

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: P175480

Luminaire Tested: **LDA6A10830D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175480
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: LDA6A10830D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 847.8 lumens
Efficiency: N/A
Efficacy: 61.3 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

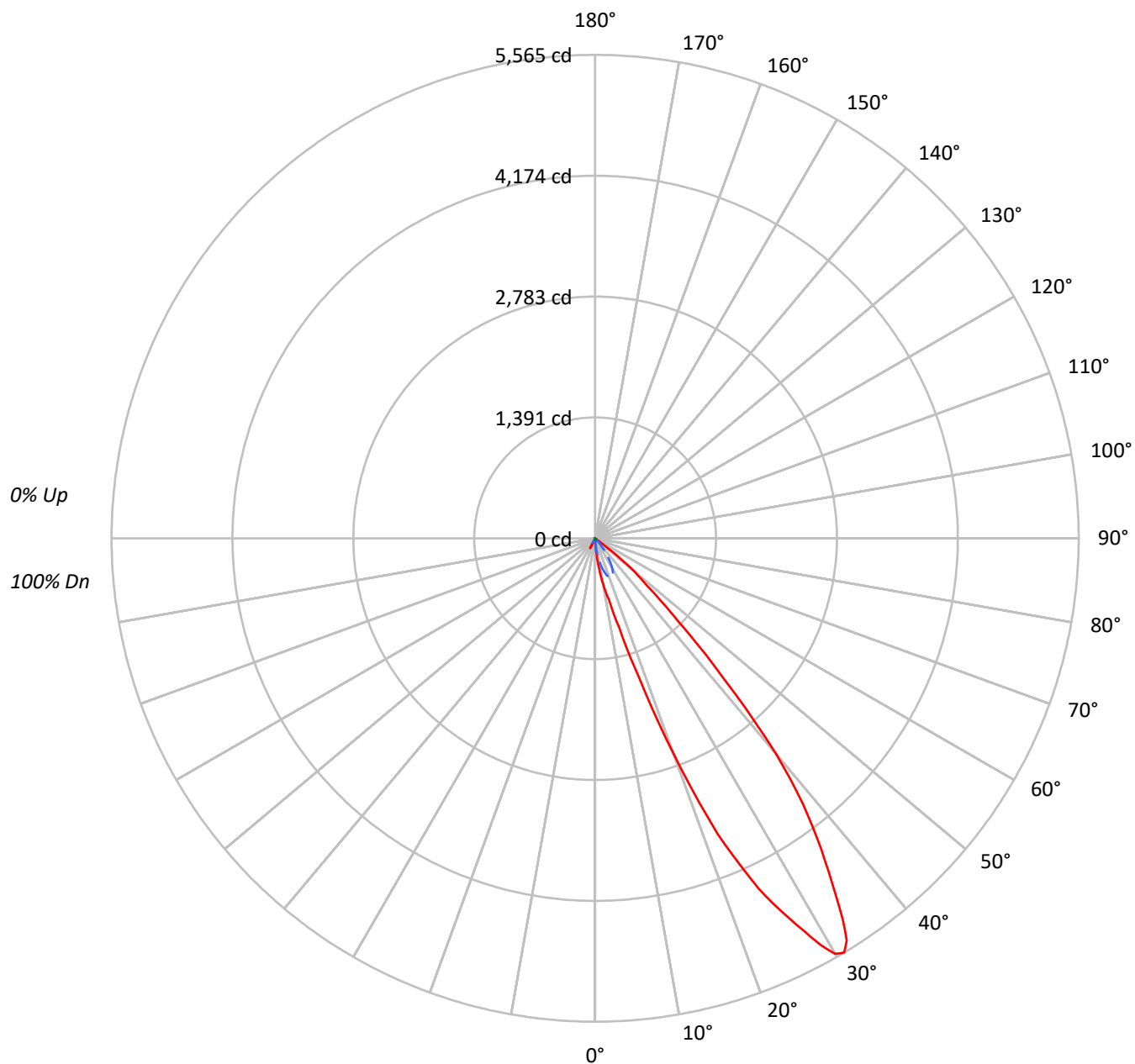
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																				
0	119	119	119	119	116	116	116	116		111	111	111		106	106	106		102	102	102
1	112	109	106	104	110	107	104	102		103	101	99		99	97	96		96	94	93
2	105	100	95	91	103	98	93	90		94	91	88		91	88	86		89	86	84
3	99	91	85	80	96	89	84	79		87	82	78		84	80	77		82	78	76
4	92	83	76	71	90	82	75	70		79	74	70		77	72	69		75	71	68
5	86	75	68	63	84	74	68	63		73	67	62		71	66	62		69	65	61
6	80	69	62	56	78	68	61	56		66	60	56		65	59	55		63	59	55
7	74	63	56	50	73	62	55	50		61	55	50		59	54	50		58	53	49
8	69	58	50	45	68	57	50	45		56	49	45		55	49	45		54	48	44
9	65	53	46	41	63	52	45	41		51	45	40		50	44	40		49	44	40
10	60	49	41	37	59	48	41	37		47	41	37		46	41	36		45	40	36

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	1053	1053	1053
5°	10197	924	380
10°	30160	662	239
15°	59870	448	204
20°	154433	368	292
25°	269151	442	2081
30°	349611	462	1171
35°	313260	201	114
40°	231591	72	0
45°	104290	78	0
50°	47052	85	0
55°	4196	96	0
60°	504	110	0
65°	221	169	0
70°	160	208	0
75°	0	275	0
80°	0	410	95
85°	0	818	189



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	7.6	0.9
10°-20°	71.4	8.4
20°-30°	281.9	33.2
30°-40°	340.2	40.1
40°-50°	132.0	15.6
50°-60°	11.6	1.4
60°-70°	1.1	0.1
70°-80°	1.1	0.1
80°-90°	1.0	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°	360.9	42.6
0°-40°	701.1	82.7
0°-60°	844.7	99.6
0°-90°	847.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	847.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	19	19	19	19	19	
5°	185	90	17	8	7	29
15°	1055	399	8	5	4	387
25°	4450	472	7	23	34	2035
35°	4681	240	3	3	2	2877
45°	1345	17	1	1	0	1182
55°	44	2	1	1	0	106
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: P175480

CATALOG NUMBER: LDA6A10830D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
2.5°	60.1	57.2	53.8	55.2	55.8	57.5	56.2	51.2	54.2	51.9	49.9
5°	185.3	182.0	175.8	176.7	174.8	177.1	171.8	161.2	163.2	159.9	151.3
7.5°	361.4	347.5	337.3	338.0	332.0	334.7	324.7	306.6	304.6	287.7	285.1
10°	541.8	534.9	522.6	521.0	510.4	511.7	496.2	472.1	465.5	446.0	434.8
12.5°	718.9	707.3	690.1	686.5	669.3	669.6	648.5	621.4	611.5	591.4	575.8
15°	1054.9	1038.3	999.0	984.2	936.6	929.3	877.1	815.7	785.9	751.2	705.7
17.5°	1674.9	1664.4	1587.4	1544.8	1448.3	1352.5	1296.0	1163.2	1085.6	988.4	904.2
20°	2647.2	2666.7	2532.2	2437.1	2258.0	2055.9	1913.1	1671.3	1509.8	1342.3	1183.7
22.5°	3681.2	3689.5	3551.7	3433.1	3224.7	2946.8	2618.1	2324.8	2028.8	1741.0	1479.4
25°	4449.7	4425.9	4274.2	4131.9	3912.5	3628.7	3309.3	2917.4	2512.7	2117.6	1734.4
26°	4684.2	4671.3	4519.4	4348.9	4107.4	3819.3	3487.0	3091.5	2664.1	2238.5	1812.4
27°	4901.6	4893.3	4728.5	4538.9	4268.3	3966.7	3618.8	3223.7	2778.4	2332.0	1868.9
28°	5122.0	5112.7	4913.2	4693.1	4399.1	4071.4	3710.0	3311.9	2852.0	2386.9	1892.3
29°	5354.9	5337.0	5082.0	4806.5	4486.3	4132.5	3757.6	3352.2	2877.1	2400.4	1886.4
30°	5523.0	5495.3	5203.9	4878.1	4522.0	4151.7	3762.8	3351.2	2861.6	2372.3	1848.4
31°	5565.3	5537.2	5237.9	4877.2	4495.9	4122.6	3724.8	3304.3	2796.9	2304.3	1784.3
32°	5462.9	5437.1	5151.7	4765.8	4413.3	4052.6	3649.2	3217.4	2696.4	2202.5	1697.4
33°	5234.3	5214.8	4968.7	4619.5	4295.1	3953.1	3540.8	3093.9	2553.7	2073.0	1595.3
34°	4945.9	4931.7	4742.4	4447.4	4145.1	3816.7	3400.4	2931.0	2365.7	1926.3	1484.0
35°	4680.9	4670.3	4517.1	4255.4	3973.6	3647.9	3222.7	2730.5	2172.1	1768.4	1365.1
36°	4425.9	4417.0	4283.8	4040.7	3768.8	3450.0	2999.0	2490.6	1964.3	1604.6	1241.8
37°	4159.6	4151.7	4037.4	3806.1	3538.5	3213.4	2733.4	2235.2	1753.2	1441.0	1115.3
38°	3883.4	3876.8	3772.1	3541.5	3269.9	2924.4	2430.5	1971.3	1547.4	1281.5	1001.7
39°	3575.2	3569.6	3473.1	3231.3	2941.2	2583.8	2118.6	1713.9	1352.2	1126.5	891.7
40°	3236.2	3228.6	3132.2	2861.9	2568.9	2233.3	1819.0	1477.7	1167.8	981.8	794.9
42.5°	2200.2	2192.0	2120.3	1963.0	1680.9	1465.2	1205.5	989.1	827.6	715.6	619.1
45°	1345.2	1346.2	1308.6	1211.4	1041.6	921.7	780.6	677.2	604.6	561.6	494.6
47.5°	813.7	813.7	796.8	747.3	671.0	623.1	564.6	516.4	460.9	418.6	345.9
50°	551.7	552.0	526.3	528.9	478.0	448.3	392.5	333.7	279.2	217.7	155.3
51°	408.3	410.3	386.5	397.4	341.6	316.5	263.6	213.7	165.5	117.9	68.1
52°	249.8	253.4	237.2	247.1	214.7	178.1	135.1	99.8	67.1	46.9	32.7
53°	116.0	118.9	110.7	115.3	96.1	75.0	56.8	46.3	37.0	30.1	22.1
54°	61.4	62.1	59.5	58.1	52.9	46.6	38.7	32.0	25.1	20.2	14.9
55°	43.9	43.9	42.6	41.3	37.0	31.7	25.8	21.8	16.5	13.2	9.6
57.5°	13.5	13.5	13.5	12.9	11.2	9.6	7.6	6.6	5.3	5.0	4.0
60°	4.6	4.6	4.6	4.3	4.0	3.6	3.3	3.0	2.6	2.6	2.3
61°	3.3	3.3	3.3	3.3	3.0	3.0	2.6	2.3	2.0	2.3	2.0
62°	2.6	3.0	2.6	2.6	2.6	2.3	2.0	2.0	1.7	2.0	1.7
63°	2.3	2.3	2.3	2.3	2.0	2.0	1.7	1.7	1.3	1.7	1.7
64°	2.0	2.0	2.0	2.0	1.7	1.7	1.3	1.3	1.0	1.3	1.3
65°	1.7	1.7	1.7	1.7	1.3	1.3	1.3	1.0	1.0	1.3	1.3
66°	1.3	1.3	1.3	1.3	1.3	1.0	1.0	1.0	0.7	1.0	1.0



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CATALOG NUMBER: LDA6A10830D010TE 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°	0.7	0.7	0.7	0.7	0.3	0.3	0.3	0.3	0.3	0.7	0.7
75°	0.0	0.0	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



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CATALOG NUMBER: LDA6A10830D010TE 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°	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
2.5°	47.9	44.6	43.9	43.9	37.0	38.3	36.0	34.4	24.1	18.5	13.9
5°	146.4	134.5	129.5	125.2	106.4	104.7	93.2	90.5	32.4	16.8	10.6
7.5°	272.9	254.7	243.1	231.9	201.5	193.3	173.4	168.5	43.9	14.2	8.3
10°	416.9	390.8	370.7	343.9	304.6	287.4	258.3	247.8	53.5	11.9	7.9
12.5°	552.4	522.6	495.2	459.9	406.7	379.3	340.9	327.4	57.2	9.9	7.3
15°	669.3	629.7	595.6	557.7	498.2	463.5	416.6	399.1	54.2	7.9	6.3
17.5°	817.6	750.6	691.5	638.3	573.5	531.2	476.7	448.3	43.9	6.9	5.6
20°	1037.0	901.9	797.8	711.9	622.1	569.5	509.1	474.7	31.7	6.3	5.6
22.5°	1243.5	1050.6	891.0	768.1	647.2	584.4	521.6	483.7	22.5	6.3	6.6
25°	1412.0	1162.5	955.4	805.1	661.1	587.4	517.0	472.1	17.5	7.3	12.9
26°	1459.2	1190.3	968.0	808.1	659.1	583.1	509.1	461.5	15.5	9.9	24.1
27°	1488.6	1202.9	968.3	803.4	651.8	574.5	497.2	447.3	13.5	15.2	40.6
28°	1494.6	1196.9	957.1	790.6	639.3	562.9	484.0	430.1	12.6	19.2	46.3
29°	1478.4	1175.8	936.6	771.7	624.1	549.1	468.1	411.3	10.9	14.5	30.1
30°	1442.0	1140.7	906.5	747.6	607.9	533.5	448.6	388.8	8.9	7.3	13.5
31°	1387.5	1092.5	869.5	719.2	589.7	513.7	425.2	363.7	7.6	5.0	7.9
32°	1318.5	1034.7	828.2	690.1	569.2	489.6	397.8	335.6	6.9	4.0	6.6
33°	1239.2	973.9	785.6	660.7	544.8	460.9	368.4	305.6	6.3	4.3	6.6
34°	1152.6	911.8	737.4	630.0	516.4	429.5	337.0	270.2	5.6	4.0	5.0
35°	1058.8	847.4	694.1	602.9	484.3	395.4	304.9	240.2	5.0	3.0	3.3
36°	977.9	784.6	652.1	568.6	449.3	360.4	271.9	207.8	4.3	2.0	2.3
37°	889.7	725.8	613.2	532.9	411.6	324.4	238.9	175.8	4.0	1.3	2.0
38°	807.4	671.6	574.2	491.9	373.0	288.1	205.2	144.4	3.6	1.3	1.7
39°	732.7	622.4	537.8	448.3	332.3	250.1	171.1	113.3	3.3	1.0	1.7
40°	668.7	578.5	494.2	402.4	290.4	212.4	137.1	83.9	3.0	1.0	1.7
42.5°	543.8	464.2	373.0	284.4	188.0	120.3	61.4	30.7	2.3	1.0	1.3
45°	415.6	330.4	246.1	171.1	96.8	46.6	22.8	16.8	2.0	1.0	1.3
47.5°	269.9	198.2	132.1	74.7	32.4	18.8	11.9	8.6	1.7	1.0	1.3
50°	99.8	55.2	29.1	18.2	12.6	7.9	5.3	5.0	1.7	1.0	1.3
51°	41.0	26.8	18.2	12.2	7.9	5.6	4.3	4.3	1.7	1.0	1.3
52°	24.4	16.8	12.2	8.9	5.9	4.3	3.3	3.6	1.7	1.0	1.3
53°	16.2	11.6	8.9	6.9	4.6	3.3	2.3	2.6	1.7	1.0	1.3
54°	10.9	8.3	6.6	5.3	3.3	2.6	1.3	2.3	1.3	1.0	1.3
55°	7.6	5.9	5.0	4.0	2.3	1.7	1.0	2.0	1.3	1.0	1.3
57.5°	3.3	3.0	2.6	2.3	1.0	0.7	0.3	1.7	1.3	1.0	1.3
60°	2.3	2.0	1.7	1.7	0.3	0.3	0.0	1.3	1.3	1.0	1.3
61°	2.0	1.7	1.7	1.3	0.3	0.3	0.0	1.3	1.7	1.0	1.3
62°	1.7	1.7	1.3	1.3	0.3	0.0	0.0	1.3	1.7	1.0	1.7
63°	1.3	1.3	1.3	1.3	0.3	0.0	0.0	1.3	1.7	1.0	1.7
64°	1.3	1.3	1.3	1.3	0.0	0.0	0.0	1.3	1.7	1.0	1.7
65°	1.3	1.0	1.0	1.0	0.0	0.0	0.0	1.3	1.7	1.3	1.7
66°	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.3	1.7	1.3	1.7



TEST NUMBER: P175480

CATALOG NUMBER: LDA6A10830D010TE 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°	0.7	0.7	0.7	0.7	0.0	0.0	0.0	1.0	1.7	1.3	2.0
75°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.3	1.7	1.3	2.0
77.5°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.3	1.7	1.3	2.0
80°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.3	1.7	1.3	2.0
82.5°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.3	1.7	1.3	2.0
85°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.3	1.7	1.3	2.0
87.5°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.3	1.7	1.3	2.0
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: P175480

CATALOG NUMBER: LDA6A10830D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	19.2	19.2	19.2
2.5°	11.6	10.6	9.9
5°	8.3	7.6	6.9
7.5°	6.9	5.9	5.6
10°	6.3	4.6	4.3
12.5°	5.3	4.0	3.6
15°	5.0	4.0	3.6
17.5°	5.0	4.0	3.6
20°	5.3	5.0	5.0
22.5°	7.6	8.3	8.6
25°	23.1	29.7	34.4
26°	54.2	81.3	109.0
27°	82.3	119.9	127.9
28°	74.0	85.9	83.6
29°	35.7	40.3	36.7
30°	15.9	18.8	18.5
31°	10.2	11.6	11.2
32°	8.6	7.9	7.6
33°	6.9	5.6	4.6
34°	4.6	3.6	3.0
35°	3.0	2.0	1.7
36°	2.0	1.0	0.7
37°	1.3	0.7	0.3
38°	1.3	0.3	0.0
39°	1.0	0.3	0.0
40°	1.0	0.3	0.0
42.5°	1.0	0.0	0.0
45°	0.7	0.0	0.0
47.5°	0.7	0.0	0.0
50°	1.0	0.3	0.0
51°	1.0	0.0	0.0
52°	1.0	0.0	0.0
53°	0.7	0.0	0.0
54°	0.7	0.0	0.0
55°	0.7	0.0	0.0
57.5°	0.7	0.0	0.0
60°	0.7	0.0	0.0
61°	1.0	0.0	0.0
62°	1.0	0.0	0.0
63°	1.0	0.0	0.0
64°	1.0	0.3	0.0
65°	1.0	0.3	0.0
66°	1.0	0.3	0.0



TEST NUMBER: P175480

CATALOG NUMBER: LDA6A10830D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.3	0.3	0.0
75°	1.3	0.3	0.0
77.5°	1.3	0.3	0.0
80°	1.3	0.7	0.3
82.5°	1.3	0.7	0.3
85°	1.3	0.7	0.3
87.5°	1.3	0.7	0.3
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	1.0	1.0	1.0	1.0	1.0	1.0	0.7	0.7	0.7	1.0	1.0
70°	1.0	1.0	0.7	0.7	0.7	0.7	0.7	0.3	0.3	1.0	1.0





67.5°	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.3	1.7	1.3	1.7
70°	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.3	1.7	1.3	2.0





67.5°	1.3	0.3	0.0
70°	1.3	0.3	0.0



(END OF REPORT)