

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: P175478

Luminaire Tested: **LDA6A20940D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175478
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: LDA6A20940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1442.3 lumens
Efficiency: N/A
Efficacy: 49.5 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

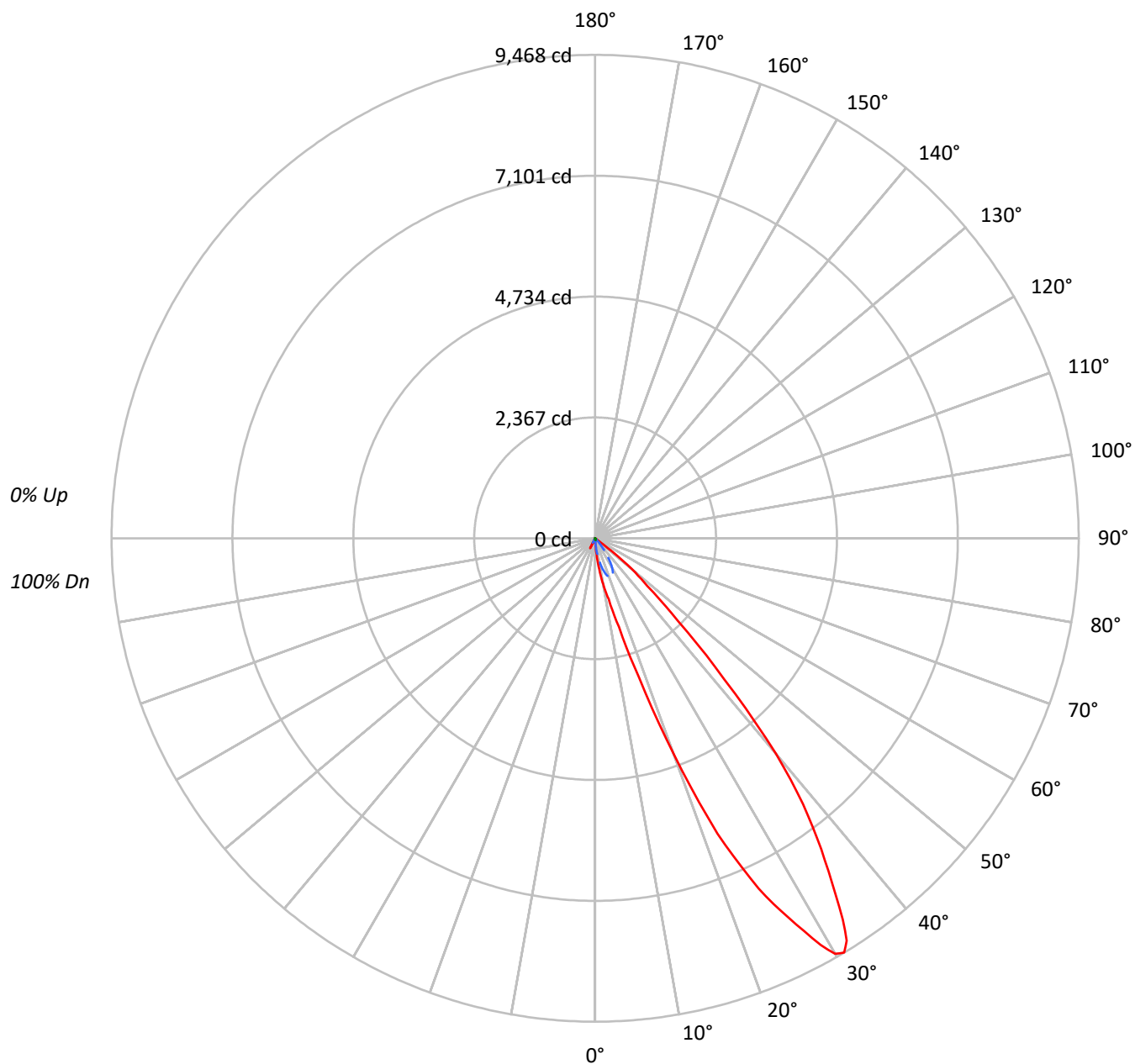
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	1787	1787	1787
5°	17351	1579	649
10°	51313	1124	406
15°	101851	766	352
20°	262739	624	490
25°	457901	750	3539
30°	594794	785	1994
35°	532955	341	187
40°	394010	122	0
45°	177437	132	0
50°	80049	145	0
55°	7149	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



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.0	0.9
10°-20°	121.4	8.4
20°-30°	479.6	33.3
30°-40°	578.7	40.1
40°-50°	224.6	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°	614.0	42.6
0°-40°	1192.7	82.7
0°-60°	1437.0	99.6
0°-90°	1442.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1442.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	33	33	33	33	33	
5°	315	154	29	14	12	50
15°	1795	679	14	8	6	658
25°	7570	803	12	39	58	3462
35°	7964	409	5	5	3	4895
45°	2289	29	2	1	0	2011
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	



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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6
2.5°	102.3	97.2	91.6	93.9	95.0	97.8	95.5	87.1	92.2	88.2	84.9
5°	315.3	309.7	299.0	300.7	297.3	301.3	292.3	274.3	277.7	272.0	257.4
7.5°	614.9	591.3	573.9	575.0	564.9	569.4	552.5	521.6	518.2	489.5	485.0
10°	921.8	910.0	889.2	886.4	868.4	870.6	844.2	803.2	791.9	758.8	739.7
12.5°	1223.0	1203.3	1174.1	1167.9	1138.7	1139.3	1103.3	1057.2	1040.4	1006.1	979.7
15°	1794.6	1766.5	1699.6	1674.3	1593.4	1581.0	1492.2	1387.7	1337.1	1278.1	1200.5
17.5°	2849.6	2831.6	2700.6	2628.1	2464.0	2301.0	2204.9	1979.0	1846.9	1681.6	1538.3
20°	4503.7	4536.9	4308.1	4146.2	3841.6	3497.6	3254.8	2843.4	2568.6	2283.6	2013.8
22.5°	6262.9	6277.0	6042.6	5840.8	5486.2	5013.5	4454.2	3955.1	3451.5	2962.0	2516.9
25°	7570.2	7529.8	7271.8	7029.5	6656.3	6173.5	5630.0	4963.5	4274.9	3602.7	2950.8
26°	7969.3	7947.4	7688.8	7398.8	6988.0	6497.8	5932.4	5259.7	4532.4	3808.4	3083.4
27°	8339.1	8325.1	8044.6	7722.0	7261.7	6748.5	6156.7	5484.5	4726.8	3967.5	3179.5
28°	8714.0	8698.3	8358.8	7984.5	7484.2	6926.7	6311.8	5634.5	4852.2	4060.8	3219.4
29°	9110.2	9079.9	8646.0	8177.2	7632.6	7030.7	6392.7	5703.1	4894.9	4083.8	3209.3
30°	9396.3	9349.1	8853.4	8299.2	7693.3	7063.3	6401.7	5701.4	4868.5	4036.1	3144.7
31°	9468.3	9420.5	8911.3	8297.5	7648.9	7013.8	6337.1	5621.6	4758.3	3920.3	3035.6
32°	9294.0	9250.2	8764.6	8108.1	7508.4	6894.7	6208.4	5473.8	4587.4	3747.2	2887.8
33°	8905.1	8871.9	8453.2	7859.1	7307.2	6725.5	6024.0	5263.6	4344.6	3526.9	2714.1
34°	8414.4	8390.3	8068.2	7566.3	7052.0	6493.3	5785.2	4986.5	4024.8	3277.3	2524.7
35°	7963.7	7945.7	7684.9	7239.7	6760.3	6206.1	5482.8	4645.3	3695.5	3008.6	2322.4
36°	7529.8	7514.6	7288.1	6874.4	6411.9	5869.5	5102.3	4237.3	3341.9	2729.9	2112.7
37°	7076.8	7063.3	6868.8	6475.4	6020.1	5467.0	4650.4	3802.8	2982.8	2451.7	1897.5
38°	6606.9	6595.6	6417.5	6025.2	5563.2	4975.3	4135.0	3353.7	2632.6	2180.2	1704.1
39°	6082.5	6072.9	5908.8	5497.4	5003.9	4395.8	3604.4	2915.9	2300.5	1916.6	1517.0
40°	5505.8	5492.9	5328.8	4869.0	4370.5	3799.4	3094.6	2514.0	1986.8	1670.4	1352.3
42.5°	3743.2	3729.2	3607.2	3339.7	2859.7	2492.7	2050.9	1682.8	1407.9	1217.4	1053.3
45°	2288.7	2290.3	2226.3	2061.0	1772.1	1568.1	1328.1	1152.2	1028.5	955.5	841.4
47.5°	1384.3	1384.3	1355.7	1271.4	1141.5	1060.0	960.5	878.5	784.1	712.1	588.5
50°	938.6	939.2	895.3	899.8	813.3	762.7	667.7	567.7	474.9	370.4	264.2
51°	694.7	698.1	657.6	676.1	581.2	538.4	448.5	363.6	281.6	200.7	115.8
52°	424.9	431.1	403.6	420.4	365.3	302.9	229.9	169.7	114.1	79.8	55.6
53°	197.3	202.3	188.3	196.2	163.6	127.6	96.7	78.7	62.9	51.1	37.7
54°	104.5	105.7	101.2	98.9	89.9	79.2	65.8	54.5	42.7	34.3	25.3
55°	74.8	74.8	72.5	70.3	62.9	54.0	43.8	37.1	28.1	22.5	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



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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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CATALOG NUMBER: LDA6A20940D010TE 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°	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6
2.5°	81.5	75.9	74.8	74.8	62.9	65.2	61.3	58.5	41.0	31.5	23.6
5°	249.0	228.8	220.3	213.0	181.0	178.2	158.5	154.0	55.1	28.7	18.0
7.5°	464.3	433.3	413.7	394.6	342.8	328.8	295.1	286.6	74.8	24.2	14.1
10°	709.3	664.9	630.6	585.1	518.2	489.0	439.5	421.5	91.1	20.2	13.5
12.5°	939.7	889.2	842.5	782.4	691.9	645.2	580.0	557.0	97.2	16.9	12.4
15°	1138.7	1071.3	1013.4	948.7	847.6	788.6	708.7	679.0	92.2	13.5	10.7
17.5°	1391.1	1277.0	1176.4	1085.9	975.7	903.8	811.0	762.7	74.8	11.8	9.6
20°	1764.3	1534.4	1357.3	1211.2	1058.3	969.0	866.1	807.7	54.0	10.7	9.6
22.5°	2115.6	1787.3	1515.8	1306.8	1101.1	994.3	887.5	822.8	38.2	10.7	11.2
25°	2402.2	1977.8	1625.4	1369.7	1124.7	999.3	879.6	803.2	29.8	12.4	21.9
26°	2482.6	2025.1	1646.8	1374.8	1121.3	992.0	866.1	785.2	26.4	16.9	41.0
27°	2532.6	2046.4	1647.4	1366.9	1108.9	977.4	845.9	761.0	23.0	25.9	69.1
28°	2542.7	2036.3	1628.3	1345.0	1087.6	957.7	823.4	731.8	21.4	32.6	78.7
29°	2515.2	2000.3	1593.4	1312.9	1061.7	934.1	796.4	699.8	18.5	24.7	51.1
30°	2453.3	1940.8	1542.3	1271.9	1034.2	907.7	763.3	661.5	15.2	12.4	23.0
31°	2360.6	1858.7	1479.3	1223.6	1003.3	874.0	723.4	618.8	12.9	8.4	13.5
32°	2243.1	1760.3	1409.1	1174.1	968.4	833.0	676.7	571.0	11.8	6.7	11.2
33°	2108.2	1656.9	1336.6	1124.1	926.8	784.1	626.7	519.9	10.7	7.3	11.2
34°	1961.0	1551.3	1254.5	1071.8	878.5	730.7	573.3	459.8	9.6	6.7	8.4
35°	1801.4	1441.7	1180.9	1025.7	824.0	672.8	518.8	408.6	8.4	5.1	5.6
36°	1663.7	1334.9	1109.5	967.3	764.4	613.2	462.6	353.5	7.3	3.4	3.9
37°	1513.6	1234.8	1043.2	906.6	700.3	551.9	406.4	299.0	6.7	2.2	3.4
38°	1373.6	1142.6	976.8	836.9	634.6	490.1	349.0	245.6	6.2	2.2	2.8
39°	1246.6	1058.9	915.0	762.7	565.4	425.5	291.1	192.8	5.6	1.7	2.8
40°	1137.6	984.1	840.8	684.6	494.0	361.4	233.3	142.8	5.1	1.7	2.8
42.5°	925.1	789.7	634.6	483.9	319.8	204.6	104.5	52.3	3.9	1.7	2.2
45°	707.1	562.0	418.7	291.1	164.7	79.2	38.8	28.7	3.4	1.7	2.2
47.5°	459.2	337.2	224.8	127.0	55.1	32.0	20.2	14.6	2.8	1.7	2.2
50°	169.7	93.9	49.5	30.9	21.4	13.5	9.0	8.4	2.8	1.7	2.2
51°	69.7	45.5	30.9	20.8	13.5	9.6	7.3	7.3	2.8	1.7	2.2
52°	41.6	28.7	20.8	15.2	10.1	7.3	5.6	6.2	2.8	1.7	2.2
53°	27.5	19.7	15.2	11.8	7.9	5.6	3.9	4.5	2.8	1.7	2.2
54°	18.5	14.1	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



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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°	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



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CATALOG NUMBER: LDA6A20940D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	32.6	32.6	32.6
2.5°	19.7	18.0	16.9
5°	14.1	12.9	11.8
7.5°	11.8	10.1	9.6
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	14.1	14.6
25°	39.3	50.6	58.5
26°	92.2	138.3	185.5
27°	140.0	204.0	217.5
28°	125.9	146.1	142.2
29°	60.7	68.6	62.4
30°	27.0	32.0	31.5
31°	17.4	19.7	19.1
32°	14.6	13.5	12.9
33°	11.8	9.6	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: P175478

CATALOG NUMBER: LDA6A20940D010TE 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)