

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: P175470

Luminaire Tested: **LDA6A30940D010TE LARL15SP 6LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P175470  
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: LDA6A30940D010TE 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: 1955.6 lumens  
Efficiency: N/A  
Efficacy: 44.0 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

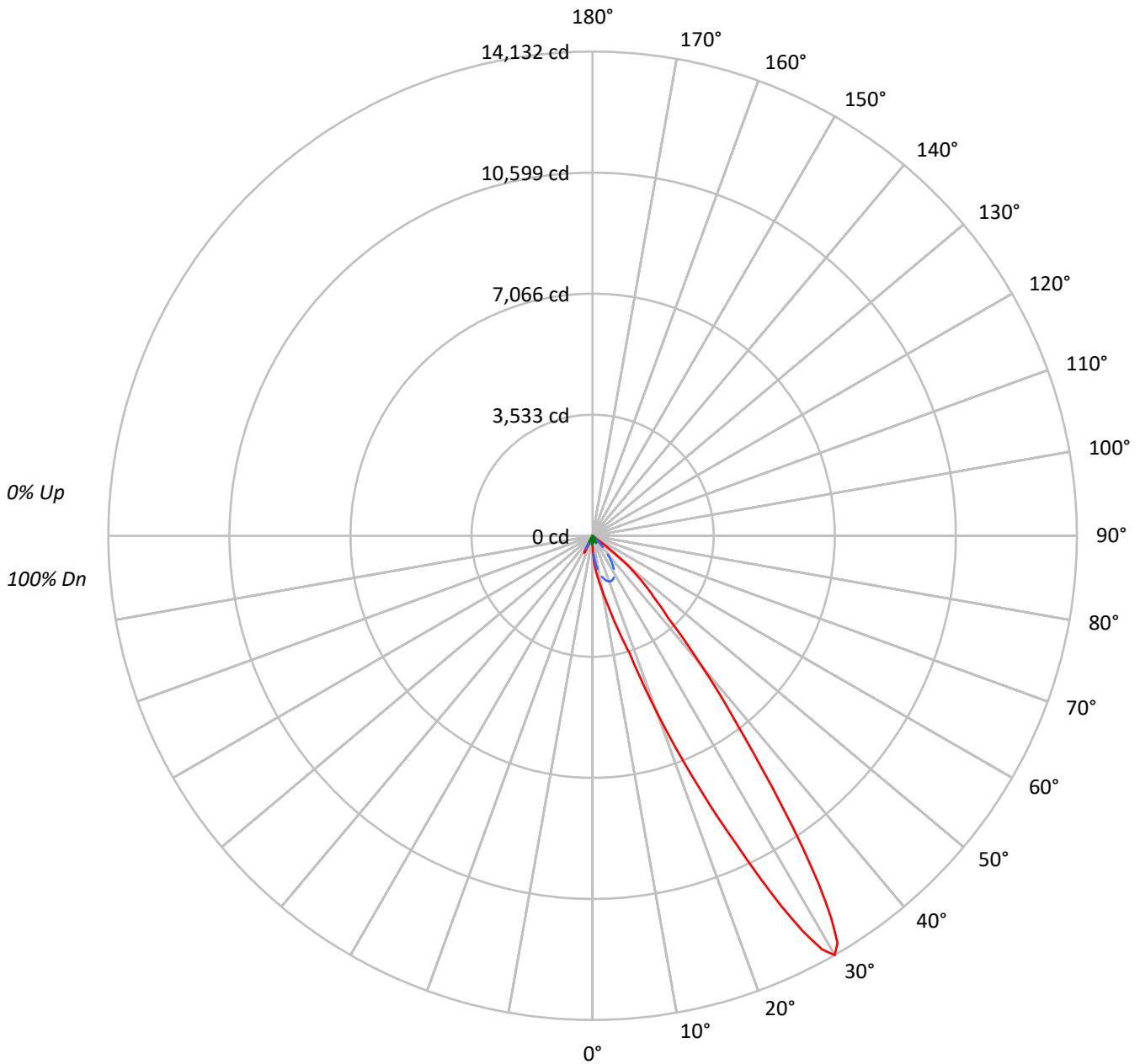
Input Watts (W): 44.49  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83																			
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75																			
4	93	84	77	72	91	82	76	72	80	75	71	78	74	70	76	72	69	67																			
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55																			
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49																			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45																			
9	66	55	47	43	65	54	47	43	53	47	42	52	46	42	51	46	42	41																			
10	62	50	43	39	61	50	43	39	49	43	39	48	42	38	47	42	38	37																			

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

	0°	90°	180°
0°	15783	15783	15783
5°	53968	13422	1794
10°	90318	7448	880
15°	156879	2747	749
20°	320523	1797	1283
25°	601662	3514	22737
30°	894568	6128	3678
35°	645587	468	294
40°	350650	186	0
45°	194648	202	0
50°	113898	222	0
55°	3622	172	0
60°	1250	285	0
65°	571	337	0
70°	417	417	0
75°	191	741	0
80°	0	1105	0
85°	0	2201	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	40.3	2.1
10°-20°	209.4	10.7
20°-30°	673.9	34.5
30°-40°	701.5	35.9
40°-50°	298.9	15.3
50°-60°	24.8	1.3
60°-70°	2.5	0.1
70°-80°	2.2	0.1
80°-90°	2.0	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°	923.6	47.2
0°-40°	1625.1	83.1
0°-60°	1948.8	99.7
0°-90°	1955.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1955.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	288	288	288	288	288	
5°	981	715	244	44	33	111
15°	2764	1316	48	17	13	904
25°	9947	1402	58	175	376	4777
35°	9647	1001	7	6	4	5972
45°	2511	172	3	2	0	2065
55°	38	5	2	2	0	236
65°	4	3	3	2	0	5
75°	1	3	4	3	0	1
85°	0	3	4	3	0	0
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	287.9	287.9	287.9	287.9	287.9	287.9	287.9	287.9	287.9	287.9	287.9
2.5°	639.1	605.7	631.2	616.2	606.5	603.9	618.9	602.1	584.5	583.7	578.4
5°	980.7	949.0	975.4	952.5	942.0	933.2	940.2	912.9	883.9	884.7	871.5
7.5°	1278.2	1260.6	1278.2	1253.6	1245.7	1236.9	1234.2	1207.8	1173.5	1176.1	1155.9
10°	1622.5	1571.4	1599.6	1545.9	1532.7	1508.9	1501.0	1457.8	1403.2	1400.6	1371.6
12.5°	2097.0	2076.7	2104.9	2029.2	2013.3	1972.8	1950.8	1882.1	1792.4	1769.5	1702.6
15°	2764.2	2699.1	2727.3	2620.7	2590.8	2520.4	2472.0	2365.5	2280.1	2183.2	2081.1
17.5°	3612.0	3575.0	3611.1	3401.6	3324.1	3186.8	3073.2	2895.4	2714.1	2626.9	2483.4
20°	5494.2	5318.1	5337.5	4948.3	4700.1	4330.4	4034.6	3641.9	3281.9	3075.0	2838.2
22.5°	7583.2	7382.5	7333.2	6833.1	6412.3	5856.8	5337.5	4680.7	4042.5	3580.3	3178.9
25°	9946.9	9816.6	9558.6	8739.9	8016.3	7224.0	6459.9	5600.7	4773.2	4065.4	3463.2
26°	11069.3	10964.5	10577.2	9553.4	8616.7	7668.6	6795.3	5872.7	4980.0	4203.6	3530.1
27°	12135.4	12050.9	11547.3	10355.3	9184.5	8043.6	7039.1	6066.4	5128.8	4292.5	3577.7
28°	13074.7	12988.4	12337.9	11035.0	9634.4	8314.7	7192.3	6187.0	5214.2	4313.6	3575.0
29°	13805.4	13696.2	12856.4	11470.7	9898.5	8445.0	7223.1	6201.9	5201.9	4264.3	3525.7
30°	14132.0	13996.4	13004.3	11564.0	9902.9	8395.7	7136.0	6121.8	5101.5	4148.1	3434.2
31°	13875.8	13760.5	12735.8	11294.7	9634.4	8170.4	6919.4	5937.0	4911.4	3980.0	3312.7
32°	13129.3	13023.6	12079.0	10703.1	9126.4	7789.2	6605.1	5672.9	4658.7	3776.6	3171.8
33°	12105.4	12023.6	11176.7	9890.5	8474.1	7320.0	6229.2	5341.9	4355.0	3548.6	3000.2
34°	10937.2	10873.0	10100.0	8972.3	7761.9	6798.8	5800.5	4865.6	4023.1	3318.9	2871.6
35°	9646.7	9602.7	8972.3	8029.5	7053.2	6257.4	5324.2	4444.8	3688.6	3097.9	2733.4
36°	8420.4	8384.3	7903.6	7165.0	6378.9	5695.7	4808.4	4006.4	3368.1	2898.9	2604.0
37°	7372.8	7346.4	6990.7	6395.6	5731.0	5112.1	4282.8	3596.2	3089.1	2725.5	2471.1
38°	6501.3	6480.1	6191.4	5664.1	5063.7	4508.2	3775.7	3233.5	2851.4	2575.0	2320.6
39°	5688.7	5661.4	5401.7	4924.6	4399.0	3920.1	3439.5	2935.0	2664.8	2418.3	2158.6
40°	4899.9	4864.7	4636.7	4230.9	3792.5	3421.0	2989.6	2751.9	2513.3	2236.0	1993.1
42.5°	3288.0	3268.7	3144.5	2961.4	2775.7	2640.1	2503.7	2291.5	2039.7	1810.8	1631.3
45°	2510.7	2506.3	2445.6	2349.6	2226.4	2111.9	1929.7	1807.3	1637.4	1444.6	1316.1
47.5°	1926.2	1927.0	1870.7	1798.5	1714.0	1640.1	1507.1	1409.4	1287.9	1177.9	1078.4
50°	1335.5	1279.1	1287.0	1229.8	1161.2	1118.0	994.8	919.9	747.4	573.1	448.1
51°	1000.9	927.0	936.7	872.4	801.1	763.2	647.9	572.2	410.2	269.4	176.1
52°	611.0	552.8	552.0	502.7	441.0	407.6	316.0	246.5	140.0	73.9	51.1
53°	273.8	235.0	226.2	192.8	151.4	131.2	89.8	66.0	49.3	37.9	29.1
54°	72.2	64.3	61.6	56.3	51.1	49.3	43.1	36.1	28.2	22.0	18.5
55°	37.9	35.2	34.3	32.6	29.9	29.1	25.5	22.0	17.6	15.8	14.1
57.5°	17.6	17.6	16.7	15.8	15.0	15.0	13.2	12.3	11.4	11.4	9.7
60°	11.4	11.4	11.4	10.6	10.6	9.7	8.8	7.9	7.0	7.9	7.0
61°	9.7	9.7	9.7	8.8	7.9	7.0	7.0	7.0	6.2	6.2	5.3
62°	7.0	7.0	6.2	6.2	5.3	5.3	5.3	5.3	4.4	5.3	5.3
63°	5.3	5.3	4.4	4.4	4.4	4.4	3.5	3.5	3.5	5.3	5.3
64°	4.4	4.4	4.4	3.5	3.5	3.5	3.5	3.5	3.5	4.4	3.5
65°	4.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.6	3.5	3.5
66°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.6	2.6	3.5	3.5



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**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	0.0	0.0	0.0	0.0	0.0	0.9	0.9
75°	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
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):**

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	287.9	287.9	287.9	287.9	287.9	287.9	287.9	287.9	287.9	287.9	287.9
2.5°	578.4	567.8	545.8	541.4	520.3	508.0	511.5	504.4	391.7	276.4	172.5
5°	861.8	838.1	805.5	794.1	758.0	738.6	732.4	714.8	485.1	243.9	81.0
7.5°	1139.1	1108.3	1068.7	1050.2	1000.9	968.4	947.2	920.8	549.3	193.7	44.9
10°	1345.1	1309.9	1268.6	1244.8	1189.3	1156.8	1122.4	1093.4	583.7	133.8	33.5
12.5°	1619.8	1550.3	1464.0	1412.1	1330.2	1285.3	1245.7	1217.5	596.9	80.1	25.5
15°	1986.0	1874.2	1751.9	1657.7	1518.6	1434.1	1367.2	1316.1	586.3	48.4	22.0
17.5°	2340.8	2182.3	2022.1	1894.5	1735.1	1609.2	1480.7	1380.4	541.4	38.7	20.2
20°	2635.7	2450.0	2245.7	2067.0	1883.0	1733.4	1562.6	1420.9	469.2	30.8	22.0
22.5°	2862.8	2626.0	2394.5	2172.7	1953.5	1781.8	1594.3	1429.7	377.7	31.7	30.8
25°	3026.6	2715.8	2469.3	2216.7	1978.1	1789.7	1577.6	1401.5	278.2	58.1	103.9
26°	3060.0	2734.3	2479.0	2212.3	1969.3	1776.5	1558.2	1383.9	250.9	115.3	228.9
27°	3078.5	2731.7	2472.0	2194.7	1950.8	1757.1	1536.2	1368.0	246.5	197.2	341.6
28°	3061.8	2709.7	2442.0	2163.0	1920.9	1731.6	1510.6	1349.5	243.9	242.1	324.0
29°	3016.0	2670.9	2397.1	2113.7	1875.1	1691.1	1471.9	1323.1	218.3	192.8	195.4
30°	2946.5	2616.3	2332.0	2047.7	1817.0	1633.0	1416.5	1280.9	144.4	96.8	82.8
31°	2860.2	2545.9	2251.9	1971.1	1751.0	1562.6	1358.4	1226.3	74.8	41.4	38.7
32°	2765.1	2461.4	2165.6	1893.6	1684.1	1494.8	1309.9	1177.9	49.3	22.9	22.0
33°	2664.8	2362.8	2070.5	1813.5	1609.2	1419.1	1259.8	1125.9	37.0	14.1	13.2
34°	2566.2	2257.2	1974.6	1727.2	1528.3	1351.3	1214.0	1066.1	29.9	10.6	8.8
35°	2454.4	2142.7	1876.0	1635.7	1441.1	1293.2	1168.2	1000.9	23.8	7.0	7.0
36°	2324.1	2021.2	1773.9	1539.7	1358.4	1239.5	1118.0	929.6	18.5	5.3	6.2
37°	2185.9	1900.6	1670.9	1444.6	1290.6	1190.2	1057.3	856.6	15.8	4.4	5.3
38°	2043.3	1780.9	1559.9	1353.1	1231.6	1136.5	988.6	780.9	13.2	3.5	4.4
39°	1903.3	1658.5	1449.0	1279.1	1176.1	1073.1	910.3	703.4	11.4	3.5	4.4
40°	1766.8	1535.3	1350.4	1214.9	1114.5	995.7	829.3	622.4	7.9	2.6	4.4
42.5°	1442.9	1280.0	1162.9	1027.3	913.8	780.0	610.1	404.1	6.2	2.6	3.5
45°	1207.8	1074.0	937.6	784.4	672.6	535.2	360.9	171.7	6.2	2.6	3.5
47.5°	955.2	797.6	596.9	403.2	263.2	135.6	42.3	23.8	4.4	2.6	3.5
50°	278.2	161.1	59.9	36.1	27.3	16.7	10.6	9.7	3.5	2.6	3.5
51°	80.1	47.5	31.7	21.1	15.8	9.7	7.9	8.8	3.5	2.6	2.6
52°	37.9	27.3	18.5	14.1	10.6	7.9	7.0	7.9	3.5	2.6	2.6
53°	22.0	16.7	13.2	11.4	7.9	7.0	5.3	7.0	3.5	2.6	2.6
54°	15.0	13.2	11.4	9.7	7.0	5.3	5.3	7.0	3.5	2.6	2.6
55°	13.2	11.4	9.7	8.8	6.2	5.3	5.3	5.3	2.6	1.8	2.6
57.5°	8.8	8.8	7.0	7.0	5.3	3.5	1.8	4.4	3.5	2.6	2.6
60°	6.2	6.2	6.2	4.4	1.8	1.8	0.9	3.5	3.5	2.6	3.5
61°	6.2	6.2	4.4	3.5	1.8	1.8	0.9	3.5	3.5	2.6	3.5
62°	5.3	4.4	3.5	3.5	1.8	1.8	0.9	3.5	3.5	2.6	3.5
63°	4.4	3.5	3.5	3.5	1.8	0.9	0.9	3.5	3.5	2.6	3.5
64°	3.5	3.5	3.5	3.5	0.9	0.9	0.9	3.5	3.5	2.6	3.5
65°	3.5	3.5	3.5	2.6	0.9	0.9	0.9	2.6	3.5	2.6	3.5
66°	3.5	3.5	2.6	2.6	0.9	0.9	0.9	2.6	3.5	2.6	3.5





TEST NUMBER: P175470

CATALOG NUMBER: LDA6A30940D010TE 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°	0.9	1.8	1.8	1.8	0.0	0.0	0.0	2.6	3.5	2.6	3.5
75°	0.9	0.9	1.8	1.8	0.0	0.0	0.0	2.6	3.5	3.5	3.5
77.5°	0.9	0.9	1.8	1.8	0.0	0.0	0.0	2.6	3.5	3.5	4.4
80°	0.9	0.9	1.8	1.8	0.0	0.0	0.0	2.6	3.5	3.5	4.4
82.5°	0.9	0.9	1.8	1.8	0.0	0.0	0.0	2.6	3.5	3.5	4.4
85°	0.9	0.9	1.8	1.8	0.0	0.0	0.0	2.6	3.5	3.5	4.4
87.5°	0.9	0.9	1.8	1.8	0.0	0.0	0.0	2.6	3.5	3.5	4.4
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: P175470

CATALOG NUMBER: LDA6A30940D010TE LARL15SP 6LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
0°	287.9	287.9	287.9
2.5°	110.0	79.2	72.2
5°	44.0	36.1	32.6
7.5°	27.3	22.9	21.1
10°	22.0	16.7	15.8
12.5°	17.6	15.0	14.1
15°	16.7	14.1	13.2
17.5°	16.7	15.8	15.0
20°	21.1	21.1	22.0
22.5°	36.1	42.3	47.5
25°	175.2	283.5	375.9
26°	367.1	517.6	553.7
27°	455.1	471.0	452.5
28°	350.4	314.3	295.8
29°	187.5	156.7	143.5
30°	74.8	61.6	58.1
31°	36.1	30.8	29.9
32°	20.2	16.7	16.7
33°	12.3	10.6	9.7
34°	8.8	7.0	6.2
35°	6.2	5.3	4.4
36°	5.3	3.5	2.6
37°	4.4	2.6	2.6
38°	3.5	2.6	1.8
39°	2.6	1.8	0.9
40°	2.6	0.9	0.0
42.5°	1.8	0.9	0.0
45°	1.8	0.0	0.0
47.5°	2.6	1.8	0.9
50°	1.8	0.9	0.0
51°	1.8	0.0	0.0
52°	1.8	0.0	0.0
53°	1.8	0.0	0.0
54°	1.8	0.0	0.0
55°	1.8	0.0	0.0
57.5°	1.8	0.0	0.0
60°	1.8	0.0	0.0
61°	1.8	0.0	0.0
62°	1.8	0.0	0.0
63°	1.8	0.9	0.0
64°	1.8	0.9	0.0
65°	1.8	0.9	0.0
66°	1.8	0.9	0.0



TEST NUMBER: P175470

CATALOG NUMBER: LDA6A30940D010TE LARL15SP 6LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
72.5°	2.6	0.9	0.0
75°	2.6	0.9	0.0
77.5°	2.6	0.9	0.0
80°	2.6	0.9	0.0
82.5°	2.6	0.9	0.0
85°	2.6	0.9	0.0
87.5°	2.6	0.9	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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









67.5°	3.5	2.6	2.6	2.6	2.6	2.6	2.6	1.8	1.8	2.6	2.6
70°	2.6	2.6	2.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8





67.5°	2.6	2.6	2.6	2.6	0.9	0.0	0.0	2.6	3.5	2.6	3.5
70°	1.8	1.8	1.8	1.8	0.0	0.0	0.0	2.6	3.5	2.6	3.5





67.5°	2.6	0.9	0.0
70°	2.6	0.9	0.0



(END OF REPORT)