

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: P175500

Luminaire Tested: **LDA6A30930D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175500
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: LDA6A30930D010TE 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 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2087.3 lumens
Efficiency: N/A
Efficacy: 46.9 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

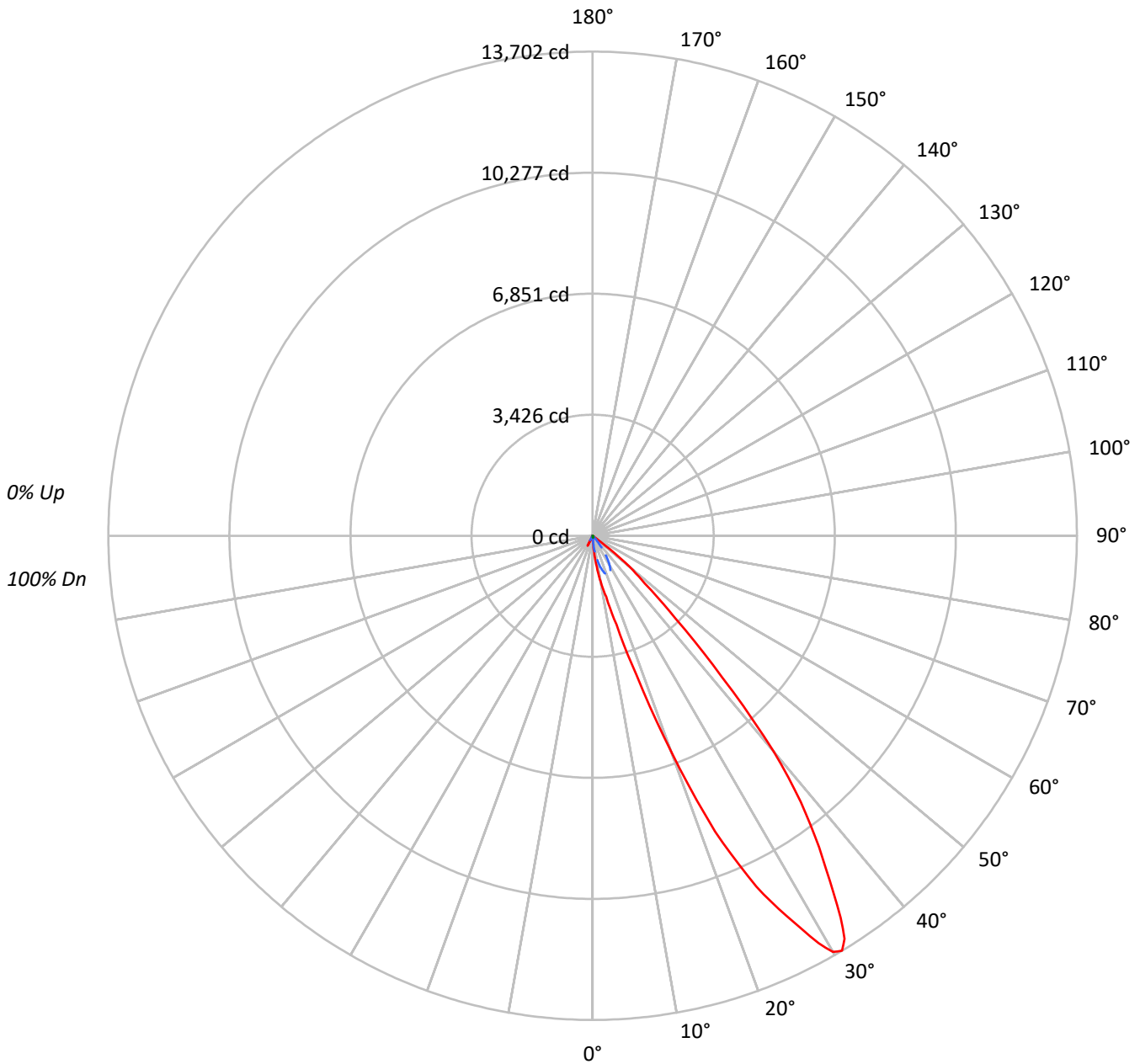
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	2588	2588	2588
5°	25110	2284	941
10°	74253	1631	590
15°	147396	1107	505
20°	380226	904	712
25°	662657	1083	5117
30°	860765	1133	2880
35°	771268	489	274
40°	570197	172	0
45°	256779	186	0
50°	115843	205	0
55°	10341	229	0
60°	1250	263	0
65°	532	428	0
70°	385	529	0
75°	0	699	0
80°	0	1042	253
85°	0	2076	503



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	18.8	0.9
10°-20°	175.8	8.4
20°-30°	694.0	33.2
30°-40°	837.5	40.1
40°-50°	325.0	15.6
50°-60°	28.6	1.4
60°-70°	2.7	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°	888.5	42.6
0°-40°	1726.0	82.7
0°-60°	2079.6	99.6
0°-90°	2087.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2087.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	47	47	47	47	47	
5°	456	223	42	20	17	72
15°	2597	983	20	12	9	952
25°	10955	1162	18	57	85	5010
35°	11525	591	7	7	4	7084
45°	3312	42	2	2	0	2910
55°	108	5	2	2	0	261
65°	4	3	3	2	0	5
75°	0	3	3	3	0	1
85°	0	3	3	3	1	0
90°	0	0	0	0	0	



TEST NUMBER: P175500

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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2
2.5°	148.0	140.7	132.6	135.8	137.5	141.5	138.3	126.1	133.4	127.7	122.8
5°	456.3	448.2	432.7	435.2	430.3	436.0	423.0	396.9	401.8	393.7	372.5
7.5°	889.8	855.7	830.5	832.1	817.4	823.9	799.5	754.8	749.9	708.4	701.9
10°	1333.9	1316.9	1286.8	1282.7	1256.7	1259.9	1221.7	1162.3	1146.0	1098.1	1070.4
12.5°	1769.9	1741.4	1699.1	1690.2	1647.9	1648.7	1596.7	1530.0	1505.6	1455.9	1417.7
15°	2597.1	2556.4	2459.6	2423.0	2305.9	2288.0	2159.5	2008.2	1935.0	1849.6	1737.4
17.5°	4123.8	4097.8	3908.3	3803.3	3565.8	3330.0	3190.9	2863.9	2672.7	2433.6	2226.2
20°	6517.6	6565.5	6234.5	6000.3	5559.4	5061.6	4710.2	4114.9	3717.1	3304.7	2914.3
22.5°	9063.4	9083.8	8744.6	8452.6	7939.3	7255.3	6446.0	5723.7	4994.9	4286.5	3642.3
25°	10955.3	10896.8	10523.4	10172.9	9632.8	8934.1	8147.6	7182.9	6186.5	5213.7	4270.2
26°	11532.8	11501.1	11126.9	10707.2	10112.7	9403.4	8585.2	7611.5	6559.0	5511.4	4462.2
27°	12068.0	12047.7	11641.8	11174.9	10508.8	9766.2	8909.7	7936.9	6840.5	5741.6	4601.3
28°	12610.5	12587.8	12096.5	11554.8	10830.9	10024.0	9134.2	8154.1	7021.9	5876.6	4659.0
29°	13184.0	13140.0	12512.1	11833.8	11045.6	10174.5	9251.3	8253.3	7083.7	5910.0	4644.4
30°	13598.0	13529.7	12812.3	12010.3	11133.5	10221.7	9264.3	8250.9	7045.4	5840.8	4550.8
31°	13702.1	13633.0	12896.0	12007.8	11069.2	10150.1	9170.8	8135.4	6886.0	5673.3	4393.0
32°	13449.9	13386.5	12683.7	11733.7	10865.9	9977.7	8984.5	7921.4	6638.8	5422.8	4179.1
33°	12887.1	12839.1	12233.1	11373.4	10574.7	9732.8	8717.7	7617.2	6287.4	5103.9	3927.8
34°	12177.0	12142.0	11676.0	10949.6	10205.4	9396.9	8372.1	7216.2	5824.6	4742.8	3653.7
35°	11524.7	11498.7	11121.3	10477.1	9783.3	8981.3	7934.5	6722.5	5347.9	4354.0	3360.9
36°	10896.8	10874.8	10547.0	9948.4	9279.0	8494.1	7383.8	6132.0	4836.3	3950.6	3057.5
37°	10241.2	10221.7	9940.2	9370.9	8712.0	7911.7	6729.9	5503.3	4316.6	3547.9	2745.9
38°	9561.2	9544.9	9287.1	8719.4	8050.8	7200.0	5984.0	4853.4	3809.8	3155.1	2466.1
39°	8802.3	8788.5	8551.0	7955.6	7241.5	6361.4	5216.2	4219.8	3329.1	2773.6	2195.3
40°	7967.8	7949.1	7711.6	7046.3	6324.8	5498.4	4478.4	3638.2	2875.3	2417.3	1957.0
42.5°	5417.1	5396.7	5220.2	4833.1	4138.4	3607.3	2968.0	2435.2	2037.5	1761.8	1524.3
45°	3312.1	3314.5	3221.8	2982.6	2564.6	2269.3	1922.0	1667.4	1488.5	1382.7	1217.6
47.5°	2003.3	2003.3	1961.9	1839.9	1652.0	1534.0	1390.1	1271.3	1134.7	1030.5	851.6
50°	1358.3	1359.1	1295.7	1302.2	1177.0	1103.7	966.3	821.5	687.3	536.0	382.3
51°	1005.3	1010.2	951.6	978.5	841.0	779.2	649.1	526.3	407.5	290.4	167.6
52°	614.9	623.9	584.0	608.4	528.7	438.4	332.7	245.6	165.1	115.5	80.5
53°	285.5	292.8	272.5	283.9	236.7	184.6	139.9	113.9	91.1	74.0	54.5
54°	151.3	152.9	146.4	143.2	130.1	114.7	95.2	78.9	61.8	49.6	36.6
55°	108.2	108.2	104.9	101.7	91.1	78.1	63.4	53.7	40.7	32.5	23.6
57.5°	33.3	33.3	33.3	31.7	27.7	23.6	18.7	16.3	13.0	12.2	9.8
60°	11.4	11.4	11.4	10.6	9.8	8.9	8.1	7.3	6.5	6.5	5.7
61°	8.1	8.1	8.1	8.1	7.3	7.3	6.5	5.7	4.9	5.7	4.9
62°	6.5	7.3	6.5	6.5	6.5	5.7	4.9	4.9	4.1	4.9	4.1
63°	5.7	5.7	5.7	5.7	4.9	4.9	4.1	4.1	3.3	4.1	4.1
64°	4.9	4.9	4.9	4.9	4.1	4.1	3.3	3.3	2.4	3.3	3.3
65°	4.1	4.1	4.1	4.1	3.3	3.3	3.3	2.4	2.4	3.3	3.3
66°	3.3	3.3	3.3	3.3	3.3	2.4	2.4	2.4	1.6	2.4	2.4



TEST NUMBER: P175500

CATALOG NUMBER: LDA6A30930D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
72.5°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8	1.6	1.6
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
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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CATALOG NUMBER: LDA6A30930D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2
2.5°	117.9	109.8	108.2	108.2	91.1	94.4	88.7	84.6	59.4	45.5	34.2
5°	360.3	331.0	318.8	308.3	261.9	257.8	229.4	222.9	79.7	41.5	26.0
7.5°	671.8	627.1	598.6	571.0	496.2	475.8	427.0	414.8	108.2	35.0	20.3
10°	1026.5	962.2	912.6	846.7	749.9	707.6	636.1	610.0	131.8	29.3	19.5
12.5°	1360.0	1286.8	1219.2	1132.2	1001.3	933.8	839.4	806.1	140.7	24.4	17.9
15°	1647.9	1550.3	1466.5	1373.0	1226.6	1141.2	1025.7	982.6	133.4	19.5	15.5
17.5°	2013.1	1848.0	1702.4	1571.4	1412.0	1307.9	1173.7	1103.7	108.2	17.1	13.8
20°	2553.2	2220.5	1964.3	1752.8	1531.6	1402.3	1253.4	1168.8	78.1	15.5	13.8
22.5°	3061.5	2586.5	2193.7	1891.1	1593.4	1438.9	1284.3	1190.8	55.3	15.5	16.3
25°	3476.4	2862.3	2352.3	1982.2	1627.6	1446.2	1272.9	1162.3	43.1	17.9	31.7
26°	3592.7	2930.6	2383.2	1989.5	1622.7	1435.6	1253.4	1136.3	38.2	24.4	59.4
27°	3665.1	2961.5	2384.0	1978.1	1604.8	1414.5	1224.1	1101.3	33.3	37.4	100.0
28°	3679.7	2946.9	2356.3	1946.4	1573.9	1386.0	1191.6	1059.0	30.9	47.2	113.9
29°	3639.8	2894.8	2305.9	1900.0	1536.5	1351.8	1152.5	1012.6	26.8	35.8	74.0
30°	3550.4	2808.6	2231.9	1840.7	1496.6	1313.6	1104.6	957.3	22.0	17.9	33.3
31°	3416.2	2689.8	2140.8	1770.7	1451.9	1264.8	1046.8	895.5	18.7	12.2	19.5
32°	3246.2	2547.5	2039.1	1699.1	1401.4	1205.4	979.3	826.4	17.1	9.8	16.3
33°	3051.0	2397.8	1934.2	1626.7	1341.3	1134.7	906.9	752.4	15.5	10.6	16.3
34°	2837.9	2244.9	1815.4	1551.1	1271.3	1057.4	829.6	665.3	13.8	9.8	12.2
35°	2606.9	2086.3	1708.9	1484.4	1192.4	973.6	750.7	591.3	12.2	7.3	8.1
36°	2407.6	1931.8	1605.6	1399.8	1106.2	887.4	669.4	511.6	10.6	4.9	5.7
37°	2190.4	1787.0	1509.6	1312.0	1013.5	798.7	588.1	432.7	9.8	3.3	4.9
38°	1987.9	1653.6	1413.6	1211.1	918.3	709.3	505.1	355.4	8.9	3.3	4.1
39°	1804.1	1532.4	1324.2	1103.7	818.3	615.7	421.3	279.0	8.1	2.4	4.1
40°	1646.3	1424.2	1216.8	990.7	715.0	523.0	337.5	206.6	7.3	2.4	4.1
42.5°	1338.8	1142.8	918.3	700.3	462.8	296.1	151.3	75.6	5.7	2.4	3.3
45°	1023.2	813.4	606.0	421.3	238.3	114.7	56.1	41.5	4.9	2.4	3.3
47.5°	664.5	488.0	325.3	183.8	79.7	46.4	29.3	21.1	4.1	2.4	3.3
50°	245.6	135.8	71.6	44.7	30.9	19.5	13.0	12.2	4.1	2.4	3.3
51°	100.9	65.9	44.7	30.1	19.5	13.8	10.6	10.6	4.1	2.4	3.3
52°	60.2	41.5	30.1	22.0	14.6	10.6	8.1	8.9	4.1	2.4	3.3
53°	39.9	28.5	22.0	17.1	11.4	8.1	5.7	6.5	4.1	2.4	3.3
54°	26.8	20.3	16.3	13.0	8.1	6.5	3.3	5.7	3.3	2.4	3.3
55°	18.7	14.6	12.2	9.8	5.7	4.1	2.4	4.9	3.3	2.4	3.3
57.5°	8.1	7.3	6.5	5.7	2.4	1.6	0.8	4.1	3.3	2.4	3.3
60°	5.7	4.9	4.1	4.1	0.8	0.8	0.0	3.3	3.3	2.4	3.3
61°	4.9	4.1	4.1	3.3	0.8	0.8	0.0	3.3	4.1	2.4	3.3
62°	4.1	4.1	3.3	3.3	0.8	0.0	0.0	3.3	4.1	2.4	4.1
63°	3.3	3.3	3.3	3.3	0.8	0.0	0.0	3.3	4.1	2.4	4.1
64°	3.3	3.3	3.3	3.3	0.0	0.0	0.0	3.3	4.1	2.4	4.1
65°	3.3	2.4	2.4	2.4	0.0	0.0	0.0	3.3	4.1	3.3	4.1
66°	2.4	2.4	2.4	2.4	0.0	0.0	0.0	3.3	4.1	3.3	4.1



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CATALOG NUMBER: LDA6A30930D010TE 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°	1.6	1.6	1.6	1.6	0.0	0.0	0.0	2.4	4.1	3.3	4.9
75°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
77.5°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
80°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
82.5°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
85°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
87.5°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
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: P175500

CATALOG NUMBER: LDA6A30930D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	47.2	47.2	47.2
2.5°	28.5	26.0	24.4
5°	20.3	18.7	17.1
7.5°	17.1	14.6	13.8
10°	15.5	11.4	10.6
12.5°	13.0	9.8	8.9
15°	12.2	9.8	8.9
17.5°	12.2	9.8	8.9
20°	13.0	12.2	12.2
22.5°	18.7	20.3	21.1
25°	56.9	73.2	84.6
26°	133.4	200.1	268.4
27°	202.5	295.3	314.8
28°	182.2	211.5	205.8
29°	87.8	99.2	90.3
30°	39.0	46.4	45.5
31°	25.2	28.5	27.7
32°	21.1	19.5	18.7
33°	17.1	13.8	11.4
34°	11.4	8.9	7.3
35°	7.3	4.9	4.1
36°	4.9	2.4	1.6
37°	3.3	1.6	0.8
38°	3.3	0.8	0.0
39°	2.4	0.8	0.0
40°	2.4	0.8	0.0
42.5°	2.4	0.0	0.0
45°	1.6	0.0	0.0
47.5°	1.6	0.0	0.0
50°	2.4	0.8	0.0
51°	2.4	0.0	0.0
52°	2.4	0.0	0.0
53°	1.6	0.0	0.0
54°	1.6	0.0	0.0
55°	1.6	0.0	0.0
57.5°	1.6	0.0	0.0
60°	1.6	0.0	0.0
61°	2.4	0.0	0.0
62°	2.4	0.0	0.0
63°	2.4	0.0	0.0
64°	2.4	0.8	0.0
65°	2.4	0.8	0.0
66°	2.4	0.8	0.0



TEST NUMBER: P175500

CATALOG NUMBER: LDA6A30930D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	3.3	0.8	0.0
75°	3.3	0.8	0.0
77.5°	3.3	0.8	0.0
80°	3.3	1.6	0.8
82.5°	3.3	1.6	0.8
85°	3.3	1.6	0.8
87.5°	3.3	1.6	0.8
90°	0.0	0.0	0.0



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







67.5°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	2.4	2.4
70°	2.4	2.4	1.6	1.6	1.6	1.6	1.6	0.8	0.8	2.4	2.4





67.5°	2.4	2.4	2.4	2.4	0.0	0.0	0.0	3.3	4.1	3.3	4.1
70°	2.4	2.4	2.4	2.4	0.0	0.0	0.0	3.3	4.1	3.3	4.9





67.5°	3.3	0.8	0.0
70°	3.3	0.8	0.0



(END OF REPORT)