

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: P175476

Luminaire Tested: **LDA6A20930D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175476
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: LDA6A20930D010TE 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: 1333.0 lumens
Efficiency: N/A
Efficacy: 45.8 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

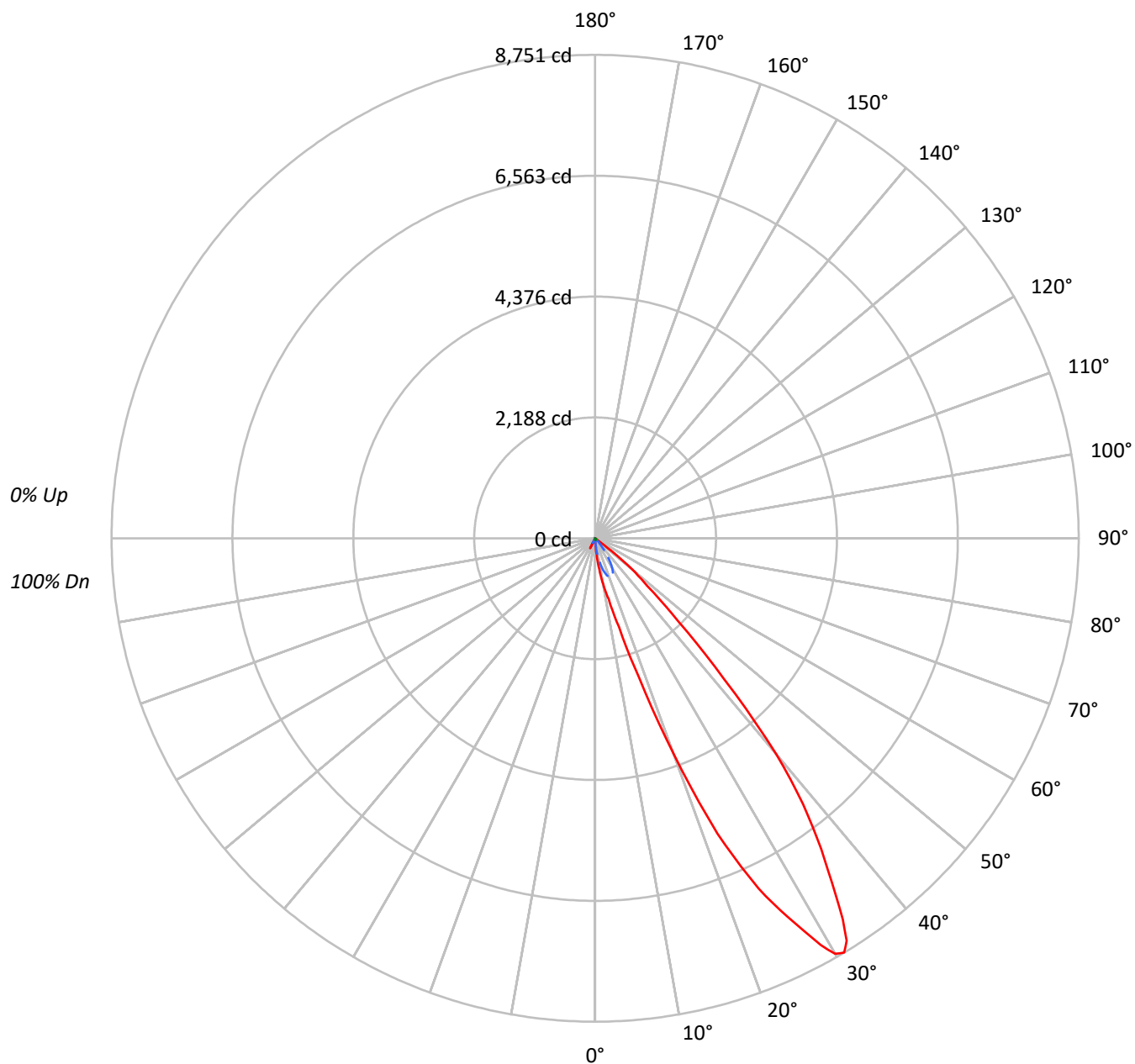
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					10
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°	1650	1650	1650
5°	16036	1458	600
10°	47422	1041	379
15°	94132	709	323
20°	242828	578	455
25°	423200	690	3266
30°	549724	722	1842
35°	492567	315	174
40°	364154	115	0
45°	163986	124	0
50°	73985	136	0
55°	6604	153	0
60°	800	175	0
65°	337	272	0
70°	256	337	0
75°	0	445	0
80°	0	663	158
85°	0	1321	314



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	12.0	0.9
10°-20°	112.2	8.4
20°-30°	443.2	33.2
30°-40°	534.8	40.1
40°-50°	207.6	15.6
50°-60°	18.3	1.4
60°-70°	1.7	0.1
70°-80°	1.7	0.1
80°-90°	1.5	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°	567.5	42.6
0°-40°	1102.3	82.7
0°-60°	1328.1	99.6
0°-90°	1333.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1333.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	30	30	30	30	30	
5°	291	142	26	13	11	46
15°	1659	628	12	8	6	608
25°	6996	742	11	36	54	3200
35°	7360	378	5	5	3	4524
45°	2115	26	2	1	0	1858
55°	69	3	2	1	0	167
65°	3	2	2	2	0	3
75°	0	2	2	2	0	0
85°	0	2	2	2	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°	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1
2.5°	94.5	89.9	84.7	86.7	87.8	90.4	88.3	80.5	85.2	81.6	78.4
5°	291.4	286.2	276.4	277.9	274.8	278.4	270.1	253.5	256.6	251.4	237.9
7.5°	568.3	546.5	530.4	531.4	522.1	526.2	510.6	482.1	478.9	452.4	448.3
10°	851.9	841.0	821.8	819.2	802.6	804.6	780.2	742.3	731.9	701.3	683.6
12.5°	1130.3	1112.2	1085.1	1079.4	1052.4	1052.9	1019.7	977.1	961.5	929.8	905.4
15°	1658.6	1632.6	1570.8	1547.5	1472.7	1461.2	1379.2	1282.5	1235.8	1181.2	1109.6
17.5°	2633.6	2617.0	2496.0	2429.0	2277.3	2126.6	2037.8	1829.0	1706.9	1554.2	1421.7
20°	4162.4	4193.0	3981.6	3832.0	3550.5	3232.6	3008.2	2627.9	2373.9	2110.5	1861.2
22.5°	5788.3	5801.3	5584.7	5398.2	5070.4	4633.5	4116.7	3655.4	3190.0	2737.5	2326.1
25°	6996.5	6959.1	6720.7	6496.8	6151.9	5705.7	5203.4	4587.3	3951.0	3329.7	2727.1
26°	7365.4	7345.1	7106.1	6838.1	6458.4	6005.4	5482.8	4861.1	4188.9	3519.8	2849.7
27°	7707.2	7694.2	7435.0	7136.8	6711.4	6237.1	5690.1	5068.8	4368.6	3666.8	2938.6
28°	8053.6	8039.1	7725.3	7379.4	6917.1	6401.8	5833.5	5207.5	4484.5	3753.1	2975.4
29°	8419.8	8391.8	7990.8	7557.6	7054.2	6497.9	5908.3	5270.9	4523.9	3774.4	2966.1
30°	8684.3	8640.6	8182.5	7670.3	7110.3	6528.0	5916.6	5269.4	4499.5	3730.2	2906.4
31°	8750.7	8706.6	8236.0	7668.7	7069.3	6482.3	5856.9	5195.6	4397.7	3623.2	2805.6
32°	8589.7	8549.2	8100.4	7493.7	6939.4	6372.2	5737.9	5059.0	4239.8	3463.2	2669.0
33°	8230.2	8199.6	7812.6	7263.5	6753.4	6215.8	5567.5	4864.7	4015.4	3259.6	2508.4
34°	7776.8	7754.4	7456.8	6992.9	6517.6	6001.3	5346.8	4608.6	3719.8	3028.9	2333.4
35°	7360.2	7343.5	7102.5	6691.1	6248.0	5735.8	5067.3	4293.3	3415.4	2780.6	2146.4
36°	6959.1	6945.1	6735.8	6353.5	5925.9	5424.7	4715.6	3916.2	3088.7	2523.0	1952.6
37°	6540.5	6528.0	6348.3	5984.6	5563.9	5052.7	4298.0	3514.6	2756.7	2265.9	1753.7
38°	6106.2	6095.8	5931.1	5568.6	5141.6	4598.2	3821.6	3099.6	2433.1	2015.0	1575.0
39°	5621.5	5612.7	5461.0	5080.8	4624.7	4062.7	3331.3	2694.9	2126.1	1771.3	1402.0
40°	5088.6	5076.6	4925.0	4500.0	4039.3	3511.5	2860.1	2323.5	1836.3	1543.8	1249.8
42.5°	3459.6	3446.6	3333.9	3086.6	2643.0	2303.8	1895.5	1555.2	1301.2	1125.1	973.5
45°	2115.2	2116.8	2057.6	1904.8	1637.8	1449.3	1227.5	1064.9	950.6	883.1	777.6
47.5°	1279.4	1279.4	1252.9	1175.0	1055.0	979.7	887.7	811.9	724.6	658.1	543.9
50°	867.5	868.0	827.5	831.6	751.7	704.9	617.1	524.6	438.9	342.3	244.1
51°	642.0	645.2	607.8	624.9	537.1	497.6	414.5	336.1	260.2	185.4	107.0
52°	392.7	398.4	373.0	388.6	337.6	280.0	212.5	156.9	105.4	73.8	51.4
53°	182.3	187.0	174.0	181.3	151.2	117.9	89.3	72.7	58.2	47.3	34.8
54°	96.6	97.7	93.5	91.4	83.1	73.2	60.8	50.4	39.5	31.7	23.4
55°	69.1	69.1	67.0	64.9	58.2	49.9	40.5	34.3	26.0	20.8	15.1
57.5°	21.3	21.3	21.3	20.3	17.7	15.1	11.9	10.4	8.3	7.8	6.2
60°	7.3	7.3	7.3	6.8	6.2	5.7	5.2	4.7	4.2	4.2	3.6
61°	5.2	5.2	5.2	5.2	4.7	4.7	4.2	3.6	3.1	3.6	3.1
62°	4.2	4.7	4.2	4.2	4.2	3.6	3.1	3.1	2.6	3.1	2.6
63°	3.6	3.6	3.6	3.6	3.1	3.1	2.6	2.6	2.1	2.6	2.6
64°	3.1	3.1	3.1	3.1	2.6	2.6	2.1	2.1	1.6	2.1	2.1
65°	2.6	2.6	2.6	2.6	2.1	2.1	2.1	1.6	1.6	2.1	2.1
66°	2.1	2.1	2.1	2.1	2.1	1.6	1.6	1.6	1.0	1.6	1.6



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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°	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
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°	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1
2.5°	75.3	70.1	69.1	69.1	58.2	60.3	56.6	54.0	37.9	29.1	21.8
5°	230.1	211.4	203.6	196.9	167.3	164.7	146.5	142.3	50.9	26.5	16.6
7.5°	429.1	400.5	382.3	364.7	316.9	303.9	272.7	264.9	69.1	22.3	13.0
10°	655.6	614.5	582.8	540.8	478.9	451.9	406.2	389.6	84.2	18.7	12.5
12.5°	868.5	821.8	778.7	723.1	639.4	596.3	536.1	514.8	89.9	15.6	11.4
15°	1052.4	990.1	936.6	876.8	783.3	728.8	655.0	627.5	85.2	12.5	9.9
17.5°	1285.7	1180.2	1087.2	1003.6	901.8	835.3	749.6	704.9	69.1	10.9	8.8
20°	1630.6	1418.1	1254.5	1119.4	978.1	895.5	800.5	746.5	49.9	9.9	8.8
22.5°	1955.2	1651.9	1401.0	1207.7	1017.6	918.9	820.2	760.5	35.3	9.9	10.4
25°	2220.2	1828.0	1502.3	1265.9	1039.4	923.6	812.9	742.3	27.5	11.4	20.3
26°	2294.4	1871.6	1522.0	1270.6	1036.3	916.8	800.5	725.7	24.4	15.6	37.9
27°	2340.7	1891.3	1522.5	1263.3	1024.9	903.3	781.8	703.3	21.3	23.9	63.9
28°	2350.0	1882.0	1504.9	1243.1	1005.1	885.2	761.0	676.3	19.7	30.1	72.7
29°	2324.6	1848.7	1472.7	1213.4	981.3	863.3	736.1	646.7	17.1	22.9	47.3
30°	2267.4	1793.7	1425.4	1175.5	955.8	838.9	705.4	611.4	14.0	11.4	21.3
31°	2181.7	1717.8	1367.2	1130.9	927.2	807.8	668.5	571.9	11.9	7.8	12.5
32°	2073.1	1626.9	1302.3	1085.1	895.0	769.8	625.4	527.8	10.9	6.2	10.4
33°	1948.5	1531.4	1235.3	1038.9	856.6	724.6	579.2	480.5	9.9	6.8	10.4
34°	1812.4	1433.7	1159.4	990.6	811.9	675.3	529.8	424.9	8.8	6.2	7.8
35°	1664.9	1332.4	1091.4	948.0	761.5	621.8	479.5	377.6	7.8	4.7	5.2
36°	1537.6	1233.7	1025.4	894.0	706.5	566.7	427.5	326.7	6.8	3.1	3.6
37°	1398.9	1141.2	964.1	837.9	647.2	510.1	375.6	276.4	6.2	2.1	3.1
38°	1269.5	1056.1	902.8	773.5	586.5	453.0	322.6	227.0	5.7	2.1	2.6
39°	1152.2	978.7	845.7	704.9	522.6	393.2	269.1	178.2	5.2	1.6	2.6
40°	1051.4	909.6	777.1	632.7	456.6	334.0	215.6	131.9	4.7	1.6	2.6
42.5°	855.0	729.8	586.5	447.3	295.6	189.1	96.6	48.3	3.6	1.6	2.1
45°	653.5	519.5	387.0	269.1	152.2	73.2	35.8	26.5	3.1	1.6	2.1
47.5°	424.4	311.7	207.8	117.4	50.9	29.6	18.7	13.5	2.6	1.6	2.1
50°	156.9	86.7	45.7	28.6	19.7	12.5	8.3	7.8	2.6	1.6	2.1
51°	64.4	42.1	28.6	19.2	12.5	8.8	6.8	6.8	2.6	1.6	2.1
52°	38.4	26.5	19.2	14.0	9.4	6.8	5.2	5.7	2.6	1.6	2.1
53°	25.5	18.2	14.0	10.9	7.3	5.2	3.6	4.2	2.6	1.6	2.1
54°	17.1	13.0	10.4	8.3	5.2	4.2	2.1	3.6	2.1	1.6	2.1
55°	11.9	9.4	7.8	6.2	3.6	2.6	1.6	3.1	2.1	1.6	2.1
57.5°	5.2	4.7	4.2	3.6	1.6	1.0	0.5	2.6	2.1	1.6	2.1
60°	3.6	3.1	2.6	2.6	0.5	0.5	0.0	2.1	2.1	1.6	2.1
61°	3.1	2.6	2.6	2.1	0.5	0.5	0.0	2.1	2.6	1.6	2.1
62°	2.6	2.6	2.1	2.1	0.5	0.0	0.0	2.1	2.6	1.6	2.6
63°	2.1	2.1	2.1	2.1	0.5	0.0	0.0	2.1	2.6	1.6	2.6
64°	2.1	2.1	2.1	2.1	0.0	0.0	0.0	2.1	2.6	1.6	2.6
65°	2.1	1.6	1.6	1.6	0.0	0.0	0.0	2.1	2.6	2.1	2.6
66°	1.6	1.6	1.6	1.6	0.0	0.0	0.0	2.1	2.6	2.1	2.6



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CATALOG NUMBER: LDA6A20930D010TE 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°	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.6	2.6	2.1	3.1
75°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	3.1
77.5°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	3.1
80°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	3.1
82.5°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	3.1
85°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	3.1
87.5°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	3.1
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: LDA6A20930D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	30.1	30.1	30.1
2.5°	18.2	16.6	15.6
5°	13.0	11.9	10.9
7.5°	10.9	9.4	8.8
10°	9.9	7.3	6.8
12.5°	8.3	6.2	5.7
15°	7.8	6.2	5.7
17.5°	7.8	6.2	5.7
20°	8.3	7.8	7.8
22.5°	11.9	13.0	13.5
25°	36.4	46.8	54.0
26°	85.2	127.8	171.4
27°	129.3	188.6	201.0
28°	116.4	135.1	131.4
29°	56.1	63.4	57.7
30°	24.9	29.6	29.1
31°	16.1	18.2	17.7
32°	13.5	12.5	11.9
33°	10.9	8.8	7.3
34°	7.3	5.7	4.7
35°	4.7	3.1	2.6
36°	3.1	1.6	1.0
37°	2.1	1.0	0.5
38°	2.1	0.5	0.0
39°	1.6	0.5	0.0
40°	1.6	0.5	0.0
42.5°	1.6	0.0	0.0
45°	1.0	0.0	0.0
47.5°	1.0	0.0	0.0
50°	1.6	0.5	0.0
51°	1.6	0.0	0.0
52°	1.6	0.0	0.0
53°	1.0	0.0	0.0
54°	1.0	0.0	0.0
55°	1.0	0.0	0.0
57.5°	1.0	0.0	0.0
60°	1.0	0.0	0.0
61°	1.6	0.0	0.0
62°	1.6	0.0	0.0
63°	1.6	0.0	0.0
64°	1.6	0.5	0.0
65°	1.6	0.5	0.0
66°	1.6	0.5	0.0



TEST NUMBER: P175476

CATALOG NUMBER: LDA6A20930D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.1	0.5	0.0
75°	2.1	0.5	0.0
77.5°	2.1	0.5	0.0
80°	2.1	1.0	0.5
82.5°	2.1	1.0	0.5
85°	2.1	1.0	0.5
87.5°	2.1	1.0	0.5
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.6	1.6
70°	1.6	1.6	1.0	1.0	1.0	1.0	1.0	0.5	0.5	1.6	1.6





67.5°	1.6	1.6	1.6	1.6	0.0	0.0	0.0	2.1	2.6	2.1	2.6
70°	1.6	1.6	1.6	1.6	0.0	0.0	0.0	2.1	2.6	2.1	3.1





67.5°	2.1	0.5	0.0
70°	2.1	0.5	0.0



(END OF REPORT)