

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: P175498

Luminaire Tested: **LDA6A30840D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P175498  
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: LDA6A30840D010TE 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 / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2631.8 lumens  
Efficiency: N/A  
Efficacy: 59.2 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

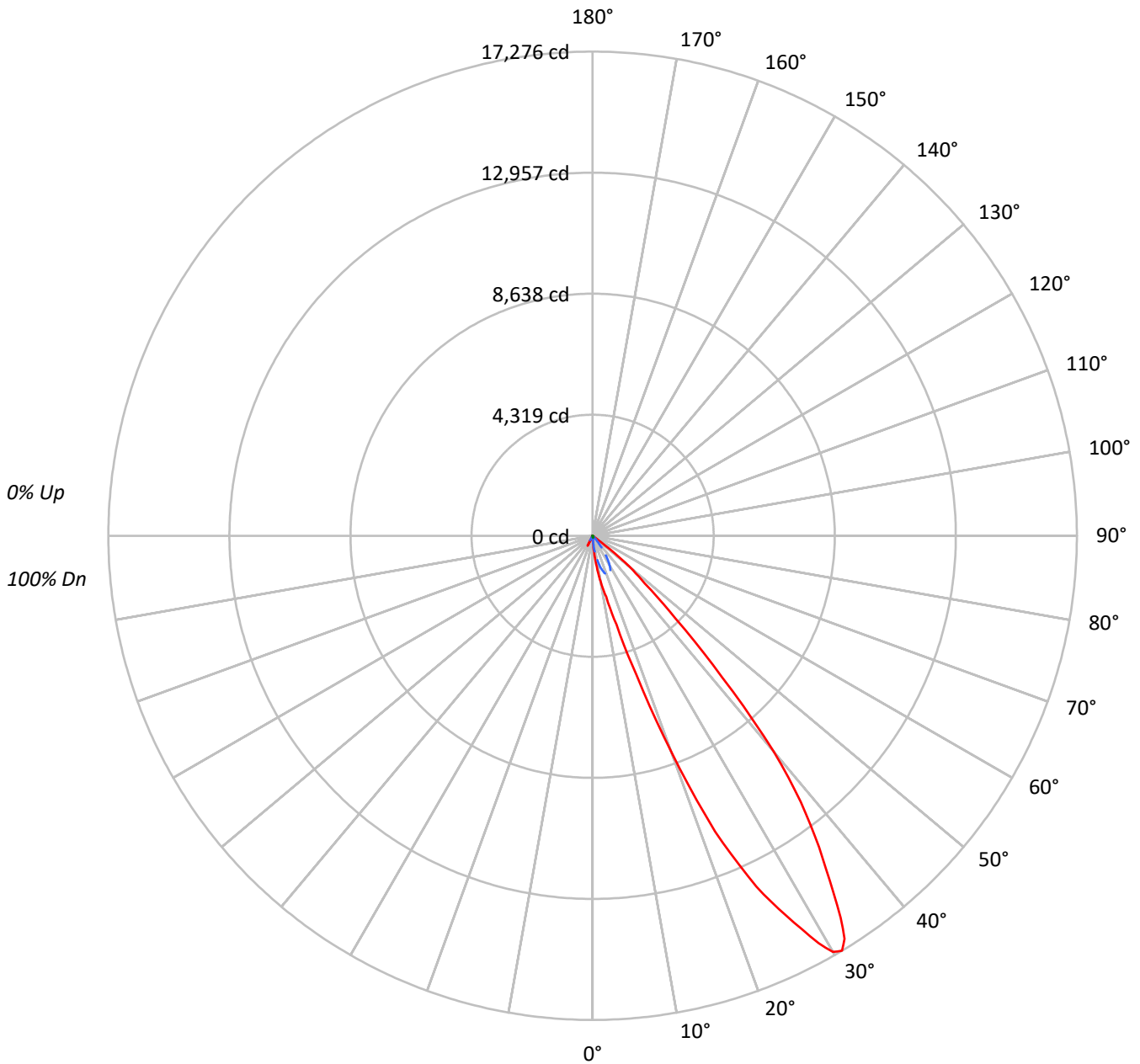
Input Watts (W): 44.49  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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	73	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°	3262	3262	3262
5°	31659	2878	1183
10°	93624	2054	740
15°	185841	1396	641
20°	479402	1138	898
25°	835512	1367	6454
30°	1085287	1431	3633
35°	972446	616	341
40°	718933	222	0
45°	323755	240	0
50°	146059	264	0
55°	13037	296	0
60°	1579	340	0
65°	662	532	0
70°	497	657	0
75°	0	868	0
80°	0	1294	316
85°	0	2579	629



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	23.7	0.9
10°-20°	221.6	8.4
20°-30°	875.0	33.2
30°-40°	1055.9	40.1
40°-50°	409.8	15.6
50°-60°	36.0	1.4
60°-70°	3.4	0.1
70°-80°	3.3	0.1
80°-90°	3.0	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°	1120.3	42.6
0°-40°	2176.2	82.7
0°-60°	2622.0	99.6
0°-90°	2631.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2631.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	60	60	60	60	60	
5°	575	281	52	26	22	91
15°	3274	1239	25	15	11	1200
25°	13813	1466	23	72	107	6317
35°	14531	746	9	9	5	8932
45°	4176	52	3	2	0	3669
55°	136	6	3	2	0	329
65°	5	4	4	3	0	6
75°	0	4	4	4	0	1
85°	0	4	4	4	1	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°	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5
2.5°	186.6	177.4	167.2	171.3	173.3	178.4	174.3	159.0	168.2	161.0	154.9
5°	575.3	565.1	545.6	548.7	542.5	549.7	533.3	500.5	506.6	496.4	469.7
7.5°	1121.9	1078.9	1047.1	1049.1	1030.7	1038.9	1008.1	951.7	945.5	893.2	885.0
10°	1681.9	1660.3	1622.4	1617.3	1584.5	1588.6	1540.4	1465.5	1445.0	1384.5	1349.6
12.5°	2231.6	2195.7	2142.3	2131.1	2077.7	2078.8	2013.1	1929.0	1898.3	1835.7	1787.5
15°	3274.5	3223.3	3101.2	3055.1	2907.4	2884.8	2722.8	2532.0	2439.8	2332.1	2190.5
17.5°	5199.5	5166.7	4927.7	4795.4	4496.0	4198.5	4023.2	3610.9	3369.9	3068.4	2806.9
20°	8217.6	8278.1	7860.7	7565.4	7009.5	6381.9	5938.9	5188.2	4686.7	4166.8	3674.5
22.5°	11427.6	11453.2	11025.5	10657.4	10010.3	9147.8	8127.4	7216.7	6297.8	5404.6	4592.4
25°	13813.0	13739.1	13268.4	12826.4	12145.4	11264.5	10272.8	9056.5	7800.2	6573.7	5384.1
26°	14541.1	14501.1	14029.3	13500.2	12750.5	11856.2	10824.5	9597.0	8269.9	6949.0	5626.1
27°	15215.9	15190.2	14678.5	14089.8	13249.9	12313.6	11233.7	10007.2	8624.8	7239.3	5801.5
28°	15899.9	15871.2	15251.8	14568.8	13656.0	12638.7	11516.8	10281.0	8853.5	7409.5	5874.3
29°	16622.9	16567.5	15775.8	14920.5	13926.8	12828.4	11664.5	10406.1	8931.4	7451.5	5855.8
30°	17144.9	17058.8	16154.3	15143.1	14037.5	12887.9	11680.9	10403.0	8883.2	7364.4	5737.9
31°	17276.2	17189.0	16259.9	15140.0	13956.5	12797.7	11562.9	10257.4	8682.2	7153.1	5538.9
32°	16958.3	16878.3	15992.2	14794.4	13700.1	12580.3	11328.1	9987.7	8370.4	6837.3	5269.2
33°	16248.6	16188.1	15424.1	14340.1	13333.0	12271.6	10991.7	9604.1	7927.4	6435.2	4952.3
34°	15353.3	15309.2	14721.6	13805.8	12867.4	11848.0	10555.8	9098.6	7343.9	5979.9	4606.7
35°	14530.8	14498.0	14022.2	13209.9	12335.2	11324.0	10004.1	8476.1	6742.9	5489.7	4237.5
36°	13739.1	13711.4	13298.1	12543.3	11699.3	10709.7	9309.8	7731.5	6097.8	4981.0	3855.0
37°	12912.5	12887.9	12533.1	11815.2	10984.5	9975.4	8485.3	6938.8	5442.5	4473.4	3462.2
38°	12055.2	12034.7	11709.6	10993.8	10150.8	9078.0	7544.9	6119.4	4803.6	3978.1	3109.4
39°	11098.4	11080.9	10781.5	10030.8	9130.4	8020.7	6576.8	5320.5	4197.5	3497.1	2767.9
40°	10046.2	10022.6	9723.1	8884.2	7974.6	6932.6	5646.6	4587.2	3625.3	3047.9	2467.4
42.5°	6830.1	6804.4	6581.9	6093.7	5217.9	4548.3	3742.2	3070.5	2569.0	2221.3	1921.9
45°	4176.0	4179.1	4062.2	3760.6	3233.5	2861.2	2423.3	2102.3	1876.7	1743.4	1535.2
47.5°	2525.9	2525.9	2473.6	2319.8	2082.9	1934.2	1752.6	1602.9	1430.6	1299.4	1073.7
50°	1712.6	1713.7	1633.7	1641.9	1484.0	1391.7	1218.3	1035.8	866.6	675.8	482.0
51°	1267.6	1273.7	1199.9	1233.7	1060.4	982.5	818.4	663.5	513.8	366.1	211.3
52°	775.3	786.6	736.3	767.1	666.6	552.8	419.4	309.7	208.2	145.6	101.5
53°	360.0	369.2	343.6	357.9	298.4	232.8	176.4	143.6	114.9	93.3	68.7
54°	190.7	192.8	184.6	180.5	164.1	144.6	120.0	99.5	77.9	62.6	46.1
55°	136.4	136.4	132.3	128.2	114.9	98.5	80.0	67.7	51.3	41.0	29.7
57.5°	42.0	42.0	42.0	40.0	34.9	29.7	23.6	20.5	16.4	15.4	12.3
60°	14.4	14.4	14.4	13.3	12.3	11.3	10.3	9.2	8.2	8.2	7.2
61°	10.3	10.3	10.3	10.3	9.2	9.2	8.2	7.2	6.2	7.2	6.2
62°	8.2	9.2	8.2	8.2	8.2	7.2	6.2	6.2	5.1	6.2	5.1
63°	7.2	7.2	7.2	7.2	6.2	6.2	5.1	5.1	4.1	5.1	5.1
64°	6.2	6.2	6.2	6.2	5.1	5.1	4.1	4.1	3.1	4.1	4.1
65°	5.1	5.1	5.1	5.1	4.1	4.1	4.1	3.1	3.1	4.1	4.1
66°	4.1	4.1	4.1	4.1	4.1	3.1	3.1	3.1	2.1	3.1	3.1



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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°	2.1	2.1	2.1	2.1	1.0	1.0	1.0	1.0	1.0	2.1	2.1
75°	0.0	0.0	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°	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5
2.5°	148.7	138.4	136.4	136.4	114.9	119.0	111.8	106.7	74.9	57.4	43.1
5°	454.3	417.4	402.0	388.7	330.2	325.1	289.2	281.0	100.5	52.3	32.8
7.5°	847.1	790.7	754.8	719.9	625.6	599.9	538.4	523.0	136.4	44.1	25.6
10°	1294.2	1213.2	1150.7	1067.6	945.5	892.2	802.0	769.2	166.1	36.9	24.6
12.5°	1714.7	1622.4	1537.3	1427.5	1262.4	1177.3	1058.4	1016.3	177.4	30.8	22.6
15°	2077.7	1954.7	1849.0	1731.1	1546.5	1438.8	1293.2	1238.8	168.2	24.6	19.5
17.5°	2538.2	2330.0	2146.4	1981.3	1780.3	1649.1	1479.8	1391.7	136.4	21.5	17.4
20°	3219.2	2799.7	2476.7	2210.0	1931.1	1768.0	1580.4	1473.7	98.5	19.5	17.4
22.5°	3860.1	3261.2	2765.9	2384.4	2009.0	1814.2	1619.3	1501.4	69.7	19.5	20.5
25°	4383.1	3608.9	2965.9	2499.2	2052.1	1823.4	1605.0	1465.5	54.4	22.6	40.0
26°	4529.8	3695.0	3004.8	2508.5	2045.9	1810.1	1580.4	1432.7	48.2	30.8	74.9
27°	4621.1	3734.0	3005.8	2494.1	2023.4	1783.4	1543.4	1388.6	42.0	47.2	126.1
28°	4639.5	3715.5	2971.0	2454.1	1984.4	1747.5	1502.4	1335.2	39.0	59.5	143.6
29°	4589.3	3649.9	2907.4	2395.7	1937.2	1704.4	1453.2	1276.8	33.8	45.1	93.3
30°	4476.5	3541.2	2814.1	2320.8	1887.0	1656.2	1392.7	1207.1	27.7	22.6	42.0
31°	4307.3	3391.4	2699.2	2232.6	1830.6	1594.7	1319.9	1129.1	23.6	15.4	24.6
32°	4092.9	3212.0	2571.0	2142.3	1767.0	1519.8	1234.7	1041.9	21.5	12.3	20.5
33°	3846.8	3023.3	2438.7	2051.1	1691.1	1430.6	1143.5	948.6	19.5	13.3	20.5
34°	3578.1	2830.5	2289.0	1955.7	1602.9	1333.2	1046.0	838.9	17.4	12.3	15.4
35°	3286.8	2630.5	2154.7	1871.6	1503.4	1227.6	946.6	745.6	15.4	9.2	10.3
36°	3035.6	2435.6	2024.4	1764.9	1394.7	1118.9	844.0	645.1	13.3	6.2	7.2
37°	2761.8	2253.1	1903.4	1654.2	1277.8	1007.1	741.5	545.6	12.3	4.1	6.2
38°	2506.4	2084.9	1782.4	1527.0	1157.8	894.3	636.9	448.2	11.3	4.1	5.1
39°	2274.6	1932.1	1669.6	1391.7	1031.7	776.3	531.2	351.8	10.3	3.1	5.1
40°	2075.7	1795.7	1534.2	1249.1	901.4	659.4	425.6	260.5	9.2	3.1	5.1
42.5°	1688.0	1440.9	1157.8	883.0	583.5	373.3	190.7	95.4	7.2	3.1	4.1
45°	1290.1	1025.5	764.0	531.2	300.5	144.6	70.8	52.3	6.2	3.1	4.1
47.5°	837.9	615.3	410.2	231.8	100.5	58.5	36.9	26.7	5.1	3.1	4.1
50°	309.7	171.3	90.2	56.4	39.0	24.6	16.4	15.4	5.1	3.1	4.1
51°	127.2	83.1	56.4	37.9	24.6	17.4	13.3	13.3	5.1	3.1	4.1
52°	75.9	52.3	37.9	27.7	18.5	13.3	10.3	11.3	5.1	3.1	4.1
53°	50.3	35.9	27.7	21.5	14.4	10.3	7.2	8.2	5.1	3.1	4.1
54°	33.8	25.6	20.5	16.4	10.3	8.2	4.1	7.2	4.1	3.1	4.1
55°	23.6	18.5	15.4	12.3	7.2	5.1	3.1	6.2	4.1	3.1	4.1
57.5°	10.3	9.2	8.2	7.2	3.1	2.1	1.0	5.1	4.1	3.1	4.1
60°	7.2	6.2	5.1	5.1	1.0	1.0	0.0	4.1	4.1	3.1	4.1
61°	6.2	5.1	5.1	4.1	1.0	1.0	0.0	4.1	5.1	3.1	4.1
62°	5.1	5.1	4.1	4.1	1.0	0.0	0.0	4.1	5.1	3.1	5.1
63°	4.1	4.1	4.1	4.1	1.0	0.0	0.0	4.1	5.1	3.1	5.1
64°	4.1	4.1	4.1	4.1	0.0	0.0	0.0	4.1	5.1	3.1	5.1
65°	4.1	3.1	3.1	3.1	0.0	0.0	0.0	4.1	5.1	4.1	5.1
66°	3.1	3.1	3.1	3.1	0.0	0.0	0.0	4.1	5.1	4.1	5.1





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CATALOG NUMBER: LDA6A30840D010TE 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°	2.1	2.1	2.1	2.1	0.0	0.0	0.0	3.1	5.1	4.1	6.2
75°	1.0	2.1	2.1	2.1	0.0	0.0	0.0	4.1	5.1	4.1	6.2
77.5°	1.0	2.1	2.1	2.1	0.0	0.0	0.0	4.1	5.1	4.1	6.2
80°	1.0	2.1	2.1	2.1	0.0	0.0	0.0	4.1	5.1	4.1	6.2
82.5°	1.0	2.1	2.1	2.1	0.0	0.0	0.0	4.1	5.1	4.1	6.2
85°	1.0	2.1	2.1	2.1	0.0	0.0	0.0	4.1	5.1	4.1	6.2
87.5°	1.0	2.1	2.1	2.1	0.0	0.0	0.0	4.1	5.1	4.1	6.2
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: P175498

CATALOG NUMBER: LDA6A30840D010TE LARL20NF 6LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
0°	59.5	59.5	59.5
2.5°	35.9	32.8	30.8
5°	25.6	23.6	21.5
7.5°	21.5	18.5	17.4
10°	19.5	14.4	13.3
12.5°	16.4	12.3	11.3
15°	15.4	12.3	11.3
17.5°	15.4	12.3	11.3
20°	16.4	15.4	15.4
22.5°	23.6	25.6	26.7
25°	71.8	92.3	106.7
26°	168.2	252.3	338.4
27°	255.4	372.3	396.9
28°	229.7	266.6	259.5
29°	110.8	125.1	113.8
30°	49.2	58.5	57.4
31°	31.8	35.9	34.9
32°	26.7	24.6	23.6
33°	21.5	17.4	14.4
34°	14.4	11.3	9.2
35°	9.2	6.2	5.1
36°	6.2	3.1	2.1
37°	4.1	2.1	1.0
38°	4.1	1.0	0.0
39°	3.1	1.0	0.0
40°	3.1	1.0	0.0
42.5°	3.1	0.0	0.0
45°	2.1	0.0	0.0
47.5°	2.1	0.0	0.0
50°	3.1	1.0	0.0
51°	3.1	0.0	0.0
52°	3.1	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°	3.1	0.0	0.0
62°	3.1	0.0	0.0
63°	3.1	0.0	0.0
64°	3.1	1.0	0.0
65°	3.1	1.0	0.0
66°	3.1	1.0	0.0



TEST NUMBER: P175498

CATALOG NUMBER: LDA6A30840D010TE LARL20NF 6LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
72.5°	4.1	1.0	0.0
75°	4.1	1.0	0.0
77.5°	4.1	1.0	0.0
80°	4.1	2.1	1.0
82.5°	4.1	2.1	1.0
85°	4.1	2.1	1.0
87.5°	4.1	2.1	1.0
90°	0.0	0.0	0.0



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









67.5°	3.1	3.1	3.1	3.1	3.1	3.1	2.1	2.1	2.1	3.1	3.1
70°	3.1	3.1	2.1	2.1	2.1	2.1	2.1	1.0	1.0	3.1	3.1





67.5°	3.1	3.1	3.1	3.1	0.0	0.0	0.0	4.1	5.1	4.1	5.1
70°	3.1	3.1	3.1	3.1	0.0	0.0	0.0	4.1	5.1	4.1	6.2





67.5°	4.1	1.0	0.0
70°	4.1	1.0	0.0



(END OF REPORT)