

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: P179665

Luminaire Tested: **LDA6A45930D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179665  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26673)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA6A45930D010TE LARH20SP 6LAL1LI 30°  
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 20° Spot, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3349.0 lumens  
Efficiency: N/A  
Efficacy: 63.2 lumens/watt  
Spacing Criteria (0/90/45): 2.36 / 0.56 / 1.31  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

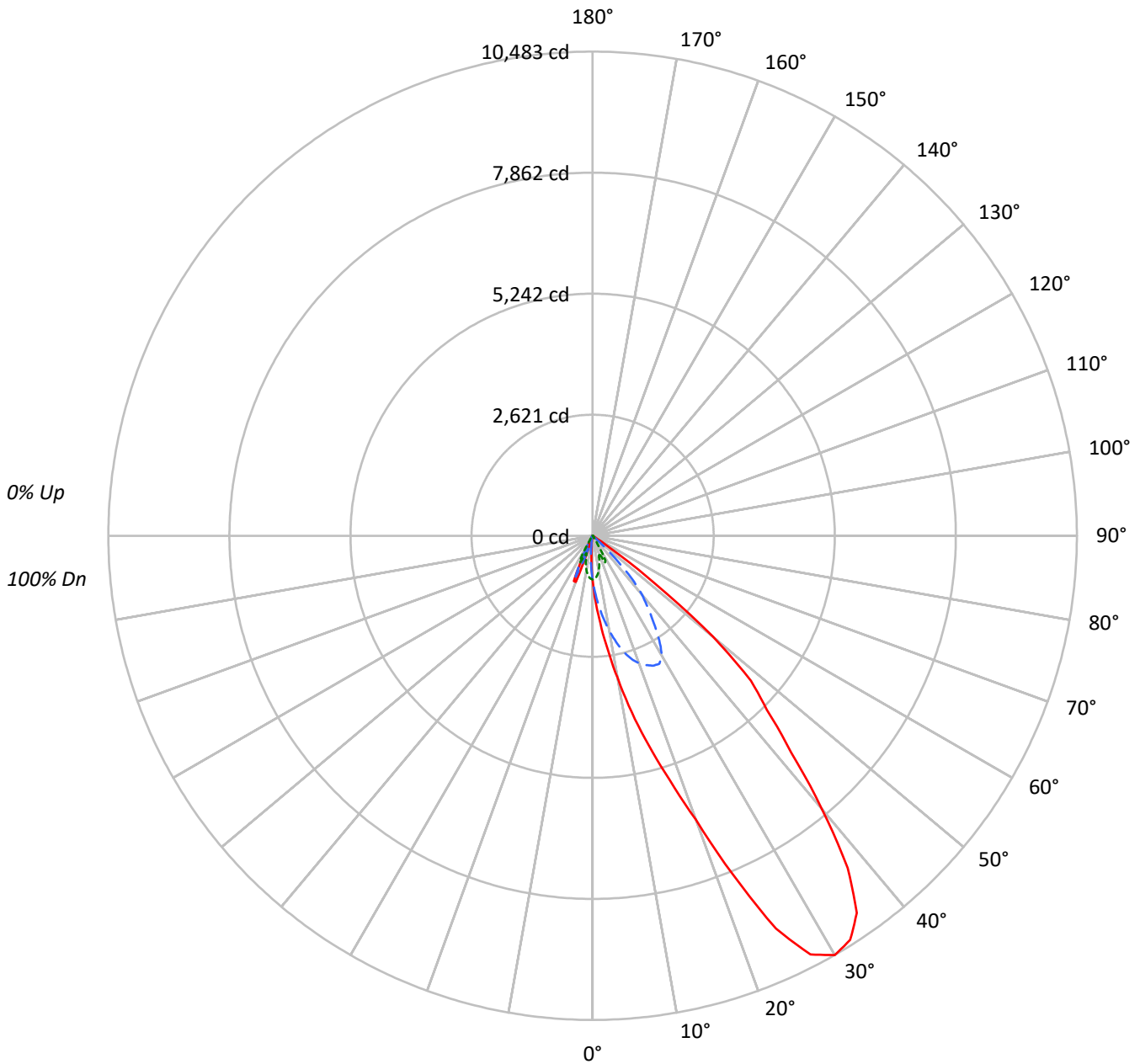
Input Watts (W): 53  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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	79	76	74																			
4	92	83	76	71	90	82	76	71	79	74	70	77	73	69	75	71	68	66																			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	69	65	61	60																			
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	55	54																			
7	75	64	56	51	73	63	56	51	62	55	51	60	55	51	59	54	50	49																			
8	70	59	51	46	69	58	51	46	57	50	46	56	50	46	55	49	46	44																			
9	66	54	47	42	64	53	47	42	52	46	42	51	46	42	50	45	41	40																			
10	62	50	43	38	60	49	43	38	48	42	38	48	42	38	47	42	38	36																			

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

	0°	90°	180°
0°	51975	51975	51975
5°	104072	49439	13257
10°	174540	42267	3624
15°	266534	31686	5267
20°	381883	23166	62002
25°	567740	38446	31798
30°	663589	16996	4944
35°	667250	3540	2617
40°	552485	1982	1517
45°	413555	1264	1202
50°	289824	904	691
55°	46593	698	545
60°	2851	713	450
65°	843	947	428
70°	529	1042	657
75°	339	1207	868
80°	253	1799	1294
85°	503	3585	1510



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	98.2	2.9
10°-20°	414.8	12.4
20°-30°	998.0	29.8
30°-40°	1063.3	31.8
40°-50°	663.1	19.8
50°-60°	96.9	2.9
60°-70°	6.1	0.2
70°-80°	4.8	0.1
80°-90°	3.7	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°	1511.0	45.1
0°-40°	2574.3	76.9
0°-60°	3334.3	99.6
0°-90°	3349.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3349.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	948	948	948	948	948	
5°	1891	1517	898	448	241	219
15°	4696	2610	558	86	93	1393
25°	9386	3104	636	658	526	4229
35°	9970	2303	53	49	39	6015
45°	5334	674	16	19	16	4199
55°	488	11	7	8	6	862
65°	6	5	7	6	3	10
75°	2	3	6	6	4	2
85°	1	3	6	5	2	1
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°	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1
2.5°	1410.3	1362.3	1378.5	1342.7	1329.7	1333.0	1306.9	1285.8	1274.4	1246.7	1218.2
5°	1891.2	1835.9	1852.2	1798.5	1765.1	1757.8	1717.1	1671.5	1630.8	1569.0	1516.9
7.5°	2474.7	2406.3	2417.7	2337.2	2269.6	2246.8	2185.0	2096.3	2014.1	1909.1	1809.0
10°	3135.5	3071.2	3068.0	2945.1	2829.5	2784.8	2694.4	2547.9	2408.0	2250.1	2085.7
12.5°	3914.3	3817.4	3801.2	3643.3	3470.8	3397.5	3271.4	3047.6	2826.3	2596.0	2359.1
15°	4696.3	4592.2	4566.1	4367.6	4126.7	4028.2	3859.8	3561.9	3256.7	2931.2	2609.8
17.5°	5529.6	5362.8	5222.0	4992.5	4714.2	4613.3	4395.2	4013.6	3629.5	3227.5	2797.8
20°	6546.0	6359.7	6161.9	5769.7	5259.5	5060.9	4821.6	4391.2	3911.8	3447.2	2936.9
22.5°	7939.2	7633.3	7213.3	6582.7	5881.2	5598.0	5228.5	4671.1	4129.1	3607.5	3029.7
25°	9386.1	8963.8	8502.4	7533.2	6450.0	6104.2	5618.3	4885.1	4301.6	3725.5	3103.8
27.5°	10219.4	9880.1	9356.8	8341.2	6911.4	6457.3	5897.5	5046.2	4411.5	3782.4	3124.9
30°	10483.1	10208.1	9732.8	8691.2	7066.1	6524.9	5923.5	5047.9	4358.6	3683.2	3002.8
32.5°	10373.3	10112.0	9586.3	8472.3	6782.9	6284.8	5701.3	4842.8	4098.2	3378.0	2689.5
35°	9970.4	9625.4	8986.6	7745.6	6301.1	5806.3	5261.1	4475.8	3697.8	2963.8	2303.0
37.5°	9066.3	8708.3	7981.6	6813.8	5680.2	5249.7	4811.1	4064.8	3295.0	2587.0	1966.1
40°	7720.3	7341.9	6744.6	5925.1	5010.4	4716.7	4346.4	3609.9	2868.6	2217.6	1654.4
42.5°	6362.1	6119.6	5765.6	5116.2	4479.0	4189.3	3829.6	3114.3	2458.4	1836.7	1256.5
45°	5334.3	5142.3	4907.1	4496.9	3895.6	3622.9	3288.5	2615.5	1916.5	1227.2	673.8
47.5°	4648.3	4413.9	4208.9	3751.5	3106.2	2775.0	2420.2	1723.6	1105.1	532.2	186.4
50°	3398.3	3116.0	2924.7	2412.0	1826.1	1550.3	1290.7	799.9	358.1	118.8	30.9
52.5°	1722.8	1509.6	1397.3	1055.5	697.4	521.6	383.3	165.2	70.8	23.6	17.9
55°	487.5	392.2	351.6	231.9	126.1	88.7	57.8	29.3	21.2	16.3	11.4
57.5°	50.5	43.1	40.7	33.4	26.9	25.2	22.8	17.9	13.8	11.4	7.3
60°	26.0	23.6	22.8	20.3	17.1	15.5	14.6	12.2	9.0	6.5	5.7
62.5°	13.8	13.0	11.4	10.6	9.0	9.0	8.1	6.5	5.7	5.7	4.9
65°	6.5	6.5	6.5	6.5	5.7	5.7	4.9	4.9	4.9	4.9	4.9
67.5°	4.9	4.9	4.9	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
70°	3.3	3.3	3.3	3.3	2.4	2.4	2.4	2.4	2.4	3.3	3.3
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4	3.3	3.3
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4	3.3	3.3
77.5°	0.8	0.8	1.6	1.6	1.6	1.6	1.6	2.4	2.4	3.3	3.3
80°	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4	2.4	3.3	3.3
82.5°	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4	2.4	3.3	3.3
85°	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	2.4	3.3	3.3
87.5°	0.0	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.4	3.3	3.3
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°	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1
2.5°	1184.0	1163.7	1131.2	1098.6	1088.8	1062.0	1030.2	992.8	957.8	930.2	903.3
5°	1433.1	1378.5	1317.5	1235.3	1206.0	1160.5	1092.1	1018.9	955.4	898.4	845.5
7.5°	1681.3	1578.7	1467.2	1348.4	1298.0	1230.4	1123.0	1019.7	925.3	841.4	762.5
10°	1901.0	1743.1	1586.1	1422.5	1351.7	1264.6	1121.4	989.6	869.1	759.3	660.0
12.5°	2103.6	1885.5	1677.2	1467.2	1378.5	1273.6	1097.0	937.5	794.2	665.7	549.3
15°	2281.0	2000.3	1742.3	1488.4	1376.1	1255.7	1049.0	865.9	706.4	558.3	432.1
17.5°	2404.7	2065.4	1761.0	1466.4	1342.7	1204.4	975.7	780.4	605.5	450.0	306.0
20°	2478.8	2082.5	1743.1	1418.4	1281.7	1138.5	907.4	709.6	539.5	397.1	276.7
22.5°	2519.5	2090.6	1730.1	1401.3	1262.2	1125.5	910.6	721.8	576.2	480.1	470.4
25°	2560.2	2116.6	1752.9	1420.9	1290.7	1163.7	958.6	765.8	666.5	635.6	646.1
27.5°	2557.7	2100.4	1731.7	1403.0	1277.6	1145.8	917.1	714.5	646.1	598.1	558.3
30°	2412.9	1945.7	1569.0	1219.9	1076.6	900.9	611.1	419.9	321.4	268.5	241.7
32.5°	2077.6	1586.9	1198.7	848.0	708.0	511.9	262.9	138.3	118.8	105.8	94.4
35°	1726.8	1263.8	902.5	534.7	355.6	194.5	90.3	58.6	54.5	52.9	52.1
37.5°	1424.1	999.3	593.2	214.0	127.8	72.4	41.5	37.4	36.6	37.4	36.6
40°	1123.8	659.2	235.2	71.6	39.1	31.7	29.3	26.9	26.9	27.7	26.9
42.5°	673.0	245.8	71.6	26.9	25.2	22.8	22.0	21.2	20.3	21.2	21.2
45°	222.2	62.7	23.6	18.7	17.9	17.1	16.3	16.3	16.3	16.3	17.1
47.5°	50.5	22.0	16.3	13.8	13.8	13.0	13.0	12.2	13.0	13.0	13.8
50°	19.5	13.8	11.4	10.6	10.6	9.8	9.8	9.8	9.8	10.6	10.6
52.5°	12.2	9.8	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	9.0
55°	8.1	7.3	6.5	6.5	6.5	6.5	6.5	7.3	7.3	7.3	7.3
57.5°	5.7	5.7	5.7	5.7	6.5	5.7	6.5	5.7	5.7	6.5	7.3
60°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	6.5	6.5	7.3
62.5°	4.9	5.7	5.7	5.7	5.7	5.7	5.7	6.5	6.5	6.5	7.3
65°	4.9	4.9	5.7	5.7	5.7	5.7	6.5	6.5	6.5	7.3	7.3
67.5°	4.1	4.9	4.9	5.7	5.7	5.7	5.7	6.5	6.5	6.5	7.3
70°	4.1	4.1	4.9	4.9	4.9	4.9	5.7	5.7	5.7	6.5	6.5
72.5°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7	6.5
75°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7	6.5
77.5°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7	6.5
80°	4.1	4.1	4.9	4.9	4.9	4.9	5.7	5.7	5.7	5.7	6.5
82.5°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7	5.7
85°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7
87.5°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	5.7
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°	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1
2.5°	867.5	834.1	817.8	793.4	795.1	754.4	738.9	709.6	693.3	676.3	656.7
5°	781.2	722.6	681.1	648.6	630.7	577.8	542.0	495.6	447.6	401.2	362.9
7.5°	673.0	595.7	532.2	490.7	465.5	358.9	290.5	236.0	214.8	198.6	182.3
10°	552.6	456.5	344.2	287.3	252.3	201.8	181.5	150.5	128.6	108.2	96.0
12.5°	431.3	284.8	205.9	188.8	176.6	131.0	103.4	96.0	78.1	74.1	72.4
15°	271.0	187.2	145.7	125.3	109.0	91.1	83.8	83.0	86.3	87.1	86.3
17.5°	192.1	149.7	109.9	107.4	107.4	117.2	118.8	126.1	132.6	138.3	139.2
20°	246.6	221.3	258.0	274.2	302.7	337.7	389.0	460.6	523.3	586.7	635.6
22.5°	472.0	527.3	608.7	637.2	685.2	760.1	830.9	896.8	963.5	1013.2	1023.7
25°	694.2	732.4	780.4	769.8	784.5	780.4	740.5	686.8	658.3	606.3	588.4
27.5°	531.4	491.5	458.2	419.9	401.2	365.4	314.1	281.6	252.3	223.0	210.8
30°	216.5	189.6	170.1	156.2	148.1	128.6	118.8	108.2	103.4	96.0	92.0
32.5°	84.6	79.8	77.3	74.9	74.1	71.6	69.2	65.9	65.1	65.1	61.8
35°	50.5	50.5	50.5	49.6	50.5	49.6	48.8	48.0	48.8	48.8	46.4
37.5°	35.8	36.6	36.6	36.6	36.6	36.6	36.6	36.6	35.8	35.8	33.4
40°	26.9	27.7	28.5	27.7	28.5	28.5	27.7	26.9	26.9	26.9	25.2
42.5°	22.0	22.0	22.0	22.0	22.8	22.0	22.0	22.0	22.0	22.0	21.2
45°	17.9	17.9	17.9	17.9	18.7	18.7	17.9	17.9	18.7	18.7	17.9
47.5°	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.0	13.0	13.0	12.2
50°	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	11.4	10.6	10.6
52.5°	9.0	9.0	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.0
55°	8.1	8.1	9.0	9.0	9.0	9.0	9.0	8.1	8.1	8.1	7.3
57.5°	7.3	8.1	8.1	8.1	8.1	8.1	8.1	8.1	7.3	7.3	6.5
60°	7.3	7.3	8.1	8.1	8.1	8.1	7.3	7.3	6.5	6.5	5.7
62.5°	7.3	7.3	8.1	8.1	8.1	7.3	7.3	6.5	6.5	5.7	5.7
65°	7.3	8.1	8.1	8.1	8.1	7.3	7.3	6.5	6.5	5.7	5.7
67.5°	7.3	8.1	8.1	8.1	8.1	7.3	7.3	6.5	6.5	5.7	5.7
70°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	6.5	6.5	5.7	5.7
72.5°	6.5	7.3	7.3	7.3	7.3	7.3	6.5	6.5	6.5	5.7	5.7
75°	6.5	6.5	6.5	6.5	7.3	6.5	6.5	6.5	5.7	5.7	4.9
77.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	5.7	5.7	5.7	4.9
80°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	5.7	5.7	4.9	4.9
82.5°	6.5	6.5	6.5	6.5	6.5	6.5	5.7	5.7	4.9	4.9	4.9
85°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	4.9	4.9	4.1	4.1
87.5°	5.7	5.7	5.7	5.7	5.7	4.9	4.9	4.1	3.3	3.3	2.4
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: P179665

CATALOG NUMBER: LDA6A45930D010TE LARH20SP 6LAL1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	948.1	948.1	948.1	948.1	948.1	948.1	948.1	948.1
2.5°	635.6	621.7	618.5	618.5	611.1	596.5	594.1	589.2
5°	321.4	287.3	280.8	273.4	261.2	246.6	242.5	240.9
7.5°	166.0	151.4	148.9	144.0	136.7	129.4	127.8	126.9
10°	97.7	88.7	84.6	77.3	70.0	65.9	65.9	65.1
12.5°	72.4	72.4	72.4	72.4	72.4	72.4	72.4	72.4
15°	87.9	90.3	90.3	91.1	92.0	92.8	94.4	92.8
17.5°	148.1	160.3	159.5	161.1	166.8	174.1	170.9	175.0
20°	719.4	813.0	839.8	866.7	948.1	1024.5	1009.1	1062.8
22.5°	1033.5	1062.0	1050.6	1043.3	1060.4	1051.4	1089.7	1064.4
25°	554.2	548.5	548.5	524.1	529.0	516.8	533.0	525.7
27.5°	204.3	186.4	184.7	173.3	180.7	163.6	168.5	165.2
30°	87.9	88.7	85.4	83.0	80.6	78.9	78.9	78.1
32.5°	60.2	60.2	58.6	57.0	55.3	53.7	52.9	52.1
35°	44.8	44.8	43.1	42.3	41.5	39.9	39.1	39.1
37.5°	32.6	32.6	31.7	30.9	29.3	28.5	27.7	27.7
40°	25.2	24.4	23.6	23.6	22.0	22.0	21.2	21.2
42.5°	20.3	20.3	20.3	19.5	18.7	17.9	17.9	17.9
45°	17.9	17.9	17.1	16.3	16.3	16.3	15.5	15.5
47.5°	12.2	12.2	11.4	11.4	10.6	10.6	9.8	9.8
50°	9.8	9.8	9.8	9.8	9.0	8.1	8.1	8.1
52.5°	9.0	8.1	8.1	8.1	7.3	7.3	6.5	6.5
55°	7.3	7.3	6.5	6.5	5.7	5.7	5.7	5.7
57.5°	6.5	5.7	5.7	5.7	4.9	4.9	4.9	4.9
60°	5.7	4.9	4.9	4.9	4.1	4.1	4.1	4.1
62.5°	4.9	4.9	4.9	4.9	4.1	4.1	4.1	4.1
65°	4.9	4.9	4.9	4.1	4.1	4.1	4.1	3.3
67.5°	4.9	4.9	4.9	4.9	4.1	4.1	4.1	4.1
70°	4.9	4.9	4.9	4.9	4.1	4.1	4.1	4.1
72.5°	4.9	4.9	4.9	4.9	4.1	4.1	4.1	4.1
75°	4.9	4.9	4.9	4.9	4.1	4.1	4.1	4.1
77.5°	4.9	4.1	4.1	4.1	4.1	4.1	4.1	4.1
80°	4.9	4.1	4.1	4.1	4.1	3.3	3.3	4.1
82.5°	4.1	4.1	4.1	4.1	3.3	3.3	3.3	3.3
85°	3.3	3.3	3.3	3.3	2.4	2.4	2.4	2.4
87.5°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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)