

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: P179670

Luminaire Tested: **LDA6A45835D010TE LARH30NF 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179670
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26674)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A45835D010TE LARH30NF 6LAL1LI 30°
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 30° Narrow Flood, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4525.0 lumens
Efficiency: N/A
Efficacy: 85.4 lumens/watt
Spacing Criteria (0/90/45): 2.68 / 0.47 / 1.42
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

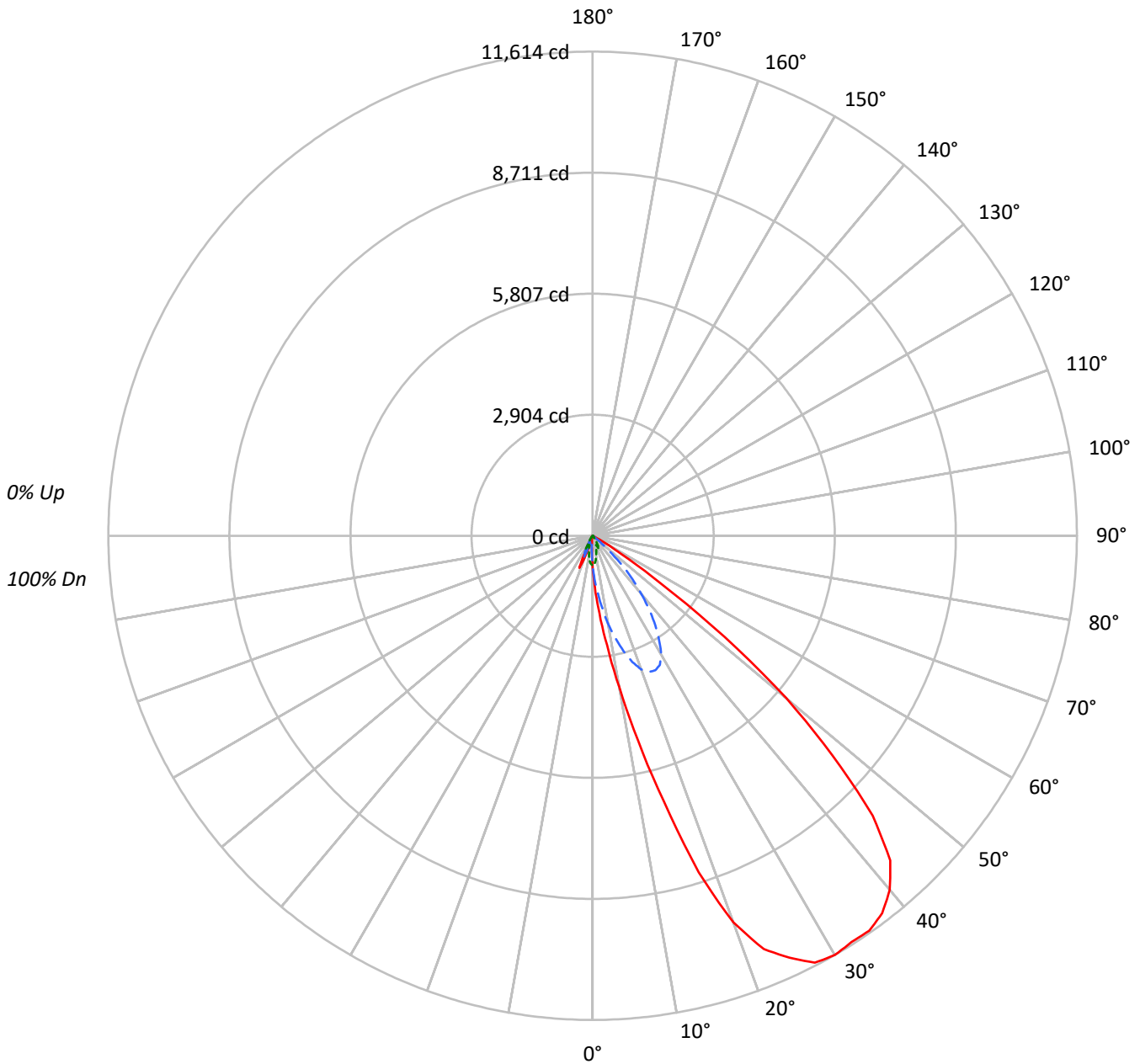
Input Watts (W): 53
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	92	91																			
2	105	99	94	89	102	97	92	88	94	90	86	90	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	67	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	59	54	77	66	59	54	65	58	53	63	57	53	61	57	53	51																			
7	73	61	54	48	71	60	53	48	59	53	48	58	52	47	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°	39087	39087	39087
5°	103010	35659	11501
10°	205674	27332	4565
15°	374446	19183	4994
20°	575777	13768	31503
25°	675251	20566	26070
30°	735208	12913	7596
35°	773798	5354	3145
40°	793451	2362	1789
45°	736557	1551	1318
50°	516631	1194	597
55°	188944	860	382
60°	39909	877	219
65°	3373	1038	259
70°	1122	1282	481
75°	212	1694	847
80°	316	2526	1263
85°	0	5032	1258



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.7	2.0
10°-20°	493.3	10.9
20°-30°	1192.2	26.3
30°-40°	1401.5	31.0
40°-50°	1058.7	23.4
50°-60°	265.6	5.9
60°-70°	12.8	0.3
70°-80°	6.1	0.1
80°-90°	5.0	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°	1775.2	39.2
0°-40°	3176.7	70.2
0°-60°	4501.0	99.5
0°-90°	4525.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4525.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	713	713	713	713	713	
5°	1872	1359	648	275	209	233
15°	6598	2862	338	91	88	1997
25°	11164	3561	340	472	431	5135
35°	11562	2624	80	57	47	7200
45°	9501	1031	20	21	17	7000
55°	1977	29	9	8	4	2187
65°	26	7	8	7	2	70
75°	1	5	8	7	4	3
85°	0	5	8	6	2	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°	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0
2.5°	1243.9	1223.9	1209.9	1186.0	1174.0	1179.0	1154.0	1120.0	1110.0	1080.0	1028.0
5°	1871.9	1850.9	1817.9	1766.9	1728.9	1722.9	1673.9	1591.9	1539.9	1462.9	1358.9
7.5°	2642.9	2624.9	2569.9	2493.9	2429.9	2405.9	2333.9	2189.9	2074.9	1920.9	1741.9
10°	3694.8	3624.8	3521.9	3367.9	3220.9	3152.9	3025.9	2787.9	2600.9	2389.9	2146.9
12.5°	5013.8	4889.8	4722.8	4491.8	4238.8	4111.8	3909.8	3545.9	3218.9	2856.9	2502.9
15°	6597.7	6472.7	6230.7	5872.8	5465.8	5261.8	4963.8	4389.8	3902.8	3371.9	2861.9
17.5°	8466.6	8262.7	7940.7	7421.7	6791.7	6471.7	6049.7	5254.8	4528.8	3835.8	3175.9
20°	9869.6	9720.6	9415.6	8872.6	8121.7	7709.7	7142.7	6047.7	5110.8	4206.8	3413.9
22.5°	10730.6	10596.6	10316.6	9862.6	9172.6	8715.6	8076.7	6743.7	5562.8	4463.8	3532.9
25°	11163.5	11067.5	10872.5	10476.6	9873.6	9414.6	8768.6	7258.7	5868.8	4602.8	3560.9
27.5°	11544.5	11383.5	11066.5	10796.6	10262.6	9795.6	9183.6	7514.7	5975.8	4586.8	3489.9
30°	11614.5	11522.5	11272.5	10886.5	10389.6	9917.6	9272.6	7477.7	5854.8	4400.8	3296.9
32.5°	11554.5	11474.5	11285.5	10864.6	10308.6	9787.6	9079.6	7173.7	5499.8	4055.8	2970.9
35°	11562.5	11435.5	11104.5	10744.6	10050.6	9438.6	8607.6	6617.7	5002.8	3607.9	2623.9
37.5°	11409.5	11200.5	10927.5	10463.6	9526.6	8767.6	7817.7	5900.8	4404.8	3150.9	2218.9
40°	11087.5	10928.5	10565.6	9852.6	8633.6	7679.7	6801.7	5077.8	3751.8	2651.9	1808.9
42.5°	10561.6	10371.6	9864.6	8789.6	7340.7	6508.7	5718.8	4235.8	3109.9	2168.9	1419.9
45°	9500.6	9210.6	8547.6	7265.7	6029.8	5323.8	4679.8	3453.9	2520.9	1696.9	1031.0
47.5°	7805.7	7558.7	6857.7	5787.8	4814.8	4268.8	3719.8	2723.9	1875.9	1091.0	530.0
50°	6057.7	5862.8	5327.8	4388.8	3576.9	3046.9	2614.9	1738.9	1000.0	502.0	238.0
52.5°	3985.8	3862.8	3403.9	2739.9	2053.9	1675.9	1360.9	755.0	466.0	223.0	82.0
55°	1976.9	1818.9	1599.9	1186.0	858.0	694.0	589.0	372.0	193.0	64.0	29.0
57.5°	806.0	771.0	694.0	536.0	412.0	348.0	278.0	116.0	43.0	26.0	18.0
60°	364.0	348.0	302.0	212.0	115.0	71.0	50.0	32.0	22.0	16.0	12.0
62.5°	64.0	59.0	52.0	40.0	32.0	28.0	24.0	18.0	14.0	11.0	9.0
65°	26.0	26.0	24.0	21.0	17.0	16.0	14.0	11.0	9.0	8.0	7.0
67.5°	14.0	13.0	13.0	11.0	10.0	9.0	8.0	7.0	7.0	6.0	6.0
70°	7.0	7.0	7.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
72.5°	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	4.0	4.0
75°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	4.0	4.0	5.0
77.5°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	4.0	4.0	5.0
80°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	4.0	4.0	5.0
82.5°	0.0	0.0	1.0	1.0	2.0	2.0	2.0	3.0	3.0	4.0	5.0
85°	0.0	0.0	1.0	1.0	2.0	2.0	2.0	3.0	3.0	4.0	5.0
87.5°	0.0	0.0	1.0	1.0	1.0	2.0	2.0	3.0	3.0	4.0	5.0
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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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0
2.5°	1026.0	974.0	934.0	896.0	887.0	856.0	827.0	777.0	732.0	690.0	642.0
5°	1318.9	1216.9	1132.0	1049.0	1022.0	970.0	900.0	810.0	726.0	648.0	566.0
7.5°	1637.9	1464.9	1313.9	1174.0	1125.0	1051.0	938.0	810.0	689.0	577.0	477.0
10°	1950.9	1692.9	1464.9	1262.9	1189.0	1093.0	938.0	775.0	621.0	491.0	392.0
12.5°	2252.9	1898.9	1590.9	1323.9	1226.9	1107.0	913.0	714.0	535.0	407.0	324.0
15°	2488.9	2072.9	1679.9	1347.9	1226.9	1088.0	855.0	629.0	448.0	338.0	264.0
17.5°	2665.9	2175.9	1709.9	1324.9	1185.0	1029.0	767.0	529.0	369.0	280.0	209.0
20°	2768.9	2201.9	1678.9	1257.9	1105.0	940.0	658.0	436.0	313.0	236.0	169.0
22.5°	2792.9	2165.9	1606.9	1172.0	1014.0	847.0	562.0	390.0	302.0	241.0	211.0
25°	2765.9	2092.9	1511.9	1085.0	928.0	763.0	527.0	420.0	362.0	340.0	364.0
27.5°	2658.9	1956.9	1394.9	988.0	830.0	676.0	500.0	423.0	364.0	354.0	343.0
30°	2467.9	1751.9	1214.9	808.0	641.0	513.0	355.0	252.0	201.0	204.0	202.0
32.5°	2168.9	1453.9	951.0	565.0	441.0	347.0	235.0	149.0	140.0	140.0	138.0
35°	1839.9	1181.0	715.0	397.0	307.0	244.0	140.0	109.0	92.0	80.0	72.0
37.5°	1504.9	919.0	493.0	268.0	195.0	125.0	67.0	55.0	49.0	46.0	45.0
40°	1165.0	647.0	315.0	147.0	86.0	55.0	43.0	37.0	34.0	33.0	33.0
42.5°	862.0	417.0	170.0	58.0	46.0	38.0	31.0	27.0	26.0	26.0	25.0
45°	519.0	209.0	64.0	36.0	30.0	27.0	23.0	21.0	20.0	20.0	21.0
47.5°	240.0	78.0	35.0	24.0	22.0	20.0	18.0	17.0	17.0	17.0	18.0
50°	87.0	34.0	22.0	17.0	16.0	15.0	14.0	13.0	13.0	14.0	14.0
52.5°	33.0	21.0	16.0	13.0	12.0	12.0	11.0	11.0	11.0	11.0	11.0
55°	20.0	15.0	12.0	10.0	10.0	9.0	9.0	9.0	9.0	9.0	9.0
57.5°	13.0	11.0	9.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
60°	10.0	8.0	7.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0	8.0
62.5°	8.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0
65°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0	9.0
67.5°	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	8.0	8.0	8.0
70°	5.0	5.0	6.0	6.0	6.0	7.0	7.0	7.0	8.0	8.0	8.0
72.5°	5.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	8.0	8.0	8.0
75°	5.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0
77.5°	5.0	6.0	6.0	6.0	7.0	7.0	7.0	8.0	8.0	8.0	9.0
80°	5.0	6.0	6.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0	9.0
82.5°	5.0	6.0	6.0	7.0	7.0	7.0	8.0	8.0	8.0	9.0	9.0
85°	5.0	6.0	6.0	7.0	7.0	7.0	8.0	8.0	8.0	8.0	9.0
87.5°	5.0	6.0	6.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0	8.0
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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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0
2.5°	616.0	575.0	546.0	520.0	510.0	487.0	462.0	433.0	409.0	407.0	387.0
5°	511.0	454.0	413.0	387.0	374.0	350.0	321.0	302.0	275.0	267.0	247.0
7.5°	413.0	360.0	322.0	298.0	283.0	254.0	221.0	200.0	178.0	161.0	139.0
10°	336.0	285.0	244.0	220.0	205.0	174.0	140.0	116.0	96.0	92.0	90.0
12.5°	270.0	218.0	177.0	151.0	135.0	106.0	97.0	93.0	90.0	87.0	87.0
15°	210.0	157.0	113.0	103.0	100.0	97.0	95.0	93.0	91.0	90.0	91.0
17.5°	153.0	111.0	106.0	105.0	103.0	103.0	105.0	106.0	108.0	110.0	113.0
20°	135.0	136.0	147.0	155.0	152.0	167.0	188.0	205.0	246.0	271.0	305.0
22.5°	242.0	278.0	329.0	360.0	377.0	427.0	482.0	565.0	607.0	667.0	721.0
25°	414.0	456.0	500.0	512.0	521.0	526.0	519.0	481.0	472.0	455.0	450.0
27.5°	310.0	290.0	297.0	300.0	297.0	293.0	281.0	260.0	255.0	247.0	249.0
30°	183.0	177.0	185.0	184.0	184.0	184.0	180.0	163.0	155.0	146.0	140.0
32.5°	135.0	124.0	115.0	107.0	104.0	99.0	96.0	89.0	86.0	82.0	82.0
35°	67.0	64.0	64.0	62.0	61.0	62.0	62.0	59.0	57.0	56.0	56.0
37.5°	44.0	44.0	45.0	44.0	44.0	44.0	44.0	43.0	42.0	41.0	41.0
40°	33.0	33.0	34.0	34.0	33.0	33.0	33.0	32.0	32.0	32.0	32.0
42.5°	26.0	26.0	26.0	26.0	25.0	26.0	26.0	26.0	25.0	25.0	24.0
45°	22.0	21.0	21.0	21.0	21.0	21.0	22.0	21.0	21.0	20.0	20.0
47.5°	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	17.0	17.0
50°	14.0	14.0	14.0	14.0	14.0	13.0	13.0	12.0	12.0	11.0	11.0
52.5°	11.0	11.0	10.0	10.0	10.0	10.0	10.0	10.0	9.0	9.0	9.0
55°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.0	7.0	7.0
57.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	6.0
60°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.0	6.0	6.0	6.0
62.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.0	6.0	6.0	5.0
65°	9.0	9.0	9.0	9.0	8.0	8.0	8.0	7.0	7.0	6.0	6.0
67.5°	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	7.0	7.0	6.0
70°	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	7.0	7.0	6.0
72.5°	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	7.0	7.0	6.0
75°	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	7.0	7.0	6.0
77.5°	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	7.0	7.0	6.0
80°	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	7.0	7.0	6.0
82.5°	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	7.0	7.0	6.0
85°	9.0	9.0	8.0	8.0	8.0	8.0	8.0	7.0	6.0	6.0	5.0
87.5°	8.0	8.0	8.0	8.0	8.0	7.0	7.0	6.0	5.0	5.0	4.0
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: P179670

CATALOG NUMBER: LDA6A45835D010TE LARH30NF 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	713.0	713.0	713.0	713.0	713.0	713.0	713.0	713.0
2.5°	383.0	369.0	366.0	370.0	354.0	354.0	354.0	361.0
5°	239.0	225.0	221.0	222.0	209.0	200.0	205.0	209.0
7.5°	130.0	115.0	110.0	110.0	97.0	92.0	93.0	95.0
10°	87.0	85.0	85.0	84.0	82.0	81.0	82.0	82.0
12.5°	84.0	83.0	83.0	82.0	82.0	81.0	81.0	82.0
15°	88.0	88.0	88.0	87.0	87.0	86.0	88.0	88.0
17.5°	112.0	114.0	118.0	120.0	124.0	120.0	127.0	126.0
20°	329.0	362.0	423.0	446.0	512.0	480.0	549.0	540.0
22.5°	745.0	769.0	779.0	784.0	785.0	817.0	822.0	833.0
25°	440.0	434.0	429.0	429.0	411.0	432.0	428.0	431.0
27.5°	235.0	233.0	228.0	230.0	221.0	228.0	230.0	230.0
30°	133.0	129.0	125.0	125.0	117.0	121.0	120.0	120.0
32.5°	77.0	75.0	73.0	72.0	70.0	70.0	69.0	69.0
35°	53.0	52.0	51.0	50.0	48.0	47.0	47.0	47.0
37.5°	39.0	38.0	37.0	37.0	36.0	34.0	34.0	34.0
40°	30.0	29.0	28.0	28.0	27.0	25.0	25.0	25.0
42.5°	23.0	22.0	21.0	20.0	20.0	19.0	18.0	18.0
45°	19.0	19.0	18.0	18.0	17.0	17.0	17.0	17.0
47.5°	16.0	16.0	15.0	15.0	15.0	14.0	14.0	13.0
50°	10.0	9.0	9.0	8.0	8.0	7.0	7.0	7.0
52.5°	8.0	7.0	7.0	6.0	6.0	5.0	5.0	5.0
55°	6.0	6.0	5.0	5.0	5.0	4.0	4.0	4.0
57.5°	5.0	5.0	4.0	4.0	4.0	3.0	3.0	3.0
60°	5.0	4.0	4.0	3.0	3.0	3.0	2.0	2.0
62.5°	5.0	4.0	4.0	3.0	3.0	2.0	2.0	2.0
65°	5.0	4.0	4.0	3.0	3.0	3.0	3.0	2.0
67.5°	5.0	5.0	4.0	4.0	4.0	3.0	3.0	3.0
70°	6.0	5.0	5.0	4.0	4.0	4.0	4.0	3.0
72.5°	6.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
75°	6.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
77.5°	6.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
80°	6.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
82.5°	5.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0
85°	4.0	4.0	4.0	3.0	3.0	3.0	3.0	2.0
87.5°	3.0	3.0	2.0	2.0	1.0	1.0	1.0	1.0
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)