

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: P179921

Luminaire Tested: **LDA6A65930D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179921  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26689)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA6A65930D010TE 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: 4431.0 lumens  
Efficiency: N/A  
Efficacy: 56.8 lumens/watt  
Spacing Criteria (0/90/45): 2.34 / 0.96 / 1.3  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

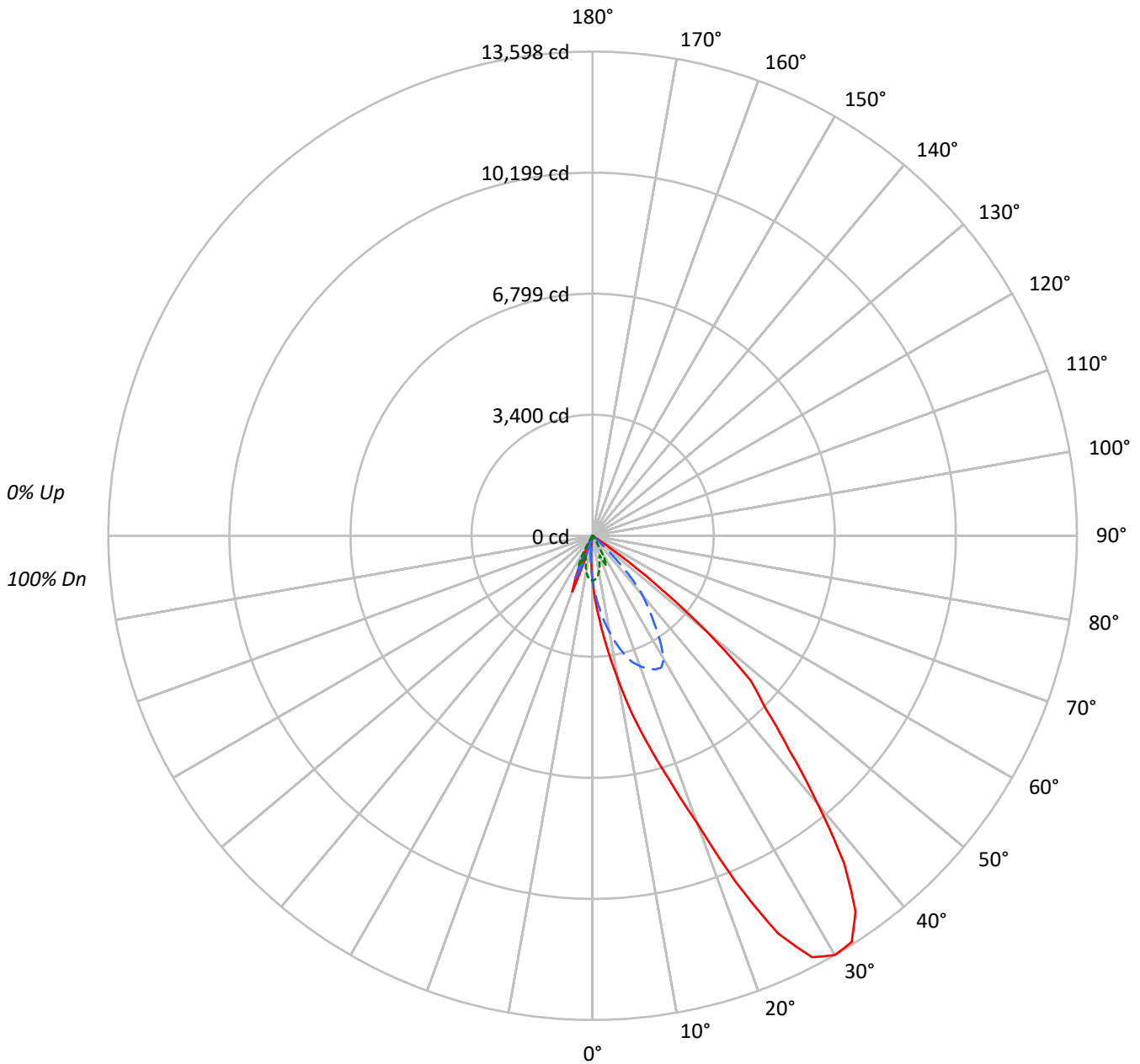
Input Watts (W): 78  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	94	90	95	91	88	92	89	86	89	86	84	82																			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74																			
4	92	83	76	71	90	82	76	71	80	74	70	77	73	69	76	72	68	67																			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	70	65	62	60																			
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54																			
7	75	64	57	51	74	63	56	51	62	56	51	60	55	51	59	54	50	49																			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	61	50	43	38	49	43	38	48	42	38	47	42	38	36																			

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

	0°	90°	180°
0°	69145	69145	69145
5°	135191	65727	23976
10°	227556	56434	5322
15°	346540	42736	8729
20°	500759	34618	97384
25°	745259	56005	28151
30°	860797	19174	5564
35°	861066	4283	3005
40°	703783	2390	1846
45°	532939	1558	1186
50°	353933	1058	819
55°	56896	918	640
60°	3563	943	526
65°	1116	1245	623
70°	609	1378	769
75°	402	1610	1017
80°	316	2399	1515
85°	629	4780	1824



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	131.7	3.0
10°-20°	563.0	12.7
20°-30°	1325.3	29.9
30°-40°	1396.3	31.5
40°-50°	870.7	19.6
50°-60°	125.1	2.8
60°-70°	8.0	0.2
70°-80°	6.3	0.1
80°-90°	4.7	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°	2019.9	45.6
0°-40°	3416.3	77.1
0°-60°	4412.0	99.6
0°-90°	4431.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4431.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1261	1261	1261	1261	1261	
5°	2457	1988	1194	620	436	285
15°	6106	3456	753	131	154	1818
25°	12321	4143	926	670	465	5544
35°	12866	3035	64	59	45	7761
45°	6874	840	20	22	15	5380
55°	595	15	10	10	7	1070
65°	9	7	10	8	5	13
75°	2	5	8	8	5	2
85°	1	5	8	6	3	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°	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3
2.5°	1841.3	1828.9	1832.7	1804.1	1765.9	1783.1	1740.1	1741.0	1714.3	1646.4	1616.8
5°	2456.7	2454.8	2451.9	2399.4	2331.5	2339.2	2276.1	2252.2	2183.4	2064.0	1988.5
7.5°	3221.2	3222.1	3207.8	3079.7	3004.3	2999.5	2900.1	2828.4	2700.4	2512.1	2374.5
10°	4087.9	4114.6	4088.8	3892.0	3751.5	3753.4	3574.7	3437.1	3231.7	2957.4	2761.5
12.5°	5105.5	5109.3	5069.2	4810.2	4596.2	4580.0	4340.1	4077.3	3764.9	3406.5	3121.8
15°	6106.0	6132.7	6081.1	5762.0	5463.8	5418.9	5113.2	4766.3	4378.3	3848.0	3456.2
17.5°	7215.4	7173.3	7036.7	6579.9	6221.6	6155.7	5827.0	5373.1	4878.1	4236.9	3722.8
20°	8583.7	8598.1	8308.5	7626.3	7020.4	6763.4	6382.1	5885.2	5268.0	4522.6	3900.6
22.5°	10538.8	10461.4	9840.3	8736.6	7826.0	7482.9	6939.2	6254.1	5559.4	4739.5	4033.4
25°	12320.9	12117.4	11545.0	10026.6	8600.9	8176.7	7613.8	6568.5	5801.2	4900.1	4143.3
27.5°	13344.3	13253.5	12604.7	11072.9	9226.8	8629.6	7837.4	6799.7	5944.5	4979.4	4174.8
30°	13598.5	13614.7	13037.6	11419.8	9374.9	8692.7	7873.7	6793.0	5848.0	4838.0	3993.3
32.5°	13533.5	13445.6	12724.1	11036.6	8980.3	8359.2	7518.3	6489.2	5463.8	4416.6	3541.3
35°	12866.5	12737.5	11849.8	10040.0	8310.4	7706.5	6944.0	5991.3	4927.8	3879.5	3034.8
37.5°	11597.5	11448.5	10424.1	8843.6	7506.8	6995.6	6336.3	5437.1	4386.0	3378.8	2589.5
40°	9834.5	9649.2	8793.0	7697.0	6643.0	6285.6	5728.5	4804.5	3824.1	2904.9	2178.7
42.5°	8186.2	8097.3	7583.3	6643.0	5933.0	5588.1	5026.2	4166.2	3264.2	2420.4	1613.0
45°	6874.2	6815.0	6473.9	5876.6	5156.2	4833.2	4303.8	3464.8	2483.5	1630.2	839.9
47.5°	6017.1	5866.1	5532.6	4905.8	4105.1	3702.8	3198.2	2282.8	1400.8	722.4	258.0
50°	4150.0	4164.3	3787.8	3096.9	2415.6	2075.5	1714.3	1050.2	463.4	157.7	44.9
52.5°	2185.3	2023.9	1759.2	1313.9	914.5	697.6	509.3	210.2	84.1	31.5	23.9
55°	595.3	522.7	417.6	295.3	159.6	111.8	73.6	39.2	27.7	22.0	15.3
57.5°	58.3	55.4	50.6	41.1	35.4	32.5	29.6	23.9	19.1	13.4	9.6
60°	32.5	31.5	29.6	25.8	22.9	21.0	19.1	16.2	11.5	8.6	7.6
62.5°	18.2	17.2	16.2	14.3	12.4	11.5	11.5	9.6	7.6	6.7	6.7
65°	8.6	8.6	8.6	8.6	8.6	7.6	6.7	6.7	6.7	6.7	6.7
67.5°	6.7	6.7	6.7	5.7	5.7	5.7	5.7	5.7	5.7	4.8	5.7
70°	3.8	3.8	4.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.8
72.5°	1.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	4.8
75°	1.9	1.9	1.9	1.9	2.9	2.9	2.9	2.9	3.8	3.8	4.8
77.5°	1.9	1.9	1.9	1.9	1.9	1.9	2.9	2.9	3.8	3.8	4.8
80°	1.0	1.0	1.0	1.9	1.9	1.9	1.9	2.9	3.8	3.8	4.8
82.5°	1.0	1.0	1.0	1.0	1.9	1.9	1.9	2.9	3.8	3.8	4.8
85°	1.0	1.0	1.0	1.0	1.9	1.9	1.9	2.9	2.9	3.8	4.8
87.5°	0.0	0.0	1.0	1.0	1.9	1.9	1.9	2.9	2.9	3.8	4.8
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°	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3
2.5°	1586.2	1539.4	1492.6	1445.8	1443.8	1416.1	1375.0	1320.6	1275.7	1237.4	1200.2
5°	1913.0	1816.5	1720.0	1623.5	1594.8	1545.1	1456.3	1355.9	1269.9	1194.4	1121.8
7.5°	2240.8	2078.3	1925.4	1774.5	1714.3	1638.8	1500.2	1355.0	1230.8	1119.9	1011.9
10°	2533.2	2297.1	2082.1	1870.0	1783.1	1684.6	1498.3	1313.9	1156.2	1013.8	876.2
12.5°	2802.6	2473.9	2201.6	1934.0	1815.5	1696.1	1468.7	1248.9	1060.7	890.6	732.0
15°	3039.6	2636.4	2285.7	1962.7	1817.5	1674.1	1406.6	1159.1	947.9	753.0	581.0
17.5°	3208.7	2717.6	2313.4	1936.9	1767.8	1607.2	1314.8	1050.2	822.7	619.2	452.9
20°	3311.9	2751.0	2299.1	1889.1	1709.5	1543.2	1247.0	990.0	769.2	593.4	480.6
22.5°	3379.8	2783.5	2304.8	1888.2	1708.5	1551.8	1275.7	1034.9	855.2	760.6	747.2
25°	3452.4	2829.4	2346.8	1931.2	1763.9	1618.7	1351.2	1116.1	966.1	925.9	931.7
27.5°	3448.6	2809.3	2306.7	1893.9	1718.1	1570.9	1257.5	960.3	819.9	707.1	666.0
30°	3243.1	2577.1	2033.4	1570.9	1363.6	1183.0	770.2	500.7	345.9	302.9	259.9
32.5°	2762.5	2087.9	1520.3	1086.5	853.3	637.4	302.9	160.5	136.6	114.7	104.2
35°	2297.1	1664.6	1137.1	656.5	414.7	257.0	108.9	71.7	67.8	64.0	64.0
37.5°	1898.7	1307.2	734.8	277.1	151.9	92.7	52.6	47.8	45.9	44.9	44.9
40°	1484.9	852.4	318.2	91.7	48.7	42.0	37.3	35.4	34.4	33.4	34.4
42.5°	876.2	343.0	92.7	34.4	32.5	30.6	27.7	26.8	26.8	25.8	26.8
45°	298.1	88.9	30.6	24.8	22.9	22.9	21.0	21.0	21.0	20.1	22.0
47.5°	77.4	27.7	20.1	18.2	17.2	17.2	16.2	16.2	16.2	16.2	17.2
50°	26.8	18.2	14.3	13.4	12.4	13.4	12.4	12.4	12.4	12.4	13.4
52.5°	16.2	12.4	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
55°	10.5	9.6	8.6	8.6	8.6	8.6	8.6	9.6	9.6	9.6	9.6
57.5°	8.6	7.6	7.6	7.6	7.6	7.6	8.6	7.6	7.6	8.6	9.6
60°	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	8.6	8.6	9.6
62.5°	6.7	7.6	7.6	7.6	7.6	7.6	7.6	8.6	8.6	8.6	9.6
65°	6.7	6.7	6.7	7.6	7.6	7.6	8.6	8.6	8.6	9.6	9.6
67.5°	5.7	5.7	6.7	6.7	7.6	7.6	7.6	8.6	8.6	8.6	9.6
70°	5.7	5.7	5.7	6.7	6.7	6.7	6.7	7.6	7.6	8.6	8.6
72.5°	4.8	5.7	5.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6	8.6
75°	4.8	5.7	5.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6	8.6
77.5°	4.8	5.7	5.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6	8.6
80°	4.8	5.7	5.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6	7.6
82.5°	4.8	5.7	5.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6	7.6
85°	4.8	5.7	5.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6	7.6
87.5°	4.8	5.7	5.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
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°	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3
2.5°	1148.6	1132.3	1075.0	1067.4	1057.8	1011.0	991.9	959.4	913.5	900.1	883.9
5°	1036.8	983.3	899.2	876.2	851.4	777.8	732.9	679.4	620.2	587.7	557.1
7.5°	894.4	819.9	708.1	663.2	635.4	555.2	483.5	411.8	324.9	275.2	243.7
10°	735.8	633.5	517.0	465.4	428.1	311.5	243.7	212.1	182.5	158.6	137.6
12.5°	576.2	460.6	328.7	269.5	239.8	198.8	161.5	122.3	108.9	108.0	104.2
15°	422.4	293.4	221.7	199.7	178.7	128.0	127.1	127.1	130.9	133.8	134.7
17.5°	311.5	258.0	202.6	189.2	198.8	206.4	219.8	239.8	256.1	302.0	292.4
20°	456.8	452.9	494.0	546.6	583.8	663.2	763.5	877.2	995.7	1127.6	1227.9
22.5°	783.6	879.1	953.6	1016.7	1050.2	1140.0	1219.3	1258.5	1281.4	1269.9	1253.7
25°	957.5	991.9	968.9	947.0	949.8	868.6	809.4	733.9	669.8	611.6	577.2
27.5°	572.4	523.6	454.8	407.1	397.5	343.0	302.9	260.9	248.4	210.2	194.0
30°	206.4	192.1	170.1	152.9	151.0	136.6	128.0	118.5	117.5	108.9	104.2
32.5°	93.6	93.6	86.0	87.9	86.0	83.1	82.2	79.3	79.3	76.4	74.5
35°	61.2	62.1	61.2	61.2	60.2	60.2	60.2	58.3	59.2	57.3	54.5
37.5°	44.9	45.9	44.0	44.9	44.9	44.9	44.9	44.0	43.0	41.1	40.1
40°	34.4	34.4	34.4	34.4	34.4	34.4	34.4	33.4	33.4	32.5	30.6
42.5°	26.8	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	26.8	26.8
45°	22.0	22.9	22.0	22.9	22.9	22.9	22.0	22.0	22.0	21.0	20.1
47.5°	17.2	17.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	15.3
50°	13.4	13.4	13.4	13.4	13.4	13.4	14.3	13.4	13.4	13.4	13.4
52.5°	10.5	11.5	11.5	12.4	12.4	12.4	12.4	12.4	11.5	11.5	10.5
55°	9.6	10.5	10.5	11.5	11.5	11.5	11.5	10.5	10.5	10.5	9.6
57.5°	9.6	10.5	10.5	10.5	10.5	10.5	10.5	9.6	9.6	8.6	8.6
60°	9.6	9.6	9.6	10.5	10.5	9.6	9.6	8.6	8.6	7.6	7.6
62.5°	9.6	9.6	9.6	10.5	10.5	9.6	9.6	8.6	7.6	7.6	6.7
65°	9.6	10.5	9.6	10.5	10.5	9.6	9.6	8.6	7.6	7.6	6.7
67.5°	9.6	10.5	10.5	10.5	9.6	9.6	9.6	8.6	7.6	7.6	6.7
70°	8.6	9.6	9.6	9.6	9.6	9.6	8.6	8.6	7.6	7.6	6.7
72.5°	8.6	9.6	8.6	9.6	9.6	8.6	8.6	8.6	7.6	7.6	6.7
75°	8.6	8.6	8.6	8.6	8.6	8.6	8.6	7.6	7.6	6.7	6.7
77.5°	8.6	8.6	8.6	8.6	8.6	8.6	7.6	7.6	7.6	6.7	6.7
80°	8.6	8.6	8.6	8.6	8.6	8.6	7.6	7.6	6.7	6.7	5.7
82.5°	7.6	8.6	8.6	8.6	8.6	8.6	7.6	7.6	6.7	6.7	5.7
85°	7.6	7.6	7.6	7.6	7.6	7.6	6.7	6.7	5.7	4.8	4.8
87.5°	6.7	7.6	6.7	6.7	6.7	6.7	5.7	4.8	3.8	3.8	2.9
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: P179921

CATALOG NUMBER: LDA6A65930D010TE LARH20SP 6LAL1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3	1261.3
2.5°	858.1	834.2	835.2	839.0	815.1	802.7	799.8	787.4
5°	516.0	488.3	483.5	479.7	446.2	432.9	422.4	435.7
7.5°	221.7	211.2	209.3	206.4	191.1	183.5	179.6	183.5
10°	109.9	103.2	104.2	105.1	100.3	97.5	96.5	95.6
12.5°	108.9	108.0	108.9	108.9	109.9	108.0	108.9	108.9
15°	141.4	141.4	144.3	146.2	151.0	150.0	151.9	153.8
17.5°	352.6	334.4	344.0	344.0	387.0	348.8	381.3	351.6
20°	1385.6	1450.5	1516.5	1571.9	1628.3	1645.5	1678.9	1669.3
22.5°	1228.8	1236.5	1226.9	1216.4	1213.6	1216.4	1164.8	1172.5
25°	527.5	523.6	508.4	492.1	496.9	500.7	482.6	465.4
27.5°	180.6	175.8	171.0	167.2	165.3	162.4	156.7	152.9
30°	102.2	99.4	97.5	96.5	94.6	92.7	89.8	87.9
32.5°	73.6	71.7	70.7	69.8	67.8	65.9	63.1	62.1
35°	54.5	52.6	51.6	50.6	48.7	46.8	45.9	44.9
37.5°	40.1	38.2	38.2	38.2	35.4	33.4	32.5	31.5
40°	30.6	29.6	29.6	29.6	27.7	26.8	25.8	25.8
42.5°	26.8	25.8	25.8	25.8	23.9	22.9	22.9	22.0
45°	20.1	19.1	19.1	18.2	17.2	17.2	16.2	15.3
47.5°	15.3	14.3	14.3	14.3	13.4	12.4	12.4	11.5
50°	12.4	12.4	11.5	12.4	10.5	10.5	10.5	9.6
52.5°	10.5	10.5	9.6	9.6	8.6	8.6	8.6	7.6
55°	9.6	8.6	8.6	8.6	7.6	7.6	7.6	6.7
57.5°	7.6	7.6	6.7	6.7	5.7	5.7	5.7	5.7
60°	6.7	6.7	5.7	5.7	4.8	4.8	4.8	4.8
62.5°	6.7	5.7	5.7	5.7	4.8	4.8	4.8	4.8
65°	6.7	5.7	5.7	5.7	4.8	4.8	4.8	4.8
67.5°	6.7	5.7	5.7	5.7	4.8	4.8	4.8	4.8
70°	6.7	6.7	5.7	5.7	5.7	4.8	4.8	4.8
72.5°	6.7	6.7	5.7	5.7	5.7	5.7	4.8	4.8
75°	5.7	5.7	5.7	5.7	4.8	4.8	4.8	4.8
77.5°	5.7	5.7	5.7	5.7	4.8	4.8	4.8	4.8
80°	5.7	5.7	4.8	4.8	4.8	4.8	4.8	4.8
82.5°	5.7	4.8	4.8	4.8	4.8	3.8	3.8	3.8
85°	3.8	3.8	3.8	3.8	2.9	2.9	2.9	2.9
87.5°	2.9	1.9	1.9	1.9	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)