

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: P175487

Luminaire Tested: **LDA6A15827D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175487
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: LDA6A15827D010TE 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 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1162.3 lumens
Efficiency: N/A
Efficacy: 52.2 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

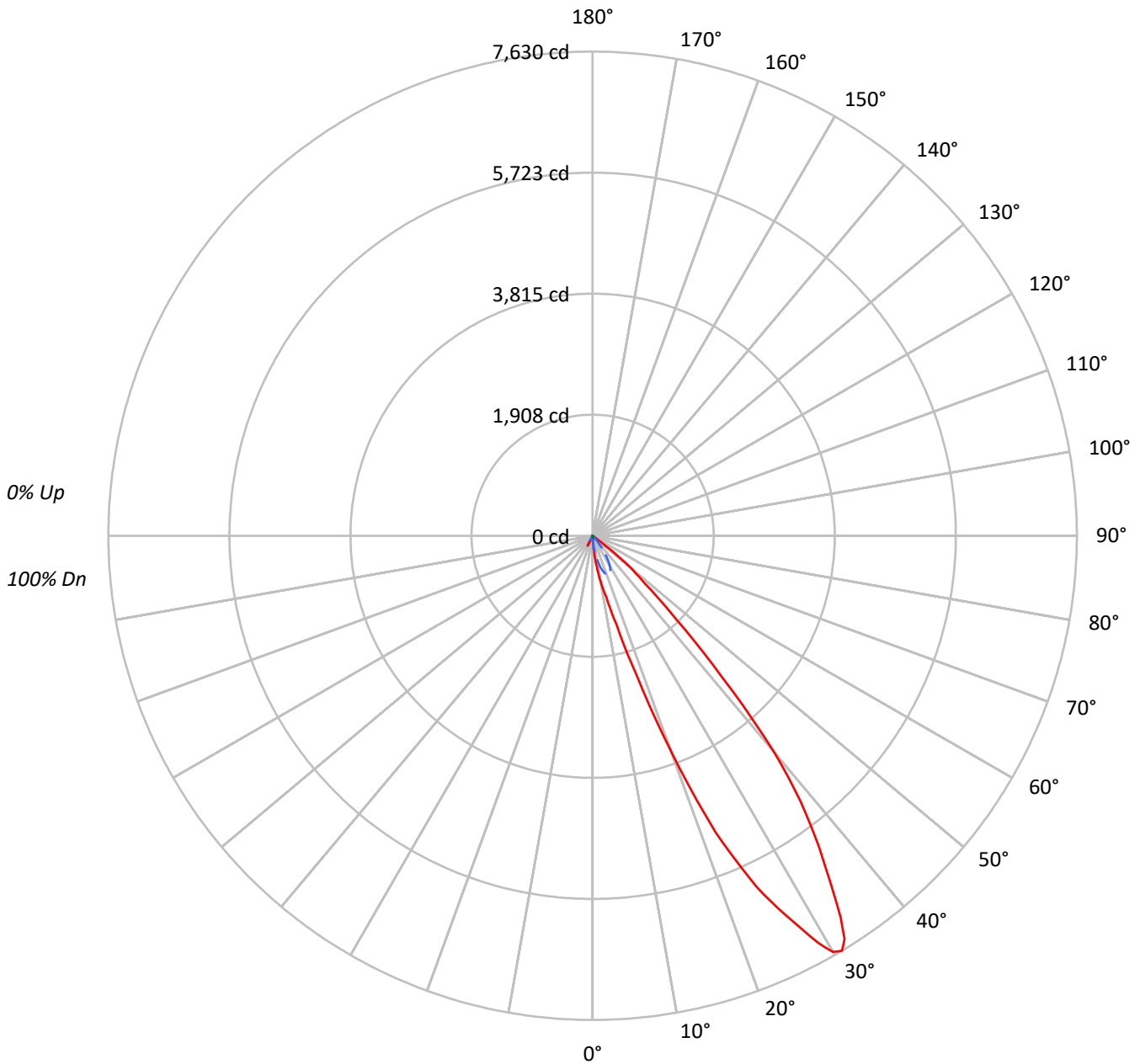
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P175487

CATALOG NUMBER: LDA6A15827D010TE LARL20NF 6LAL1 30° Tilt

Luminous Intensity Polar Plot





TEST NUMBER: P175487

CATALOG NUMBER: LDA6A15827D010TE LARL20NF 6LAL1 30° Tilt

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	94	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	78	76	74																			
4	92	83	76	71	90	82	75	70	79	74	70	77	72	69	75	71	68	66																			
5	86	75	68	63	84	74	68	63	72	67	62	71	66	62	69	65	61	59																			
6	80	69	62	56	78	68	61	56	66	60	56	65	59	55	63	59	55	53																			
7	74	63	56	50	73	62	55	50	61	55	50	59	54	50	58	53	49	48																			
8	69	58	50	45	68	57	50	45	56	49	45	55	49	45	54	48	44	43																			
9	65	53	46	41	63	52	45	41	51	45	40	50	44	40	49	44	40	39																			
10	60	49	41	37	59	48	41	37	47	41	37	46	41	36	45	40	36	35																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	1442	1442	1442
5°	13983	1271	523
10°	41349	907	328
15°	82078	619	284
20°	211722	502	397
25°	368991	605	2849
30°	479302	633	1608
35°	429472	274	154
40°	317509	100	0
45°	142984	109	0
50°	64510	119	0
55°	5754	134	0
60°	691	153	0
65°	298	233	0
70°	224	289	0
75°	0	381	0
80°	0	568	158
85°	0	1132	314



TEST NUMBER: P175487

CATALOG NUMBER: LDA6A15827D010TE LARL20NF 6LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	10.5	0.9
10°-20°	97.9	8.4
20°-30°	386.5	33.2
30°-40°	466.3	40.1
40°-50°	181.0	15.6
50°-60°	15.9	1.4
60°-70°	1.5	0.1
70°-80°	1.4	0.1
80°-90°	1.3	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°	494.8	42.6
0°-40°	961.1	82.7
0°-60°	1158.0	99.6
0°-90°	1162.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1162.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	26	26	26	26	26	
5°	254	124	23	11	10	40
15°	1446	547	11	7	5	530
25°	6100	647	10	32	47	2790
35°	6417	329	4	4	2	3945
45°	1844	23	1	1	0	1620
55°	60	3	1	1	0	145
65°	2	2	2	1	0	3
75°	0	2	2	2	0	0
85°	0	2	2	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P175487

CATALOG NUMBER: LDA6A15827D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3
2.5°	82.4	78.4	73.8	75.6	76.5	78.8	77.0	70.2	74.3	71.1	68.4
5°	254.1	249.6	241.0	242.3	239.6	242.8	235.5	221.0	223.7	219.2	207.4
7.5°	495.5	476.5	462.4	463.3	455.2	458.8	445.2	420.3	417.6	394.5	390.9
10°	742.8	733.3	716.5	714.2	699.8	701.6	680.3	647.2	638.2	611.4	596.0
12.5°	985.5	969.7	946.1	941.2	917.6	918.1	889.1	851.9	838.3	810.7	789.4
15°	1446.2	1423.5	1369.6	1349.2	1284.0	1274.1	1202.5	1118.2	1077.5	1029.9	967.4
17.5°	2296.3	2281.8	2176.3	2117.8	1985.6	1854.2	1776.8	1594.7	1488.3	1355.1	1239.6
20°	3629.2	3655.9	3471.6	3341.2	3095.7	2818.5	2622.8	2291.3	2069.8	1840.2	1622.8
22.5°	5046.8	5058.2	4869.3	4706.7	4420.9	4040.0	3589.4	3187.2	2781.4	2386.9	2028.2
25°	6100.3	6067.7	5859.8	5664.6	5363.9	4974.8	4536.9	3999.7	3444.9	2903.2	2377.8
26°	6421.9	6404.2	6195.9	5962.2	5631.1	5236.2	4780.5	4238.4	3652.3	3069.0	2484.7
27°	6719.9	6708.6	6482.6	6222.6	5851.7	5438.2	4961.2	4419.5	3809.0	3197.1	2562.1
28°	7022.0	7009.3	6735.8	6434.1	6031.0	5581.7	5086.2	4540.5	3910.0	3272.3	2594.3
29°	7341.3	7316.8	6967.2	6589.5	6150.6	5665.5	5151.5	4595.7	3944.4	3290.9	2586.1
30°	7571.8	7533.8	7134.3	6687.7	6199.5	5691.8	5158.7	4594.4	3923.2	3252.4	2534.1
31°	7629.8	7591.3	7181.0	6686.4	6163.7	5651.9	5106.6	4530.1	3834.4	3159.1	2446.2
32°	7489.4	7454.1	7062.8	6533.8	6050.5	5555.9	5002.9	4410.9	3696.7	3019.6	2327.1
33°	7176.0	7149.3	6811.8	6333.1	5888.4	5419.6	4854.3	4241.6	3501.0	2842.0	2187.1
34°	6780.6	6761.1	6501.6	6097.1	5682.7	5232.5	4661.9	4018.3	3243.3	2640.9	2034.5
35°	6417.4	6402.9	6192.7	5834.0	5447.7	5001.1	4418.2	3743.3	2977.9	2424.5	1871.4
36°	6067.7	6055.5	5873.0	5539.6	5166.9	4729.8	4111.6	3414.5	2693.0	2199.8	1702.5
37°	5702.7	5691.8	5535.1	5218.0	4851.2	4405.5	3747.4	3064.4	2403.6	1975.6	1529.0
38°	5324.0	5315.0	5171.4	4855.3	4483.0	4009.2	3332.1	2702.5	2121.5	1756.9	1373.2
39°	4901.4	4893.8	4761.5	4430.0	4032.3	3542.3	2904.5	2349.7	1853.8	1544.4	1222.4
40°	4436.8	4426.3	4294.1	3923.6	3521.9	3061.7	2493.8	2025.9	1601.1	1346.1	1089.7
42.5°	3016.4	3005.1	2906.8	2691.2	2304.4	2008.7	1652.7	1356.0	1134.6	981.0	848.8
45°	1844.3	1845.6	1794.0	1660.8	1428.0	1263.6	1070.2	928.5	828.8	770.0	678.0
47.5°	1115.5	1115.5	1092.4	1024.5	919.9	854.2	774.0	707.9	631.8	573.8	474.2
50°	756.4	756.8	721.5	725.1	655.4	614.6	538.1	457.4	382.7	298.5	212.9
51°	559.8	562.5	529.9	544.9	468.3	433.9	361.4	293.0	226.9	161.7	93.3
52°	342.4	347.4	325.2	338.8	294.4	244.1	185.2	136.8	91.9	64.3	44.8
53°	159.0	163.0	151.7	158.1	131.8	102.8	77.9	63.4	50.7	41.2	30.3
54°	84.2	85.1	81.5	79.7	72.5	63.9	53.0	43.9	34.4	27.6	20.4
55°	60.2	60.2	58.4	56.6	50.7	43.5	35.3	29.9	22.6	18.1	13.1
57.5°	18.6	18.6	18.6	17.7	15.4	13.1	10.4	9.1	7.2	6.8	5.4
60°	6.3	6.3	6.3	5.9	5.4	5.0	4.5	4.1	3.6	3.6	3.2
61°	4.5	4.5	4.5	4.5	4.1	4.1	3.6	3.2	2.7	3.2	2.7
62°	3.6	4.1	3.6	3.6	3.6	3.2	2.7	2.7	2.3	2.7	2.3
63°	3.2	3.2	3.2	3.2	2.7	2.7	2.3	2.3	1.8	2.3	2.3
64°	2.7	2.7	2.7	2.7	2.3	2.3	1.8	1.8	1.4	1.8	1.8
65°	2.3	2.3	2.3	2.3	1.8	1.8	1.8	1.4	1.4	1.8	1.8
66°	1.8	1.8	1.8	1.8	1.8	1.4	1.4	1.4	0.9	1.4	1.4



TEST NUMBER: P175487

CATALOG NUMBER: LDA6A15827D010TE 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°	0.9	0.9	0.9	0.9	0.5	0.5	0.5	0.5	0.5	0.9	0.9
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
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: P175487

CATALOG NUMBER: LDA6A15827D010TE 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°	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3
2.5°	65.7	61.1	60.2	60.2	50.7	52.5	49.4	47.1	33.1	25.4	19.0
5°	200.6	184.3	177.5	171.7	145.8	143.6	127.7	124.1	44.4	23.1	14.5
7.5°	374.1	349.2	333.3	317.9	276.3	265.0	237.8	231.0	60.2	19.5	11.3
10°	571.6	535.8	508.2	471.5	417.6	394.0	354.2	339.7	73.4	16.3	10.9
12.5°	757.3	716.5	678.9	630.5	557.5	519.9	467.4	448.8	78.4	13.6	10.0
15°	917.6	863.3	816.6	764.5	683.0	635.4	571.1	547.1	74.3	10.9	8.6
17.5°	1121.0	1029.0	948.0	875.0	786.3	728.3	653.6	614.6	60.2	9.5	7.7
20°	1421.7	1236.5	1093.8	976.0	852.8	780.8	697.9	650.8	43.5	8.6	7.7
22.5°	1704.8	1440.3	1221.5	1053.0	887.3	801.2	715.2	663.1	30.8	8.6	9.1
25°	1935.8	1593.8	1309.8	1103.8	906.3	805.3	708.8	647.2	24.0	10.0	17.7
26°	2000.5	1631.9	1327.0	1107.8	903.6	799.4	697.9	632.7	21.3	13.6	33.1
27°	2040.8	1649.1	1327.5	1101.5	893.6	787.6	681.6	613.2	18.6	20.8	55.7
28°	2049.0	1640.9	1312.1	1083.8	876.4	771.8	663.5	589.7	17.2	26.3	63.4
29°	2026.8	1611.9	1284.0	1058.0	855.6	752.7	641.8	563.9	14.9	19.9	41.2
30°	1977.0	1563.9	1242.8	1024.9	833.4	731.5	615.1	533.1	12.2	10.0	18.6
31°	1902.2	1497.8	1192.1	986.0	808.5	704.3	582.9	498.7	10.4	6.8	10.9
32°	1807.6	1418.5	1135.5	946.1	780.4	671.2	545.3	460.2	9.5	5.4	9.1
33°	1698.9	1335.2	1077.0	905.8	746.9	631.8	505.0	418.9	8.6	5.9	9.1
34°	1580.2	1250.0	1010.9	863.7	707.9	588.8	462.0	370.5	7.7	5.4	6.8
35°	1451.6	1161.7	951.6	826.6	664.0	542.1	418.0	329.3	6.8	4.1	4.5
36°	1340.6	1075.7	894.1	779.5	616.0	494.1	372.7	284.9	5.9	2.7	3.2
37°	1219.7	995.1	840.6	730.6	564.3	444.8	327.5	241.0	5.4	1.8	2.7
38°	1106.9	920.8	787.2	674.4	511.3	394.9	281.3	197.9	5.0	1.8	2.3
39°	1004.6	853.3	737.3	614.6	455.6	342.9	234.6	155.3	4.5	1.4	2.3
40°	916.7	793.1	677.6	551.7	398.1	291.2	188.0	115.0	4.1	1.4	2.3
42.5°	745.5	636.3	511.3	390.0	257.7	164.9	84.2	42.1	3.2	1.4	1.8
45°	569.8	452.9	337.4	234.6	132.7	63.9	31.3	23.1	2.7	1.4	1.8
47.5°	370.0	271.7	181.2	102.4	44.4	25.8	16.3	11.8	2.3	1.4	1.8
50°	136.8	75.6	39.9	24.9	17.2	10.9	7.2	6.8	2.3	1.4	1.8
51°	56.2	36.7	24.9	16.8	10.9	7.7	5.9	5.9	2.3	1.4	1.8
52°	33.5	23.1	16.8	12.2	8.2	5.9	4.5	5.0	2.3	1.4	1.8
53°	22.2	15.9	12.2	9.5	6.3	4.5	3.2	3.6	2.3	1.4	1.8
54°	14.9	11.3	9.1	7.2	4.5	3.6	1.8	3.2	1.8	1.4	1.8
55°	10.4	8.2	6.8	5.4	3.2	2.3	1.4	2.7	1.8	1.4	1.8
57.5°	4.5	4.1	3.6	3.2	1.4	0.9	0.5	2.3	1.8	1.4	1.8
60°	3.2	2.7	2.3	2.3	0.5	0.5	0.0	1.8	1.8	1.4	1.8
61°	2.7	2.3	2.3	1.8	0.5	0.5	0.0	1.8	2.3	1.4	1.8
62°	2.3	2.3	1.8	1.8	0.5	0.0	0.0	1.8	2.3	1.4	2.3
63°	1.8	1.8	1.8	1.8	0.5	0.0	0.0	1.8	2.3	1.4	2.3
64°	1.8	1.8	1.8	1.8	0.0	0.0	0.0	1.8	2.3	1.4	2.3
65°	1.8	1.4	1.4	1.4	0.0	0.0	0.0	1.8	2.3	1.8	2.3
66°	1.4	1.4	1.4	1.4	0.0	0.0	0.0	1.8	2.3	1.8	2.3



TEST NUMBER: P175487

CATALOG NUMBER: LDA6A15827D010TE 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°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	1.4	2.3	1.8	2.7
75°	0.5	0.9	0.9	0.9	0.0	0.0	0.0	1.8	2.3	1.8	2.7
77.5°	0.5	0.9	0.9	0.9	0.0	0.0	0.0	1.8	2.3	1.8	2.7
80°	0.5	0.9	0.9	0.9	0.0	0.0	0.0	1.8	2.3	1.8	2.7
82.5°	0.5	0.9	0.9	0.9	0.0	0.0	0.0	1.8	2.3	1.8	2.7
85°	0.5	0.9	0.9	0.9	0.0	0.0	0.0	1.8	2.3	1.8	2.7
87.5°	0.5	0.9	0.9	0.9	0.0	0.0	0.0	1.8	2.3	1.8	2.7
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: P175487

CATALOG NUMBER: LDA6A15827D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	26.3	26.3	26.3
2.5°	15.9	14.5	13.6
5°	11.3	10.4	9.5
7.5°	9.5	8.2	7.7
10°	8.6	6.3	5.9
12.5°	7.2	5.4	5.0
15°	6.8	5.4	5.0
17.5°	6.8	5.4	5.0
20°	7.2	6.8	6.8
22.5°	10.4	11.3	11.8
25°	31.7	40.8	47.1
26°	74.3	111.4	149.5
27°	112.8	164.4	175.3
28°	101.5	117.8	114.6
29°	48.9	55.3	50.3
30°	21.7	25.8	25.4
31°	14.0	15.9	15.4
32°	11.8	10.9	10.4
33°	9.5	7.7	6.3
34°	6.3	5.0	4.1
35°	4.1	2.7	2.3
36°	2.7	1.4	0.9
37°	1.8	0.9	0.5
38°	1.8	0.5	0.0
39°	1.4	0.5	0.0
40°	1.4	0.5	0.0
42.5°	1.4	0.0	0.0
45°	0.9	0.0	0.0
47.5°	0.9	0.0	0.0
50°	1.4	0.5	0.0
51°	1.4	0.0	0.0
52°	1.4	0.0	0.0
53°	0.9	0.0	0.0
54°	0.9	0.0	0.0
55°	0.9	0.0	0.0
57.5°	0.9	0.0	0.0
60°	0.9	0.0	0.0
61°	1.4	0.0	0.0
62°	1.4	0.0	0.0
63°	1.4	0.0	0.0
64°	1.4	0.5	0.0
65°	1.4	0.5	0.0
66°	1.4	0.5	0.0



TEST NUMBER: P175487

CATALOG NUMBER: LDA6A15827D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.8	0.5	0.0
75°	1.8	0.5	0.0
77.5°	1.8	0.5	0.0
80°	1.8	0.9	0.5
82.5°	1.8	0.9	0.5
85°	1.8	0.9	0.5
87.5°	1.8	0.9	0.5
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - - 90°-270°







67.5°	1.4	1.4	1.4	1.4	1.4	1.4	0.9	0.9	0.9	1.4	1.4
70°	1.4	1.4	0.9	0.9	0.9	0.9	0.9	0.5	0.5	1.4	1.4





67.5°	1.4	1.4	1.4	1.4	0.0	0.0	0.0	1.8	2.3	1.8	2.3
70°	1.4	1.4	1.4	1.4	0.0	0.0	0.0	1.8	2.3	1.8	2.7





67.5°	1.8	0.5	0.0
70°	1.8	0.5	0.0



(END OF REPORT)