

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: P175471

Luminaire Tested: **LDA6A20827D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175471
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: LDA6A20827D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1439.9 lumens
Efficiency: N/A
Efficacy: 49.4 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

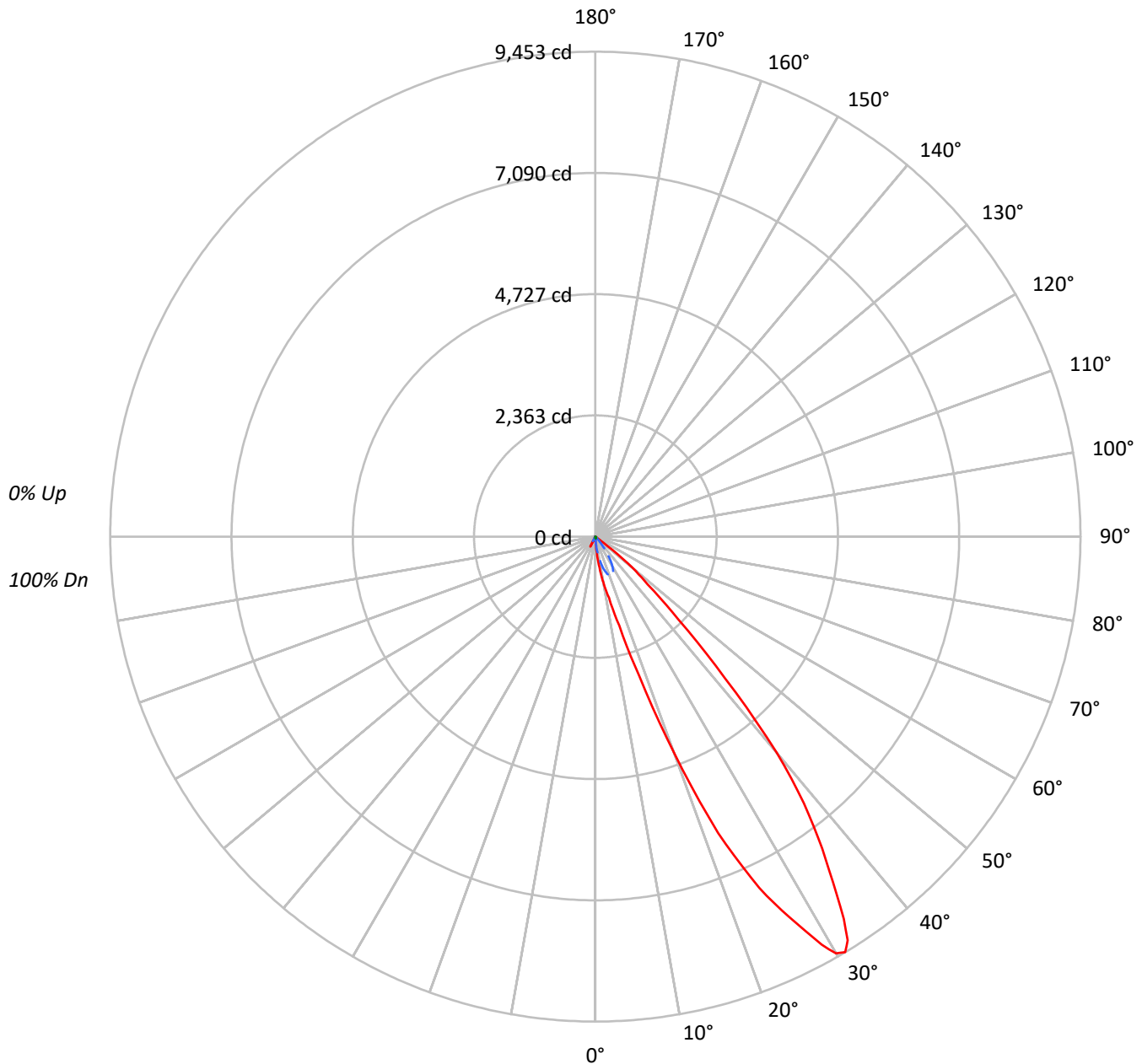
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P175471

CATALOG NUMBER: LDA6A20827D010TE LARL20NF 6LAL1 30° Tilt

Luminous Intensity Polar Plot





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CATALOG NUMBER: LDA6A20827D010TE LARL20NF 6LAL1 30° Tilt

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	50	30	10
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°	1782	1782	1782
5°	17323	1574	649
10°	51224	1124	406
15°	101686	766	352
20°	262307	624	490
25°	457151	744	3532
30°	593813	779	1988
35°	532072	341	187
40°	393366	122	0
45°	177142	132	0
50°	79921	145	0
55°	7130	162	0
60°	866	186	0
65°	363	285	0
70°	272	353	0
75°	0	466	0
80°	0	695	189
85°	0	1384	377



TEST NUMBER: P175471

CATALOG NUMBER: LDA6A20827D010TE LARL20NF 6LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.0	0.9
10°-20°	121.2	8.4
20°-30°	478.8	33.3
30°-40°	577.7	40.1
40°-50°	224.2	15.6
50°-60°	19.7	1.4
60°-70°	1.9	0.1
70°-80°	1.8	0.1
80°-90°	1.6	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°	613.0	42.6
0°-40°	1190.7	82.7
0°-60°	1434.6	99.6
0°-90°	1439.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1439.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	32	32	32	32	32	
5°	315	154	29	14	12	50
15°	1792	678	14	8	6	657
25°	7558	802	12	39	58	3456
35°	7950	408	5	5	3	4887
45°	2285	29	2	1	0	2007
55°	75	3	2	1	0	180
65°	3	2	2	2	0	3
75°	0	2	2	2	0	1
85°	0	2	2	2	1	0
90°	0	0	0	0	0	



TEST NUMBER: P175471

CATALOG NUMBER: LDA6A20827D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5
2.5°	102.1	97.1	91.5	93.7	94.8	97.6	95.4	87.0	92.0	88.1	84.7
5°	314.8	309.2	298.5	300.2	296.8	300.8	291.8	273.8	277.2	271.6	257.0
7.5°	613.9	590.3	572.9	574.0	563.9	568.4	551.6	520.7	517.4	488.7	484.2
10°	920.2	908.5	887.7	884.9	866.9	869.2	842.8	801.8	790.6	757.5	738.4
12.5°	1221.0	1201.4	1172.2	1166.0	1136.8	1137.4	1101.5	1055.5	1038.6	1004.4	978.0
15°	1791.7	1763.6	1696.8	1671.6	1590.8	1578.4	1489.8	1385.4	1334.9	1276.0	1198.6
17.5°	2844.9	2826.9	2696.2	2623.8	2460.0	2297.2	2201.3	1975.7	1843.8	1678.9	1535.8
20°	4496.3	4529.4	4301.0	4139.4	3835.3	3491.9	3249.5	2838.7	2564.3	2279.8	2010.5
22.5°	6252.6	6266.6	6032.6	5831.2	5477.1	5005.2	4446.9	3948.6	3445.9	2957.1	2512.7
25°	7557.8	7517.4	7259.8	7018.0	6645.4	6163.4	5620.8	4955.3	4267.9	3596.8	2945.9
26°	7956.2	7934.3	7676.2	7386.6	6976.4	6487.1	5922.7	5251.0	4524.9	3802.2	3078.3
27°	8325.4	8311.3	8031.3	7709.3	7249.7	6737.4	6146.5	5475.4	4719.0	3961.0	3174.3
28°	8699.6	8683.9	8345.0	7971.3	7471.9	6915.3	6301.4	5625.3	4844.2	4054.1	3214.1
29°	9095.2	9064.9	8631.8	8163.8	7620.0	7019.1	6382.2	5693.7	4886.8	4077.1	3204.0
30°	9380.8	9333.7	8838.8	8285.5	7680.6	7051.6	6391.2	5692.0	4860.4	4029.4	3139.5
31°	9452.7	9405.0	8896.6	8283.9	7636.3	7002.3	6326.7	5612.3	4750.5	3913.8	3030.6
32°	9278.7	9235.0	8750.1	8094.8	7496.0	6883.3	6198.2	5464.8	4579.9	3741.0	2883.0
33°	8890.4	8857.3	8439.3	7846.2	7295.2	6714.4	6014.1	5254.9	4337.5	3521.0	2709.7
34°	8400.6	8376.4	8054.9	7553.8	7040.4	6482.7	5775.6	4978.3	4018.2	3271.9	2520.6
35°	7950.5	7932.6	7672.2	7227.8	6749.2	6195.9	5473.8	4637.7	3689.4	3003.7	2318.6
36°	7517.4	7502.2	7276.1	6863.1	6401.3	5859.8	5093.9	4230.3	3336.4	2725.4	2109.3
37°	7065.1	7051.6	6857.5	6464.7	6010.2	5458.0	4642.7	3796.6	2977.9	2447.6	1894.4
38°	6596.0	6584.8	6406.9	6015.2	5554.0	4967.1	4128.2	3348.2	2628.3	2176.6	1701.3
39°	6072.5	6062.9	5899.1	5488.3	4995.7	4388.5	3598.5	2911.1	2296.7	1913.4	1514.5
40°	5496.8	5483.9	5320.0	4861.0	4363.3	3793.2	3089.5	2509.9	1983.6	1667.7	1350.1
42.5°	3737.1	3723.0	3601.3	3334.2	2855.0	2488.6	2047.5	1680.0	1405.6	1215.4	1051.5
45°	2284.9	2286.6	2222.6	2057.6	1769.2	1565.5	1325.9	1150.3	1026.9	953.9	840.0
47.5°	1382.0	1382.0	1353.4	1269.3	1139.6	1058.3	959.0	877.0	782.8	710.9	587.5
50°	937.1	937.6	893.9	898.4	811.9	761.4	666.6	566.7	474.1	369.8	263.7
51°	693.5	696.9	656.5	675.0	580.2	537.6	447.8	363.0	281.1	200.3	115.6
52°	424.2	430.4	402.9	419.7	364.7	302.4	229.5	169.5	113.9	79.7	55.6
53°	197.0	202.0	188.0	195.8	163.3	127.4	96.5	78.6	62.8	51.1	37.6
54°	104.4	105.5	101.0	98.8	89.8	79.1	65.7	54.4	42.6	34.2	25.3
55°	74.6	74.6	72.4	70.1	62.8	53.9	43.8	37.0	28.1	22.4	16.3
57.5°	23.0	23.0	23.0	21.9	19.1	16.3	12.9	11.2	9.0	8.4	6.7
60°	7.9	7.9	7.9	7.3	6.7	6.2	5.6	5.1	4.5	4.5	3.9
61°	5.6	5.6	5.6	5.6	5.1	5.1	4.5	3.9	3.4	3.9	3.4
62°	4.5	5.1	4.5	4.5	4.5	3.9	3.4	3.4	2.8	3.4	2.8
63°	3.9	3.9	3.9	3.9	3.4	3.4	2.8	2.8	2.2	2.8	2.8
64°	3.4	3.4	3.4	3.4	2.8	2.8	2.2	2.2	1.7	2.2	2.2
65°	2.8	2.8	2.8	2.8	2.2	2.2	2.2	1.7	1.7	2.2	2.2
66°	2.2	2.2	2.2	2.2	2.2	1.7	1.7	1.7	1.1	1.7	1.7



TEST NUMBER: P175471

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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°	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6	0.6	1.1	1.1
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
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°	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5
2.5°	81.4	75.8	74.6	74.6	62.8	65.1	61.2	58.4	41.0	31.4	23.6
5°	248.6	228.4	220.0	212.7	180.7	177.9	158.2	153.7	55.0	28.6	18.0
7.5°	463.5	432.6	413.0	393.9	342.3	328.3	294.6	286.2	74.6	24.1	14.0
10°	708.1	663.8	629.6	584.1	517.4	488.2	438.8	420.8	90.9	20.2	13.5
12.5°	938.2	887.7	841.1	781.1	690.7	644.2	579.1	556.1	97.1	16.8	12.3
15°	1136.8	1069.5	1011.7	947.2	846.2	787.3	707.6	677.8	92.0	13.5	10.7
17.5°	1388.8	1274.9	1174.4	1084.1	974.1	902.3	809.7	761.4	74.6	11.8	9.5
20°	1761.4	1531.9	1355.1	1209.2	1056.6	967.4	864.7	806.3	53.9	10.7	9.5
22.5°	2112.1	1784.4	1513.3	1304.6	1099.2	992.6	886.0	821.5	38.2	10.7	11.2
25°	2398.2	1974.6	1622.8	1367.5	1122.8	997.7	878.2	801.8	29.7	12.3	21.9
26°	2478.5	2021.7	1644.1	1372.5	1119.4	990.4	864.7	783.9	26.4	16.8	41.0
27°	2528.4	2043.0	1644.7	1364.7	1107.1	975.8	844.5	759.8	23.0	25.8	69.0
28°	2538.5	2032.9	1625.6	1342.8	1085.8	956.2	822.0	730.6	21.3	32.5	78.6
29°	2511.0	1997.0	1590.8	1310.8	1060.0	932.6	795.1	698.6	18.5	24.7	51.1
30°	2449.3	1937.6	1539.7	1269.8	1032.5	906.2	762.0	660.4	15.2	12.3	23.0
31°	2356.7	1855.6	1476.9	1221.6	1001.6	872.5	722.2	617.8	12.9	8.4	13.5
32°	2239.4	1757.4	1406.7	1172.2	966.8	831.6	675.6	570.1	11.8	6.7	11.2
33°	2104.8	1654.2	1334.3	1122.2	925.3	782.8	625.7	519.0	10.7	7.3	11.2
34°	1957.8	1548.7	1252.4	1070.1	877.0	729.5	572.3	459.0	9.5	6.7	8.4
35°	1798.4	1439.3	1178.9	1024.0	822.6	671.7	517.9	407.9	8.4	5.1	5.6
36°	1660.9	1332.7	1107.7	965.7	763.1	612.2	461.8	352.9	7.3	3.4	3.9
37°	1511.1	1232.8	1041.4	905.1	699.2	551.0	405.7	298.5	6.7	2.2	3.4
38°	1371.4	1140.8	975.2	835.5	633.5	489.3	348.5	245.2	6.2	2.2	2.8
39°	1244.6	1057.2	913.5	761.4	564.5	424.8	290.7	192.5	5.6	1.7	2.8
40°	1135.7	982.5	839.4	683.4	493.2	360.8	232.9	142.5	5.1	1.7	2.8
42.5°	923.6	788.4	633.5	483.1	319.3	204.2	104.4	52.2	3.9	1.7	2.2
45°	705.9	561.1	418.0	290.7	164.4	79.1	38.7	28.6	3.4	1.7	2.2
47.5°	458.4	336.7	224.4	126.8	55.0	32.0	20.2	14.6	2.8	1.7	2.2
50°	169.5	93.7	49.4	30.9	21.3	13.5	9.0	8.4	2.8	1.7	2.2
51°	69.6	45.5	30.9	20.8	13.5	9.5	7.3	7.3	2.8	1.7	2.2
52°	41.5	28.6	20.8	15.2	10.1	7.3	5.6	6.2	2.8	1.7	2.2
53°	27.5	19.6	15.2	11.8	7.9	5.6	3.9	4.5	2.8	1.7	2.2
54°	18.5	14.0	11.2	9.0	5.6	4.5	2.2	3.9	2.2	1.7	2.2
55°	12.9	10.1	8.4	6.7	3.9	2.8	1.7	3.4	2.2	1.7	2.2
57.5°	5.6	5.1	4.5	3.9	1.7	1.1	0.6	2.8	2.2	1.7	2.2
60°	3.9	3.4	2.8	2.8	0.6	0.6	0.0	2.2	2.2	1.7	2.2
61°	3.4	2.8	2.8	2.2	0.6	0.6	0.0	2.2	2.8	1.7	2.2
62°	2.8	2.8	2.2	2.2	0.6	0.0	0.0	2.2	2.8	1.7	2.8
63°	2.2	2.2	2.2	2.2	0.6	0.0	0.0	2.2	2.8	1.7	2.8
64°	2.2	2.2	2.2	2.2	0.0	0.0	0.0	2.2	2.8	1.7	2.8
65°	2.2	1.7	1.7	1.7	0.0	0.0	0.0	2.2	2.8	2.2	2.8
66°	1.7	1.7	1.7	1.7	0.0	0.0	0.0	2.2	2.8	2.2	2.8



TEST NUMBER: P175471

CATALOG NUMBER: LDA6A20827D010TE 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°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	1.7	2.8	2.2	3.4
75°	0.6	1.1	1.1	1.1	0.0	0.0	0.0	2.2	2.8	2.2	3.4
77.5°	0.6	1.1	1.1	1.1	0.0	0.0	0.0	2.2	2.8	2.2	3.4
80°	0.6	1.1	1.1	1.1	0.0	0.0	0.0	2.2	2.8	2.2	3.4
82.5°	0.6	1.1	1.1	1.1	0.0	0.0	0.0	2.2	2.8	2.2	3.4
85°	0.6	1.1	1.1	1.1	0.0	0.0	0.0	2.2	2.8	2.2	3.4
87.5°	0.6	1.1	1.1	1.1	0.0	0.0	0.0	2.2	2.8	2.2	3.4
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: P175471

CATALOG NUMBER: LDA6A20827D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	32.5	32.5	32.5
2.5°	19.6	18.0	16.8
5°	14.0	12.9	11.8
7.5°	11.8	10.1	9.5
10°	10.7	7.9	7.3
12.5°	9.0	6.7	6.2
15°	8.4	6.7	6.2
17.5°	8.4	6.7	6.2
20°	9.0	8.4	8.4
22.5°	12.9	14.0	14.6
25°	39.3	50.5	58.4
26°	92.0	138.0	185.2
27°	139.7	203.7	217.2
28°	125.7	145.9	142.0
29°	60.6	68.5	62.3
30°	26.9	32.0	31.4
31°	17.4	19.6	19.1
32°	14.6	13.5	12.9
33°	11.8	9.5	7.9
34°	7.9	6.2	5.1
35°	5.1	3.4	2.8
36°	3.4	1.7	1.1
37°	2.2	1.1	0.6
38°	2.2	0.6	0.0
39°	1.7	0.6	0.0
40°	1.7	0.6	0.0
42.5°	1.7	0.0	0.0
45°	1.1	0.0	0.0
47.5°	1.1	0.0	0.0
50°	1.7	0.6	0.0
51°	1.7	0.0	0.0
52°	1.7	0.0	0.0
53°	1.1	0.0	0.0
54°	1.1	0.0	0.0
55°	1.1	0.0	0.0
57.5°	1.1	0.0	0.0
60°	1.1	0.0	0.0
61°	1.7	0.0	0.0
62°	1.7	0.0	0.0
63°	1.7	0.0	0.0
64°	1.7	0.6	0.0
65°	1.7	0.6	0.0
66°	1.7	0.6	0.0



TEST NUMBER: P175471

CATALOG NUMBER: LDA6A20827D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.2	0.6	0.0
75°	2.2	0.6	0.0
77.5°	2.2	0.6	0.0
80°	2.2	1.1	0.6
82.5°	2.2	1.1	0.6
85°	2.2	1.1	0.6
87.5°	2.2	1.1	0.6
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.1	1.1	1.1	1.7	1.7
70°	1.7	1.7	1.1	1.1	1.1	1.1	1.1	0.6	0.6	1.7	1.7





67.5°	1.7	1.7	1.7	1.7	0.0	0.0	0.0	2.2	2.8	2.2	2.8
70°	1.7	1.7	1.7	1.7	0.0	0.0	0.0	2.2	2.8	2.2	3.4





67.5°	2.2	0.6	0.0
70°	2.2	0.6	0.0



(END OF REPORT)