

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: P175454

Luminaire Tested: **LDA6A10940D010TE LARL15SP 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175454
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: LDA6A10940D010TE 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 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 679.2 lumens
Efficiency: N/A
Efficacy: 49.1 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

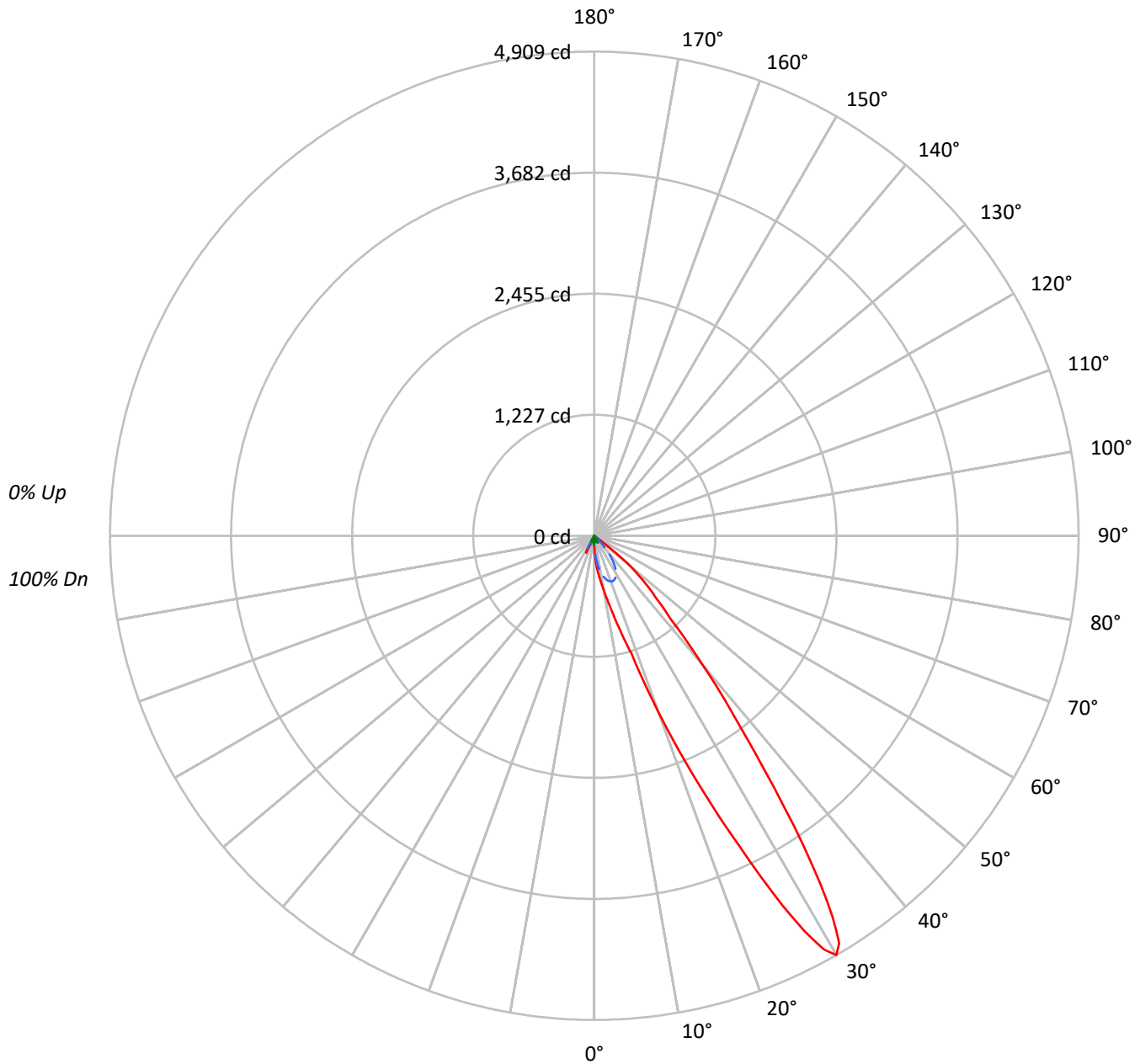
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P175454

CATALOG NUMBER: LDA6A10940D010TE LARL15SP 6LAL1 30° Tilt

Luminous Intensity Polar Plot





TEST NUMBER: P175454

CATALOG NUMBER: LDA6A10940D010TE 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°	5482	5482	5482
5°	18743	4661	622
10°	31373	2588	306
15°	54490	953	261
20°	111333	624	443
25°	208984	1222	7900
30°	310725	2127	1279
35°	224239	161	100
40°	121800	64	0
45°	67612	70	0
50°	39564	77	0
55°	1252	57	0
60°	439	99	0
65°	195	117	0
70°	144	144	0
75°	64	254	0
80°	0	379	0
85°	0	755	0



TEST NUMBER: P175454

CATALOG NUMBER: LDA6A10940D010TE LARL15SP 6LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	14.0	2.1
10°-20°	72.7	10.7
20°-30°	234.1	34.5
30°-40°	243.7	35.9
40°-50°	103.8	15.3
50°-60°	8.6	1.3
60°-70°	0.9	0.1
70°-80°	0.8	0.1
80°-90°	0.7	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°	320.8	47.2
0°-40°	564.5	83.1
0°-60°	676.9	99.7
0°-90°	679.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	679.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	100	100	100	100	100	
5°	341	248	85	15	11	39
15°	960	457	17	6	5	314
25°	3455	487	20	61	131	1659
35°	3351	348	2	2	2	2074
45°	872	60	1	1	0	717
55°	13	2	1	1	0	82
65°	2	1	1	1	0	2
75°	0	1	1	1	0	0
85°	0	1	1	1	0	0
90°	0	0	0	0	0	



TEST NUMBER: P175454

CATALOG NUMBER: LDA6A10940D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2.5°	222.0	210.4	219.2	214.0	210.7	209.8	215.0	209.2	203.0	202.7	200.9
5°	340.6	329.6	338.8	330.9	327.2	324.1	326.6	317.1	307.0	307.3	302.7
7.5°	444.0	437.9	444.0	435.4	432.7	429.6	428.7	419.5	407.6	408.5	401.5
10°	563.6	545.8	555.6	536.9	532.4	524.1	521.4	506.4	487.4	486.5	476.4
12.5°	728.4	721.3	731.1	704.8	699.3	685.3	677.6	653.8	622.6	614.6	591.4
15°	960.1	937.5	947.3	910.3	899.9	875.4	858.6	821.6	792.0	758.3	722.9
17.5°	1254.6	1241.8	1254.3	1181.5	1154.6	1106.9	1067.5	1005.7	942.7	912.4	862.6
20°	1908.4	1847.2	1853.9	1718.8	1632.6	1504.1	1401.4	1265.0	1139.9	1068.1	985.8
22.5°	2634.0	2564.3	2547.1	2373.5	2227.3	2034.3	1853.9	1625.8	1404.1	1243.6	1104.2
25°	3455.0	3409.7	3320.1	3035.8	2784.4	2509.2	2243.8	1945.4	1657.9	1412.1	1202.9
26°	3844.9	3808.5	3673.9	3318.3	2993.0	2663.6	2360.3	2039.9	1729.8	1460.1	1226.2
27°	4215.2	4185.8	4010.9	3596.9	3190.2	2793.9	2445.0	2107.1	1781.5	1491.0	1242.7
28°	4541.4	4511.5	4285.5	3832.9	3346.4	2888.1	2498.2	2149.0	1811.1	1498.3	1241.8
29°	4795.2	4757.3	4465.6	3984.3	3438.2	2933.3	2508.9	2154.2	1806.8	1481.2	1224.6
30°	4908.7	4861.6	4517.0	4016.7	3439.7	2916.2	2478.6	2126.4	1772.0	1440.8	1192.8
31°	4819.7	4779.6	4423.7	3923.1	3346.4	2837.9	2403.4	2062.2	1705.9	1382.4	1150.6
32°	4560.4	4523.7	4195.6	3717.7	3170.0	2705.5	2294.3	1970.4	1618.2	1311.8	1101.7
33°	4204.8	4176.3	3882.2	3435.4	2943.4	2542.6	2163.7	1855.5	1512.7	1232.6	1042.1
34°	3799.0	3776.7	3508.2	3116.5	2696.1	2361.5	2014.8	1690.0	1397.4	1152.8	997.5
35°	3350.7	3335.4	3116.5	2789.0	2449.9	2173.5	1849.4	1543.9	1281.2	1076.0	949.4
36°	2924.8	2912.2	2745.3	2488.7	2215.7	1978.4	1670.2	1391.6	1169.9	1006.9	904.5
37°	2560.9	2551.7	2428.2	2221.5	1990.6	1775.7	1487.6	1249.1	1073.0	946.7	858.3
38°	2258.2	2250.8	2150.5	1967.4	1758.8	1565.9	1311.5	1123.1	990.4	894.4	806.0
39°	1975.9	1966.5	1876.3	1710.5	1528.0	1361.6	1194.7	1019.5	925.6	840.0	749.8
40°	1702.0	1689.7	1610.5	1469.6	1317.3	1188.3	1038.4	955.9	873.0	776.7	692.3
42.5°	1142.1	1135.4	1092.2	1028.6	964.1	917.0	869.6	795.9	708.5	629.0	566.6
45°	872.1	870.6	849.5	816.1	773.3	733.6	670.3	627.8	568.7	501.8	457.1
47.5°	669.0	669.4	649.8	624.7	595.4	569.7	523.5	489.6	447.4	409.1	374.6
50°	463.9	444.3	447.0	427.2	403.3	388.3	345.5	319.5	259.6	199.1	155.6
51°	347.7	322.0	325.3	303.0	278.3	265.1	225.1	198.8	142.5	93.6	61.2
52°	212.2	192.0	191.7	174.6	153.2	141.6	109.8	85.6	48.6	25.7	17.7
53°	95.1	81.6	78.6	67.0	52.6	45.6	31.2	22.9	17.1	13.1	10.1
54°	25.1	22.3	21.4	19.6	17.7	17.1	15.0	12.5	9.8	7.6	6.4
55°	13.1	12.2	11.9	11.3	10.4	10.1	8.9	7.6	6.1	5.5	4.9
57.5°	6.1	6.1	5.8	5.5	5.2	5.2	4.6	4.3	4.0	4.0	3.4
60°	4.0	4.0	4.0	3.7	3.7	3.4	3.1	2.8	2.4	2.8	2.4
61°	3.4	3.4	3.4	3.1	2.8	2.4	2.4	2.4	2.1	2.1	1.8
62°	2.4	2.4	2.1	2.1	1.8	1.8	1.8	1.8	1.5	1.8	1.8
63°	1.8	1.8	1.5	1.5	1.5	1.5	1.2	1.2	1.2	1.8	1.8
64°	1.5	1.5	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.5	1.2
65°	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.9	1.2	1.2
66°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.9	0.9	1.2	1.2



TEST NUMBER: P175454

CATALOG NUMBER: LDA6A10940D010TE 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°	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.3
75°	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
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: P175454

CATALOG NUMBER: LDA6A10940D010TE 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°	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2.5°	200.9	197.2	189.6	188.1	180.7	176.4	177.7	175.2	136.1	96.0	59.9
5°	299.4	291.1	279.8	275.8	263.3	256.5	254.4	248.3	168.5	84.7	28.1
7.5°	395.7	385.0	371.2	364.8	347.7	336.4	329.0	319.8	190.8	67.3	15.6
10°	467.2	455.0	440.6	432.4	413.1	401.8	389.9	379.8	202.7	46.5	11.6
12.5°	562.6	538.5	508.5	490.5	462.0	446.4	432.7	422.9	207.3	27.8	8.9
15°	689.8	651.0	608.5	575.8	527.5	498.1	474.9	457.1	203.6	16.8	7.6
17.5°	813.1	758.0	702.4	658.0	602.7	559.0	514.3	479.5	188.1	13.5	7.0
20°	915.5	851.0	780.0	718.0	654.1	602.1	542.8	493.5	163.0	10.7	7.6
22.5°	994.4	912.1	831.7	754.7	678.5	618.9	553.8	496.6	131.2	11.0	10.7
25°	1051.3	943.3	857.7	770.0	687.1	621.6	548.0	486.8	96.6	20.2	36.1
26°	1062.9	949.7	861.1	768.4	684.0	617.1	541.2	480.7	87.1	40.1	79.5
27°	1069.3	948.8	858.6	762.3	677.6	610.3	533.6	475.2	85.6	68.5	118.6
28°	1063.5	941.2	848.2	751.3	667.2	601.5	524.7	468.8	84.7	84.1	112.5
29°	1047.6	927.7	832.6	734.2	651.3	587.4	511.3	459.6	75.8	67.0	67.9
30°	1023.4	908.8	810.0	711.2	631.1	567.2	492.0	444.9	50.1	33.6	28.7
31°	993.5	884.3	782.2	684.6	608.2	542.8	471.8	426.0	26.0	14.4	13.5
32°	960.5	855.0	752.2	657.7	585.0	519.2	455.0	409.1	17.1	8.0	7.6
33°	925.6	820.7	719.2	629.9	559.0	492.9	437.6	391.1	12.8	4.9	4.6
34°	891.3	784.0	685.9	599.9	530.8	469.4	421.7	370.3	10.4	3.7	3.1
35°	852.5	744.3	651.6	568.1	500.6	449.2	405.8	347.7	8.3	2.4	2.4
36°	807.3	702.1	616.1	534.8	471.8	430.5	388.3	322.9	6.4	1.8	2.1
37°	759.2	660.2	580.4	501.8	448.3	413.4	367.2	297.5	5.5	1.5	1.8
38°	709.7	618.6	541.8	470.0	427.8	394.8	343.4	271.2	4.6	1.2	1.5
39°	661.1	576.1	503.3	444.3	408.5	372.7	316.2	244.3	4.0	1.2	1.5
40°	613.7	533.3	469.1	422.0	387.1	345.8	288.0	216.2	2.8	0.9	1.5
42.5°	501.2	444.6	403.9	356.8	317.4	270.9	211.9	140.4	2.1	0.9	1.2
45°	419.5	373.1	325.7	272.4	233.6	185.9	125.4	59.6	2.1	0.9	1.2
47.5°	331.8	277.0	207.3	140.0	91.4	47.1	14.7	8.3	1.5	0.9	1.2
50°	96.6	56.0	20.8	12.5	9.5	5.8	3.7	3.4	1.2	0.9	1.2
51°	27.8	16.5	11.0	7.3	5.5	3.4	2.8	3.1	1.2	0.9	0.9
52°	13.1	9.5	6.4	4.9	3.7	2.8	2.4	2.8	1.2	0.9	0.9
53°	7.6	5.8	4.6	4.0	2.8	2.4	1.8	2.4	1.2	0.9	0.9
54°	5.2	4.6	4.0	3.4	2.4	1.8	1.8	2.4	1.2	0.9	0.9
55°	4.6	4.0	3.4	3.1	2.1	1.8	1.8	1.8	0.9	0.6	0.9
57.5°	3.1	3.1	2.4	2.4	1.8	1.2	0.6	1.5	1.2	0.9	0.9
60°	2.1	2.1	2.1	1.5	0.6	0.6	0.3	1.2	1.2	0.9	1.2
61°	2.1	2.1	1.5	1.2	0.6	0.6	0.3	1.2	1.2	0.9	1.2
62°	1.8	1.5	1.2	1.2	0.6	0.6	0.3	1.2	1.2	0.9	1.2
63°	1.5	1.2	1.2	1.2	0.6	0.3	0.3	1.2	1.2	0.9	1.2
64°	1.2	1.2	1.2	1.2	0.3	0.3	0.3	1.2	1.2	0.9	1.2
65°	1.2	1.2	1.2	0.9	0.3	0.3	0.3	0.9	1.2	0.9	1.2
66°	1.2	1.2	0.9	0.9	0.3	0.3	0.3	0.9	1.2	0.9	1.2



TEST NUMBER: P175454

CATALOG NUMBER: LDA6A10940D010TE 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°	0.3	0.6	0.6	0.6	0.0	0.0	0.0	0.9	1.2	0.9	1.2
75°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.2	1.2	1.2
77.5°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.2	1.2	1.5
80°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.2	1.2	1.5
82.5°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.2	1.2	1.5
85°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.2	1.2	1.5
87.5°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.2	1.2	1.5
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: P175454

CATALOG NUMBER: LDA6A10940D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	100.0	100.0	100.0
2.5°	38.2	27.5	25.1
5°	15.3	12.5	11.3
7.5°	9.5	8.0	7.3
10°	7.6	5.8	5.5
12.5°	6.1	5.2	4.9
15°	5.8	4.9	4.6
17.5°	5.8	5.5	5.2
20°	7.3	7.3	7.6
22.5°	12.5	14.7	16.5
25°	60.9	98.5	130.6
26°	127.5	179.8	192.3
27°	158.1	163.6	157.2
28°	121.7	109.2	102.7
29°	65.1	54.4	49.8
30°	26.0	21.4	20.2
31°	12.5	10.7	10.4
32°	7.0	5.8	5.8
33°	4.3	3.7	3.4
34°	3.1	2.4	2.1
35°	2.1	1.8	1.5
36°	1.8	1.2	0.9
37°	1.5	0.9	0.9
38°	1.2	0.9	0.6
39°	0.9	0.6	0.3
40°	0.9	0.3	0.0
42.5°	0.6	0.3	0.0
45°	0.6	0.0	0.0
47.5°	0.9	0.6	0.3
50°	0.6	0.3	0.0
51°	0.6	0.0	0.0
52°	0.6	0.0	0.0
53°	0.6	0.0	0.0
54°	0.6	0.0	0.0
55°	0.6	0.0	0.0
57.5°	0.6	0.0	0.0
60°	0.6	0.0	0.0
61°	0.6	0.0	0.0
62°	0.6	0.0	0.0
63°	0.6	0.3	0.0
64°	0.6	0.3	0.0
65°	0.6	0.3	0.0
66°	0.6	0.3	0.0



TEST NUMBER: P175454

CATALOG NUMBER: LDA6A10940D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	0.9	0.3	0.0
75°	0.9	0.3	0.0
77.5°	0.9	0.3	0.0
80°	0.9	0.3	0.0
82.5°	0.9	0.3	0.0
85°	0.9	0.3	0.0
87.5°	0.9	0.3	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	1.2	0.9	0.9	0.9	0.9	0.9	0.9	0.6	0.6	0.9	0.9
70°	0.9	0.9	0.9	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6





67.5°	0.9	0.9	0.9	0.9	0.3	0.0	0.0	0.9	1.2	0.9	1.2
70°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.9	1.2	0.9	1.2





67.5°	0.9	0.3	0.0
70°	0.9	0.3	0.0



(END OF REPORT)