

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: P175457

Luminaire Tested: **LDA6A15835D010TE LARL15SP 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175457
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: LDA6A15835D010TE 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 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1145.4 lumens
Efficiency: N/A
Efficacy: 51.4 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

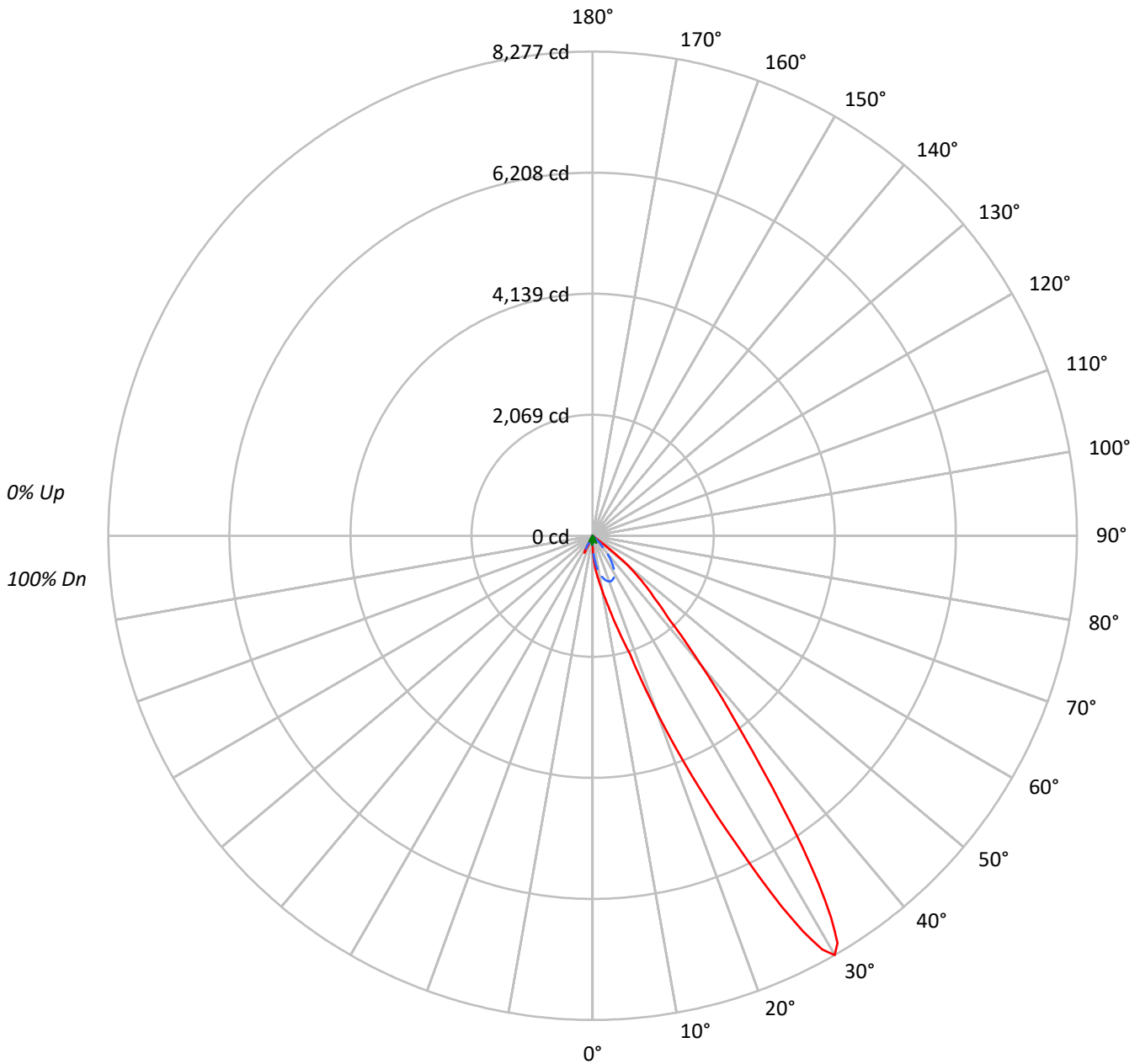
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P175457

CATALOG NUMBER: LDA6A15835D010TE LARL15SP 6LAL1 30° Tilt

Luminous Intensity Polar Plot





TEST NUMBER: P175457

CATALOG NUMBER: LDA6A15835D010TE LARL15SP 6LAL1 30° Tilt

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	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83																			
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75																			
4	93	84	77	72	91	82	76	72	80	75	71	78	74	70	76	72	69	67																			
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55																			
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49																			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45																			
9	66	55	47	43	65	54	47	43	53	47	42	52	46	42	51	46	42	41																			
10	62	50	43	39	61	50	43	39	49	43	39	48	42	38	47	42	38	37																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	9243	9243	9243
5°	31609	7858	1051
10°	52894	4364	518
15°	91885	1612	437
20°	187721	1050	753
25°	352381	2057	13319
30°	523935	3589	2152
35°	378109	274	174
40°	205370	107	0
45°	114004	116	0
50°	66710	128	0
55°	2122	96	0
60°	735	164	0
65°	337	195	0
70°	240	240	0
75°	106	445	0
80°	0	663	0
85°	0	1321	0



TEST NUMBER: P175457

CATALOG NUMBER: LDA6A15835D010TE LARL15SP 6LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	23.6	2.1
10°-20°	122.6	10.7
20°-30°	394.7	34.5
30°-40°	410.9	35.9
40°-50°	175.0	15.3
50°-60°	14.5	1.3
60°-70°	1.5	0.1
70°-80°	1.3	0.1
80°-90°	1.2	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°	540.9	47.2
0°-40°	951.8	83.1
0°-60°	1141.4	99.7
0°-90°	1145.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1145.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	169	169	169	169	169	
5°	574	419	143	26	19	65
15°	1619	771	28	10	8	529
25°	5826	821	34	103	220	2798
35°	5650	586	4	4	3	3498
45°	1470	100	2	1	0	1209
55°	22	3	1	1	0	138
65°	3	2	2	1	0	3
75°	0	2	2	2	0	0
85°	0	2	2	2	0	0
90°	0	0	0	0	0	0



TEST NUMBER: P175457

CATALOG NUMBER: LDA6A15835D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	168.6	168.6	168.6	168.6	168.6	168.6	168.6	168.6	168.6	168.6	168.6
2.5°	374.3	354.7	369.7	360.9	355.2	353.7	362.5	352.7	342.4	341.8	338.7
5°	574.4	555.8	571.3	557.9	551.7	546.5	550.7	534.7	517.7	518.2	510.4
7.5°	748.6	738.3	748.6	734.2	729.6	724.4	722.9	707.4	687.3	688.8	677.0
10°	950.2	920.3	936.8	905.4	897.7	883.7	879.1	853.8	821.9	820.3	803.3
12.5°	1228.2	1216.3	1232.8	1188.5	1179.2	1155.5	1142.6	1102.3	1049.8	1036.3	997.2
15°	1619.0	1580.8	1597.3	1534.9	1517.4	1476.2	1447.8	1385.4	1335.4	1278.7	1218.9
17.5°	2115.5	2093.8	2115.0	1992.3	1946.9	1866.5	1799.9	1695.8	1589.6	1538.5	1454.5
20°	3217.8	3114.7	3126.1	2898.2	2752.8	2536.2	2363.0	2133.0	1922.1	1801.0	1662.3
22.5°	4441.3	4323.8	4294.9	4002.1	3755.6	3430.3	3126.1	2741.4	2367.6	2096.9	1861.8
25°	5825.7	5749.4	5598.3	5118.8	4695.0	4231.0	3783.4	3280.2	2795.6	2381.0	2028.4
26°	6483.1	6421.8	6194.9	5595.3	5046.7	4491.4	3979.9	3439.5	2916.7	2462.0	2067.5
27°	7107.5	7058.0	6763.1	6065.0	5379.2	4711.0	4122.7	3553.0	3003.9	2514.0	2095.4
28°	7657.6	7607.1	7226.1	6463.0	5642.7	4869.8	4212.4	3623.6	3053.9	2526.4	2093.8
29°	8085.6	8021.7	7529.8	6718.2	5797.4	4946.1	4230.5	3632.4	3046.7	2497.5	2065.0
30°	8276.9	8197.5	7616.4	6772.9	5799.9	4917.2	4179.4	3585.5	2987.9	2429.5	2011.3
31°	8126.8	8059.3	7459.1	6615.1	5642.7	4785.3	4052.6	3477.2	2876.5	2331.0	1940.2
32°	7689.6	7627.7	7074.5	6268.6	5345.2	4562.0	3868.5	3322.5	2728.5	2211.9	1857.7
33°	7090.0	7042.0	6546.0	5792.7	4963.1	4287.2	3648.4	3128.6	2550.7	2078.4	1757.2
34°	6405.8	6368.1	5915.4	5255.0	4546.0	3982.0	3397.3	2849.7	2356.3	1943.8	1681.9
35°	5649.9	5624.1	5255.0	4702.8	4131.0	3664.9	3118.3	2603.2	2160.3	1814.4	1600.9
36°	4931.7	4910.5	4629.0	4196.4	3736.0	3335.9	2816.2	2346.5	1972.7	1697.9	1525.1
37°	4318.1	4302.7	4094.4	3745.8	3356.5	2994.1	2508.4	2106.2	1809.2	1596.3	1447.3
38°	3807.7	3795.3	3626.2	3317.3	2965.7	2640.4	2211.4	1893.8	1670.0	1508.1	1359.1
39°	3331.8	3315.8	3163.7	2884.2	2576.4	2296.0	2014.4	1719.0	1560.7	1416.3	1264.2
40°	2869.8	2849.2	2715.6	2478.0	2221.2	2003.6	1751.0	1611.8	1472.0	1309.6	1167.3
42.5°	1925.8	1914.4	1841.7	1734.5	1625.7	1546.3	1466.4	1342.1	1194.6	1060.6	955.4
45°	1470.5	1467.9	1432.3	1376.1	1303.9	1236.9	1130.2	1058.5	959.0	846.1	770.8
47.5°	1128.1	1128.6	1095.6	1053.4	1003.9	960.6	882.7	825.5	754.3	689.9	631.6
50°	782.2	749.2	753.8	720.3	680.1	654.8	582.6	538.8	437.7	335.7	262.4
51°	586.2	542.9	548.6	511.0	469.2	447.0	379.5	335.1	240.3	157.8	103.1
52°	357.8	323.8	323.3	294.4	258.3	238.7	185.1	144.4	82.0	43.3	29.9
53°	160.4	137.7	132.5	112.9	88.7	76.8	52.6	38.7	28.9	22.2	17.0
54°	42.3	37.6	36.1	33.0	29.9	28.9	25.3	21.1	16.5	12.9	10.8
55°	22.2	20.6	20.1	19.1	17.5	17.0	15.0	12.9	10.3	9.3	8.2
57.5°	10.3	10.3	9.8	9.3	8.8	8.8	7.7	7.2	6.7	6.7	5.7
60°	6.7	6.7	6.7	6.2	6.2	5.7	5.2	4.6	4.1	4.6	4.1
61°	5.7	5.7	5.7	5.2	4.6	4.1	4.1	4.1	3.6	3.6	3.1
62°	4.1	4.1	3.6	3.6	3.1	3.1	3.1	3.1	2.6	3.1	3.1
63°	3.1	3.1	2.6	2.6	2.6	2.6	2.1	2.1	2.1	3.1	3.1
64°	2.6	2.6	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.6	2.1
65°	2.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.5	2.1	2.1
66°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.5	1.5	2.1	2.1



TEST NUMBER: P175457

CATALOG NUMBER: LDA6A15835D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
72.5°	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5
75°	0.5	0.5	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



TEST NUMBER: P175457

CATALOG NUMBER: LDA6A15835D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	168.6	168.6	168.6	168.6	168.6	168.6	168.6	168.6	168.6	168.6	168.6
2.5°	338.7	332.6	319.7	317.1	304.7	297.5	299.6	295.4	229.4	161.9	101.1
5°	504.8	490.8	471.8	465.1	443.9	432.6	429.0	418.7	284.1	142.8	47.4
7.5°	667.2	649.1	625.9	615.1	586.2	567.2	554.8	539.3	321.7	113.4	26.3
10°	787.8	767.2	743.0	729.1	696.6	677.5	657.4	640.4	341.8	78.4	19.6
12.5°	948.7	908.0	857.4	827.0	779.1	752.8	729.6	713.1	349.6	46.9	15.0
15°	1163.2	1097.7	1026.0	970.9	889.4	839.9	800.7	770.8	343.4	28.4	12.9
17.5°	1371.0	1278.2	1184.3	1109.6	1016.2	942.5	867.2	808.5	317.1	22.7	11.9
20°	1543.7	1434.9	1315.3	1210.6	1102.9	1015.2	915.2	832.2	274.8	18.0	12.9
22.5°	1676.7	1538.0	1402.4	1272.5	1144.1	1043.6	933.7	837.3	221.2	18.6	18.0
25°	1772.6	1590.6	1446.2	1298.3	1158.5	1048.2	923.9	820.8	162.9	34.0	60.8
26°	1792.2	1601.4	1451.9	1295.7	1153.4	1040.5	912.6	810.5	146.9	67.5	134.1
27°	1803.0	1599.9	1447.8	1285.4	1142.6	1029.1	899.7	801.2	144.4	115.5	200.1
28°	1793.2	1587.0	1430.3	1266.8	1125.0	1014.2	884.8	790.4	142.8	141.8	189.7
29°	1766.4	1564.3	1404.0	1237.9	1098.2	990.5	862.1	774.9	127.9	112.9	114.5
30°	1725.7	1532.4	1365.8	1199.3	1064.2	956.4	829.6	750.2	84.6	56.7	48.5
31°	1675.2	1491.1	1318.9	1154.4	1025.5	915.2	795.6	718.2	43.8	24.2	22.7
32°	1619.5	1441.6	1268.4	1109.0	986.3	875.5	767.2	689.9	28.9	13.4	12.9
33°	1560.7	1383.9	1212.7	1062.1	942.5	831.1	737.8	659.4	21.7	8.2	7.7
34°	1503.0	1322.0	1156.5	1011.6	895.1	791.4	711.0	624.4	17.5	6.2	5.2
35°	1437.5	1255.0	1098.7	958.0	844.0	757.4	684.2	586.2	13.9	4.1	4.1
36°	1361.2	1183.8	1038.9	901.8	795.6	726.0	654.8	544.5	10.8	3.1	3.6
37°	1280.2	1113.2	978.6	846.1	755.9	697.1	619.2	501.7	9.3	2.6	3.1
38°	1196.7	1043.1	913.6	792.5	721.3	665.6	579.0	457.3	7.7	2.1	2.6
39°	1114.7	971.4	848.7	749.2	688.8	628.5	533.1	412.0	6.7	2.1	2.6
40°	1034.8	899.2	790.9	711.5	652.7	583.1	485.7	364.5	4.6	1.5	2.6
42.5°	845.1	749.7	681.1	601.7	535.2	456.8	357.3	236.7	3.6	1.5	2.1
45°	707.4	629.0	549.1	459.4	393.9	313.5	211.4	100.5	3.6	1.5	2.1
47.5°	559.4	467.1	349.6	236.1	154.2	79.4	24.7	13.9	2.6	1.5	2.1
50°	162.9	94.4	35.1	21.1	16.0	9.8	6.2	5.7	2.1	1.5	2.1
51°	46.9	27.8	18.6	12.4	9.3	5.7	4.6	5.2	2.1	1.5	1.5
52°	22.2	16.0	10.8	8.2	6.2	4.6	4.1	4.6	2.1	1.5	1.5
53°	12.9	9.8	7.7	6.7	4.6	4.1	3.1	4.1	2.1	1.5	1.5
54°	8.8	7.7	6.7	5.7	4.1	3.1	3.1	4.1	2.1	1.5	1.5
55°	7.7	6.7	5.7	5.2	3.6	3.1	3.1	3.1	1.5	1.0	1.5
57.5°	5.2	5.2	4.1	4.1	3.1	2.1	1.0	2.6	2.1	1.5	1.5
60°	3.6	3.6	3.6	2.6	1.0	1.0	0.5	2.1	2.1	1.5	2.1
61°	3.6	3.6	2.6	2.1	1.0	1.0	0.5	2.1	2.1	1.5	2.1
62°	3.1	2.6	2.1	2.1	1.0	1.0	0.5	2.1	2.1	1.5	2.1
63°	2.6	2.1	2.1	2.1	1.0	0.5	0.5	2.1	2.1	1.5	2.1
64°	2.1	2.1	2.1	2.1	0.5	0.5	0.5	2.1	2.1	1.5	2.1
65°	2.1	2.1	2.1	1.5	0.5	0.5	0.5	1.5	2.1	1.5	2.1
66°	2.1	2.1	1.5	1.5	0.5	0.5	0.5	1.5	2.1	1.5	2.1



TEST NUMBER: P175457

CATALOG NUMBER: LDA6A15835D010TE LARL15SP 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°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	1.5	2.1	1.5	2.1
75°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.5	2.1	2.1	2.1
77.5°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.5	2.1	2.1	2.6
80°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.5	2.1	2.1	2.6
82.5°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.5	2.1	2.1	2.6
85°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.5	2.1	2.1	2.6
87.5°	0.5	0.5	1.0	1.0	0.0	0.0	0.0	1.5	2.1	2.1	2.6
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: P175457

CATALOG NUMBER: LDA6A15835D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	168.6	168.6	168.6
2.5°	64.4	46.4	42.3
5°	25.8	21.1	19.1
7.5°	16.0	13.4	12.4
10°	12.9	9.8	9.3
12.5°	10.3	8.8	8.2
15°	9.8	8.2	7.7
17.5°	9.8	9.3	8.8
20°	12.4	12.4	12.9
22.5°	21.1	24.7	27.8
25°	102.6	166.0	220.2
26°	215.0	303.2	324.3
27°	266.6	275.8	265.0
28°	205.2	184.1	173.2
29°	109.8	91.8	84.0
30°	43.8	36.1	34.0
31°	21.1	18.0	17.5
32°	11.9	9.8	9.8
33°	7.2	6.2	5.7
34°	5.2	4.1	3.6
35°	3.6	3.1	2.6
36°	3.1	2.1	1.5
37°	2.6	1.5	1.5
38°	2.1	1.5	1.0
39°	1.5	1.0	0.5
40°	1.5	0.5	0.0
42.5°	1.0	0.5	0.0
45°	1.0	0.0	0.0
47.5°	1.5	1.0	0.5
50°	1.0	0.5	0.0
51°	1.0	0.0	0.0
52°	1.0	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°	1.0	0.0	0.0
62°	1.0	0.0	0.0
63°	1.0	0.5	0.0
64°	1.0	0.5	0.0
65°	1.0	0.5	0.0
66°	1.0	0.5	0.0



TEST NUMBER: P175457

CATALOG NUMBER: LDA6A15835D010TE LARL15SP 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.5	0.5	0.0
75°	1.5	0.5	0.0
77.5°	1.5	0.5	0.0
80°	1.5	0.5	0.0
82.5°	1.5	0.5	0.0
85°	1.5	0.5	0.0
87.5°	1.5	0.5	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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







67.5°	2.1	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.0	1.5	1.5
70°	1.5	1.5	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0





67.5°	1.5	1.5	1.5	1.5	0.5	0.0	0.0	1.5	2.1	1.5	2.1
70°	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.5	2.1	1.5	2.1





67.5°	1.5	0.5	0.0
70°	1.5	0.5	0.0



(END OF REPORT)