.4	4.4	3.5	3.5	5.3	5.3	4.4	2.6	2.6	2.6	2.6
65°	3.5	3.5	2.6	2.6	4.4	4.4	4.4	2.6	2.6	2.6	2.6
66°	2.6	2.6	2.6	1.8	3.5	4.4	4.4	1.8	2.6	2.6	2.6





TEST NUMBER: P170684

CATALOG NUMBER: LDA4A18940D010TE LAR25NF 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°	0.9	0.9	0.9	0.9	2.6	3.5	3.5	1.8	2.6	2.6	2.6
75°	0.9	0.9	0.9	0.9	2.6	3.5	3.5	1.8	2.6	2.6	2.6
77.5°	0.9	0.9	0.9	0.9	2.6	3.5	3.5	1.8	2.6	2.6	3.5
80°	0.9	0.9	0.9	0.9	2.6	3.5	3.5	1.8	2.6	2.6	3.5
82.5°	0.9	0.9	0.9	0.9	2.6	3.5	3.5	1.8	2.6	2.6	3.5
85°	0.9	0.9	0.9	0.9	2.6	3.5	3.5	1.8	2.6	2.6	3.5
87.5°	0.9	0.9	0.9	0.9	2.6	3.5	3.5	1.8	2.6	2.6	3.5
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°	102.1	102.1	102.1
2.5°	76.6	72.2	71.3
5°	63.4	59.0	58.1
7.5°	58.1	54.6	53.7
10°	59.8	60.7	62.5
12.5°	76.6	84.5	91.5
15°	123.2	154.9	176.9
17.5°	214.7	237.6	252.6
20°	188.3	173.4	174.3
22.5°	105.6	95.1	94.2
25°	64.2	58.1	56.3
26°	53.7	48.4	46.6
27°	44.0	39.6	37.8
28°	36.1	32.6	31.7
29°	30.8	26.4	25.5
30°	25.5	22.0	21.1
31°	21.1	18.5	17.6
32°	18.5	15.8	14.1
33°	15.0	13.2	12.3
34°	13.2	10.6	9.7
35°	10.6	8.8	8.8
36°	9.7	7.9	7.0
37°	7.9	6.2	6.2
38°	7.0	5.3	4.4
39°	6.2	4.4	3.5
40°	5.3	3.5	2.6
42.5°	3.5	1.8	0.9
45°	2.6	0.9	0.0
47.5°	1.8	0.9	0.0
50°	1.8	0.0	0.0
51°	1.8	0.0	0.0
52°	1.8	0.0	0.0
53°	1.8	0.0	0.0
54°	1.8	0.0	0.0
55°	1.8	0.0	0.0
57.5°	1.8	0.0	0.0
60°	1.8	0.0	0.0
61°	1.8	0.0	0.0
62°	1.8	0.0	0.0
63°	1.8	0.9	0.0
64°	1.8	0.9	0.0
65°	1.8	0.9	0.0
66°	1.8	0.9	0.0



TEST NUMBER: P170684

CATALOG NUMBER: LDA4A18940D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
72.5°	2.6	0.9	0.0
75°	2.6	0.9	0.0
77.5°	2.6	0.9	0.0
80°	2.6	0.9	0.0
82.5°	2.6	0.9	0.0
85°	2.6	0.9	0.0
87.5°	1.8	0.9	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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









67.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.6	1.8
70°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9	0.9





67.5°	1.8	1.8	1.8	1.8	3.5	3.5	3.5	1.8	2.6	2.6	2.6
70°	0.9	0.9	0.9	1.8	2.6	3.5	3.5	1.8	2.6	2.6	2.6





67.5°	1.8	0.9	0.0
70°	1.8	0.9	0.0



(END OF REPORT)