

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: P175453

Luminaire Tested: **LDA6A10935D010TE LARL15SP 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175453
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26267)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A10935D010TE LARL15SP 6LAL1 30° Tilt
Description: PORTFOLIO 6" Lensed Adjustable, Self-flange Trim Ring, 15° Spot
Optic, at 30° tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 632.7 lumens
Efficiency: N/A
Efficacy: 45.7 lumens/watt
Spacing Criteria (0/90/45): 2.44 / 0.33 / 1.32
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

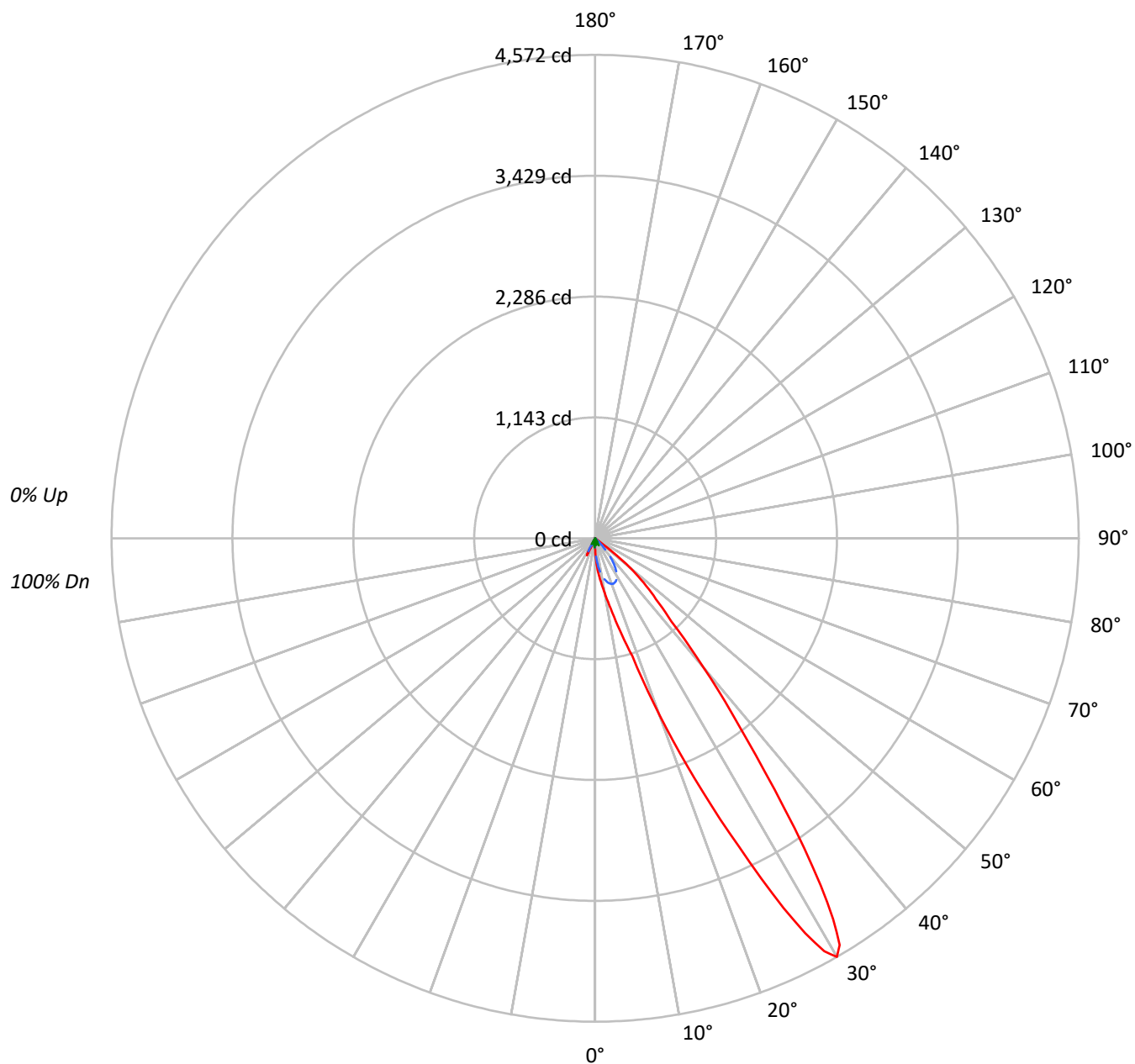
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					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	113	109	106	104		110	107	105	102		103	101	99		99	98	96		96	95	93
2	106	100	95	91		103	98	94	90		95	91	88		92	89	86		89	87	85
3	99	91	86	81		97	90	85	80		87	83	79		85	81	78		82	79	76
4	93	84	77	72		91	82	76	72		80	75	71		78	74	70		76	72	69
5	87	77	70	64		85	76	69	64		74	68	64		72	67	63		70	66	62
6	81	70	63	58		79	69	63	58		68	62	57		66	61	57		65	60	56
7	75	64	57	52		74	64	57	52		62	56	52		61	55	51		60	55	51
8	71	59	52	47		69	59	52	47		57	51	47		56	51	47		55	50	46
9	66	55	47	43		65	54	47	43		53	47	42		52	46	42		51	46	42
10	62	50	43	39		61	50	43	39		49	43	39		48	42	38		47	42	38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	5104	5104	5104
5°	17461	4342	578
10°	29219	2410	284
15°	50749	891	244
20°	103691	583	414
25°	194636	1137	7355
30°	289393	1981	1190
35°	208847	154	94
40°	113434	64	0
45°	62968	70	0
50°	36843	77	0
55°	1166	57	0
60°	406	99	0
65°	182	117	0
70°	144	144	0
75°	64	233	0
80°	0	347	0
85°	0	692	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.0	2.1
10°-20°	67.7	10.7
20°-30°	218.0	34.5
30°-40°	227.0	35.9
40°-50°	96.7	15.3
50°-60°	8.0	1.3
60°-70°	0.8	0.1
70°-80°	0.7	0.1
80°-90°	0.7	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°	298.8	47.2
0°-40°	525.7	83.1
0°-60°	630.5	99.6
0°-90°	632.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	632.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	93	93	93	93	93	
5°	317	231	79	14	10	36
15°	894	426	16	5	4	292
25°	3218	453	19	57	122	1545
35°	3121	324	2	2	1	1932
45°	812	56	1	1	0	668
55°	12	2	1	1	0	76
65°	1	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°	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1
2.5°	206.8	195.9	204.2	199.4	196.2	195.4	200.2	194.8	189.1	188.8	187.1
5°	317.3	307.0	315.5	308.1	304.7	301.9	304.2	295.3	285.9	286.2	281.9
7.5°	413.5	407.8	413.5	405.5	403.0	400.1	399.3	390.7	379.6	380.5	373.9
10°	524.9	508.3	517.5	500.1	495.8	488.1	485.6	471.6	454.0	453.1	443.7
12.5°	678.4	671.8	680.9	656.4	651.3	638.2	631.1	608.9	579.8	572.4	550.8
15°	894.2	873.2	882.3	847.8	838.1	815.4	799.7	765.2	737.6	706.3	673.2
17.5°	1168.5	1156.5	1168.2	1100.4	1075.4	1030.9	994.2	936.7	878.0	849.8	803.4
20°	1777.4	1720.4	1726.7	1600.8	1520.5	1400.9	1305.2	1178.2	1061.7	994.8	918.2
22.5°	2453.2	2388.2	2372.3	2210.5	2074.4	1894.7	1726.7	1514.2	1307.8	1158.2	1028.4
25°	3217.8	3175.7	3092.2	2827.4	2593.3	2337.0	2089.8	1811.8	1544.1	1315.2	1120.4
26°	3580.9	3547.0	3421.7	3090.5	2787.5	2480.8	2198.3	1899.8	1611.1	1359.9	1142.0
27°	3925.8	3898.5	3735.6	3350.0	2971.2	2602.1	2277.2	1962.5	1659.2	1388.6	1157.4
28°	4229.7	4201.8	3991.3	3569.8	3116.7	2689.8	2326.7	2001.5	1686.8	1395.5	1156.5
29°	4466.1	4430.8	4159.1	3710.8	3202.2	2732.0	2336.7	2006.3	1682.8	1379.5	1140.6
30°	4571.7	4527.9	4206.9	3741.0	3203.6	2716.0	2308.5	1980.4	1650.4	1341.9	1111.0
31°	4488.8	4451.5	4120.0	3653.8	3116.7	2643.1	2238.4	1920.6	1588.8	1287.5	1071.7
32°	4247.3	4213.2	3907.6	3462.5	2952.4	2519.8	2136.8	1835.2	1507.1	1221.7	1026.1
33°	3916.1	3889.7	3615.7	3199.6	2741.4	2368.0	2015.2	1728.1	1408.9	1148.0	970.6
34°	3538.2	3517.4	3267.4	2902.6	2511.0	2199.4	1876.5	1574.0	1301.5	1073.7	929.0
35°	3120.7	3106.5	2902.6	2597.6	2281.7	2024.3	1722.4	1437.9	1193.3	1002.2	884.3
36°	2724.0	2712.3	2556.8	2317.9	2063.6	1842.6	1555.5	1296.1	1089.6	937.8	842.4
37°	2385.1	2376.6	2261.5	2069.0	1854.0	1653.8	1385.5	1163.4	999.3	881.7	799.4
38°	2103.2	2096.3	2002.9	1832.3	1638.1	1458.4	1221.5	1046.0	922.4	833.0	750.7
39°	1840.3	1831.5	1747.5	1593.1	1423.1	1268.2	1112.7	949.5	862.1	782.3	698.3
40°	1585.1	1573.7	1500.0	1368.7	1226.9	1106.7	967.1	890.3	813.1	723.4	644.8
42.5°	1063.7	1057.4	1017.3	958.0	897.9	854.1	809.9	741.3	659.9	585.8	527.7
45°	812.2	810.8	791.1	760.1	720.2	683.2	624.3	584.7	529.7	467.3	425.8
47.5°	623.1	623.4	605.2	581.8	554.5	530.6	487.6	455.9	416.6	381.0	348.9
50°	432.0	413.8	416.4	397.9	375.6	361.7	321.8	297.6	241.8	185.4	145.0
51°	323.8	299.9	303.0	282.2	259.2	246.9	209.6	185.1	132.7	87.1	57.0
52°	197.6	178.8	178.6	162.6	142.7	131.9	102.2	79.7	45.3	23.9	16.5
53°	88.6	76.0	73.2	62.4	49.0	42.4	29.0	21.4	15.9	12.2	9.4
54°	23.4	20.8	19.9	18.2	16.5	15.9	14.0	11.7	9.1	7.1	6.0
55°	12.2	11.4	11.1	10.5	9.7	9.4	8.3	7.1	5.7	5.1	4.6
57.5°	5.7	5.7	5.4	5.1	4.8	4.8	4.3	4.0	3.7	3.7	3.1
60°	3.7	3.7	3.7	3.4	3.4	3.1	2.8	2.6	2.3	2.6	2.3
61°	3.1	3.1	3.1	2.8	2.6	2.3	2.3	2.3	2.0	2.0	1.7
62°	2.3	2.3	2.0	2.0	1.7	1.7	1.7	1.7	1.4	1.7	1.7
63°	1.7	1.7	1.4	1.4	1.4	1.4	1.1	1.1	1.1	1.7	1.7
64°	1.4	1.4	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.4	1.1
65°	1.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.9	1.1	1.1
66°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.9	0.9	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°	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.3
75°	0.3	0.3	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°	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1
2.5°	187.1	183.7	176.6	175.1	168.3	164.3	165.5	163.2	126.7	89.4	55.8
5°	278.8	271.1	260.6	256.9	245.2	238.9	236.9	231.2	156.9	78.9	26.2
7.5°	368.5	358.5	345.7	339.8	323.8	313.3	306.4	297.9	177.7	62.7	14.5
10°	435.2	423.8	410.4	402.7	384.8	374.2	363.1	353.7	188.8	43.3	10.8
12.5°	524.0	501.5	473.6	456.8	430.3	415.8	403.0	393.9	193.1	25.9	8.3
15°	642.5	606.3	566.7	536.3	491.3	463.9	442.3	425.8	189.7	15.7	7.1
17.5°	757.3	706.0	654.2	612.9	561.3	520.6	479.0	446.5	175.1	12.5	6.6
20°	852.7	792.6	726.5	668.7	609.2	560.7	505.5	459.6	151.8	10.0	7.1
22.5°	926.1	849.5	774.6	702.9	631.9	576.4	515.8	462.5	122.2	10.3	10.0
25°	979.1	878.6	798.8	717.1	639.9	579.0	510.3	453.4	90.0	18.8	33.6
26°	989.9	884.6	802.0	715.7	637.1	574.7	504.1	447.7	81.2	37.3	74.0
27°	995.9	883.7	799.7	710.0	631.1	568.4	497.0	442.6	79.7	63.8	110.5
28°	990.5	876.6	790.0	699.7	621.4	560.2	488.7	436.6	78.9	78.3	104.8
29°	975.7	864.1	775.5	683.8	606.6	547.1	476.2	428.0	70.6	62.4	63.2
30°	953.2	846.4	754.4	662.4	587.8	528.3	458.2	414.4	46.7	31.3	26.8
31°	925.3	823.6	728.5	637.6	566.4	505.5	439.4	396.7	24.2	13.4	12.5
32°	894.5	796.3	700.6	612.6	544.8	483.6	423.8	381.0	15.9	7.4	7.1
33°	862.1	764.4	669.8	586.7	520.6	459.1	407.5	364.2	12.0	4.6	4.3
34°	830.2	730.2	638.8	558.8	494.4	437.2	392.7	344.9	9.7	3.4	2.8
35°	794.0	693.2	606.9	529.1	466.2	418.4	377.9	323.8	7.7	2.3	2.3
36°	751.8	653.9	573.9	498.1	439.4	401.0	361.7	300.7	6.0	1.7	2.0
37°	707.1	614.9	540.5	467.3	417.5	385.0	342.0	277.1	5.1	1.4	1.7
38°	661.0	576.1	504.6	437.7	398.4	367.7	319.8	252.6	4.3	1.1	1.4
39°	615.7	536.5	468.8	413.8	380.5	347.2	294.5	227.5	3.7	1.1	1.4
40°	571.6	496.7	436.9	393.0	360.5	322.1	268.3	201.3	2.6	0.9	1.4
42.5°	466.8	414.1	376.2	332.3	295.6	252.3	197.4	130.7	2.0	0.9	1.1
45°	390.7	347.4	303.3	253.7	217.6	173.2	116.8	55.5	2.0	0.9	1.1
47.5°	309.0	258.0	193.1	130.4	85.2	43.9	13.7	7.7	1.4	0.9	1.1
50°	90.0	52.1	19.4	11.7	8.8	5.4	3.4	3.1	1.1	0.9	1.1
51°	25.9	15.4	10.3	6.8	5.1	3.1	2.6	2.8	1.1	0.9	0.9
52°	12.2	8.8	6.0	4.6	3.4	2.6	2.3	2.6	1.1	0.9	0.9
53°	7.1	5.4	4.3	3.7	2.6	2.3	1.7	2.3	1.1	0.9	0.9
54°	4.8	4.3	3.7	3.1	2.3	1.7	1.7	2.3	1.1	0.9	0.9
55°	4.3	3.7	3.1	2.8	2.0	1.7	1.7	1.7	0.9	0.6	0.9
57.5°	2.8	2.8	2.3	2.3	1.7	1.1	0.6	1.4	1.1	0.9	0.9
60°	2.0	2.0	2.0	1.4	0.6	0.6	0.3	1.1	1.1	0.9	1.1
61°	2.0	2.0	1.4	1.1	0.6	0.6	0.3	1.1	1.1	0.9	1.1
62°	1.7	1.4	1.1	1.1	0.6	0.6	0.3	1.1	1.1	0.9	1.1
63°	1.4	1.1	1.1	1.1	0.6	0.3	0.3	1.1	1.1	0.9	1.1
64°	1.1	1.1	1.1	1.1	0.3	0.3	0.3	1.1	1.1	0.9	1.1
65°	1.1	1.1	1.1	0.9	0.3	0.3	0.3	0.9	1.1	0.9	1.1
66°	1.1	1.1	0.9	0.9	0.3	0.3	0.3	0.9	1.1	0.9	1.1



TEST NUMBER: P175453

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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°	0.3	0.6	0.6	0.6	0.0	0.0	0.0	0.9	1.1	0.9	1.1
75°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.1	1.1	1.1
77.5°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.1	1.1	1.4
80°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.1	1.1	1.4
82.5°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.1	1.1	1.4
85°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.1	1.1	1.4
87.5°	0.3	0.3	0.6	0.6	0.0	0.0	0.0	0.9	1.1	1.1	1.4
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: P175453

CATALOG NUMBER: LDA6A10935D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	93.1	93.1	93.1
2.5°	35.6	25.6	23.4
5°	14.2	11.7	10.5
7.5°	8.8	7.4	6.8
10°	7.1	5.4	5.1
12.5°	5.7	4.8	4.6
15°	5.4	4.6	4.3
17.5°	5.4	5.1	4.8
20°	6.8	6.8	7.1
22.5°	11.7	13.7	15.4
25°	56.7	91.7	121.6
26°	118.8	167.5	179.1
27°	147.2	152.4	146.4
28°	113.3	101.7	95.7
29°	60.7	50.7	46.4
30°	24.2	19.9	18.8
31°	11.7	10.0	9.7
32°	6.6	5.4	5.4
33°	4.0	3.4	3.1
34°	2.8	2.3	2.0
35°	2.0	1.7	1.4
36°	1.7	1.1	0.9
37°	1.4	0.9	0.9
38°	1.1	0.9	0.6
39°	0.9	0.6	0.3
40°	0.9	0.3	0.0
42.5°	0.6	0.3	0.0
45°	0.6	0.0	0.0
47.5°	0.9	0.6	0.3
50°	0.6	0.3	0.0
51°	0.6	0.0	0.0
52°	0.6	0.0	0.0
53°	0.6	0.0	0.0
54°	0.6	0.0	0.0
55°	0.6	0.0	0.0
57.5°	0.6	0.0	0.0
60°	0.6	0.0	0.0
61°	0.6	0.0	0.0
62°	0.6	0.0	0.0
63°	0.6	0.3	0.0
64°	0.6	0.3	0.0
65°	0.6	0.3	0.0
66°	0.6	0.3	0.0



TEST NUMBER: P175453

CATALOG NUMBER: LDA6A10935D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	0.9	0.3	0.0
75°	0.9	0.3	0.0
77.5°	0.9	0.3	0.0
80°	0.9	0.3	0.0
82.5°	0.9	0.3	0.0
85°	0.9	0.3	0.0
87.5°	0.9	0.3	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.6	0.6	0.9	0.9
70°	0.9	0.9	0.9	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6





67.5°	0.9	0.9	0.9	0.9	0.3	0.0	0.0	0.9	1.1	0.9	1.1
70°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.9	1.1	0.9	1.1





67.5°	0.9	0.3	0.0
70°	0.9	0.3	0.0



(END OF REPORT)