

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: P175499

Luminaire Tested: **LDA6A30927D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175499
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26268)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A30927D010TE LARL20NF 6LAL1 30° Tilt
Description: PORTFOLIO 6" Lensed Adjustable, Self-flange Trim Ring, 20° Narrow Flood Optic, at 30° tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1810.6 lumens
Efficiency: N/A
Efficacy: 40.7 lumens/watt
Spacing Criteria (0/90/45): 2.7 / 0.43 / 1.35
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

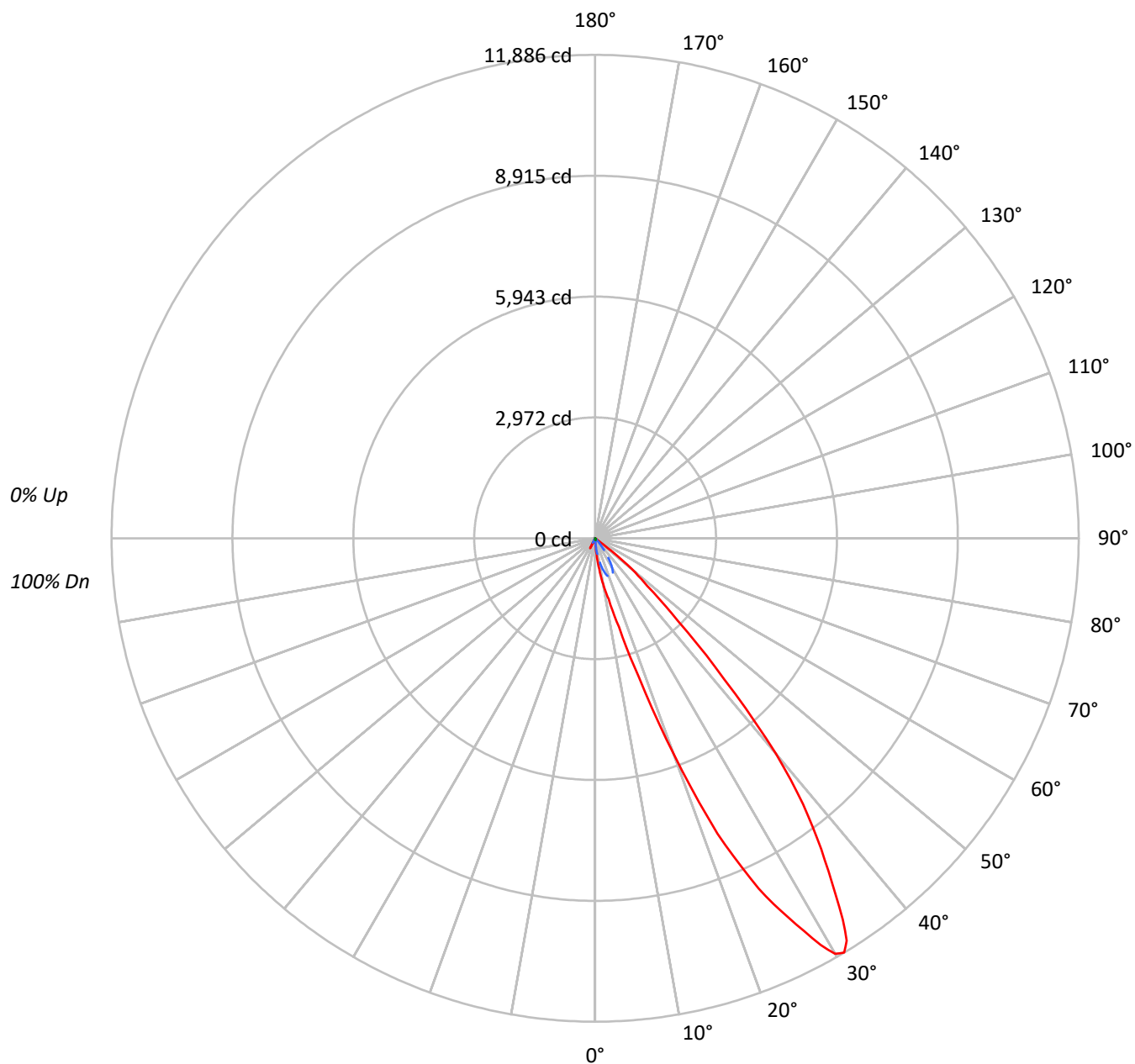
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P175499

CATALOG NUMBER: LDA6A30927D010TE LARL20NF 6LAL1 30° Tilt

Luminous Intensity Polar Plot





TEST NUMBER: P175499

CATALOG NUMBER: LDA6A30927D010TE LARL20NF 6LAL1 30° Tilt

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20
RC	80					70					50					30					10
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																					
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102
1	112	109	106	104		110	107	104	102		103	101	99		99	97	96		96	94	93
2	105	100	95	91		103	98	93	90		94	91	88		91	88	86		89	86	84
3	99	91	85	80		96	89	84	79		87	82	78		84	80	77		82	78	76
4	92	83	76	71		90	82	75	70		79	74	70		77	72	69		75	71	68
5	86	75	68	63		84	74	68	63		73	67	62		71	66	62		69	65	61
6	80	69	62	56		78	68	61	56		66	60	56		65	59	55		63	59	55
7	74	63	56	50		73	62	55	50		61	55	50		59	54	50		58	53	49
8	69	58	50	45		68	57	50	45		56	49	45		55	49	45		54	48	44
9	65	53	46	41		63	52	45	41		51	45	40		50	44	40		49	44	40
10	60	49	41	37		59	48	41	37		47	41	37		46	41	36		45	40	36

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	2242	2242	2242
5°	21781	1981	814
10°	64417	1414	512
15°	127867	959	443
20°	329845	782	618
25°	574854	938	4440
30°	746710	981	2500
35°	669070	428	234
40°	494648	150	0
45°	222752	163	0
50°	100500	179	0
55°	8965	201	0
60°	1085	230	0
65°	454	363	0
70°	337	449	0
75°	0	593	0
80°	0	884	221
85°	0	1761	440



TEST NUMBER: P175499

CATALOG NUMBER: LDA6A30927D010TE LARL20NF 6LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	16.3	0.9
10°-20°	152.5	8.4
20°-30°	602.1	33.3
30°-40°	726.5	40.1
40°-50°	281.9	15.6
50°-60°	24.8	1.4
60°-70°	2.3	0.1
70°-80°	2.2	0.1
80°-90°	2.1	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°	770.8	42.6
0°-40°	1497.3	82.7
0°-60°	1804.0	99.6
0°-90°	1810.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1810.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	41	41	41	41	41	
5°	396	193	36	18	15	63
15°	2253	852	17	11	8	826
25°	9504	1008	16	49	73	4346
35°	9998	513	6	6	4	6145
45°	2873	36	2	1	0	2524
55°	94	4	2	1	0	226
65°	4	3	3	2	0	4
75°	0	3	3	3	0	1
85°	0	3	3	3	1	0
90°	0	0	0	0	0	



TEST NUMBER: P175499

CATALOG NUMBER: LDA6A30927D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9
2.5°	128.4	122.1	115.0	117.8	119.2	122.8	120.0	109.4	115.7	110.8	106.5
5°	395.8	388.8	375.4	377.5	373.3	378.2	366.9	344.3	348.6	341.5	323.2
7.5°	771.9	742.3	720.4	721.8	709.1	714.8	693.6	654.8	650.6	614.6	608.9
10°	1157.2	1142.4	1116.3	1112.7	1090.2	1093.0	1059.8	1008.3	994.2	952.6	928.6
12.5°	1535.4	1510.7	1474.0	1466.2	1429.5	1430.3	1385.1	1327.2	1306.1	1263.0	1229.9
15°	2253.0	2217.7	2133.7	2102.0	2000.4	1984.9	1873.4	1742.1	1678.6	1604.5	1507.2
17.5°	3577.4	3554.8	3390.4	3299.4	3093.4	2888.7	2768.1	2484.4	2318.6	2111.2	1931.2
20°	5654.0	5695.6	5408.4	5205.2	4822.8	4390.9	4086.1	3569.6	3224.6	2866.9	2528.2
22.5°	7862.5	7880.1	7585.9	7332.6	6887.4	6294.0	5591.9	4965.3	4333.1	3718.5	3159.7
25°	9503.7	9452.9	9129.1	8824.9	8356.4	7750.3	7068.0	6231.2	5366.8	4522.9	3704.4
26°	10004.7	9977.2	9652.6	9288.5	8772.7	8157.4	7447.6	6603.0	5690.0	4781.1	3870.9
27°	10469.0	10451.3	10099.3	9694.2	9116.4	8472.1	7729.1	6885.2	5934.1	4980.8	3991.6
28°	10939.6	10919.9	10493.7	10023.8	9395.8	8695.8	7923.9	7073.6	6091.4	5098.0	4041.7
29°	11437.1	11399.0	10854.2	10265.8	9582.0	8826.3	8025.5	7159.7	6145.1	5126.9	4029.0
30°	11796.2	11736.9	11114.6	10418.9	9658.3	8867.3	8036.8	7157.6	6111.9	5066.9	3947.8
31°	11886.5	11826.6	11187.3	10416.8	9602.5	8805.2	7955.6	7057.4	5973.6	4921.6	3810.9
32°	11667.8	11612.8	11003.1	10179.0	9426.1	8655.6	7794.1	6871.8	5759.1	4704.2	3625.4
33°	11179.5	11137.9	10612.2	9866.4	9173.5	8443.2	7562.6	6607.9	5454.3	4427.6	3407.3
34°	10563.5	10533.2	10128.9	9498.8	8853.2	8151.8	7262.7	6260.1	5052.8	4114.4	3169.6
35°	9997.6	9975.1	9647.7	9088.8	8487.0	7791.2	6883.1	5831.8	4639.3	3777.1	2915.5
36°	9452.9	9433.9	9149.5	8630.2	8049.5	7368.6	6405.4	5319.5	4195.5	3427.1	2652.4
37°	8884.2	8867.3	8623.1	8129.2	7557.7	6863.4	5838.1	4774.1	3744.6	3077.8	2382.1
38°	8294.3	8280.2	8056.5	7564.0	6984.0	6246.0	5191.1	4210.3	3305.0	2737.0	2139.4
39°	7636.0	7624.0	7418.0	6901.5	6282.0	5518.5	4525.0	3660.7	2888.0	2406.1	1904.4
40°	6912.1	6895.8	6689.8	6112.6	5486.7	4769.9	3885.0	3156.1	2494.3	2097.0	1697.7
42.5°	4699.3	4681.7	4528.5	4192.7	3590.1	3129.3	2574.7	2112.6	1767.5	1528.3	1322.3
45°	2873.2	2875.3	2794.9	2587.4	2224.8	1968.6	1667.3	1446.5	1291.2	1199.5	1056.3
47.5°	1737.9	1737.9	1701.9	1596.1	1433.1	1330.8	1205.9	1102.9	984.3	894.0	738.8
50°	1178.4	1179.1	1124.0	1129.7	1021.0	957.5	838.3	712.7	596.2	465.0	331.6
51°	872.1	876.4	825.6	848.8	729.6	676.0	563.1	456.5	353.5	251.9	145.4
52°	533.4	541.2	506.6	527.8	458.6	380.3	288.6	213.1	143.2	100.2	69.9
53°	247.7	254.0	236.4	246.3	205.3	160.2	121.4	98.8	79.0	64.2	47.3
54°	131.2	132.7	127.0	124.2	112.9	99.5	82.6	68.4	53.6	43.0	31.8
55°	93.8	93.8	91.0	88.2	79.0	67.7	55.0	46.6	35.3	28.2	20.5
57.5°	28.9	28.9	28.9	27.5	24.0	20.5	16.2	14.1	11.3	10.6	8.5
60°	9.9	9.9	9.9	9.2	8.5	7.8	7.1	6.4	5.6	5.6	4.9
61°	7.1	7.1	7.1	7.1	6.4	6.4	5.6	4.9	4.2	4.9	4.2
62°	5.6	6.4	5.6	5.6	5.6	4.9	4.2	4.2	3.5	4.2	3.5
63°	4.9	4.9	4.9	4.9	4.2	4.2	3.5	3.5	2.8	3.5	3.5
64°	4.2	4.2	4.2	4.2	3.5	3.5	2.8	2.8	2.1	2.8	2.8
65°	3.5	3.5	3.5	3.5	2.8	2.8	2.8	2.1	2.1	2.8	2.8
66°	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.1	1.4	2.1	2.1



TEST NUMBER: P175499

CATALOG NUMBER: LDA6A30927D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
72.5°	1.4	1.4	1.4	1.4	0.7	0.7	0.7	0.7	0.7	1.4	1.4
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
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: P175499

CATALOG NUMBER: LDA6A30927D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9	40.9
2.5°	102.3	95.3	93.8	93.8	79.0	81.8	76.9	73.4	51.5	39.5	29.6
5°	312.6	287.2	276.6	267.4	227.2	223.7	199.0	193.3	69.1	36.0	22.6
7.5°	582.8	544.0	519.3	495.3	430.4	412.8	370.4	359.9	93.8	30.3	17.6
10°	890.5	834.7	791.7	734.5	650.6	613.9	551.8	529.2	114.3	25.4	16.9
12.5°	1179.8	1116.3	1057.7	982.2	868.6	810.0	728.2	699.2	122.1	21.2	15.5
15°	1429.5	1344.9	1272.2	1191.1	1064.0	990.0	889.8	852.4	115.7	16.9	13.4
17.5°	1746.4	1603.1	1476.8	1363.2	1224.9	1134.6	1018.2	957.5	93.8	14.8	12.0
20°	2214.9	1926.3	1704.0	1520.6	1328.6	1216.5	1087.3	1013.9	67.7	13.4	12.0
22.5°	2655.9	2243.8	1903.0	1640.5	1382.3	1248.2	1114.1	1033.0	48.0	13.4	14.1
25°	3015.7	2483.0	2040.6	1719.5	1411.9	1254.6	1104.3	1008.3	37.4	15.5	27.5
26°	3116.6	2542.3	2067.4	1725.9	1407.7	1245.4	1087.3	985.7	33.2	21.2	51.5
27°	3179.4	2569.1	2068.1	1716.0	1392.1	1227.0	1061.9	955.4	28.9	32.5	86.8
28°	3192.1	2556.4	2044.1	1688.5	1365.3	1202.3	1033.7	918.7	26.8	40.9	98.8
29°	3157.6	2511.2	2000.4	1648.3	1332.9	1172.7	999.8	878.5	23.3	31.0	64.2
30°	3079.9	2436.4	1936.2	1596.8	1298.3	1139.5	958.2	830.5	19.1	15.5	28.9
31°	2963.5	2333.4	1857.1	1536.1	1259.5	1097.2	908.1	776.9	16.2	10.6	16.9
32°	2816.0	2209.9	1768.9	1474.0	1215.7	1045.7	849.5	716.9	14.8	8.5	14.1
33°	2646.7	2080.1	1677.9	1411.2	1163.5	984.3	786.7	652.7	13.4	9.2	14.1
34°	2461.8	1947.5	1574.9	1345.6	1102.9	917.3	719.7	577.2	12.0	8.5	10.6
35°	2261.4	1809.9	1482.5	1287.7	1034.4	844.6	651.3	513.0	10.6	6.4	7.1
36°	2088.6	1675.8	1392.9	1214.3	959.6	769.8	580.7	443.8	9.2	4.2	4.9
37°	1900.2	1550.2	1309.6	1138.1	879.2	692.9	510.1	375.4	8.5	2.8	4.2
38°	1724.5	1434.5	1226.3	1050.6	796.6	615.3	438.2	308.3	7.8	2.8	3.5
39°	1565.0	1329.4	1148.7	957.5	709.8	534.1	365.5	242.0	7.1	2.1	3.5
40°	1428.1	1235.5	1055.6	859.4	620.2	453.7	292.8	179.2	6.4	2.1	3.5
42.5°	1161.4	991.4	796.6	607.5	401.5	256.8	131.2	65.6	4.9	2.1	2.8
45°	887.6	705.6	525.7	365.5	206.7	99.5	48.7	36.0	4.2	2.1	2.8
47.5°	576.5	423.4	282.2	159.5	69.1	40.2	25.4	18.3	3.5	2.1	2.8
50°	213.1	117.8	62.1	38.8	26.8	16.9	11.3	10.6	3.5	2.1	2.8
51°	87.5	57.2	38.8	26.1	16.9	12.0	9.2	9.2	3.5	2.1	2.8
52°	52.2	36.0	26.1	19.1	12.7	9.2	7.1	7.8	3.5	2.1	2.8
53°	34.6	24.7	19.1	14.8	9.9	7.1	4.9	5.6	3.5	2.1	2.8
54°	23.3	17.6	14.1	11.3	7.1	5.6	2.8	4.9	2.8	2.1	2.8
55°	16.2	12.7	10.6	8.5	4.9	3.5	2.1	4.2	2.8	2.1	2.8
57.5°	7.1	6.4	5.6	4.9	2.1	1.4	0.7	3.5	2.8	2.1	2.8
60°	4.9	4.2	3.5	3.5	0.7	0.7	0.0	2.8	2.8	2.1	2.8
61°	4.2	3.5	3.5	2.8	0.7	0.7	0.0	2.8	3.5	2.1	2.8
62°	3.5	3.5	2.8	2.8	0.7	0.0	0.0	2.8	3.5	2.1	3.5
63°	2.8	2.8	2.8	2.8	0.7	0.0	0.0	2.8	3.5	2.1	3.5
64°	2.8	2.8	2.8	2.8	0.0	0.0	0.0	2.8	3.5	2.1	3.5
65°	2.8	2.1	2.1	2.1	0.0	0.0	0.0	2.8	3.5	2.8	3.5
66°	2.1	2.1	2.1	2.1	0.0	0.0	0.0	2.8	3.5	2.8	3.5



TEST NUMBER: P175499

CATALOG NUMBER: LDA6A30927D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
72.5°	1.4	1.4	1.4	1.4	0.0	0.0	0.0	2.1	3.5	2.8	4.2
75°	0.7	1.4	1.4	1.4	0.0	0.0	0.0	2.8	3.5	2.8	4.2
77.5°	0.7	1.4	1.4	1.4	0.0	0.0	0.0	2.8	3.5	2.8	4.2
80°	0.7	1.4	1.4	1.4	0.0	0.0	0.0	2.8	3.5	2.8	4.2
82.5°	0.7	1.4	1.4	1.4	0.0	0.0	0.0	2.8	3.5	2.8	4.2
85°	0.7	1.4	1.4	1.4	0.0	0.0	0.0	2.8	3.5	2.8	4.2
87.5°	0.7	1.4	1.4	1.4	0.0	0.0	0.0	2.8	3.5	2.8	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



TEST NUMBER: P175499

CATALOG NUMBER: LDA6A30927D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	40.9	40.9	40.9
2.5°	24.7	22.6	21.2
5°	17.6	16.2	14.8
7.5°	14.8	12.7	12.0
10°	13.4	9.9	9.2
12.5°	11.3	8.5	7.8
15°	10.6	8.5	7.8
17.5°	10.6	8.5	7.8
20°	11.3	10.6	10.6
22.5°	16.2	17.6	18.3
25°	49.4	63.5	73.4
26°	115.7	173.6	232.8
27°	175.7	256.1	273.1
28°	158.1	183.5	178.5
29°	76.2	86.1	78.3
30°	33.9	40.2	39.5
31°	21.9	24.7	24.0
32°	18.3	16.9	16.2
33°	14.8	12.0	9.9
34°	9.9	7.8	6.4
35°	6.4	4.2	3.5
36°	4.2	2.1	1.4
37°	2.8	1.4	0.7
38°	2.8	0.7	0.0
39°	2.1	0.7	0.0
40°	2.1	0.7	0.0
42.5°	2.1	0.0	0.0
45°	1.4	0.0	0.0
47.5°	1.4	0.0	0.0
50°	2.1	0.7	0.0
51°	2.1	0.0	0.0
52°	2.1	0.0	0.0
53°	1.4	0.0	0.0
54°	1.4	0.0	0.0
55°	1.4	0.0	0.0
57.5°	1.4	0.0	0.0
60°	1.4	0.0	0.0
61°	2.1	0.0	0.0
62°	2.1	0.0	0.0
63°	2.1	0.0	0.0
64°	2.1	0.7	0.0
65°	2.1	0.7	0.0
66°	2.1	0.7	0.0



TEST NUMBER: P175499

CATALOG NUMBER: LDA6A30927D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.8	0.7	0.0
75°	2.8	0.7	0.0
77.5°	2.8	0.7	0.0
80°	2.8	1.4	0.7
82.5°	2.8	1.4	0.7
85°	2.8	1.4	0.7
87.5°	2.8	1.4	0.7
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	2.1	2.1	2.1	2.1	2.1	2.1	1.4	1.4	1.4	2.1	2.1
70°	2.1	2.1	1.4	1.4	1.4	1.4	1.4	0.7	0.7	2.1	2.1





67.5°	2.1	2.1	2.1	2.1	0.0	0.0	0.0	2.8	3.5	2.8	3.5
70°	2.1	2.1	2.1	2.1	0.0	0.0	0.0	2.8	3.5	2.8	4.2





67.5°	2.8	0.7	0.0
70°	2.8	0.7	0.0



(END OF REPORT)