

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: P175481

Luminaire Tested: **LDA6A10835D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175481
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: LDA6A10835D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 891.3 lumens
Efficiency: N/A
Efficacy: 64.4 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

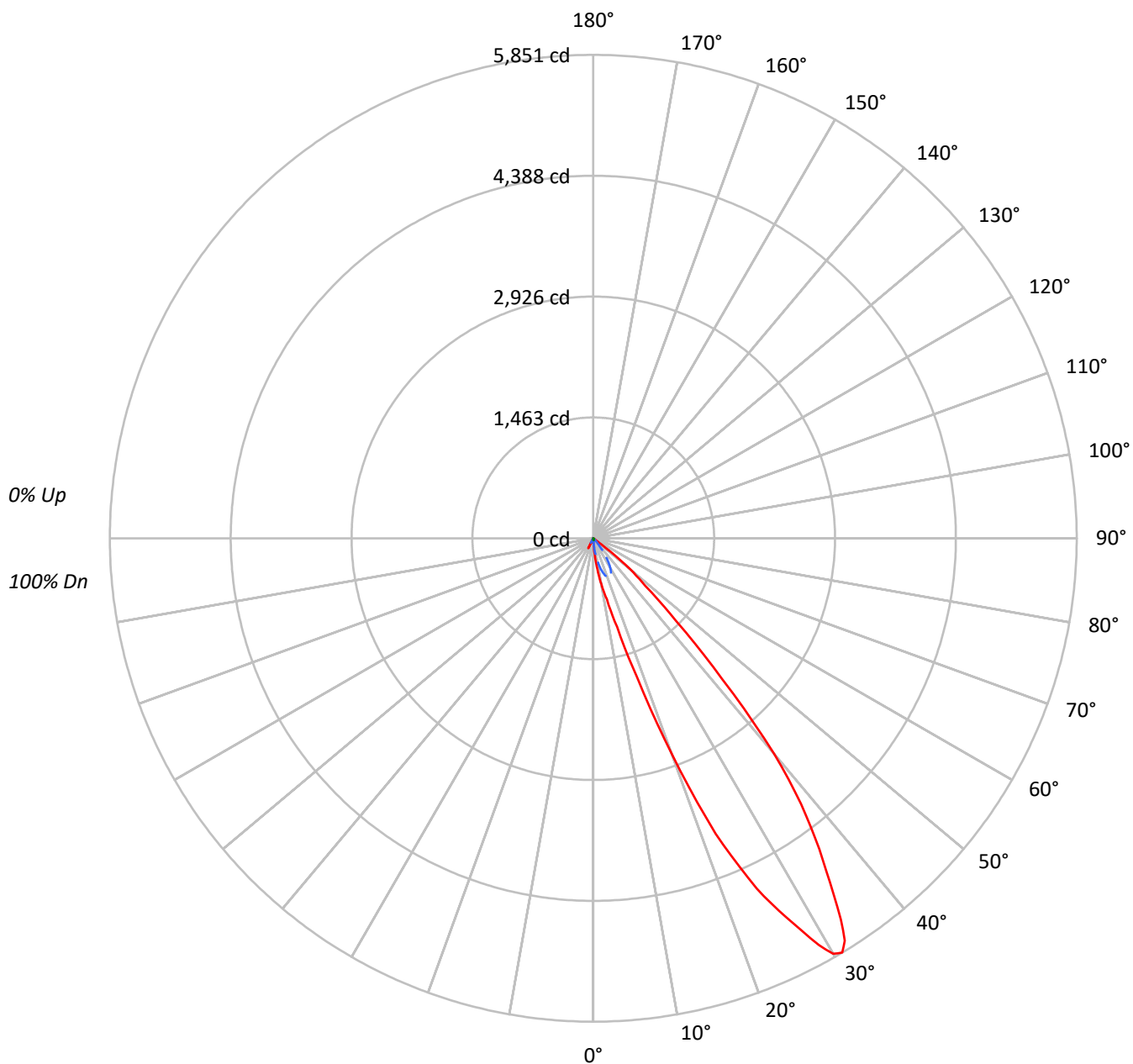
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	1102	1102	1102
5°	10720	974	402
10°	31707	696	250
15°	62940	471	216
20°	162362	385	303
25°	282966	460	2184
30°	367557	481	1234
35°	329342	207	114
40°	243485	72	0
45°	109647	78	0
50°	49465	85	0
55°	4416	96	0
60°	537	110	0
65°	221	182	0
70°	160	224	0
75°	0	297	0
80°	0	442	95
85°	0	881	189



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	8.0	0.9
10°-20°	75.0	8.4
20°-30°	296.4	33.3
30°-40°	357.6	40.1
40°-50°	138.8	15.6
50°-60°	12.2	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°	379.4	42.6
0°-40°	737.0	82.7
0°-60°	888.0	99.6
0°-90°	891.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	891.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	20	20	20	20	20	
5°	195	95	18	9	7	31
15°	1109	420	8	5	4	406
25°	4678	496	8	24	36	2139
35°	4921	252	3	3	2	3025
45°	1414	18	1	1	0	1243
55°	46	2	1	1	0	111
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	



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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1
2.5°	63.2	60.1	56.6	58.0	58.7	60.4	59.0	53.8	57.0	54.5	52.4
5°	194.8	191.4	184.8	185.8	183.7	186.2	180.6	169.5	171.6	168.1	159.1
7.5°	380.0	365.4	354.6	355.3	349.1	351.8	341.4	322.3	320.2	302.5	299.7
10°	569.6	562.3	549.5	547.7	536.6	538.0	521.7	496.3	489.4	468.9	457.1
12.5°	755.8	743.6	725.6	721.7	703.7	704.0	681.8	653.3	642.9	621.7	605.4
15°	1109.0	1091.6	1050.3	1034.7	984.7	977.0	922.1	857.5	826.3	789.8	741.9
17.5°	1760.9	1749.8	1668.9	1624.1	1522.7	1421.9	1362.5	1222.9	1141.3	1039.2	950.6
20°	2783.1	2803.6	2662.2	2562.2	2374.0	2161.4	2011.3	1757.1	1587.3	1411.2	1244.5
22.5°	3870.2	3878.9	3734.1	3609.4	3390.2	3098.1	2752.5	2444.1	2132.9	1830.4	1555.3
25°	4678.1	4653.1	4493.7	4344.0	4113.3	3815.0	3479.1	3067.2	2641.7	2226.3	1823.4
26°	4924.7	4911.1	4751.4	4572.2	4318.3	4015.4	3666.0	3250.2	2800.8	2353.5	1905.4
27°	5153.2	5144.5	4971.2	4771.9	4487.4	4170.3	3804.6	3389.2	2921.0	2451.8	1964.8
28°	5384.9	5375.2	5165.4	4934.1	4625.0	4280.4	3900.4	3481.9	2998.4	2509.4	1989.5
29°	5629.8	5611.0	5342.9	5053.2	4716.6	4344.7	3950.5	3524.3	3024.8	2523.6	1983.2
30°	5806.5	5777.4	5471.0	5128.6	4754.2	4364.8	3956.0	3523.2	3008.5	2494.1	1943.3
31°	5851.0	5821.5	5506.8	5127.5	4726.7	4334.2	3916.1	3473.9	2940.4	2422.6	1875.9
32°	5743.3	5716.2	5416.2	5010.5	4639.9	4260.6	3836.5	3382.6	2834.9	2315.6	1784.5
33°	5503.0	5482.5	5223.7	4856.6	4515.5	4156.1	3722.6	3252.7	2684.8	2179.5	1677.2
34°	5199.8	5184.8	4985.8	4675.7	4357.9	4012.6	3575.0	3081.4	2487.2	2025.2	1560.2
35°	4921.2	4910.1	4748.9	4473.9	4177.6	3835.1	3388.1	2870.6	2283.6	1859.2	1435.1
36°	4653.1	4643.7	4503.7	4248.1	3962.3	3627.1	3153.0	2618.5	2065.2	1686.9	1305.6
37°	4373.1	4364.8	4244.6	4001.5	3720.2	3378.4	2873.8	2350.0	1843.2	1515.0	1172.6
38°	4082.8	4075.8	3965.7	3723.3	3437.8	3074.5	2555.3	2072.5	1626.9	1347.3	1053.1
39°	3758.7	3752.8	3651.4	3397.2	3092.2	2716.4	2227.4	1801.9	1421.6	1184.4	937.4
40°	3402.4	3394.4	3293.0	3008.9	2700.8	2347.9	1912.4	1553.6	1227.8	1032.2	835.7
42.5°	2313.2	2304.5	2229.1	2063.8	1767.2	1540.4	1267.4	1039.9	870.0	752.3	650.9
45°	1414.3	1415.3	1375.7	1273.6	1095.1	969.0	820.7	712.0	635.6	590.4	519.9
47.5°	855.5	855.5	837.7	785.6	705.4	655.1	593.6	542.9	484.5	440.1	363.6
50°	580.0	580.4	553.3	556.1	502.6	471.3	412.6	350.8	293.5	228.9	163.2
51°	429.3	431.4	406.4	417.8	359.1	332.7	277.2	224.7	174.0	124.0	71.5
52°	262.6	266.4	249.4	259.8	225.8	187.2	142.1	104.9	70.5	49.3	34.4
53°	121.9	125.0	116.4	121.2	101.1	78.8	59.7	48.6	38.9	31.6	23.3
54°	64.6	65.3	62.5	61.1	55.6	49.0	40.6	33.7	26.4	21.2	15.6
55°	46.2	46.2	44.8	43.4	38.9	33.3	27.1	22.9	17.4	13.9	10.1
57.5°	14.2	14.2	14.2	13.5	11.8	10.1	8.0	6.9	5.6	5.2	4.2
60°	4.9	4.9	4.9	4.5	4.2	3.8	3.5	3.1	2.8	2.8	2.4
61°	3.5	3.5	3.5	3.5	3.1	3.1	2.8	2.4	2.1	2.4	2.1
62°	2.8	3.1	2.8	2.8	2.8	2.4	2.1	2.1	1.7	2.1	1.7
63°	2.4	2.4	2.4	2.4	2.1	2.1	1.7	1.7	1.4	1.7	1.7
64°	2.1	2.1	2.1	2.1	1.7	1.7	1.4	1.4	1.0	1.4	1.4
65°	1.7	1.7	1.7	1.7	1.4	1.4	1.4	1.0	1.0	1.4	1.4
66°	1.4	1.4	1.4	1.4	1.4	1.0	1.0	1.0	0.7	1.0	1.0



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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°	0.7	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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CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1
2.5°	50.4	46.9	46.2	46.2	38.9	40.3	37.9	36.1	25.4	19.5	14.6
5°	153.9	141.4	136.2	131.6	111.8	110.1	97.9	95.2	34.0	17.7	11.1
7.5°	286.9	267.8	255.6	243.8	211.9	203.2	182.3	177.1	46.2	14.9	8.7
10°	438.3	410.9	389.7	361.6	320.2	302.2	271.6	260.5	56.3	12.5	8.3
12.5°	580.7	549.5	520.6	483.5	427.6	398.7	358.4	344.2	60.1	10.4	7.6
15°	703.7	662.0	626.2	586.3	523.8	487.3	438.0	419.6	57.0	8.3	6.6
17.5°	859.6	789.1	726.9	671.0	603.0	558.5	501.2	471.3	46.2	7.3	5.9
20°	1090.2	948.2	838.8	748.5	654.0	598.8	535.2	499.1	33.3	6.6	5.9
22.5°	1307.3	1104.5	936.7	807.5	680.4	614.4	548.4	508.5	23.6	6.6	6.9
25°	1484.5	1222.2	1004.5	846.4	695.0	617.5	543.6	496.3	18.4	7.6	13.5
26°	1534.1	1251.4	1017.7	849.6	692.9	613.0	535.2	485.2	16.3	10.4	25.4
27°	1565.0	1264.6	1018.0	844.7	685.3	604.0	522.7	470.3	14.2	16.0	42.7
28°	1571.3	1258.4	1006.2	831.1	672.1	591.8	508.8	452.2	13.2	20.1	48.6
29°	1554.3	1236.1	984.7	811.3	656.1	577.3	492.2	432.4	11.5	15.3	31.6
30°	1516.1	1199.3	953.1	786.0	639.1	560.9	471.7	408.8	9.4	7.6	14.2
31°	1458.8	1148.6	914.2	756.1	620.0	540.1	447.0	382.4	8.0	5.2	8.3
32°	1386.2	1087.8	870.7	725.6	598.4	514.7	418.2	352.9	7.3	4.2	6.9
33°	1302.8	1023.9	825.9	694.6	572.7	484.5	387.3	321.3	6.6	4.5	6.9
34°	1211.8	958.6	775.2	662.3	542.9	451.5	354.3	284.1	5.9	4.2	5.2
35°	1113.2	890.9	729.7	633.9	509.2	415.7	320.6	252.5	5.2	3.1	3.5
36°	1028.1	824.9	685.6	597.7	472.4	378.9	285.8	218.5	4.5	2.1	2.4
37°	935.3	763.1	644.6	560.2	432.8	341.1	251.1	184.8	4.2	1.4	2.1
38°	848.9	706.1	603.6	517.2	392.1	302.9	215.7	151.8	3.8	1.4	1.7
39°	770.4	654.4	565.4	471.3	349.4	262.9	179.9	119.1	3.5	1.0	1.7
40°	703.0	608.2	519.6	423.0	305.3	223.3	144.1	88.2	3.1	1.0	1.7
42.5°	571.7	488.0	392.1	299.0	197.6	126.4	64.6	32.3	2.4	1.0	1.4
45°	436.9	347.3	258.8	179.9	101.8	49.0	24.0	17.7	2.1	1.0	1.4
47.5°	283.8	208.4	138.9	78.5	34.0	19.8	12.5	9.0	1.7	1.0	1.4
50°	104.9	58.0	30.6	19.1	13.2	8.3	5.6	5.2	1.7	1.0	1.4
51°	43.1	28.1	19.1	12.9	8.3	5.9	4.5	4.5	1.7	1.0	1.4
52°	25.7	17.7	12.9	9.4	6.3	4.5	3.5	3.8	1.7	1.0	1.4
53°	17.0	12.2	9.4	7.3	4.9	3.5	2.4	2.8	1.7	1.0	1.4
54°	11.5	8.7	6.9	5.6	3.5	2.8	1.4	2.4	1.4	1.0	1.4
55°	8.0	6.3	5.2	4.2	2.4	1.7	1.0	2.1	1.4	1.0	1.4
57.5°	3.5	3.1	2.8	2.4	1.0	0.7	0.3	1.7	1.4	1.0	1.4
60°	2.4	2.1	1.7	1.7	0.3	0.3	0.0	1.4	1.4	1.0	1.4
61°	2.1	1.7	1.7	1.4	0.3	0.3	0.0	1.4	1.7	1.0	1.4
62°	1.7	1.7	1.4	1.4	0.3	0.0	0.0	1.4	1.7	1.0	1.7
63°	1.4	1.4	1.4	1.4	0.3	0.0	0.0	1.4	1.7	1.0	1.7
64°	1.4	1.4	1.4	1.4	0.0	0.0	0.0	1.4	1.7	1.0	1.7
65°	1.4	1.0	1.0	1.0	0.0	0.0	0.0	1.4	1.7	1.4	1.7
66°	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.4	1.7	1.4	1.7



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CATALOG NUMBER: LDA6A10835D010TE 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	1.4	2.1
75°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.4	1.7	1.4	2.1
77.5°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.4	1.7	1.4	2.1
80°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.4	1.7	1.4	2.1
82.5°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.4	1.7	1.4	2.1
85°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.4	1.7	1.4	2.1
87.5°	0.3	0.7	0.7	0.7	0.0	0.0	0.0	1.4	1.7	1.4	2.1
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: LDA6A10835D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	20.1	20.1	20.1
2.5°	12.2	11.1	10.4
5°	8.7	8.0	7.3
7.5°	7.3	6.3	5.9
10°	6.6	4.9	4.5
12.5°	5.6	4.2	3.8
15°	5.2	4.2	3.8
17.5°	5.2	4.2	3.8
20°	5.6	5.2	5.2
22.5°	8.0	8.7	9.0
25°	24.3	31.3	36.1
26°	57.0	85.4	114.6
27°	86.5	126.1	134.4
28°	77.8	90.3	87.9
29°	37.5	42.4	38.6
30°	16.7	19.8	19.5
31°	10.8	12.2	11.8
32°	9.0	8.3	8.0
33°	7.3	5.9	4.9
34°	4.9	3.8	3.1
35°	3.1	2.1	1.7
36°	2.1	1.0	0.7
37°	1.4	0.7	0.3
38°	1.4	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: P175481

CATALOG NUMBER: LDA6A10835D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.4	0.3	0.0
75°	1.4	0.3	0.0
77.5°	1.4	0.3	0.0
80°	1.4	0.7	0.3
82.5°	1.4	0.7	0.3
85°	1.4	0.7	0.3
87.5°	1.4	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	0.7	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	1.4	1.7	1.4	1.7
70°	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.4	1.7	1.4	2.1





67.5°	1.4	0.3	0.0
70°	1.4	0.3	0.0



(END OF REPORT)