

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: P179650

Luminaire Tested: **LDA6A45935D010TE LARH30NF 6LA1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179650  
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: LDA6A45935D010TE 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 / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4125.0 lumens  
Efficiency: N/A  
Efficacy: 77.8 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

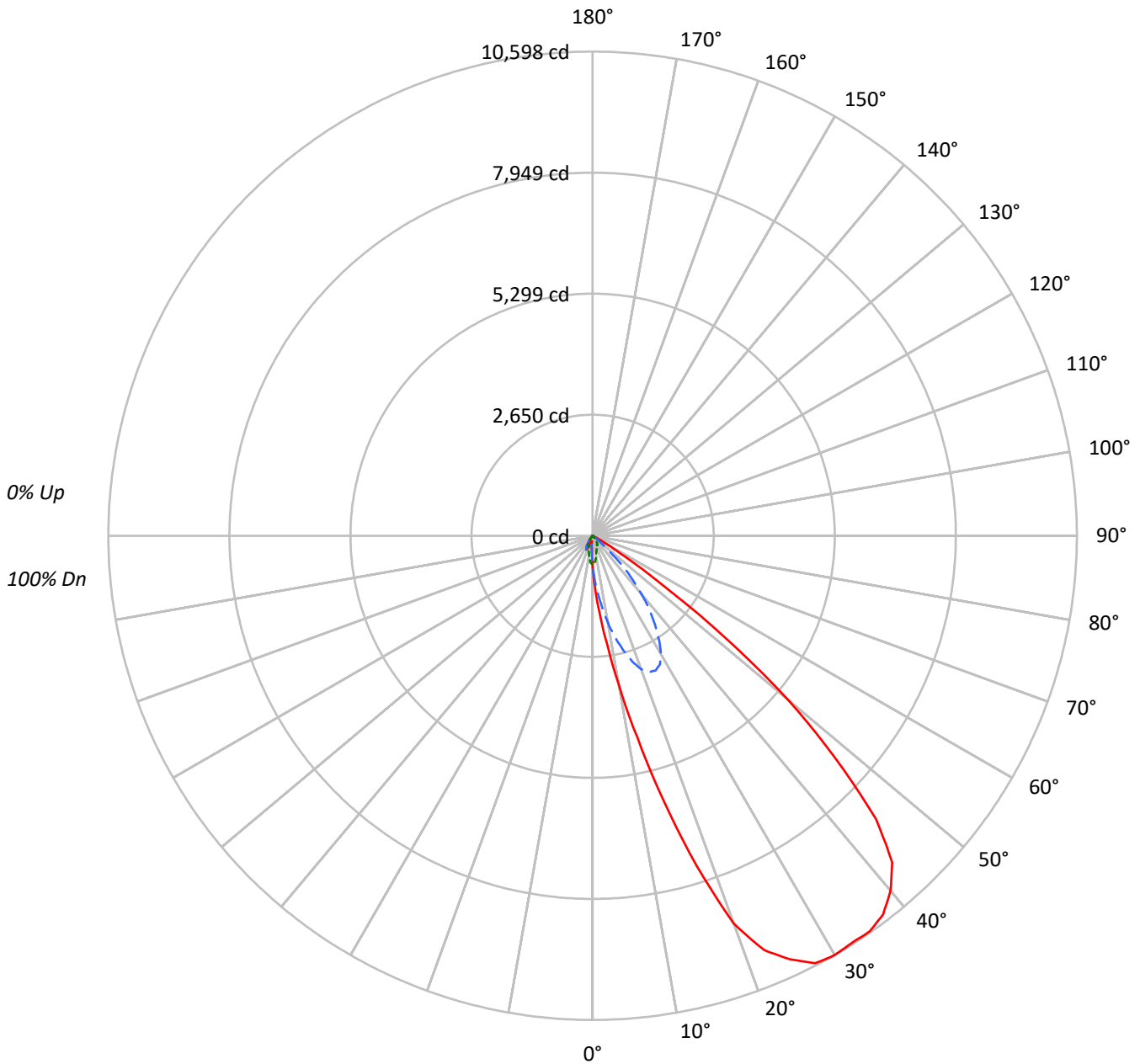
Input Watts (W): 53  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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

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

	0°	90°	180°
0°	34657	34657	34657
5°	91355	31570	10863
10°	184588	24576	6602
15°	339883	18422	9523
20°	526953	14730	15868
25°	618689	13071	20142
30°	670856	13141	15610
35°	707370	7823	8392
40°	725545	3335	3635
45°	679722	1310	1248
50°	475268	580	290
55°	166761	564	0
60°	33638	647	0
65°	2088	765	0
70°	401	1090	0
75°	0	1440	0
80°	0	2147	253
85°	0	4780	503



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	81.0	2.0
10°-20°	452.3	11.0
20°-30°	1069.1	25.9
30°-40°	1302.4	31.6
40°-50°	968.8	23.5
50°-60°	234.6	5.7
60°-70°	8.7	0.2
70°-80°	4.2	0.1
80°-90°	4.0	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°	1602.4	38.8
0°-40°	2904.8	70.4
0°-60°	4108.1	99.6
0°-90°	4125.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4125.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	632	632	632	632	632	
5°	1660	1242	574	268	197	208
15°	5989	2596	325	149	168	1805
25°	10228	3255	216	314	333	4697
35°	10570	2377	117	127	125	6583
45°	8768	906	17	19	16	6440
55°	1745	20	6	4	0	1974
65°	16	4	6	4	0	54
75°	0	4	7	5	0	0
85°	0	4	8	5	1	0
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2
2.5°	1102.5	1083.9	1082.2	1063.5	1056.7	1054.2	1027.9	1018.6	983.9	977.1	927.9
5°	1660.1	1631.3	1625.4	1583.0	1551.6	1508.4	1485.5	1446.6	1364.4	1321.1	1241.5
7.5°	2361.8	2323.6	2315.2	2249.1	2183.8	2127.0	2079.6	1988.9	1838.1	1734.7	1572.0
10°	3316.0	3209.2	3170.2	3030.4	2895.6	2789.7	2734.6	2535.5	2308.4	2169.4	1942.3
12.5°	4527.8	4349.8	4276.9	4060.9	3823.6	3649.9	3543.1	3230.4	2860.9	2594.8	2270.2
15°	5988.7	5782.0	5651.5	5379.4	4948.1	4700.7	4511.7	4010.9	3471.9	3069.4	2595.7
17.5°	7579.4	7417.5	7222.6	6796.3	6101.5	5804.0	5460.8	4804.0	4065.1	3504.9	2886.3
20°	9032.7	8761.5	8614.9	8140.4	7335.3	6942.9	6520.1	5536.2	4589.6	3860.0	3109.2
22.5°	9820.0	9557.2	9469.1	9057.3	8319.2	7882.7	7344.6	6181.1	4992.2	4103.2	3227.8
25°	10228.4	9988.6	9994.5	9622.5	8956.4	8546.3	7998.8	6668.4	5266.7	4231.2	3255.0
27.5°	10547.9	10253.0	10201.3	9923.3	9331.0	8911.5	8383.6	6933.6	5367.6	4217.6	3181.2
30°	10597.9	10356.4	10393.7	10007.2	9466.6	9030.2	8481.0	6919.2	5264.2	4047.3	2989.7
32.5°	10564.0	10324.2	10409.8	9990.3	9408.1	8929.3	8318.3	6637.9	4960.8	3732.1	2708.4
35°	10569.9	10294.5	10231.0	9875.9	9182.7	8620.8	7883.6	6124.3	4512.5	3321.9	2377.0
37.5°	10443.7	10072.5	10083.5	9615.7	8747.1	8002.2	7167.5	5439.6	3982.0	2883.8	2044.0
40°	10138.6	9860.6	9772.5	9077.6	7918.3	7045.5	6240.4	4695.6	3368.5	2426.2	1653.3
42.5°	9703.9	9369.1	9110.7	8148.0	6743.8	5943.0	5247.3	3920.2	2788.9	1988.9	1283.8
45°	8767.5	8405.6	7904.8	6749.7	5560.8	4865.9	4285.4	3182.1	2255.8	1537.2	905.9
47.5°	7192.9	6853.1	6337.9	5367.6	4439.7	3860.9	3408.3	2492.3	1649.1	969.5	449.1
50°	5572.7	5314.2	4921.0	4078.7	3303.3	2761.8	2358.4	1565.2	841.5	442.4	188.1
52.5°	3632.1	3449.0	3099.0	2458.4	1866.9	1463.5	1189.8	666.1	396.6	186.4	55.1
55°	1744.8	1649.9	1396.6	1012.7	733.0	601.7	508.5	322.9	150.0	44.9	19.5
57.5°	695.7	675.4	601.7	453.4	347.4	294.9	228.8	89.0	29.7	18.6	11.9
60°	306.8	297.4	249.1	165.2	89.0	50.8	37.3	22.0	14.4	11.0	7.6
62.5°	44.1	40.7	34.7	27.1	22.0	18.6	16.1	11.9	7.6	5.9	5.1
65°	16.1	16.1	14.4	11.9	10.2	9.3	8.5	5.9	4.2	4.2	4.2
67.5°	6.8	6.8	6.8	5.1	5.1	4.2	3.4	3.4	3.4	3.4	4.2
70°	2.5	2.5	2.5	1.7	1.7	1.7	2.5	2.5	2.5	3.4	4.2
72.5°	0.0	0.8	0.8	0.8	1.7	1.7	1.7	2.5	2.5	3.4	4.2
75°	0.0	0.0	0.8	0.8	1.7	1.7	1.7	2.5	2.5	3.4	4.2
77.5°	0.0	0.0	0.8	0.8	1.7	1.7	1.7	2.5	3.4	3.4	4.2
80°	0.0	0.0	0.8	0.8	1.7	1.7	1.7	2.5	3.4	3.4	4.2
82.5°	0.0	0.0	0.8	0.8	1.7	1.7	1.7	2.5	3.4	4.2	4.2
85°	0.0	0.0	0.8	0.8	1.7	1.7	1.7	2.5	3.4	3.4	4.2
87.5°	0.0	0.0	0.8	0.8	1.7	1.7	1.7	2.5	3.4	4.2	4.2
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2
2.5°	886.4	874.5	834.7	794.9	789.0	772.0	737.3	696.6	644.0	611.0	577.9
5°	1138.1	1078.8	1011.8	934.7	911.0	877.1	804.2	726.2	639.0	573.7	512.7
7.5°	1432.1	1299.9	1173.7	1050.0	1003.4	950.8	839.8	727.9	608.5	513.5	437.3
10°	1707.6	1504.2	1308.4	1133.0	1063.5	992.3	843.2	699.1	550.8	441.5	363.5
12.5°	1982.1	1690.6	1422.8	1193.2	1099.1	1007.6	824.5	647.4	479.6	375.4	312.7
15°	2198.2	1859.2	1505.9	1223.7	1106.7	994.9	778.8	576.2	410.2	324.6	268.6
17.5°	2348.2	1955.9	1537.2	1211.0	1077.1	950.8	706.8	493.2	354.2	284.7	230.5
20°	2451.6	1986.4	1515.2	1158.4	1013.5	874.5	616.1	418.6	314.4	252.5	198.3
22.5°	2480.4	1956.7	1452.5	1079.6	930.5	787.3	522.0	369.5	285.6	227.1	192.4
25°	2452.4	1881.3	1358.4	985.6	828.8	678.8	443.2	339.8	263.5	216.1	223.7
27.5°	2350.8	1748.2	1227.9	864.4	703.4	561.8	389.8	304.2	232.2	228.0	237.3
30°	2183.0	1557.6	1072.8	709.3	555.9	448.3	327.1	239.8	203.4	207.6	213.6
32.5°	1941.4	1323.7	873.7	525.4	407.6	337.3	233.9	166.1	161.0	164.4	168.6
35°	1636.4	1077.1	654.2	362.7	289.0	232.2	137.3	117.8	115.2	116.9	118.6
37.5°	1327.9	832.2	444.9	244.1	175.4	117.8	82.2	77.1	75.4	76.3	77.1
40°	1030.5	578.8	279.6	116.9	68.6	58.5	50.8	48.3	46.6	46.6	47.5
42.5°	752.5	343.2	139.0	45.8	37.3	34.7	30.5	28.8	27.1	28.0	28.8
45°	421.2	152.5	47.5	25.4	22.9	21.2	18.6	17.8	16.9	16.9	16.9
47.5°	179.7	53.4	22.9	16.1	14.4	13.6	11.9	11.0	10.2	10.2	10.2
50°	59.3	21.2	14.4	11.0	9.3	8.5	7.6	6.8	6.8	6.8	7.6
52.5°	21.2	13.6	9.3	7.6	6.8	6.8	5.9	5.9	5.9	5.9	5.9
55°	12.7	9.3	6.8	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
57.5°	8.5	5.9	5.9	5.1	5.1	5.1	5.1	5.1	5.1	5.9	5.9
60°	5.9	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.9	5.9
62.5°	5.1	4.2	4.2	5.1	5.1	5.1	5.1	5.9	5.9	5.9	5.9
65°	4.2	4.2	4.2	5.1	5.1	5.1	5.1	5.9	5.9	5.9	5.9
67.5°	4.2	4.2	5.1	5.1	5.1	5.1	5.9	5.9	5.9	5.9	6.8
70°	4.2	4.2	5.1	5.1	5.1	5.9	5.9	5.9	5.9	6.8	6.8
72.5°	4.2	5.1	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8	6.8
75°	4.2	5.1	5.1	5.9	5.9	5.9	5.9	6.8	6.8	6.8	6.8
77.5°	4.2	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8	6.8	6.8
80°	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8	6.8	6.8	7.6
82.5°	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8	6.8	6.8	7.6
85°	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8	6.8	7.6	7.6
87.5°	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8	6.8	7.6	7.6
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2
2.5°	544.0	518.6	483.0	471.2	446.6	428.8	409.3	387.3	383.0	361.0	358.5
5°	453.4	412.7	372.0	356.8	335.6	317.8	298.3	277.1	267.8	246.6	233.9
7.5°	373.7	334.7	298.3	283.0	262.7	239.8	216.9	194.9	182.2	161.9	151.7
10°	313.5	274.6	235.6	220.3	201.7	176.3	151.7	128.8	120.3	115.2	116.1
12.5°	261.9	222.9	183.9	166.9	147.5	127.1	126.3	124.6	128.0	127.1	128.0
15°	219.5	178.0	140.7	135.6	135.6	139.0	142.4	143.2	149.1	149.1	150.8
17.5°	180.5	151.7	153.4	153.4	156.8	162.7	169.5	172.9	182.2	183.0	186.4
20°	167.8	174.6	182.2	183.9	189.8	199.1	208.5	215.2	227.1	230.5	237.3
22.5°	199.1	211.0	222.9	226.3	233.9	247.4	264.4	270.3	284.7	284.7	294.1
25°	234.7	252.5	264.4	268.6	277.1	289.0	300.0	303.4	313.5	310.2	313.5
27.5°	249.1	261.9	269.5	273.7	275.4	285.6	290.7	289.0	295.8	290.7	290.7
30°	221.2	230.5	234.7	237.3	237.3	244.9	244.9	242.4	246.6	242.4	239.8
32.5°	173.7	180.5	183.9	183.9	183.0	188.1	186.4	183.0	184.7	182.2	176.3
35°	121.2	126.3	128.8	128.0	127.1	131.4	128.8	126.3	127.1	125.4	121.2
37.5°	79.7	80.5	82.2	83.9	83.0	86.4	84.7	83.0	83.9	82.2	79.7
40°	48.3	50.0	51.7	51.7	51.7	52.5	52.5	51.7	53.4	51.7	50.0
42.5°	28.8	30.5	30.5	30.5	31.4	31.4	32.2	30.5	32.2	30.5	29.7
45°	17.8	17.8	17.8	18.6	17.8	18.6	18.6	17.8	18.6	17.8	16.9
47.5°	11.0	11.0	11.0	11.0	11.0	11.0	11.0	10.2	11.0	10.2	9.3
50°	6.8	7.6	6.8	6.8	6.8	6.8	6.8	5.9	5.9	5.1	5.1
52.5°	5.9	5.9	5.9	5.9	5.9	5.9	5.1	5.1	4.2	3.4	3.4
55°	5.9	5.9	5.9	5.1	5.1	5.1	5.1	4.2	4.2	3.4	2.5
57.5°	5.9	5.9	5.1	5.1	5.1	5.1	4.2	4.2	3.4	2.5	2.5
60°	5.9	5.9	5.9	5.1	5.1	5.1	4.2	4.2	3.4	2.5	2.5
62.5°	5.9	5.9	5.9	5.1	5.1	5.1	5.1	4.2	3.4	2.5	2.5
65°	5.9	5.9	5.9	5.9	5.9	5.1	5.1	4.2	4.2	3.4	2.5
67.5°	6.8	5.9	5.9	5.9	5.9	5.9	5.1	4.2	4.2	3.4	2.5
70°	6.8	6.8	5.9	5.9	5.9	5.9	5.1	5.1	4.2	3.4	2.5
72.5°	6.8	6.8	6.8	6.8	5.9	5.9	5.9	5.1	4.2	3.4	3.4
75°	6.8	6.8	6.8	6.8	6.8	5.9	5.9	5.1	5.1	4.2	3.4
77.5°	7.6	6.8	6.8	6.8	6.8	6.8	5.9	5.1	5.1	4.2	3.4
80°	7.6	7.6	6.8	6.8	6.8	6.8	5.9	5.1	5.1	4.2	3.4
82.5°	7.6	7.6	6.8	6.8	6.8	6.8	5.9	5.9	5.1	4.2	3.4
85°	7.6	7.6	6.8	6.8	6.8	6.8	5.9	5.1	5.1	4.2	3.4
87.5°	7.6	7.6	6.8	6.8	6.8	6.8	5.9	5.1	5.1	4.2	3.4
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: P179650

CATALOG NUMBER: LDA6A45935D010TE LARH30NF 6LA1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	632.2	632.2	632.2	632.2	632.2	632.2	632.2	632.2
2.5°	343.2	341.5	335.6	337.3	333.0	323.7	324.6	321.2
5°	225.4	220.3	214.4	214.4	208.5	200.0	200.0	197.4
7.5°	137.3	129.7	123.7	122.9	116.9	112.7	112.7	111.9
10°	116.1	116.9	116.9	117.8	116.9	116.9	117.8	118.6
12.5°	130.5	133.0	133.0	133.9	133.0	134.7	134.7	136.4
15°	155.9	160.2	161.0	162.7	161.9	164.4	166.1	167.8
17.5°	195.8	200.8	202.5	207.6	206.8	209.3	211.0	214.4
20°	246.6	254.2	256.8	263.5	262.7	265.2	269.5	272.0
22.5°	303.4	312.7	313.5	319.5	318.6	321.2	322.9	323.7
25°	318.6	324.6	323.7	327.1	327.1	328.0	328.0	333.0
27.5°	291.5	295.8	295.8	295.8	296.6	297.4	297.4	301.7
30°	239.8	241.5	242.4	239.8	241.5	242.4	242.4	246.6
32.5°	178.0	178.8	179.7	176.3	178.8	178.8	178.8	182.2
35°	122.9	122.9	123.7	121.2	122.9	123.7	122.9	125.4
37.5°	80.5	80.5	80.5	80.5	80.5	80.5	79.7	82.2
40°	50.0	50.8	50.0	50.0	49.2	49.2	49.2	50.8
42.5°	29.7	29.7	28.8	28.8	28.8	28.8	29.7	29.7
45°	16.9	16.9	16.1	16.1	15.3	16.1	16.1	16.1
47.5°	9.3	8.5	8.5	8.5	7.6	7.6	7.6	8.5
50°	4.2	4.2	4.2	3.4	3.4	3.4	2.5	3.4
52.5°	2.5	1.7	1.7	1.7	0.8	0.8	0.0	0.8
55°	1.7	1.7	0.8	0.8	0.0	0.0	0.0	0.0
57.5°	1.7	0.8	0.8	0.8	0.0	0.0	0.0	0.0
60°	1.7	0.8	0.8	0.8	0.0	0.0	0.0	0.0
62.5°	1.7	0.8	0.8	0.8	0.0	0.0	0.0	0.0
65°	1.7	0.8	0.8	0.8	0.0	0.0	0.0	0.0
67.5°	1.7	1.7	0.8	0.8	0.8	0.0	0.0	0.0
70°	2.5	1.7	1.7	0.8	0.8	0.0	0.0	0.0
72.5°	2.5	1.7	1.7	1.7	0.8	0.8	0.0	0.0
75°	2.5	1.7	1.7	1.7	0.8	0.8	0.0	0.0
77.5°	2.5	2.5	1.7	1.7	0.8	0.8	0.8	0.8
80°	2.5	2.5	1.7	1.7	1.7	0.8	0.8	0.8
82.5°	2.5	2.5	1.7	1.7	1.7	0.8	0.8	0.8
85°	2.5	2.5	1.7	1.7	1.7	0.8	0.8	0.8
87.5°	2.5	2.5	1.7	1.7	1.7	0.8	0.8	0.8
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)