

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: P179651

Luminaire Tested: **LDA6A45940D010TE LARH30NF 6LA1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179651  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26671)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA6A45940D010TE LARH30NF 6LA1LI 30°  
Description: PORTFOLIO 6" Adjustable Reflector, Angle-cut Trim, Self-flanged, 30°  
Narrow Flood, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4284.3 lumens  
Efficiency: N/A  
Efficacy: 80.8 lumens/watt  
Spacing Criteria (0/90/45): 2.69 / 0.5 / 1.42  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

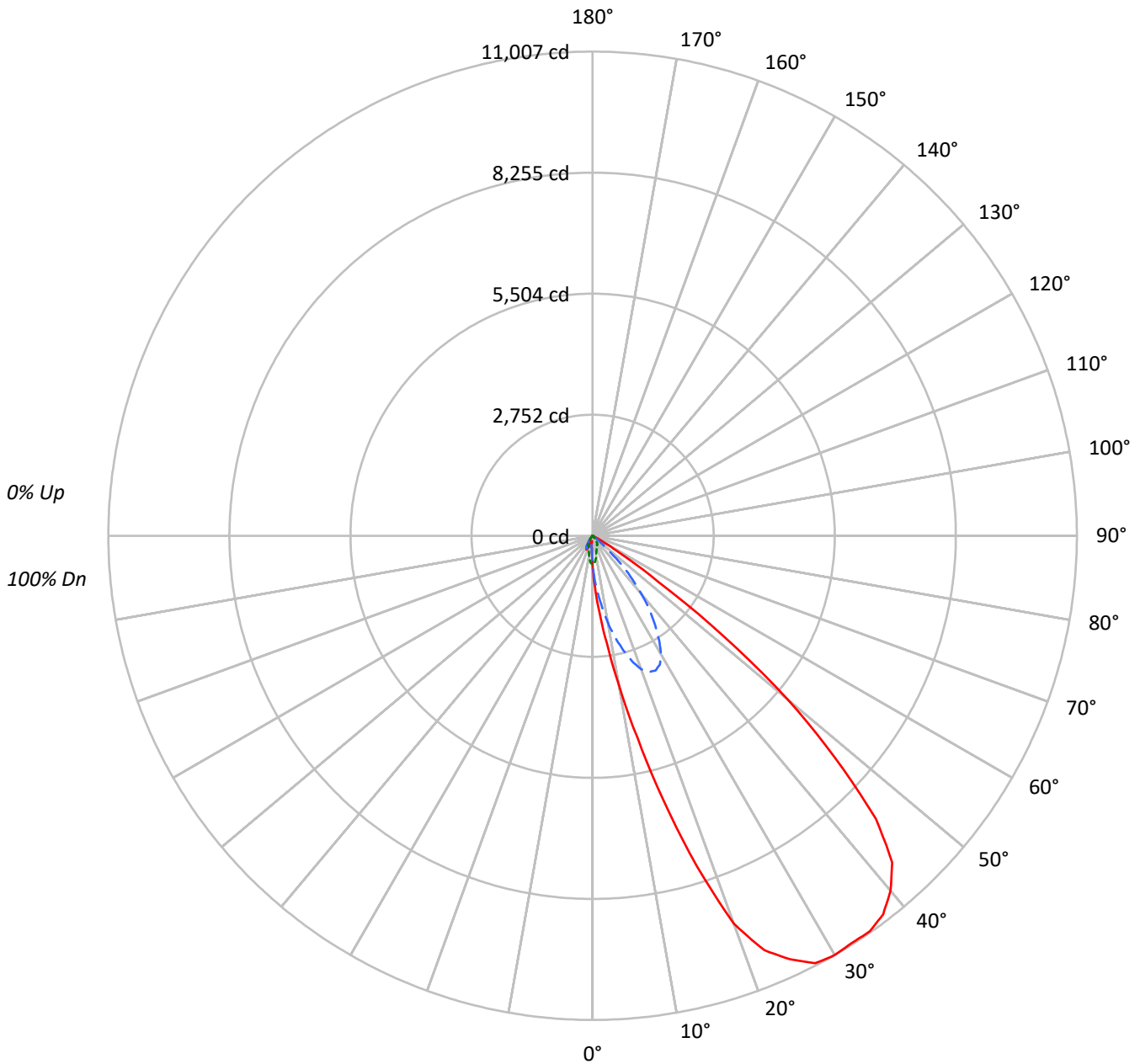
Input Watts (W): 53  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P179651

CATALOG NUMBER: LDA6A45940D010TE LARH30NF 6LA1LI 30°

### 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	103	110	107	104	101	102	100	98	99	97	95	95	94	93	91					91			
2	105	99	94	89	102	97	92	88	94	90	86	91	87	85	88	85	83	81					81			
3	98	89	83	78	95	88	82	78	85	80	76	83	79	75	80	77	74	72					72			
4	91	81	74	69	89	80	73	68	78	72	68	75	71	67	73	69	66	64					64			
5	84	74	66	61	82	73	66	61	71	65	60	69	64	59	67	63	59	57					57			
6	78	67	60	54	77	66	59	54	65	58	53	63	57	53	62	57	53	51					51			
7	73	61	54	48	71	60	53	48	59	53	48	58	52	48	56	51	47	45					45			
8	68	56	48	43	66	55	48	43	54	48	43	53	47	43	52	46	42	41					41			
9	63	51	44	39	62	51	44	39	50	43	39	49	43	39	48	42	38	37					37			
10	59	47	40	35	58	47	40	35	46	39	35	45	39	35	44	39	35	33					33			

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

	0°	90°	180°
0°	35995	35995	35995
5°	94882	32787	11287
10°	191708	25523	6858
15°	353004	19132	9892
20°	547290	15302	16481
25°	642569	13573	20923
30°	696746	13648	16211
35°	734675	8131	8720
40°	753548	3464	3779
45°	705949	1364	1295
50°	493604	597	298
55°	173203	593	0
60°	34931	680	0
65°	2166	804	0
70°	417	1122	0
75°	0	1483	0
80°	0	2210	284
85°	0	4969	566



TEST NUMBER: P179651

CATALOG NUMBER: LDA6A45940D010TE LARH30NF 6LA1LI 30°

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	84.2	2.0
10°-20°	469.7	11.0
20°-30°	1110.3	25.9
30°-40°	1352.6	31.6
40°-50°	1006.2	23.5
50°-60°	243.6	5.7
60°-70°	9.0	0.2
70°-80°	4.4	0.1
80°-90°	4.2	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°	1664.2	38.8
0°-40°	3016.9	70.4
0°-60°	4266.6	99.6
0°-90°	4284.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4284.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	657	657	657	657	657	
5°	1724	1289	596	278	205	216
15°	6220	2696	337	155	174	1874
25°	10623	3381	224	326	346	4878
35°	10978	2469	122	132	130	6837
45°	9106	941	18	19	17	6688
55°	1812	20	6	4	0	2050
65°	17	4	6	4	0	56
75°	0	4	7	5	0	0
85°	0	4	8	5	1	0
90°	0	0	0	0	0	



TEST NUMBER: P179651

CATALOG NUMBER: LDA6A45940D010TE LARH30NF 6LA1LI 30°

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6
2.5°	1145.0	1125.7	1123.9	1104.6	1097.5	1094.9	1067.6	1057.9	1021.8	1014.8	963.7
5°	1724.2	1694.3	1688.1	1644.1	1611.5	1566.6	1542.9	1502.4	1417.0	1372.1	1289.4
7.5°	2452.9	2413.3	2404.5	2335.9	2268.1	2209.1	2159.8	2065.7	1909.0	1801.6	1632.6
10°	3443.9	3333.1	3292.6	3147.3	3007.4	2897.4	2840.2	2633.3	2397.5	2253.1	2017.3
12.5°	4702.5	4517.7	4442.0	4217.6	3971.1	3790.7	3679.8	3355.1	2971.3	2695.0	2357.9
15°	6219.9	6005.1	5869.6	5587.1	5139.1	4882.1	4685.8	4165.7	3605.9	3187.8	2695.8
17.5°	7871.9	7703.8	7501.4	7058.6	6336.9	6028.0	5671.6	4989.5	4222.0	3640.2	2997.7
20°	9381.3	9099.7	8947.4	8454.5	7618.4	7210.9	6771.7	5749.9	4766.8	4009.0	3229.2
22.5°	10199.0	9926.1	9834.6	9406.8	8640.2	8187.0	7628.1	6419.7	5184.8	4261.6	3352.4
25°	10623.2	10374.1	10380.3	9993.9	9302.1	8876.1	8307.5	6925.7	5470.0	4394.5	3380.6
27.5°	10955.0	10648.7	10595.0	10306.3	9691.1	9255.5	8707.1	7201.2	5574.7	4380.4	3304.0
30°	11006.9	10756.1	10794.8	10393.5	9831.9	9378.7	8808.3	7186.3	5467.4	4203.5	3105.1
32.5°	10971.7	10722.6	10811.5	10375.9	9771.2	9273.9	8639.4	6894.1	5152.3	3876.1	2812.9
35°	10977.9	10691.8	10625.8	10257.0	9537.1	8953.6	8187.9	6360.7	4686.7	3450.1	2468.8
37.5°	10846.7	10461.2	10472.7	9986.8	9084.7	8311.1	7444.1	5649.6	4135.7	2995.1	2122.9
40°	10529.9	10241.2	10149.7	9428.0	8223.9	7317.4	6481.3	4876.8	3498.5	2519.8	1717.1
42.5°	10078.4	9730.7	9462.3	8462.5	7004.1	6172.4	5449.8	4071.5	2896.5	2065.7	1333.4
45°	9105.8	8730.0	8209.9	7010.2	5775.4	5053.7	4450.8	3304.9	2342.9	1596.6	940.9
47.5°	7470.5	7117.6	6582.5	5574.7	4611.0	4009.9	3539.9	2588.5	1712.7	1006.9	466.5
50°	5787.7	5519.3	5110.9	4236.1	3430.7	2868.3	2449.4	1625.6	874.0	459.4	195.4
52.5°	3772.2	3582.1	3218.6	2553.3	1938.9	1520.0	1235.7	691.8	411.9	193.6	57.2
55°	1812.2	1713.6	1450.5	1051.8	761.3	624.9	528.1	335.3	155.8	46.6	20.2
57.5°	722.6	701.5	624.9	470.9	360.9	306.3	237.6	92.4	30.8	19.4	12.3
60°	318.6	308.9	258.8	171.6	92.4	52.8	38.7	22.9	15.0	11.4	7.9
62.5°	45.8	42.2	36.1	28.2	22.9	19.4	16.7	12.3	7.9	6.2	5.3
65°	16.7	16.7	15.0	12.3	10.6	9.7	8.8	6.2	4.4	4.4	4.4
67.5°	7.0	7.0	7.0	5.3	5.3	4.4	3.5	3.5	3.5	3.5	4.4
70°	2.6	2.6	2.6	1.8	1.8	1.8	2.6	2.6	2.6	3.5	4.4
72.5°	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.6	2.6	3.5	4.4
75°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	2.6	3.5	4.4
77.5°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5	4.4
80°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5	4.4
82.5°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	4.4	4.4
85°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5	4.4
87.5°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	4.4	4.4
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: P179651

CATALOG NUMBER: LDA6A45940D010TE LARH30NF 6LA1LI 30°

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6
2.5°	920.6	908.3	866.9	825.6	819.4	801.8	765.7	723.5	668.9	634.6	600.2
5°	1182.0	1120.4	1050.9	970.8	946.1	910.9	835.2	754.3	663.6	595.8	532.5
7.5°	1487.4	1350.1	1219.0	1090.5	1042.1	987.5	872.2	756.0	631.9	533.4	454.1
10°	1773.5	1562.2	1358.9	1176.7	1104.6	1030.6	875.7	726.1	572.1	458.5	377.6
12.5°	2058.6	1755.9	1477.7	1239.2	1141.5	1046.5	856.4	672.4	498.2	389.9	324.8
15°	2283.1	1931.0	1564.0	1270.9	1149.5	1033.3	808.8	598.5	426.0	337.1	279.0
17.5°	2438.8	2031.3	1596.6	1257.7	1118.6	987.5	734.0	512.2	367.9	295.7	239.4
20°	2546.2	2063.0	1573.7	1203.1	1052.6	908.3	639.9	434.8	326.5	262.3	206.0
22.5°	2576.1	2032.2	1508.5	1121.3	966.4	817.6	542.2	383.7	296.6	235.9	199.8
25°	2547.1	1953.9	1410.8	1023.6	860.8	705.0	460.3	352.9	273.7	224.4	232.4
27.5°	2441.5	1815.7	1275.3	897.7	730.5	583.5	404.9	316.0	241.2	236.8	246.4
30°	2267.2	1617.7	1114.2	736.7	577.4	465.6	339.7	249.1	211.2	215.6	221.8
32.5°	2016.4	1374.8	907.4	545.7	423.3	350.3	242.9	172.5	167.2	170.7	175.1
35°	1699.5	1118.6	679.5	376.7	300.1	241.2	142.6	122.3	119.7	121.5	123.2
37.5°	1379.2	864.3	462.1	253.5	182.2	122.3	85.4	80.1	78.3	79.2	80.1
40°	1070.2	601.1	290.4	121.5	71.3	60.7	52.8	50.2	48.4	48.4	49.3
42.5°	781.6	356.5	144.3	47.5	38.7	36.1	31.7	29.9	28.2	29.0	29.9
45°	437.4	158.4	49.3	26.4	23.8	22.0	19.4	18.5	17.6	17.6	17.6
47.5°	186.6	55.4	23.8	16.7	15.0	14.1	12.3	11.4	10.6	10.6	10.6
50°	61.6	22.0	15.0	11.4	9.7	8.8	7.9	7.0	7.0	7.0	7.9
52.5°	22.0	14.1	9.7	7.9	7.0	7.0	6.2	6.2	6.2	6.2	6.2
55°	13.2	9.7	7.0	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
57.5°	8.8	6.2	6.2	5.3	5.3	5.3	5.3	5.3	5.3	6.2	6.2
60°	6.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	6.2	6.2
62.5°	5.3	4.4	4.4	5.3	5.3	5.3	5.3	6.2	6.2	6.2	6.2
65°	4.4	4.4	4.4	5.3	5.3	5.3	5.3	6.2	6.2	6.2	6.2
67.5°	4.4	4.4	5.3	5.3	5.3	5.3	6.2	6.2	6.2	6.2	7.0
70°	4.4	4.4	5.3	5.3	5.3	6.2	6.2	6.2	6.2	7.0	7.0
72.5°	4.4	5.3	5.3	5.3	6.2	6.2	6.2	7.0	7.0	7.0	7.0
75°	4.4	5.3	5.3	6.2	6.2	6.2	6.2	7.0	7.0	7.0	7.0
77.5°	4.4	5.3	5.3	6.2	6.2	6.2	7.0	7.0	7.0	7.0	7.0
80°	5.3	5.3	6.2	6.2	6.2	7.0	7.0	7.0	7.0	7.0	7.9
82.5°	5.3	5.3	6.2	6.2	6.2	7.0	7.0	7.0	7.0	7.0	7.9
85°	5.3	5.3	6.2	6.2	6.2	7.0	7.0	7.0	7.0	7.9	7.9
87.5°	5.3	5.3	6.2	6.2	6.2	7.0	7.0	7.0	7.0	7.9	7.9
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: P179651

CATALOG NUMBER: LDA6A45940D010TE LARH30NF 6LA1LI 30°

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6
2.5°	565.0	538.6	501.7	489.4	463.8	445.3	425.1	402.2	397.8	374.9	372.3
5°	470.9	428.6	386.4	370.5	348.5	330.0	309.8	287.8	278.1	256.1	242.9
7.5°	388.1	347.7	309.8	294.0	272.8	249.1	225.3	202.4	189.2	168.1	157.5
10°	325.6	285.2	244.7	228.8	209.5	183.1	157.5	133.8	125.0	119.7	120.6
12.5°	272.0	231.5	191.0	173.4	153.1	132.0	131.1	129.4	132.9	132.0	132.9
15°	228.0	184.8	146.1	140.8	140.8	144.3	147.9	148.7	154.9	154.9	156.7
17.5°	187.5	157.5	159.3	159.3	162.8	169.0	176.0	179.5	189.2	190.1	193.6
20°	174.3	181.3	189.2	191.0	197.1	206.8	216.5	223.6	235.9	239.4	246.4
22.5°	206.8	219.2	231.5	235.0	242.9	257.0	274.6	280.8	295.7	295.7	305.4
25°	243.8	262.3	274.6	279.0	287.8	300.1	311.6	315.1	325.6	322.1	325.6
27.5°	258.8	272.0	279.9	284.3	286.0	296.6	301.9	300.1	307.2	301.9	301.9
30°	229.7	239.4	243.8	246.4	246.4	254.4	254.4	251.7	256.1	251.7	249.1
32.5°	180.4	187.5	191.0	191.0	190.1	195.4	193.6	190.1	191.9	189.2	183.1
35°	125.9	131.1	133.8	132.9	132.0	136.4	133.8	131.1	132.0	130.3	125.9
37.5°	82.7	83.6	85.4	87.1	86.3	89.8	88.0	86.3	87.1	85.4	82.7
40°	50.2	51.9	53.7	53.7	53.7	54.6	54.6	53.7	55.4	53.7	51.9
42.5°	29.9	31.7	31.7	31.7	32.6	32.6	33.4	31.7	33.4	31.7	30.8
45°	18.5	18.5	18.5	19.4	18.5	19.4	19.4	18.5	19.4	18.5	17.6
47.5°	11.4	11.4	11.4	11.4	11.4	11.4	11.4	10.6	11.4	10.6	9.7
50°	7.0	7.9	7.0	7.0	7.0	7.0	7.0	6.2	6.2	5.3	5.3
52.5°	6.2	6.2	6.2	6.2	6.2	6.2	5.3	5.3	4.4	3.5	3.5
55°	6.2	6.2	6.2	5.3	5.3	5.3	5.3	4.4	4.4	3.5	2.6
57.5°	6.2	6.2	5.3	5.3	5.3	5.3	4.4	4.4	3.5	2.6	2.6
60°	6.2	6.2	6.2	5.3	5.3	5.3	4.4	4.4	3.5	2.6	2.6
62.5°	6.2	6.2	6.2	5.3	5.3	5.3	5.3	4.4	3.5	2.6	2.6
65°	6.2	6.2	6.2	6.2	6.2	5.3	5.3	4.4	4.4	3.5	2.6
67.5°	7.0	6.2	6.2	6.2	6.2	6.2	5.3	4.4	4.4	3.5	2.6
70°	7.0	7.0	6.2	6.2	6.2	6.2	5.3	5.3	4.4	3.5	2.6
72.5°	7.0	7.0	7.0	7.0	6.2	6.2	6.2	5.3	4.4	3.5	3.5
75°	7.0	7.0	7.0	7.0	7.0	6.2	6.2	5.3	5.3	4.4	3.5
77.5°	7.9	7.0	7.0	7.0	7.0	7.0	6.2	5.3	5.3	4.4	3.5
80°	7.9	7.9	7.0	7.0	7.0	7.0	6.2	5.3	5.3	4.4	3.5
82.5°	7.9	7.9	7.0	7.0	7.0	7.0	6.2	6.2	5.3	4.4	3.5
85°	7.9	7.9	7.0	7.0	7.0	7.0	6.2	5.3	5.3	4.4	3.5
87.5°	7.9	7.9	7.0	7.0	7.0	7.0	6.2	5.3	5.3	4.4	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





TEST NUMBER: P179651

CATALOG NUMBER: LDA6A45940D010TE LARH30NF 6LA1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6
2.5°	356.5	354.7	348.5	350.3	345.9	336.2	337.1	333.6
5°	234.1	228.8	222.7	222.7	216.5	207.7	207.7	205.1
7.5°	142.6	134.7	128.5	127.6	121.5	117.1	117.1	116.2
10°	120.6	121.5	121.5	122.3	121.5	121.5	122.3	123.2
12.5°	135.5	138.2	138.2	139.1	138.2	139.9	139.9	141.7
15°	161.9	166.3	167.2	169.0	168.1	170.7	172.5	174.3
17.5°	203.3	208.6	210.4	215.6	214.8	217.4	219.2	222.7
20°	256.1	264.0	266.7	273.7	272.8	275.5	279.9	282.5
22.5°	315.1	324.8	325.6	331.8	330.9	333.6	335.3	336.2
25°	330.9	337.1	336.2	339.7	339.7	340.6	340.6	345.9
27.5°	302.8	307.2	307.2	307.2	308.0	308.9	308.9	313.3
30°	249.1	250.8	251.7	249.1	250.8	251.7	251.7	256.1
32.5°	184.8	185.7	186.6	183.1	185.7	185.7	185.7	189.2
35°	127.6	127.6	128.5	125.9	127.6	128.5	127.6	130.3
37.5°	83.6	83.6	83.6	83.6	83.6	83.6	82.7	85.4
40°	51.9	52.8	51.9	51.9	51.0	51.0	51.0	52.8
42.5°	30.8	30.8	29.9	29.9	29.9	29.9	30.8	30.8
45°	17.6	17.6	16.7	16.7	15.8	16.7	16.7	16.7
47.5°	9.7	8.8	8.8	8.8	7.9	7.9	7.9	8.8
50°	4.4	4.4	4.4	3.5	3.5	3.5	2.6	3.5
52.5°	2.6	1.8	1.8	1.8	0.9	0.9	0.0	0.9
55°	1.8	1.8	0.9	0.9	0.0	0.0	0.0	0.0
57.5°	1.8	0.9	0.9	0.9	0.0	0.0	0.0	0.0
60°	1.8	0.9	0.9	0.9	0.0	0.0	0.0	0.0
62.5°	1.8	0.9	0.9	0.9	0.0	0.0	0.0	0.0
65°	1.8	0.9	0.9	0.9	0.0	0.0	0.0	0.0
67.5°	1.8	1.8	0.9	0.9	0.9	0.0	0.0	0.0
70°	2.6	1.8	1.8	0.9	0.9	0.0	0.0	0.0
72.5°	2.6	1.8	1.8	1.8	0.9	0.9	0.0	0.0
75°	2.6	1.8	1.8	1.8	0.9	0.9	0.0	0.0
77.5°	2.6	2.6	1.8	1.8	0.9	0.9	0.9	0.9
80°	2.6	2.6	1.8	1.8	1.8	0.9	0.9	0.9
82.5°	2.6	2.6	1.8	1.8	1.8	0.9	0.9	0.9
85°	2.6	2.6	1.8	1.8	1.8	0.9	0.9	0.9
87.5°	2.6	2.6	1.8	1.8	1.8	0.9	0.9	0.9
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°















(END OF REPORT)