

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: P175491

Luminaire Tested: **LDA6A15927D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175491
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: LDA6A15927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 933.5 lumens
Efficiency: N/A
Efficacy: 41.9 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

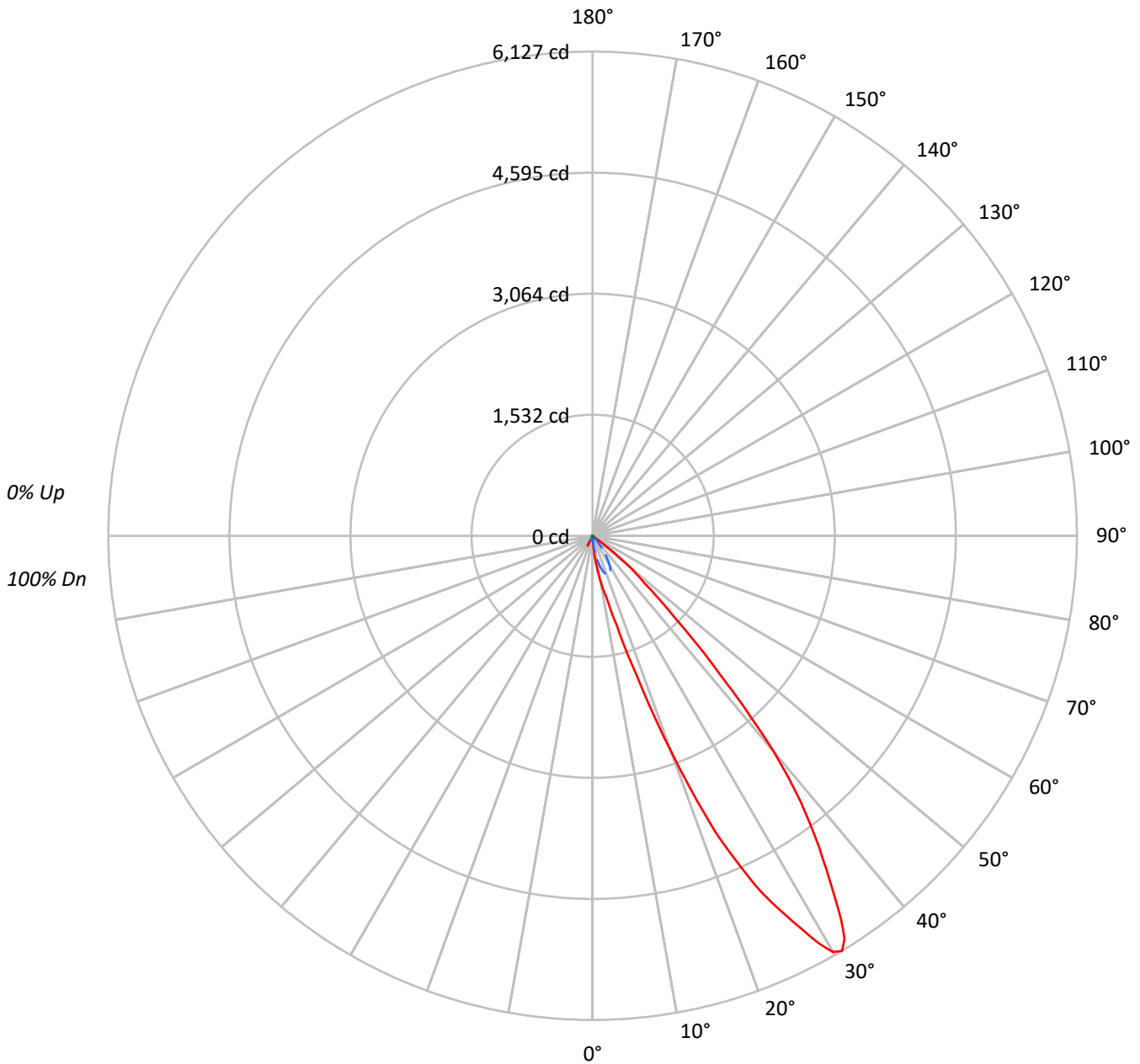
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	72	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	40	36	45	40	36	35																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	1157	1157	1157
5°	11232	1024	418
10°	33205	729	262
15°	65914	494	227
20°	170027	403	321
25°	296328	484	2286
30°	384920	506	1291
35°	344901	221	120
40°	254985	79	0
45°	114826	85	0
50°	51802	94	0
55°	4626	105	0
60°	559	121	0
65°	233	195	0
70°	176	240	0
75°	0	318	0
80°	0	474	126
85°	0	943	252



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	8.4	0.9
10°-20°	78.6	8.4
20°-30°	310.4	33.2
30°-40°	374.5	40.1
40°-50°	145.3	15.6
50°-60°	12.8	1.4
60°-70°	1.2	0.1
70°-80°	1.2	0.1
80°-90°	1.1	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°	397.3	42.6
0°-40°	771.9	82.7
0°-60°	930.0	99.6
0°-90°	933.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	933.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	21	21	21	21	21	
5°	204	100	19	9	8	32
15°	1161	439	9	6	4	426
25°	4899	520	8	26	38	2240
35°	5154	264	3	3	2	3168
45°	1481	19	1	1	0	1301
55°	48	2	1	1	0	117
65°	2	2	2	1	0	2
75°	0	2	2	2	0	0
85°	0	2	2	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P175491

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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1
2.5°	66.2	62.9	59.3	60.7	61.5	63.3	61.8	56.4	59.7	57.1	54.9
5°	204.1	200.4	193.5	194.6	192.4	195.0	189.1	177.5	179.7	176.0	166.6
7.5°	397.9	382.6	371.4	372.1	365.5	368.5	357.5	337.5	335.4	316.8	313.9
10°	596.5	588.9	575.4	573.6	562.0	563.4	546.3	519.8	512.5	491.0	478.7
12.5°	791.5	778.7	759.8	755.8	736.9	737.3	714.0	684.2	673.3	651.1	634.0
15°	1161.4	1143.2	1099.9	1083.5	1031.2	1023.2	965.7	898.0	865.3	827.1	776.9
17.5°	1844.1	1832.5	1747.7	1700.8	1594.6	1489.1	1426.9	1280.7	1195.2	1088.3	995.5
20°	2914.5	2936.0	2788.0	2683.2	2486.1	2263.5	2106.3	1840.1	1662.2	1477.8	1303.2
22.5°	4053.0	4062.1	3910.4	3779.9	3550.3	3244.4	2882.5	2559.6	2233.7	1916.8	1628.8
25°	4899.0	4872.9	4705.9	4549.1	4307.6	3995.2	3643.5	3212.1	2766.5	2331.5	1909.6
26°	5157.3	5143.1	4975.8	4788.1	4522.2	4205.1	3839.1	3403.8	2933.1	2464.6	1995.4
27°	5396.6	5387.5	5206.0	4997.3	4699.4	4367.3	3984.3	3549.3	3058.9	2567.6	2057.6
28°	5639.2	5629.0	5409.4	5167.1	4843.4	4482.6	4084.7	3646.4	3140.1	2627.9	2083.4
29°	5895.7	5876.0	5595.2	5291.9	4939.4	4549.9	4137.0	3690.7	3167.7	2642.8	2076.9
30°	6080.8	6050.2	5729.4	5370.8	4978.7	4571.0	4142.9	3689.7	3150.6	2611.9	2035.1
31°	6127.4	6096.4	5766.9	5369.7	4950.0	4539.0	4101.0	3638.0	3079.3	2537.0	1964.5
32°	6014.6	5986.2	5672.0	5247.1	4859.0	4461.8	4017.7	3542.3	2968.7	2425.0	1868.8
33°	5762.9	5741.4	5470.5	5086.0	4728.8	4352.4	3898.4	3406.3	2811.6	2282.4	1756.4
34°	5445.4	5429.7	5221.3	4896.5	4563.7	4202.1	3743.8	3227.0	2604.7	2120.9	1633.9
35°	5153.7	5142.0	4973.2	4685.2	4374.9	4016.3	3548.2	3006.2	2391.5	1947.0	1502.9
36°	4872.9	4863.0	4716.5	4448.8	4149.4	3798.4	3301.9	2742.1	2162.7	1766.6	1367.3
37°	4579.7	4571.0	4445.1	4190.5	3895.9	3538.0	3009.5	2461.0	1930.3	1586.6	1227.9
38°	4275.6	4268.3	4153.0	3899.2	3600.2	3219.7	2675.9	2170.4	1703.7	1410.9	1102.8
39°	3936.3	3930.1	3823.9	3557.6	3238.3	2844.7	2332.6	1887.0	1488.7	1240.3	981.7
40°	3563.1	3554.7	3448.5	3151.0	2828.3	2458.8	2002.7	1627.0	1285.8	1081.0	875.1
42.5°	2422.4	2413.3	2334.4	2161.3	1850.6	1613.1	1327.2	1089.0	911.1	787.8	681.6
45°	1481.1	1482.2	1440.7	1333.8	1146.8	1014.8	859.5	745.6	665.6	618.3	544.5
47.5°	895.9	895.9	877.3	822.8	738.7	686.0	621.6	568.5	507.4	460.8	380.8
50°	607.4	607.8	579.4	582.3	526.3	493.6	432.1	367.4	307.3	239.7	171.0
51°	449.6	451.7	425.6	437.6	376.1	348.5	290.3	235.3	182.2	129.9	74.9
52°	275.0	279.0	261.2	272.1	236.4	196.0	148.8	109.8	73.8	51.6	36.0
53°	127.7	130.9	121.8	126.9	105.8	82.6	62.6	50.9	40.7	33.1	24.4
54°	67.7	68.4	65.5	64.0	58.2	51.3	42.6	35.3	27.6	22.2	16.4
55°	48.4	48.4	46.9	45.5	40.7	34.9	28.4	24.0	18.2	14.5	10.5
57.5°	14.9	14.9	14.9	14.2	12.4	10.5	8.4	7.3	5.8	5.5	4.4
60°	5.1	5.1	5.1	4.7	4.4	4.0	3.6	3.3	2.9	2.9	2.5
61°	3.6	3.6	3.6	3.6	3.3	3.3	2.9	2.5	2.2	2.5	2.2
62°	2.9	3.3	2.9	2.9	2.9	2.5	2.2	2.2	1.8	2.2	1.8
63°	2.5	2.5	2.5	2.5	2.2	2.2	1.8	1.8	1.5	1.8	1.8
64°	2.2	2.2	2.2	2.2	1.8	1.8	1.5	1.5	1.1	1.5	1.5
65°	1.8	1.8	1.8	1.8	1.5	1.5	1.5	1.1	1.1	1.5	1.5
66°	1.5	1.5	1.5	1.5	1.5	1.1	1.1	1.1	0.7	1.1	1.1



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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°	0.7	0.7	0.7	0.7	0.4	0.4	0.4	0.4	0.4	0.7	0.7
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
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°	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1
2.5°	52.7	49.1	48.4	48.4	40.7	42.2	39.6	37.8	26.6	20.4	15.3
5°	161.1	148.0	142.6	137.9	117.1	115.3	102.6	99.7	35.6	18.6	11.6
7.5°	300.4	280.4	267.7	255.3	221.9	212.8	191.0	185.5	48.4	15.6	9.1
10°	459.0	430.3	408.1	378.6	335.4	316.4	284.4	272.8	58.9	13.1	8.7
12.5°	608.2	575.4	545.2	506.3	447.7	417.6	375.4	360.5	62.9	10.9	8.0
15°	736.9	693.3	655.8	614.0	548.5	510.3	458.7	439.4	59.7	8.7	6.9
17.5°	900.2	826.4	761.3	702.7	631.4	584.9	524.9	493.6	48.4	7.6	6.2
20°	1141.7	993.0	878.4	783.8	684.9	627.1	560.5	522.7	34.9	6.9	6.2
22.5°	1369.1	1156.7	981.0	845.7	712.5	643.4	574.3	532.5	24.7	6.9	7.3
25°	1554.6	1280.0	1051.9	886.4	727.8	646.7	569.2	519.8	19.3	8.0	14.2
26°	1606.6	1310.5	1065.7	889.7	725.6	642.0	560.5	508.1	17.1	10.9	26.6
27°	1639.0	1324.3	1066.1	884.6	717.6	632.5	547.4	492.5	14.9	16.7	44.7
28°	1645.5	1317.8	1053.7	870.4	703.8	619.8	532.9	473.6	13.8	21.1	50.9
29°	1627.7	1294.5	1031.2	849.7	687.1	604.5	515.4	452.8	12.0	16.0	33.1
30°	1587.7	1256.0	998.1	823.1	669.3	587.4	493.9	428.1	9.8	8.0	14.9
31°	1527.7	1202.8	957.3	791.8	649.3	565.6	468.1	400.5	8.4	5.5	8.7
32°	1451.6	1139.2	911.9	759.8	626.7	539.0	437.9	369.5	7.6	4.4	7.3
33°	1364.3	1072.3	864.9	727.5	599.8	507.4	405.6	336.4	6.9	4.7	7.3
34°	1269.0	1003.9	811.8	693.6	568.5	472.8	371.0	297.5	6.2	4.4	5.5
35°	1165.7	933.0	764.2	663.8	533.2	435.4	335.7	264.4	5.5	3.3	3.6
36°	1076.6	863.9	718.0	626.0	494.7	396.8	299.3	228.8	4.7	2.2	2.5
37°	979.5	799.1	675.1	586.7	453.2	357.2	263.0	193.5	4.4	1.5	2.2
38°	888.9	739.5	632.2	541.6	410.6	317.2	225.9	158.9	4.0	1.5	1.8
39°	806.7	685.3	592.1	493.6	365.9	275.3	188.4	124.8	3.6	1.1	1.8
40°	736.2	636.9	544.1	443.0	319.7	233.9	150.9	92.4	3.3	1.1	1.8
42.5°	598.7	511.0	410.6	313.2	207.0	132.4	67.7	33.8	2.5	1.1	1.5
45°	457.6	363.7	271.0	188.4	106.6	51.3	25.1	18.6	2.2	1.1	1.5
47.5°	297.2	218.2	145.5	82.2	35.6	20.7	13.1	9.5	1.8	1.1	1.5
50°	109.8	60.7	32.0	20.0	13.8	8.7	5.8	5.5	1.8	1.1	1.5
51°	45.1	29.5	20.0	13.5	8.7	6.2	4.7	4.7	1.8	1.1	1.5
52°	26.9	18.6	13.5	9.8	6.5	4.7	3.6	4.0	1.8	1.1	1.5
53°	17.8	12.7	9.8	7.6	5.1	3.6	2.5	2.9	1.8	1.1	1.5
54°	12.0	9.1	7.3	5.8	3.6	2.9	1.5	2.5	1.5	1.1	1.5
55°	8.4	6.5	5.5	4.4	2.5	1.8	1.1	2.2	1.5	1.1	1.5
57.5°	3.6	3.3	2.9	2.5	1.1	0.7	0.4	1.8	1.5	1.1	1.5
60°	2.5	2.2	1.8	1.8	0.4	0.4	0.0	1.5	1.5	1.1	1.5
61°	2.2	1.8	1.8	1.5	0.4	0.4	0.0	1.5	1.8	1.1	1.5
62°	1.8	1.8	1.5	1.5	0.4	0.0	0.0	1.5	1.8	1.1	1.8
63°	1.5	1.5	1.5	1.5	0.4	0.0	0.0	1.5	1.8	1.1	1.8
64°	1.5	1.5	1.5	1.5	0.0	0.0	0.0	1.5	1.8	1.1	1.8
65°	1.5	1.1	1.1	1.1	0.0	0.0	0.0	1.5	1.8	1.5	1.8
66°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	1.5	1.8	1.5	1.8



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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	1.1	1.8	1.5	2.2
75°	0.4	0.7	0.7	0.7	0.0	0.0	0.0	1.5	1.8	1.5	2.2
77.5°	0.4	0.7	0.7	0.7	0.0	0.0	0.0	1.5	1.8	1.5	2.2
80°	0.4	0.7	0.7	0.7	0.0	0.0	0.0	1.5	1.8	1.5	2.2
82.5°	0.4	0.7	0.7	0.7	0.0	0.0	0.0	1.5	1.8	1.5	2.2
85°	0.4	0.7	0.7	0.7	0.0	0.0	0.0	1.5	1.8	1.5	2.2
87.5°	0.4	0.7	0.7	0.7	0.0	0.0	0.0	1.5	1.8	1.5	2.2
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: LDA6A15927D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	21.1	21.1	21.1
2.5°	12.7	11.6	10.9
5°	9.1	8.4	7.6
7.5°	7.6	6.5	6.2
10°	6.9	5.1	4.7
12.5°	5.8	4.4	4.0
15°	5.5	4.4	4.0
17.5°	5.5	4.4	4.0
20°	5.8	5.5	5.5
22.5°	8.4	9.1	9.5
25°	25.5	32.7	37.8
26°	59.7	89.5	120.0
27°	90.6	132.0	140.8
28°	81.5	94.6	92.0
29°	39.3	44.4	40.4
30°	17.5	20.7	20.4
31°	11.3	12.7	12.4
32°	9.5	8.7	8.4
33°	7.6	6.2	5.1
34°	5.1	4.0	3.3
35°	3.3	2.2	1.8
36°	2.2	1.1	0.7
37°	1.5	0.7	0.4
38°	1.5	0.4	0.0
39°	1.1	0.4	0.0
40°	1.1	0.4	0.0
42.5°	1.1	0.0	0.0
45°	0.7	0.0	0.0
47.5°	0.7	0.0	0.0
50°	1.1	0.4	0.0
51°	1.1	0.0	0.0
52°	1.1	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°	1.1	0.0	0.0
62°	1.1	0.0	0.0
63°	1.1	0.0	0.0
64°	1.1	0.4	0.0
65°	1.1	0.4	0.0
66°	1.1	0.4	0.0



TEST NUMBER: P175491

CATALOG NUMBER: LDA6A15927D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.5	0.4	0.0
75°	1.5	0.4	0.0
77.5°	1.5	0.4	0.0
80°	1.5	0.7	0.4
82.5°	1.5	0.7	0.4
85°	1.5	0.7	0.4
87.5°	1.5	0.7	0.4
90°	0.0	0.0	0.0



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







67.5°	1.1	1.1	1.1	1.1	1.1	1.1	0.7	0.7	0.7	1.1	1.1
70°	1.1	1.1	0.7	0.7	0.7	0.7	0.7	0.4	0.4	1.1	1.1





67.5°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	1.5	1.8	1.5	1.8
70°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	1.5	1.8	1.5	2.2





67.5°	1.5	0.4	0.0
70°	1.5	0.4	0.0



(END OF REPORT)