

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: P170702

Luminaire Tested: **LDA4A28830D010TE LAR25NF 4LA1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170702  
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: LDA4A28830D010TE 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 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2606.5 lumens  
Efficiency: N/A  
Efficacy: 58.6 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

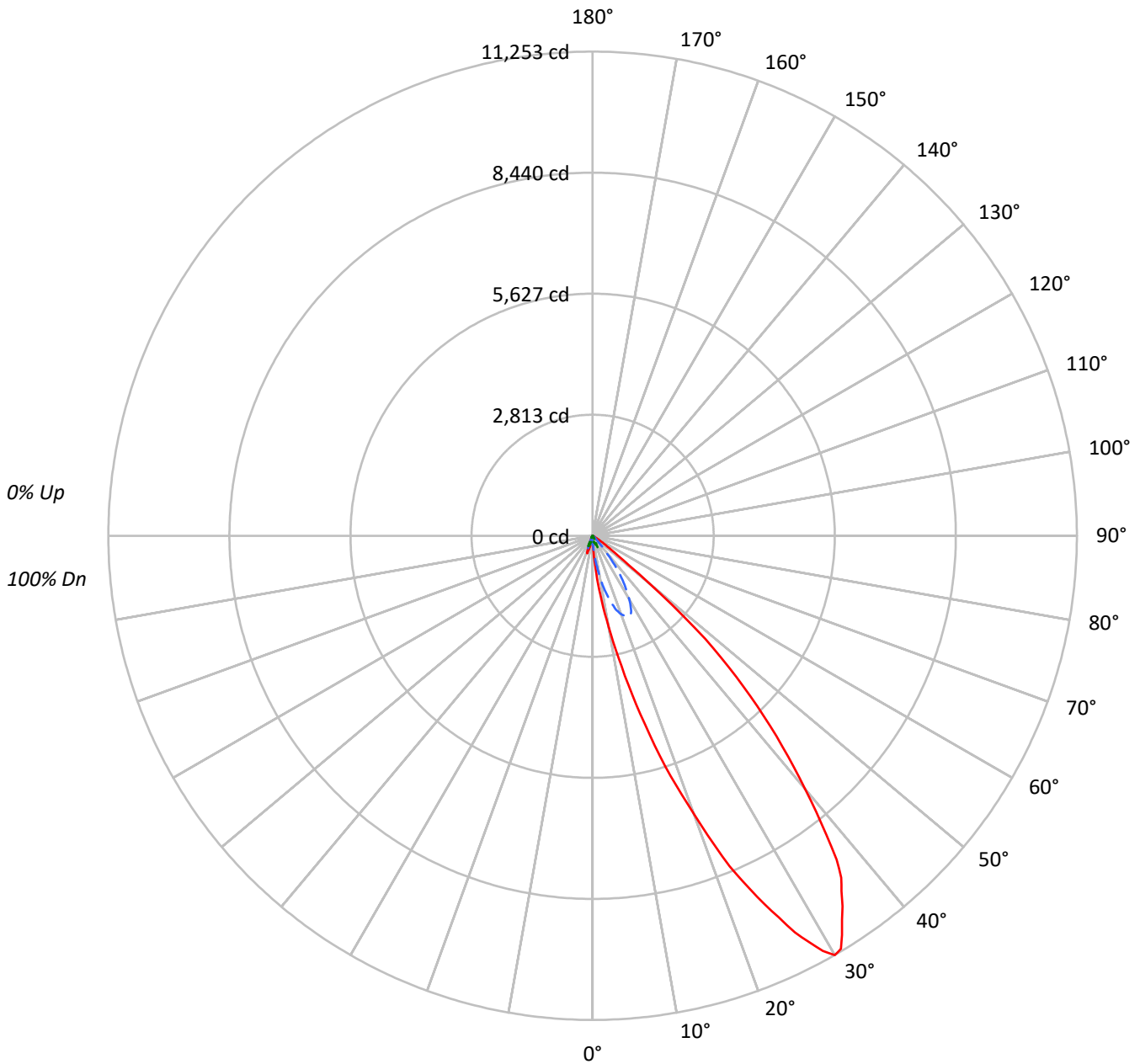
Input Watts (W): 44.49  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20					20					20					20					20					
RC	80					70					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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	105	100	95	91	103	98	93	90	95	91	88	91	88	86	89	86	84	82					82			
3	99	91	85	80	96	89	84	79	87	82	78	84	80	77	82	78	76	74					74			
4	92	83	76	71	90	82	75	71	79	74	70	77	73	69	75	71	68	66					66			
5	86	76	69	63	84	75	68	63	73	67	62	71	66	62	69	65	61	60					60			
6	80	69	62	57	78	68	61	56	67	61	56	65	60	56	64	59	55	53					53			
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48					48			
8	70	58	51	46	68	58	51	46	56	50	46	55	49	45	54	49	45	43					43			
9	65	53	46	41	64	53	46	41	52	46	41	51	45	41	50	45	41	39					39			
10	61	49	42	38	60	49	42	37	48	42	37	47	41	37	46	41	37	36					36			

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

	0°	90°	180°
0°	21314	21314	21314
5°	92565	20095	12171
10°	266929	18098	13239
15°	546964	19972	38232
20°	902385	37147	38709
25°	1285475	23722	12970
30°	1602791	10397	5085
35°	1518677	4713	2244
40°	1236911	2399	725
45°	866411	1291	0
50°	324662	864	0
55°	69180	968	0
60°	13223	740	0
65°	3911	1313	0
70°	1082	1623	0
75°	0	2145	0
80°	0	3196	0
85°	0	6369	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	36.2	1.4
10°-20°	312.1	12.0
20°-30°	797.3	30.6
30°-40°	923.4	35.4
40°-50°	476.4	18.3
50°-60°	49.2	1.9
60°-70°	5.3	0.2
70°-80°	3.4	0.1
80°-90°	3.1	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°	1145.7	44.0
0°-40°	2069.1	79.4
0°-60°	2594.7	99.5
0°-90°	2606.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2606.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	173	173	173	173	173	
5°	748	389	162	107	98	117
15°	4283	1568	156	208	299	1311
25°	9445	2048	174	109	95	4388
35°	10086	1120	31	18	15	6176
45°	4967	131	7	4	0	3720
55°	322	19	4	3	0	403
65°	13	4	4	3	0	17
75°	0	3	4	4	0	0
85°	0	3	4	4	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°	172.8	172.8	172.8	172.8	172.8	172.8	172.8	172.8	172.8	172.8	172.8
2.5°	297.9	287.4	280.0	283.0	299.4	281.5	283.0	277.0	274.0	271.1	263.6
5°	747.6	717.9	698.5	700.0	656.8	689.6	686.6	661.3	644.9	613.6	595.7
7.5°	1402.9	1338.9	1316.6	1309.1	1313.6	1282.3	1268.9	1236.1	1193.0	1136.4	1103.6
10°	2131.2	2092.5	2079.1	2055.3	2053.8	1998.7	1965.9	1924.2	1837.8	1758.9	1700.8
12.5°	3105.2	2986.1	2965.3	2920.6	2908.7	2814.8	2746.3	2685.3	2540.8	2436.5	2344.2
15°	4283.3	4186.5	4208.8	4071.8	4034.6	3881.2	3753.1	3622.0	3388.2	3228.9	3065.0
17.5°	5620.7	5497.1	5512.0	5340.7	5032.4	5060.7	4874.6	4694.4	4365.2	4152.2	3899.1
20°	6874.7	6786.9	6792.8	6565.0	6460.7	6177.7	5929.0	5714.5	5276.7	5005.6	4670.5
22.5°	8317.9	8090.0	8046.8	7737.1	7553.9	7174.1	6827.1	6542.6	6012.4	5707.1	5296.0
25°	9445.3	9288.9	9169.8	8803.4	8548.7	8054.3	7652.2	7230.7	6593.3	6255.2	5766.7
26°	9868.3	9720.8	9567.4	9172.8	8886.8	8364.1	7926.2	7473.4	6791.3	6429.4	5897.7
27°	10346.4	10105.1	9920.4	9478.1	9168.3	8618.7	8099.0	7671.5	6941.8	6541.1	5981.1
28°	10684.4	10443.2	10198.9	9717.9	9382.8	8807.9	8267.3	7801.1	7029.6	6594.7	6015.4
29°	11031.4	10775.3	10419.3	9895.1	9530.2	8925.5	8364.1	7865.1	7054.9	6591.8	5997.5
30°	11253.4	10995.7	10535.5	9994.9	9609.1	8973.2	8390.9	7853.2	7014.7	6532.2	5932.0
31°	11201.2	10964.4	10507.2	10005.3	9601.7	8944.9	8341.7	7768.3	6913.5	6426.4	5812.8
32°	10940.6	10739.5	10392.5	9935.3	9519.8	8848.1	8227.0	7634.3	6767.5	6302.8	5668.4
33°	10638.3	10471.5	10231.7	9793.8	9376.8	8702.1	8069.2	7469.0	6599.2	6134.5	5494.1
34°	10385.1	10234.7	10012.7	9603.2	9181.7	8507.0	7869.6	7260.5	6407.1	5936.5	5288.6
35°	10085.7	9948.7	9743.2	9345.5	8910.6	8244.9	7619.4	7019.2	6180.7	5701.1	5050.3
36°	9825.1	9609.1	9400.6	9013.4	8580.0	7927.7	7324.5	6736.2	5924.5	5431.6	4782.2
37°	9421.5	9205.5	8982.1	8615.8	8188.3	7564.3	6996.9	6433.9	5632.6	5229.0	4496.3
38°	8818.3	8718.5	8495.1	8146.6	7749.0	7163.7	6637.9	6089.9	5303.5	4837.3	4192.5
39°	8255.3	8173.4	7956.0	7637.3	7269.4	6733.2	6240.3	5702.6	4932.7	4491.8	3872.3
40°	7681.9	7600.0	7396.0	7108.6	6777.9	6285.0	5817.3	5290.1	4543.9	4135.9	3550.6
42.5°	6323.7	6238.8	6195.6	5902.2	5552.2	5129.2	4695.8	4219.3	3584.8	3249.7	2791.0
45°	4966.9	4889.5	4727.1	4606.5	4293.7	3942.2	3589.3	3200.6	2732.9	2402.3	1973.4
47.5°	3550.6	3513.3	3519.3	3295.9	2998.0	2721.0	2429.1	2077.6	1663.6	1248.1	915.9
50°	1691.9	1702.3	1744.0	1587.6	1364.2	1201.9	1029.1	807.2	589.8	463.2	358.9
51°	1096.1	1108.1	1143.8	1032.1	869.8	759.6	649.3	524.2	418.5	355.9	284.5
52°	741.7	741.7	749.1	683.6	603.2	540.6	476.6	403.6	326.2	280.0	224.9
53°	557.0	555.5	558.5	515.3	460.2	414.0	369.4	315.7	257.7	218.9	174.3
54°	425.9	424.5	427.4	394.7	355.9	321.7	287.4	247.2	199.6	163.8	131.1
55°	321.7	321.7	326.2	300.8	271.1	244.2	218.9	184.7	147.4	119.1	95.3
57.5°	129.6	129.6	134.0	125.1	111.7	101.3	92.3	78.9	65.5	55.1	44.7
60°	53.6	55.1	56.6	52.1	49.1	46.2	43.2	38.7	34.3	28.3	23.8
61°	40.2	40.2	41.7	38.7	37.2	34.3	32.8	29.8	26.8	22.3	19.4
62°	29.8	29.8	31.3	29.8	28.3	26.8	25.3	23.8	20.9	17.9	14.9
63°	22.3	22.3	23.8	22.3	22.3	20.9	19.4	17.9	16.4	13.4	11.9
64°	17.9	17.9	17.9	16.4	16.4	16.4	14.9	14.9	11.9	10.4	8.9
65°	13.4	13.4	13.4	13.4	11.9	11.9	11.9	10.4	10.4	7.4	7.4
66°	10.4	10.4	10.4	8.9	8.9	8.9	8.9	8.9	7.4	6.0	4.5



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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	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
75°	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5
77.5°	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5
80°	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5	1.5	1.5
82.5°	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5	1.5	1.5
85°	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5	1.5	1.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5	1.5
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):**

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	172.8	172.8	172.8	172.8	172.8	172.8	172.8	172.8	172.8	172.8	172.8
2.5°	266.6	265.1	250.2	250.2	256.2	247.2	242.8	232.3	199.6	169.8	143.0
5°	589.8	573.4	522.8	507.9	506.4	464.7	440.8	388.7	227.9	162.3	123.6
7.5°	1088.7	1039.6	953.2	907.0	850.4	817.6	759.6	670.2	259.1	151.9	111.7
10°	1610.0	1554.9	1426.8	1344.9	1301.7	1195.9	1099.1	977.0	290.4	144.5	110.2
12.5°	2207.2	2083.6	1961.4	1815.5	1685.9	1592.1	1431.2	1288.3	311.3	143.0	120.6
15°	2853.6	2698.7	2490.2	2293.6	2110.4	1976.3	1760.4	1568.3	318.7	156.4	157.9
17.5°	3577.4	3286.9	2986.1	2718.0	2466.3	2286.1	2018.0	1791.7	314.2	192.1	251.7
20°	4255.0	3869.3	3461.2	3088.9	2732.9	2499.1	2189.3	1943.6	315.7	283.0	339.6
22.5°	4792.7	4323.5	3826.1	3371.8	2920.6	2640.6	2302.5	2024.0	354.5	302.3	230.8
25°	5188.8	4636.3	4065.9	3543.1	3068.0	2753.8	2382.9	2047.8	330.6	174.3	131.1
26°	5294.6	4712.2	4110.5	3568.4	3085.9	2753.8	2371.0	2022.5	286.0	138.5	108.7
27°	5354.1	4746.5	4118.0	3556.5	3063.5	2722.5	2327.8	1971.9	233.8	116.2	92.3
28°	5361.6	4731.6	4080.8	3507.4	3001.0	2655.5	2250.4	1894.4	193.6	98.3	76.0
29°	5321.4	4676.5	4009.3	3425.5	2905.7	2557.2	2144.6	1799.1	165.3	84.9	64.0
30°	5236.5	4579.7	3900.5	3315.2	2782.1	2438.0	2021.0	1693.4	144.5	73.0	53.6
31°	5114.3	4447.1	3782.9	3184.2	2652.5	2318.9	1904.8	1586.1	128.1	61.1	44.7
32°	4956.5	4290.8	3631.0	3042.7	2536.3	2205.7	1793.1	1477.4	114.7	52.1	37.2
33°	4780.7	4113.5	3465.7	2895.3	2424.6	2089.5	1675.5	1362.7	102.8	43.2	31.3
34°	4578.2	3918.4	3289.9	2747.8	2305.5	1961.4	1548.9	1245.1	89.4	35.7	26.8
35°	4347.3	3701.0	3100.8	2613.8	2172.9	1822.9	1416.4	1120.0	78.9	31.3	22.3
36°	4097.1	3474.6	2910.1	2460.4	2030.0	1678.5	1276.4	993.4	68.5	26.8	19.4
37°	3835.0	3239.3	2719.5	2286.1	1872.1	1525.1	1131.9	856.4	59.6	22.3	16.4
38°	3558.0	3002.5	2534.8	2120.8	1705.3	1359.8	984.4	705.9	52.1	19.4	14.9
39°	3275.0	2768.7	2351.6	1939.1	1534.0	1197.4	843.0	548.1	46.2	16.4	13.4
40°	2998.0	2548.2	2158.0	1741.0	1362.7	1038.1	705.9	403.6	40.2	14.9	10.4
42.5°	2374.0	1957.0	1548.9	1161.7	950.2	658.3	391.7	211.5	28.3	10.4	7.4
45°	1553.4	1157.2	835.5	565.9	491.5	278.5	181.7	131.1	20.9	7.4	6.0
47.5°	643.4	469.1	326.2	235.3	190.6	148.9	116.2	84.9	14.9	6.0	6.0
50°	283.0	223.4	177.2	138.5	120.6	96.8	74.5	52.1	8.9	4.5	4.5
51°	226.4	180.2	138.5	110.2	98.3	78.9	61.1	41.7	8.9	4.5	4.5
52°	178.7	140.0	108.7	84.9	78.9	64.0	50.6	34.3	7.4	4.5	4.5
53°	137.0	105.7	81.9	67.0	62.6	52.1	41.7	28.3	6.0	4.5	4.5
54°	101.3	80.4	64.0	52.1	50.6	41.7	34.3	23.8	6.0	4.5	4.5
55°	74.5	62.6	49.1	41.7	40.2	34.3	28.3	19.4	6.0	4.5	4.5
57.5°	38.7	32.8	26.8	23.8	23.8	22.3	19.4	11.9	4.5	3.0	4.5
60°	20.9	17.9	14.9	13.4	16.4	14.9	13.4	7.4	4.5	3.0	4.5
61°	16.4	14.9	11.9	10.4	13.4	11.9	11.9	6.0	4.5	4.5	4.5
62°	13.4	11.9	10.4	8.9	11.9	10.4	10.4	6.0	4.5	4.5	4.5
63°	10.4	8.9	7.4	7.4	10.4	10.4	8.9	4.5	4.5	4.5	4.5
64°	7.4	7.4	6.0	6.0	8.9	8.9	7.4	4.5	4.5	4.5	4.5
65°	6.0	6.0	4.5	4.5	7.4	7.4	7.4	4.5	4.5	4.5	4.5
66°	4.5	4.5	4.5	3.0	6.0	7.4	7.4	3.0	4.5	4.5	4.5





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**CANDELA DISTRIBUTION (continued):**

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
72.5°	1.5	1.5	1.5	1.5	4.5	6.0	6.0	3.0	4.5	4.5	4.5
75°	1.5	1.5	1.5	1.5	4.5	6.0	6.0	3.0	4.5	4.5	4.5
77.5°	1.5	1.5	1.5	1.5	4.5	6.0	6.0	3.0	4.5	4.5	6.0
80°	1.5	1.5	1.5	1.5	4.5	6.0	6.0	3.0	4.5	4.5	6.0
82.5°	1.5	1.5	1.5	1.5	4.5	6.0	6.0	3.0	4.5	4.5	6.0
85°	1.5	1.5	1.5	1.5	4.5	6.0	6.0	3.0	4.5	4.5	6.0
87.5°	1.5	1.5	1.5	1.5	4.5	6.0	6.0	3.0	4.5	4.5	6.0
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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CATALOG NUMBER: LDA4A28830D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
0°	172.8	172.8	172.8
2.5°	129.6	122.1	120.6
5°	107.2	99.8	98.3
7.5°	98.3	92.3	90.8
10°	101.3	102.8	105.7
12.5°	129.6	143.0	154.9
15°	208.5	262.1	299.4
17.5°	363.4	402.1	427.4
20°	318.7	293.4	294.9
22.5°	178.7	160.8	159.4
25°	108.7	98.3	95.3
26°	90.8	81.9	78.9
27°	74.5	67.0	64.0
28°	61.1	55.1	53.6
29°	52.1	44.7	43.2
30°	43.2	37.2	35.7
31°	35.7	31.3	29.8
32°	31.3	26.8	23.8
33°	25.3	22.3	20.9
34°	22.3	17.9	16.4
35°	17.9	14.9	14.9
36°	16.4	13.4	11.9
37°	13.4	10.4	10.4
38°	11.9	8.9	7.4
39°	10.4	7.4	6.0
40°	8.9	6.0	4.5
42.5°	6.0	3.0	1.5
45°	4.5	1.5	0.0
47.5°	3.0	1.5	0.0
50°	3.0	0.0	0.0
51°	3.0	0.0	0.0
52°	3.0	0.0	0.0
53°	3.0	0.0	0.0
54°	3.0	0.0	0.0
55°	3.0	0.0	0.0
57.5°	3.0	0.0	0.0
60°	3.0	0.0	0.0
61°	3.0	0.0	0.0
62°	3.0	0.0	0.0
63°	3.0	1.5	0.0
64°	3.0	1.5	0.0
65°	3.0	1.5	0.0
66°	3.0	1.5	0.0



TEST NUMBER: P170702

CATALOG NUMBER: LDA4A28830D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
72.5°	4.5	1.5	0.0
75°	4.5	1.5	0.0
77.5°	4.5	1.5	0.0
80°	4.5	1.5	0.0
82.5°	4.5	1.5	0.0
85°	4.5	1.5	0.0
87.5°	3.0	1.5	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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









67.5°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.5	3.0
70°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.5	1.5





67.5°	3.0	3.0	3.0	3.0	6.0	6.0	6.0	3.0	4.5	4.5	4.5
70°	1.5	1.5	1.5	3.0	4.5	6.0	6.0	3.0	4.5	4.5	4.5





67.5°	3.0	1.5	0.0
70°	3.0	1.5	0.0



(END OF REPORT)