

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: P175466

Luminaire Tested: **LDA6A30840D010TE LARL15SP 6LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P175466  
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: LDA6A30840D010TE 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 / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2278.9 lumens  
Efficiency: N/A  
Efficacy: 51.2 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

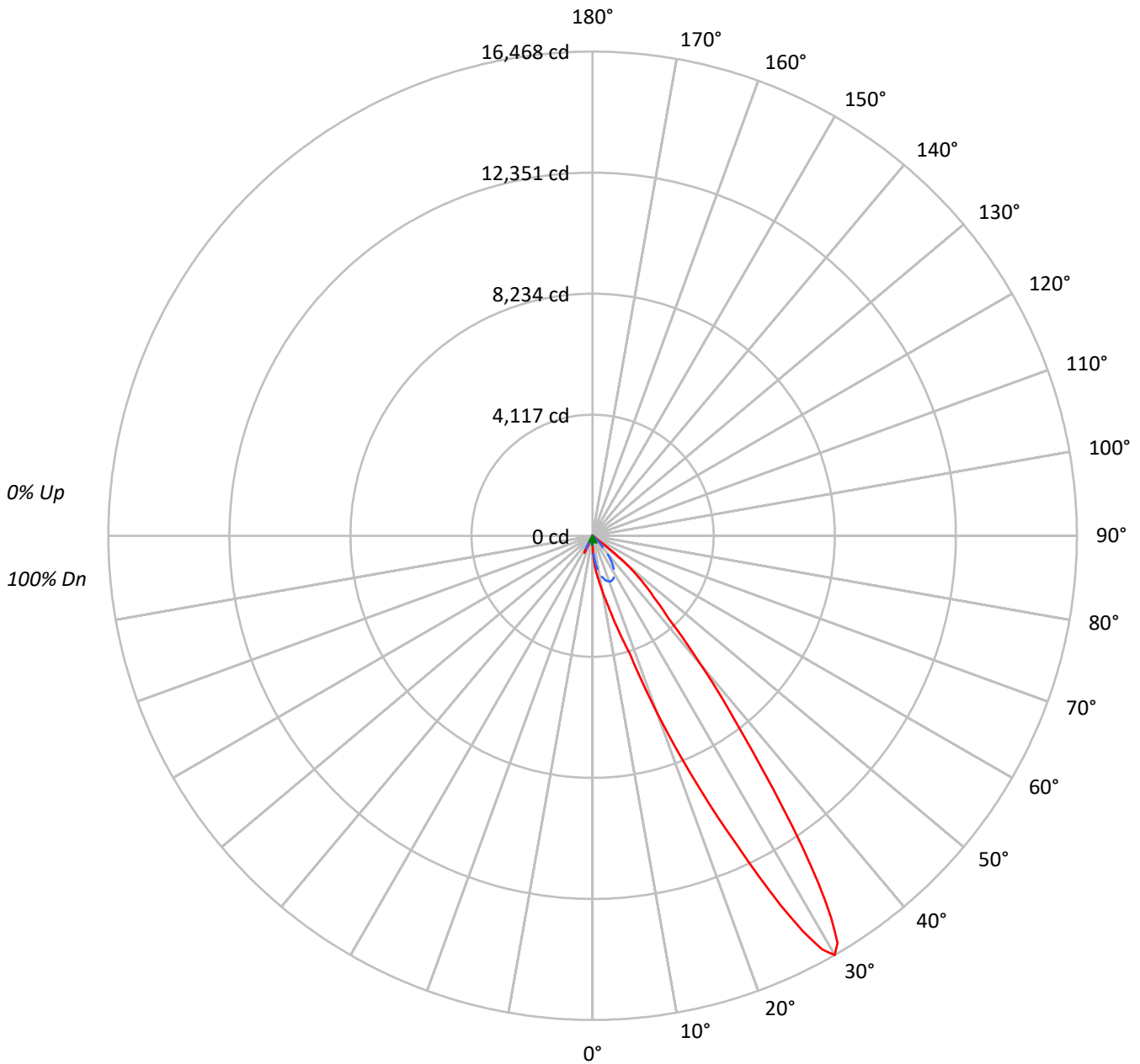
Input Watts (W): 44.49  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	18392	18392	18392
5°	62888	15639	2091
10°	105242	8678	1030
15°	182816	3201	874
20°	373500	2094	1493
25°	701109	4095	26493
30°	1042433	7140	4285
35°	752296	549	341
40°	408616	222	0
45°	226822	240	0
50°	132721	264	0
55°	4215	201	0
60°	1458	340	0
65°	662	402	0
70°	497	497	0
75°	212	868	0
80°	0	1294	0
85°	0	2579	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	47.0	2.1
10°-20°	244.0	10.7
20°-30°	785.3	34.5
30°-40°	817.5	35.9
40°-50°	348.3	15.3
50°-60°	28.9	1.3
60°-70°	3.0	0.1
70°-80°	2.6	0.1
80°-90°	2.4	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°	1076.2	47.2
0°-40°	1893.8	83.1
0°-60°	2271.0	99.7
0°-90°	2278.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2278.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	336	336	336	336	336	
5°	1143	833	284	51	38	130
15°	3221	1534	56	20	15	1053
25°	11591	1633	68	204	438	5567
35°	11241	1166	8	7	5	6959
45°	2926	200	3	2	0	2406
55°	44	6	2	2	0	275
65°	5	3	3	2	0	6
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°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
2.5°	744.8	705.8	735.5	718.1	706.8	703.7	721.2	701.7	681.2	680.1	674.0
5°	1142.8	1105.9	1136.6	1110.0	1097.7	1087.4	1095.6	1063.8	1029.9	1031.0	1015.6
7.5°	1489.5	1469.0	1489.5	1460.8	1451.6	1441.3	1438.2	1407.5	1367.5	1370.5	1346.9
10°	1890.6	1831.1	1864.0	1801.4	1786.0	1758.3	1749.1	1698.8	1635.2	1632.1	1598.3
12.5°	2443.6	2420.0	2452.8	2364.6	2346.1	2298.9	2273.3	2193.3	2088.6	2061.9	1984.0
15°	3221.2	3145.2	3178.1	3053.9	3019.1	2937.0	2880.6	2756.4	2656.9	2544.1	2425.1
17.5°	4209.0	4166.0	4208.0	3963.9	3873.6	3713.6	3581.2	3374.0	3162.7	3061.1	2893.9
20°	6402.3	6197.1	6219.7	5766.3	5477.0	5046.1	4701.4	4243.9	3824.4	3583.3	3307.3
22.5°	8836.6	8602.7	8545.3	7962.6	7472.3	6824.9	6219.7	5454.4	4710.7	4172.1	3704.3
25°	11591.0	11439.2	11138.6	10184.6	9341.3	8418.1	7527.7	6526.4	5562.1	4737.4	4035.7
26°	12899.0	12776.9	12325.5	11132.5	10041.0	8936.1	7918.5	6843.4	5803.2	4898.4	4113.6
27°	14141.3	14042.8	13456.0	12067.0	10702.6	9373.1	8202.7	7069.1	5976.6	5002.0	4169.0
28°	15235.9	15135.3	14377.2	12859.0	11226.8	9689.1	8381.2	7209.6	6076.1	5026.6	4166.0
29°	16087.3	15960.1	14981.4	13366.8	11534.6	9840.9	8417.1	7227.1	6061.7	4969.2	4108.5
30°	16467.9	16309.9	15153.8	13475.5	11539.7	9783.5	8315.5	7133.7	5944.8	4833.8	4001.8
31°	16169.4	16035.0	14840.9	13161.6	11226.8	9520.9	8063.1	6918.3	5723.2	4637.8	3860.3
32°	15299.5	15176.4	14075.6	12472.2	10634.9	9076.7	7696.9	6610.5	5428.8	4400.9	3696.1
33°	14106.4	14011.0	13024.1	11525.4	9874.8	8529.9	7258.9	6224.8	5074.9	4135.2	3496.1
34°	12745.1	12670.2	11769.5	10455.4	9044.9	7922.6	6759.3	5669.8	4688.1	3867.4	3346.3
35°	11241.2	11189.9	10455.4	9356.7	8219.1	7291.7	6204.3	5179.5	4298.3	3609.9	3185.2
36°	9812.2	9770.1	9210.0	8349.4	7433.3	6637.2	5603.2	4668.6	3924.9	3378.1	3034.4
37°	8591.5	8560.7	8146.2	7452.8	6678.3	5957.1	4990.7	4190.6	3599.7	3176.0	2879.5
38°	7575.9	7551.2	7214.8	6600.3	5900.7	5253.4	4399.8	3767.9	3322.7	3000.6	2704.1
39°	6629.0	6597.2	6294.6	5738.6	5126.1	4568.1	4008.0	3420.2	3105.2	2818.0	2515.4
40°	5709.9	5668.8	5403.1	4930.2	4419.3	3986.4	3483.8	3206.8	2928.8	2605.6	2322.5
42.5°	3831.5	3809.0	3664.3	3450.9	3234.5	3076.5	2917.5	2670.3	2376.9	2110.2	1900.9
45°	2925.7	2920.6	2849.8	2738.0	2594.4	2461.0	2248.7	2106.1	1908.1	1683.4	1533.6
47.5°	2244.5	2245.6	2179.9	2095.8	1997.3	1911.1	1756.2	1642.4	1500.8	1372.6	1256.7
50°	1556.2	1490.6	1499.8	1433.1	1353.1	1302.8	1159.2	1072.0	870.9	667.8	522.2
51°	1166.4	1080.2	1091.5	1016.6	933.5	889.4	755.0	666.8	478.0	313.9	205.2
52°	711.9	644.2	643.2	585.8	513.9	475.0	368.3	287.2	163.1	86.2	59.5
53°	319.0	273.9	263.6	224.7	176.4	152.9	104.6	76.9	57.4	44.1	33.9
54°	84.1	74.9	71.8	65.7	59.5	57.4	50.3	42.1	32.8	25.6	21.5
55°	44.1	41.0	40.0	38.0	34.9	33.9	29.7	25.6	20.5	18.5	16.4
57.5°	20.5	20.5	19.5	18.5	17.4	17.4	15.4	14.4	13.3	13.3	11.3
60°	13.3	13.3	13.3	12.3	12.3	11.3	10.3	9.2	8.2	9.2	8.2
61°	11.3	11.3	11.3	10.3	9.2	8.2	8.2	8.2	7.2	7.2	6.2
62°	8.2	8.2	7.2	7.2	6.2	6.2	6.2	6.2	5.1	6.2	6.2
63°	6.2	6.2	5.1	5.1	5.1	5.1	4.1	4.1	4.1	6.2	6.2
64°	5.1	5.1	5.1	4.1	4.1	4.1	4.1	4.1	4.1	5.1	4.1
65°	5.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	3.1	4.1	4.1
66°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	3.1	3.1	4.1	4.1



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CATALOG NUMBER: LDA6A30840D010TE 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°	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
75°	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
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°	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5	335.5
2.5°	674.0	661.7	636.0	630.9	606.3	591.9	596.0	587.8	456.5	322.1	201.1
5°	1004.3	976.6	938.6	925.3	883.3	860.7	853.5	833.0	565.2	284.2	94.4
7.5°	1327.4	1291.5	1245.4	1223.8	1166.4	1128.4	1103.8	1073.0	640.1	225.7	52.3
10°	1567.5	1526.5	1478.2	1450.5	1385.9	1348.0	1308.0	1274.1	680.1	155.9	39.0
12.5°	1887.6	1806.5	1706.0	1645.5	1550.1	1497.7	1451.6	1418.7	695.5	93.4	29.7
15°	2314.3	2184.0	2041.4	1931.7	1769.6	1671.1	1593.1	1533.6	683.2	56.4	25.6
17.5°	2727.7	2543.1	2356.4	2207.6	2021.9	1875.2	1725.5	1608.5	630.9	45.1	23.6
20°	3071.4	2854.9	2616.9	2408.7	2194.3	2019.9	1820.9	1655.7	546.8	35.9	25.6
22.5°	3336.0	3060.1	2790.3	2531.8	2276.4	2076.3	1857.8	1666.0	440.1	36.9	35.9
25°	3526.9	3164.7	2877.5	2583.1	2305.1	2085.5	1838.3	1633.1	324.2	67.7	121.0
26°	3565.8	3186.3	2888.8	2577.9	2294.8	2070.2	1815.7	1612.6	292.4	134.4	266.7
27°	3587.4	3183.2	2880.6	2557.4	2273.3	2047.6	1790.1	1594.2	287.2	229.8	398.0
28°	3567.9	3157.6	2845.7	2520.5	2238.4	2017.8	1760.4	1572.6	284.2	282.1	377.5
29°	3514.5	3112.4	2793.4	2463.1	2185.0	1970.6	1715.2	1541.8	254.4	224.7	227.7
30°	3433.5	3048.8	2717.5	2386.1	2117.3	1902.9	1650.6	1492.6	168.2	112.8	96.4
31°	3333.0	2966.7	2624.1	2296.9	2040.4	1820.9	1582.9	1429.0	87.2	48.2	45.1
32°	3222.2	2868.3	2523.6	2206.6	1962.4	1741.9	1526.5	1372.6	57.4	26.7	25.6
33°	3105.2	2753.4	2412.8	2113.2	1875.2	1653.7	1468.0	1312.1	43.1	16.4	15.4
34°	2990.3	2630.3	2301.0	2012.7	1780.9	1574.7	1414.6	1242.3	34.9	12.3	10.3
35°	2860.1	2496.9	2186.1	1906.0	1679.3	1507.0	1361.3	1166.4	27.7	8.2	8.2
36°	2708.2	2355.3	2067.1	1794.2	1582.9	1444.4	1302.8	1083.3	21.5	6.2	7.2
37°	2547.2	2214.8	1947.1	1683.4	1503.9	1386.9	1232.0	998.1	18.5	5.1	6.2
38°	2381.0	2075.3	1817.8	1576.7	1435.2	1324.4	1152.0	909.9	15.4	4.1	5.1
39°	2217.9	1932.7	1688.5	1490.6	1370.5	1250.5	1060.7	819.7	13.3	4.1	5.1
40°	2058.9	1789.1	1573.6	1415.7	1298.7	1160.2	966.3	725.3	9.2	3.1	5.1
42.5°	1681.4	1491.6	1355.1	1197.2	1064.8	908.9	710.9	470.9	7.2	3.1	4.1
45°	1407.5	1251.5	1092.5	914.0	783.7	623.7	420.6	200.0	7.2	3.1	4.1
47.5°	1113.0	929.4	695.5	469.8	306.7	158.0	49.2	27.7	5.1	3.1	4.1
50°	324.2	187.7	69.8	42.1	31.8	19.5	12.3	11.3	4.1	3.1	4.1
51°	93.4	55.4	36.9	24.6	18.5	11.3	9.2	10.3	4.1	3.1	3.1
52°	44.1	31.8	21.5	16.4	12.3	9.2	8.2	9.2	4.1	3.1	3.1
53°	25.6	19.5	15.4	13.3	9.2	8.2	6.2	8.2	4.1	3.1	3.1
54°	17.4	15.4	13.3	11.3	8.2	6.2	6.2	8.2	4.1	3.1	3.1
55°	15.4	13.3	11.3	10.3	7.2	6.2	6.2	6.2	3.1	2.1	3.1
57.5°	10.3	10.3	8.2	8.2	6.2	4.1	2.1	5.1	4.1	3.1	3.1
60°	7.2	7.2	7.2	5.1	2.1	2.1	1.0	4.1	4.1	3.1	4.1
61°	7.2	7.2	5.1	4.1	2.1	2.1	1.0	4.1	4.1	3.1	4.1
62°	6.2	5.1	4.1	4.1	2.1	2.1	1.0	4.1	4.1	3.1	4.1
63°	5.1	4.1	4.1	4.1	2.1	1.0	1.0	4.1	4.1	3.1	4.1
64°	4.1	4.1	4.1	4.1	1.0	1.0	1.0	4.1	4.1	3.1	4.1
65°	4.1	4.1	4.1	3.1	1.0	1.0	1.0	3.1	4.1	3.1	4.1
66°	4.1	4.1	3.1	3.1	1.0	1.0	1.0	3.1	4.1	3.1	4.1





TEST NUMBER: P175466

CATALOG NUMBER: LDA6A30840D010TE 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°	1.0	2.1	2.1	2.1	0.0	0.0	0.0	3.1	4.1	3.1	4.1
75°	1.0	1.0	2.1	2.1	0.0	0.0	0.0	3.1	4.1	4.1	4.1
77.5°	1.0	1.0	2.1	2.1	0.0	0.0	0.0	3.1	4.1	4.1	5.1
80°	1.0	1.0	2.1	2.1	0.0	0.0	0.0	3.1	4.1	4.1	5.1
82.5°	1.0	1.0	2.1	2.1	0.0	0.0	0.0	3.1	4.1	4.1	5.1
85°	1.0	1.0	2.1	2.1	0.0	0.0	0.0	3.1	4.1	4.1	5.1
87.5°	1.0	1.0	2.1	2.1	0.0	0.0	0.0	3.1	4.1	4.1	5.1
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: P175466

CATALOG NUMBER: LDA6A30840D010TE LARL15SP 6LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
0°	335.5	335.5	335.5
2.5°	128.2	92.3	84.1
5°	51.3	42.1	38.0
7.5°	31.8	26.7	24.6
10°	25.6	19.5	18.5
12.5°	20.5	17.4	16.4
15°	19.5	16.4	15.4
17.5°	19.5	18.5	17.4
20°	24.6	24.6	25.6
22.5°	42.1	49.2	55.4
25°	204.1	330.3	438.0
26°	427.8	603.2	645.3
27°	530.4	548.8	527.3
28°	408.3	366.2	344.7
29°	218.5	182.6	167.2
30°	87.2	71.8	67.7
31°	42.1	35.9	34.9
32°	23.6	19.5	19.5
33°	14.4	12.3	11.3
34°	10.3	8.2	7.2
35°	7.2	6.2	5.1
36°	6.2	4.1	3.1
37°	5.1	3.1	3.1
38°	4.1	3.1	2.1
39°	3.1	2.1	1.0
40°	3.1	1.0	0.0
42.5°	2.1	1.0	0.0
45°	2.1	0.0	0.0
47.5°	3.1	2.1	1.0
50°	2.1	1.0	0.0
51°	2.1	0.0	0.0
52°	2.1	0.0	0.0
53°	2.1	0.0	0.0
54°	2.1	0.0	0.0
55°	2.1	0.0	0.0
57.5°	2.1	0.0	0.0
60°	2.1	0.0	0.0
61°	2.1	0.0	0.0
62°	2.1	0.0	0.0
63°	2.1	1.0	0.0
64°	2.1	1.0	0.0
65°	2.1	1.0	0.0
66°	2.1	1.0	0.0



TEST NUMBER: P175466

CATALOG NUMBER: LDA6A30840D010TE LARL15SP 6LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
72.5°	3.1	1.0	0.0
75°	3.1	1.0	0.0
77.5°	3.1	1.0	0.0
80°	3.1	1.0	0.0
82.5°	3.1	1.0	0.0
85°	3.1	1.0	0.0
87.5°	3.1	1.0	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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









67.5°	4.1	3.1	3.1	3.1	3.1	3.1	3.1	2.1	2.1	3.1	3.1
70°	3.1	3.1	3.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1





67.5°	3.1	3.1	3.1	3.1	1.0	0.0	0.0	3.1	4.1	3.1	4.1
70°	2.1	2.1	2.1	2.1	0.0	0.0	0.0	3.1	4.1	3.1	4.1





67.5°	3.1	1.0	0.0
70°	3.1	1.0	0.0



(END OF REPORT)