

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: P175439

Luminaire Tested: **LDA6A20827D010TE LARL15SP 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175439
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26267)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A20827D010TE LARL15SP 6LAL1 30° Tilt
Description: PORTFOLIO 6" Lensed Adjustable, Self-flange Trim Ring, 15° Spot
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: 1246.9 lumens
Efficiency: N/A
Efficacy: 42.8 lumens/watt
Spacing Criteria (0/90/45): 2.44 / 0.33 / 1.32
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

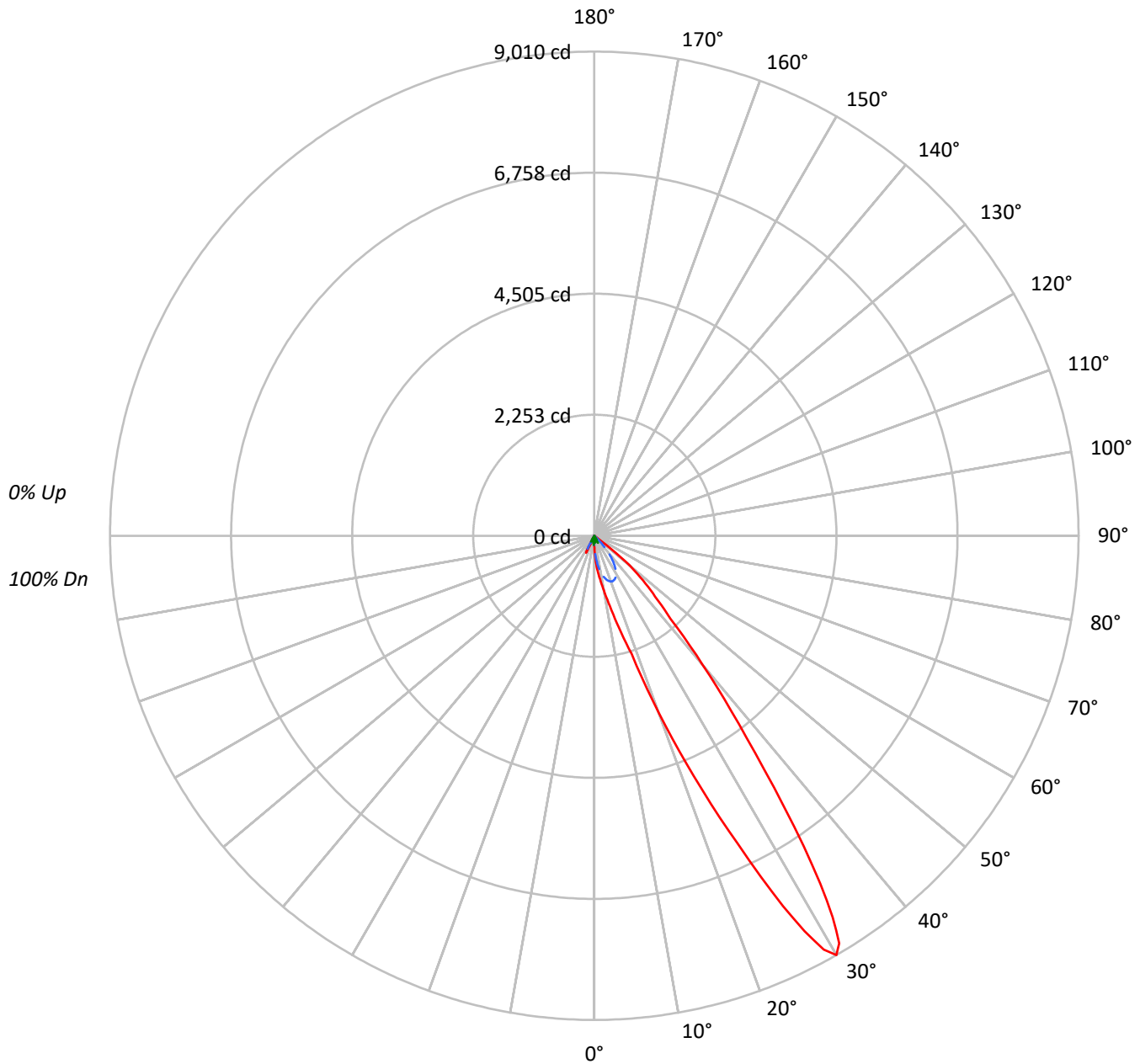
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P175439

CATALOG NUMBER: LDA6A20827D010TE LARL15SP 6LAL1 30° Tilt

Luminous Intensity Polar Plot





TEST NUMBER: P175439

CATALOG NUMBER: LDA6A20827D010TE LARL15SP 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
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102
1	113	109	106	104	110	107	105	102	103	101	99		99	98	96		96
2	106	100	95	91	103	98	94	90	95	91	88		92	89	86		89
3	99	91	86	81	97	90	85	80	87	83	79		85	81	78		82
4	93	84	77	72	91	82	76	72	80	75	71		78	74	70		76
5	87	77	70	64	85	76	69	64	74	68	64		72	67	63		70
6	81	70	63	58	79	69	63	58	68	62	57		66	61	57		65
7	75	64	57	52	74	64	57	52	62	56	52		61	55	51		60
8	71	59	52	47	69	59	52	47	57	51	47		56	51	47		55
9	66	55	47	43	65	54	47	43	53	47	42		52	46	42		51
10	62	50	43	39	61	50	43	39	49	43	39		48	42	38		47

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	10060	10060	10060
5°	34410	8557	1145
10°	57586	4748	562
15°	100029	1754	477
20°	204359	1143	817
25°	383611	2238	14499
30°	570366	3906	2342
35°	411617	301	187
40°	223569	122	0
45°	124106	132	0
50°	72620	145	0
55°	2303	105	0
60°	800	186	0
65°	363	221	0
70°	272	272	0
75°	127	466	0
80°	0	695	0
85°	0	1384	0



TEST NUMBER: P175439

CATALOG NUMBER: LDA6A20827D010TE LARL15SP 6LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.7	2.1
10°-20°	133.5	10.7
20°-30°	429.7	34.5
30°-40°	447.3	35.9
40°-50°	190.6	15.3
50°-60°	15.8	1.3
60°-70°	1.6	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°	588.9	47.2
0°-40°	1036.2	83.1
0°-60°	1242.5	99.7
0°-90°	1246.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1246.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	184	184	184	184	184	
5°	625	456	156	28	21	71
15°	1762	839	31	11	8	576
25°	6342	894	37	112	240	3046
35°	6151	638	4	4	3	3808
45°	1601	110	2	1	0	1317
55°	24	3	1	1	0	151
65°	3	2	2	1	0	3
75°	1	2	2	2	0	1
85°	0	2	2	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P175439

CATALOG NUMBER: LDA6A20827D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	183.5	183.5	183.5	183.5	183.5	183.5	183.5	183.5	183.5	183.5	183.5
2.5°	407.5	386.2	402.4	392.9	386.7	385.0	394.6	383.9	372.7	372.1	368.8
5°	625.3	605.1	621.9	607.3	600.6	595.0	599.5	582.1	563.5	564.1	555.7
7.5°	815.0	803.8	815.0	799.3	794.2	788.6	786.9	770.1	748.2	749.9	737.0
10°	1034.5	1001.9	1019.9	985.6	977.2	962.1	957.0	929.5	894.7	893.0	874.5
12.5°	1337.0	1324.1	1342.0	1293.8	1283.7	1257.9	1243.8	1200.0	1142.8	1128.2	1085.5
15°	1762.5	1720.9	1738.9	1671.0	1651.9	1607.0	1576.1	1508.2	1453.7	1392.0	1326.9
17.5°	2303.0	2279.4	2302.4	2168.8	2119.4	2031.9	1959.5	1846.1	1730.5	1674.9	1583.4
20°	3503.0	3390.8	3403.1	3155.0	2996.7	2761.0	2572.4	2322.1	2092.5	1960.6	1809.6
22.5°	4835.0	4707.0	4675.6	4356.7	4088.4	3734.3	3403.1	2984.4	2577.5	2282.8	2026.8
25°	6342.0	6259.0	6094.5	5572.5	5111.1	4606.0	4118.8	3570.9	3043.3	2592.0	2208.1
26°	7057.7	6990.9	6743.9	6091.1	5493.9	4889.4	4332.6	3744.4	3175.2	2680.2	2250.8
27°	7737.4	7683.5	7362.5	6602.5	5856.0	5128.5	4488.1	3867.9	3270.1	2736.9	2281.1
28°	8336.3	8281.3	7866.5	7035.8	6142.8	5301.4	4585.8	3944.8	3324.5	2750.3	2279.4
29°	8802.2	8732.6	8197.1	7313.6	6311.2	5384.5	4605.4	3954.3	3316.7	2718.9	2248.0
30°	9010.4	8924.0	8291.4	7373.1	6314.0	5353.0	4549.8	3903.2	3252.7	2644.8	2189.6
31°	8847.1	8773.5	8120.2	7201.4	6142.8	5209.3	4411.8	3785.4	3131.4	2537.6	2112.1
32°	8371.1	8303.7	7701.5	6824.2	5818.9	4966.3	4211.4	3617.0	2970.4	2407.9	2022.3
33°	7718.3	7666.1	7126.2	6306.1	5403.0	4667.1	3971.7	3405.9	2776.7	2262.6	1912.9
34°	6973.5	6932.5	6439.7	5720.7	4948.9	4334.9	3698.4	3102.3	2565.1	2116.1	1830.9
35°	6150.6	6122.6	5720.7	5119.5	4497.1	3989.7	3394.7	2834.0	2351.8	1975.2	1742.8
36°	5368.8	5345.7	5039.3	4568.4	4067.1	3631.6	3065.8	2554.4	2147.5	1848.3	1660.3
37°	4700.8	4684.0	4457.2	4077.8	3654.0	3259.4	2730.7	2292.9	1969.6	1737.8	1575.5
38°	4145.1	4131.7	3947.6	3611.3	3228.5	2874.4	2407.4	2061.6	1818.0	1641.8	1479.6
39°	3627.1	3609.7	3444.1	3139.9	2804.8	2499.4	2193.0	1871.3	1699.0	1541.9	1376.3
40°	3124.1	3101.7	2956.3	2697.6	2418.0	2181.2	1906.1	1754.6	1602.5	1425.7	1270.8
42.5°	2096.4	2084.1	2004.9	1888.2	1769.8	1683.3	1596.3	1461.0	1300.5	1154.6	1040.1
45°	1600.8	1598.0	1559.3	1498.1	1419.5	1346.5	1230.4	1152.3	1044.0	921.1	839.1
47.5°	1228.1	1228.7	1192.7	1146.7	1092.8	1045.7	960.9	898.6	821.2	751.0	687.6
50°	851.5	815.6	820.6	784.1	740.3	712.8	634.3	586.5	476.5	365.4	285.7
51°	638.2	591.0	597.2	556.2	510.8	486.6	413.1	364.8	261.6	171.8	112.3
52°	389.5	352.5	351.9	320.5	281.2	259.9	201.5	157.2	89.2	47.1	32.6
53°	174.6	149.9	144.3	122.9	96.5	83.6	57.3	42.1	31.4	24.1	18.5
54°	46.0	41.0	39.3	35.9	32.6	31.4	27.5	23.0	18.0	14.0	11.8
55°	24.1	22.5	21.9	20.8	19.1	18.5	16.3	14.0	11.2	10.1	9.0
57.5°	11.2	11.2	10.7	10.1	9.5	9.5	8.4	7.9	7.3	7.3	6.2
60°	7.3	7.3	7.3	6.7	6.7	6.2	5.6	5.1	4.5	5.1	4.5
61°	6.2	6.2	6.2	5.6	5.1	4.5	4.5	4.5	3.9	3.9	3.4
62°	4.5	4.5	3.9	3.9	3.4	3.4	3.4	3.4	2.8	3.4	3.4
63°	3.4	3.4	2.8	2.8	2.8	2.8	2.2	2.2	2.2	3.4	3.4
64°	2.8	2.8	2.8	2.2	2.2	2.2	2.2	2.2	2.2	2.8	2.2
65°	2.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.7	2.2	2.2
66°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.7	1.7	2.2	2.2



TEST NUMBER: P175439

CATALOG NUMBER: LDA6A20827D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
72.5°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6
75°	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
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: P175439

CATALOG NUMBER: LDA6A20827D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	183.5	183.5	183.5	183.5	183.5	183.5	183.5	183.5	183.5	183.5	183.5
2.5°	368.8	362.0	348.0	345.2	331.7	323.9	326.1	321.6	249.8	176.2	110.0
5°	549.5	534.3	513.6	506.3	483.3	470.9	467.0	455.8	309.3	155.5	51.6
7.5°	726.3	706.7	681.4	669.6	638.2	617.4	603.9	587.1	350.2	123.5	28.6
10°	857.7	835.2	808.8	793.7	758.3	737.5	715.6	697.1	372.1	85.3	21.3
12.5°	1032.8	988.4	933.4	900.3	848.1	819.5	794.2	776.3	380.6	51.1	16.3
15°	1266.3	1195.0	1117.0	1056.9	968.2	914.3	871.7	839.1	373.8	30.9	14.0
17.5°	1492.5	1391.4	1289.3	1207.9	1106.3	1026.0	944.1	880.1	345.2	24.7	12.9
20°	1680.5	1562.1	1431.9	1317.9	1200.6	1105.2	996.3	905.9	299.2	19.6	14.0
22.5°	1825.3	1674.3	1526.7	1385.3	1245.5	1136.1	1016.5	911.5	240.8	20.2	19.6
25°	1929.7	1731.6	1574.4	1413.3	1261.2	1141.1	1005.8	893.6	177.4	37.0	66.2
26°	1951.0	1743.4	1580.6	1410.5	1255.6	1132.7	993.5	882.4	160.0	73.5	145.9
27°	1962.8	1741.7	1576.1	1399.3	1243.8	1120.3	979.5	872.2	157.2	125.7	217.8
28°	1952.2	1727.7	1557.0	1379.1	1224.7	1104.1	963.2	860.5	155.5	154.4	206.6
29°	1923.0	1703.0	1528.4	1347.7	1195.6	1078.2	938.5	843.6	139.2	122.9	124.6
30°	1878.6	1668.2	1486.9	1305.6	1158.5	1041.2	903.1	816.7	92.1	61.7	52.8
31°	1823.6	1623.3	1435.8	1256.7	1116.4	996.3	866.1	781.9	47.7	26.4	24.7
32°	1763.0	1569.4	1380.8	1207.3	1073.8	953.1	835.2	751.0	31.4	14.6	14.0
33°	1699.0	1506.5	1320.2	1156.3	1026.0	904.8	803.2	717.9	23.6	9.0	8.4
34°	1636.2	1439.2	1259.0	1101.3	974.4	861.6	774.0	679.7	19.1	6.7	5.6
35°	1564.9	1366.2	1196.1	1042.9	918.8	824.5	744.8	638.2	15.2	4.5	4.5
36°	1481.8	1288.7	1131.0	981.7	866.1	790.3	712.8	592.7	11.8	3.4	3.9
37°	1393.7	1211.8	1065.3	921.1	822.9	758.9	674.1	546.1	10.1	2.8	3.4
38°	1302.8	1135.5	994.6	862.7	785.2	724.6	630.3	497.9	8.4	2.2	2.8
39°	1213.5	1057.5	923.9	815.6	749.9	684.2	580.4	448.5	7.3	2.2	2.8
40°	1126.5	978.9	861.0	774.6	710.6	634.8	528.7	396.8	5.1	1.7	2.8
42.5°	920.0	816.1	741.5	655.0	582.6	497.3	389.0	257.6	3.9	1.7	2.2
45°	770.1	684.8	597.8	500.1	428.8	341.3	230.1	109.5	3.9	1.7	2.2
47.5°	609.0	508.5	380.6	257.1	167.8	86.4	26.9	15.2	2.8	1.7	2.2
50°	177.4	102.7	38.2	23.0	17.4	10.7	6.7	6.2	2.2	1.7	2.2
51°	51.1	30.3	20.2	13.5	10.1	6.2	5.1	5.6	2.2	1.7	1.7
52°	24.1	17.4	11.8	9.0	6.7	5.1	4.5	5.1	2.2	1.7	1.7
53°	14.0	10.7	8.4	7.3	5.1	4.5	3.4	4.5	2.2	1.7	1.7
54°	9.5	8.4	7.3	6.2	4.5	3.4	3.4	4.5	2.2	1.7	1.7
55°	8.4	7.3	6.2	5.6	3.9	3.4	3.4	3.4	1.7	1.1	1.7
57.5°	5.6	5.6	4.5	4.5	3.4	2.2	1.1	2.8	2.2	1.7	1.7
60°	3.9	3.9	3.9	2.8	1.1	1.1	0.6	2.2	2.2	1.7	2.2
61°	3.9	3.9	2.8	2.2	1.1	1.1	0.6	2.2	2.2	1.7	2.2
62°	3.4	2.8	2.2	2.2	1.1	1.1	0.6	2.2	2.2	1.7	2.2
63°	2.8	2.2	2.2	2.2	1.1	0.6	0.6	2.2	2.2	1.7	2.2
64°	2.2	2.2	2.2	2.2	0.6	0.6	0.6	2.2	2.2	1.7	2.2
65°	2.2	2.2	2.2	1.7	0.6	0.6	0.6	1.7	2.2	1.7	2.2
66°	2.2	2.2	1.7	1.7	0.6	0.6	0.6	1.7	2.2	1.7	2.2



TEST NUMBER: P175439

CATALOG NUMBER: LDA6A20827D010TE LARL15SP 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°	0.6	1.1	1.1	1.1	0.0	0.0	0.0	1.7	2.2	1.7	2.2
75°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.2
77.5°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.8
80°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.8
82.5°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.8
85°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.8
87.5°	0.6	0.6	1.1	1.1	0.0	0.0	0.0	1.7	2.2	2.2	2.8
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: P175439

CATALOG NUMBER: LDA6A20827D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	183.5	183.5	183.5
2.5°	70.2	50.5	46.0
5°	28.1	23.0	20.8
7.5°	17.4	14.6	13.5
10°	14.0	10.7	10.1
12.5°	11.2	9.5	9.0
15°	10.7	9.0	8.4
17.5°	10.7	10.1	9.5
20°	13.5	13.5	14.0
22.5°	23.0	26.9	30.3
25°	111.7	180.7	239.7
26°	234.1	330.0	353.1
27°	290.2	300.3	288.5
28°	223.4	200.4	188.6
29°	119.6	99.9	91.5
30°	47.7	39.3	37.0
31°	23.0	19.6	19.1
32°	12.9	10.7	10.7
33°	7.9	6.7	6.2
34°	5.6	4.5	3.9
35°	3.9	3.4	2.8
36°	3.4	2.2	1.7
37°	2.8	1.7	1.7
38°	2.2	1.7	1.1
39°	1.7	1.1	0.6
40°	1.7	0.6	0.0
42.5°	1.1	0.6	0.0
45°	1.1	0.0	0.0
47.5°	1.7	1.1	0.6
50°	1.1	0.6	0.0
51°	1.1	0.0	0.0
52°	1.1	0.0	0.0
53°	1.1	0.0	0.0
54°	1.1	0.0	0.0
55°	1.1	0.0	0.0
57.5°	1.1	0.0	0.0
60°	1.1	0.0	0.0
61°	1.1	0.0	0.0
62°	1.1	0.0	0.0
63°	1.1	0.6	0.0
64°	1.1	0.6	0.0
65°	1.1	0.6	0.0
66°	1.1	0.6	0.0



TEST NUMBER: P175439

CATALOG NUMBER: LDA6A20827D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.7	0.6	0.0
75°	1.7	0.6	0.0
77.5°	1.7	0.6	0.0
80°	1.7	0.6	0.0
82.5°	1.7	0.6	0.0
85°	1.7	0.6	0.0
87.5°	1.7	0.6	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	2.2	1.7	1.7	1.7	1.7	1.7	1.7	1.1	1.1	1.7	1.7
70°	1.7	1.7	1.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1





67.5°	1.7	1.7	1.7	1.7	0.6	0.0	0.0	1.7	2.2	1.7	2.2
70°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	1.7	2.2	1.7	2.2





67.5°	1.7	0.6	0.0
70°	1.7	0.6	0.0



(END OF REPORT)