

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: P179914

Luminaire Tested: **LDA6A55935D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179914  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26689)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA6A55935D010TE LARH20SP 6LAL1LI 30°  
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 20° Spot, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3964.3 lumens  
Efficiency: N/A  
Efficacy: 65.0 lumens/watt  
Spacing Criteria (0/90/45): 2.34 / 0.96 / 1.3  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

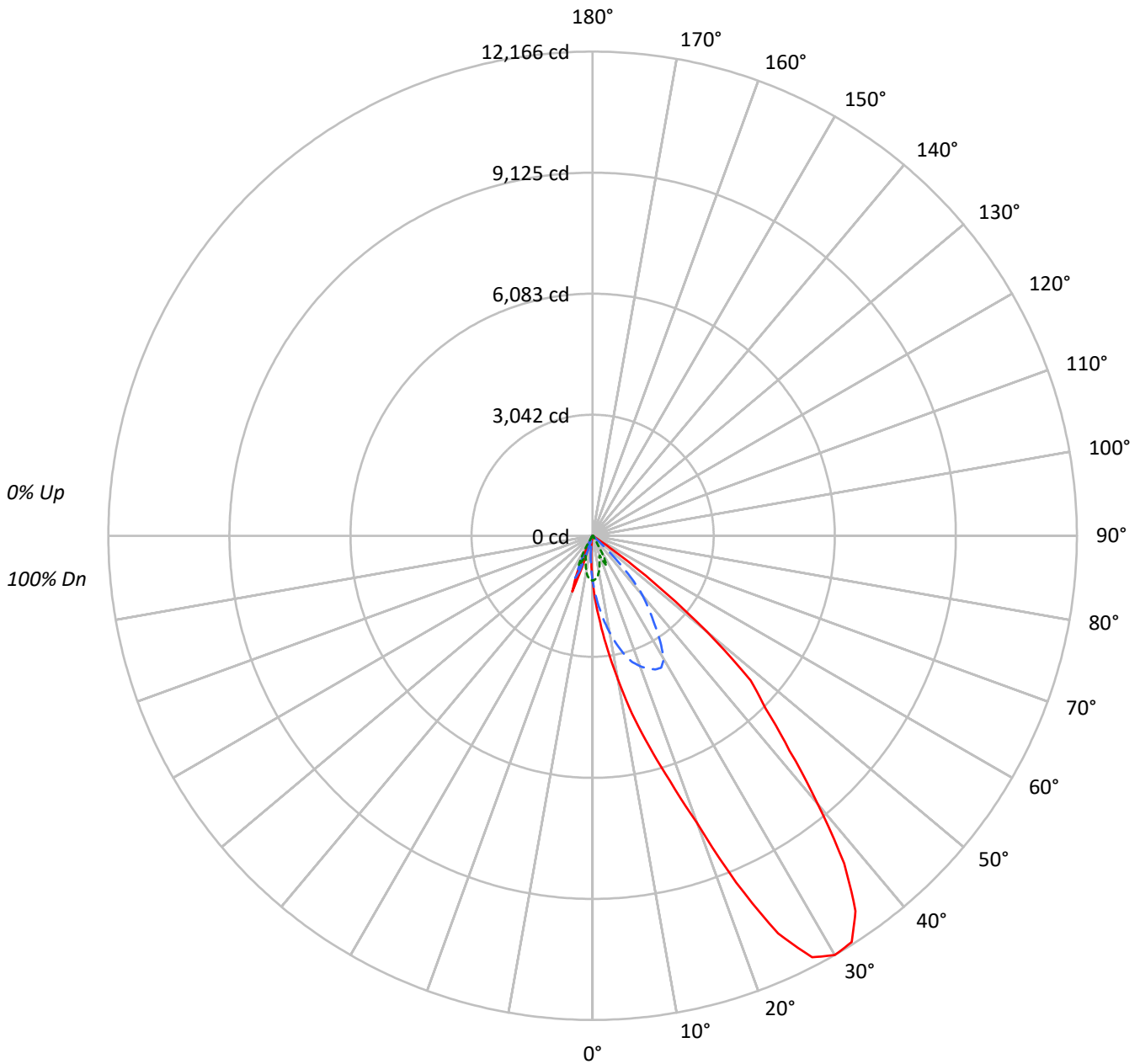
Input Watts (W): 61  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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					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	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	94	90	95	91	88	92	89	86	89	86	84	82								
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74								
4	92	83	76	71	90	82	76	71	80	74	70	77	73	69	76	72	68	67								
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	70	65	62	60								
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54								
7	75	64	57	51	74	63	56	51	62	56	51	60	55	51	59	54	50	49								
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44								
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40								
10	62	50	43	38	61	50	43	38	49	43	38	48	42	38	47	42	38	36								

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	61865	61865	61865
5°	120955	58810	21451
10°	203592	50495	4759
15°	310047	38235	7809
20°	448027	30972	87134
25°	666776	50108	25181
30°	770144	17155	4982
35°	770392	3835	2690
40°	629673	2140	1653
45°	476817	1395	1062
50°	316655	947	725
55°	50904	812	573
60°	3191	844	471
65°	999	1103	558
70°	545	1234	689
75°	360	1440	911
80°	284	2147	1357
85°	566	4277	1635



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	117.8	3.0
10°-20°	503.7	12.7
20°-30°	1185.7	29.9
30°-40°	1249.3	31.5
40°-50°	779.0	19.6
50°-60°	111.9	2.8
60°-70°	7.1	0.2
70°-80°	5.6	0.1
80°-90°	4.2	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°	1807.2	45.6
0°-40°	3056.5	77.1
0°-60°	3947.4	99.6
0°-90°	3964.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3964.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1128	1128	1128	1128	1128	
5°	2198	1779	1069	555	390	255
15°	5463	3092	674	117	138	1627
25°	11023	3707	828	599	416	4960
35°	11512	2715	57	53	40	6944
45°	6150	752	18	20	14	4814
55°	533	14	8	9	6	957
65°	8	6	8	7	4	11
75°	2	4	7	7	4	2
85°	1	4	7	5	3	1
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5
2.5°	1647.4	1636.3	1639.7	1614.1	1579.9	1595.3	1556.8	1557.7	1533.7	1473.0	1446.5
5°	2198.0	2196.3	2193.7	2146.7	2086.0	2092.9	2036.4	2015.1	1953.5	1846.6	1779.1
7.5°	2882.0	2882.8	2870.0	2755.4	2687.9	2683.6	2594.7	2530.6	2416.0	2247.6	2124.5
10°	3657.4	3681.3	3658.2	3482.1	3356.4	3358.1	3198.3	3075.2	2891.4	2646.0	2470.7
12.5°	4567.9	4571.3	4535.4	4303.7	4112.2	4097.7	3883.1	3648.0	3368.4	3047.8	2793.0
15°	5463.0	5486.9	5440.7	5155.2	4888.5	4848.3	4574.7	4264.4	3917.3	3442.8	3092.3
17.5°	6455.5	6417.9	6295.7	5887.0	5566.4	5507.4	5213.3	4807.2	4364.4	3790.7	3330.8
20°	7679.8	7692.6	7433.6	6823.2	6281.1	6051.2	5710.0	5265.5	4713.2	4046.4	3489.8
22.5°	9429.0	9359.7	8804.0	7816.6	7001.8	6694.9	6208.5	5595.5	4974.0	4240.4	3608.6
25°	11023.4	10841.3	10329.2	8970.7	7695.2	7315.6	6812.0	5876.8	5190.3	4384.1	3707.0
27.5°	11939.0	11857.8	11277.3	9906.9	8255.2	7720.8	7012.1	6083.7	5318.5	4455.0	3735.2
30°	12166.4	12181.0	11664.6	10217.2	8387.7	7777.3	7044.6	6077.7	5232.1	4328.5	3572.7
32.5°	12108.3	12029.7	11384.2	9874.4	8034.6	7478.9	6726.6	5805.8	4888.5	3951.5	3168.4
35°	11511.6	11396.2	10601.9	8982.7	7435.3	6895.0	6212.7	5360.4	4408.9	3471.0	2715.2
37.5°	10376.2	10242.9	9326.4	7912.3	6716.3	6258.9	5669.0	4864.5	3924.1	3023.0	2316.8
40°	8798.9	8633.0	7867.0	6886.4	5943.4	5623.7	5125.3	4298.6	3421.4	2599.0	1949.2
42.5°	7324.1	7244.6	6784.7	5943.4	5308.2	4999.6	4496.9	3727.5	2920.4	2165.5	1443.1
45°	6150.3	6097.3	5792.1	5257.8	4613.2	4324.2	3850.6	3100.0	2222.0	1458.5	751.5
47.5°	5383.5	5248.4	4950.0	4389.2	3672.8	3312.8	2861.4	2042.4	1253.3	646.3	230.8
50°	3712.9	3725.8	3388.9	2770.8	2161.3	1856.9	1533.7	939.6	414.6	141.1	40.2
52.5°	1955.2	1810.7	1573.9	1175.5	818.2	624.1	455.7	188.1	75.2	28.2	21.4
55°	532.6	467.6	373.6	264.2	142.8	100.0	65.8	35.1	24.8	19.7	13.7
57.5°	52.2	49.6	45.3	36.8	31.6	29.1	26.5	21.4	17.1	12.0	8.5
60°	29.1	28.2	26.5	23.1	20.5	18.8	17.1	14.5	10.3	7.7	6.8
62.5°	16.2	15.4	14.5	12.8	11.1	10.3	10.3	8.5	6.8	6.0	6.0
65°	7.7	7.7	7.7	7.7	7.7	6.8	6.0	6.0	6.0	6.0	6.0
67.5°	6.0	6.0	6.0	5.1	5.1	5.1	5.1	5.1	5.1	4.3	5.1
70°	3.4	3.4	4.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.3
72.5°	1.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.4	3.4	4.3
75°	1.7	1.7	1.7	1.7	2.6	2.6	2.6	2.6	3.4	3.4	4.3
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	2.6	2.6	3.4	3.4	4.3
80°	0.9	0.9	0.9	1.7	1.7	1.7	1.7	2.6	3.4	3.4	4.3
82.5°	0.9	0.9	0.9	0.9	1.7	1.7	1.7	2.6	3.4	3.4	4.3
85°	0.9	0.9	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.4	4.3
87.5°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.4	4.3
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5
2.5°	1419.2	1377.3	1335.4	1293.5	1291.8	1267.0	1230.2	1181.5	1141.3	1107.1	1073.8
5°	1711.6	1625.2	1538.9	1452.5	1426.9	1382.4	1302.9	1213.1	1136.2	1068.7	1003.7
7.5°	2004.8	1859.5	1722.7	1587.6	1533.7	1466.2	1342.2	1212.3	1101.1	1002.0	905.4
10°	2266.4	2055.2	1862.9	1673.1	1595.3	1507.2	1340.5	1175.5	1034.5	907.1	784.0
12.5°	2507.5	2213.4	1969.7	1730.4	1624.4	1517.5	1314.0	1117.4	949.0	796.8	654.9
15°	2719.5	2358.7	2045.0	1756.0	1626.1	1497.8	1258.5	1037.0	848.1	673.7	519.8
17.5°	2870.8	2431.4	2069.8	1732.9	1581.6	1438.0	1176.4	939.6	736.1	554.0	405.2
20°	2963.2	2461.3	2057.0	1690.2	1529.5	1380.7	1115.7	885.7	688.2	530.9	430.0
22.5°	3023.9	2490.4	2062.1	1689.3	1528.6	1388.4	1141.3	925.9	765.2	680.5	668.6
25°	3088.8	2531.4	2099.7	1727.8	1578.2	1448.2	1208.9	998.6	864.3	828.4	833.6
27.5°	3085.4	2513.5	2063.8	1694.5	1537.2	1405.5	1125.1	859.2	733.5	632.6	595.9
30°	2901.6	2305.7	1819.3	1405.5	1220.0	1058.4	689.1	448.0	309.5	271.0	232.5
32.5°	2471.6	1868.0	1360.2	972.1	763.4	570.2	271.0	143.6	122.3	102.6	93.2
35°	2055.2	1489.3	1017.4	587.3	371.0	230.0	97.5	64.1	60.7	57.3	57.3
37.5°	1698.7	1169.5	657.4	247.9	135.9	82.9	47.0	42.7	41.0	40.2	40.2
40°	1328.6	762.6	284.7	82.1	43.6	37.6	33.3	31.6	30.8	29.9	30.8
42.5°	784.0	306.9	82.9	30.8	29.1	27.4	24.8	23.9	23.9	23.1	23.9
45°	266.7	79.5	27.4	22.2	20.5	20.5	18.8	18.8	18.8	18.0	19.7
47.5°	69.2	24.8	18.0	16.2	15.4	15.4	14.5	14.5	14.5	14.5	15.4
50°	23.9	16.2	12.8	12.0	11.1	12.0	11.1	11.1	11.1	11.1	12.0
52.5°	14.5	11.1	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
55°	9.4	8.5	7.7	7.7	7.7	7.7	7.7	8.5	8.5	8.5	8.5
57.5°	7.7	6.8	6.8	6.8	6.8	6.8	7.7	6.8	6.8	7.7	8.5
60°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	7.7	7.7	8.5
62.5°	6.0	6.8	6.8	6.8	6.8	6.8	6.8	7.7	7.7	7.7	8.5
65°	6.0	6.0	6.0	6.8	6.8	6.8	7.7	7.7	7.7	8.5	8.5
67.5°	5.1	5.1	6.0	6.0	6.8	6.8	6.8	7.7	7.7	7.7	8.5
70°	5.1	5.1	5.1	6.0	6.0	6.0	6.0	6.8	6.8	7.7	7.7
72.5°	4.3	5.1	5.1	6.0	6.0	6.0	6.0	6.8	6.8	6.8	7.7
75°	4.3	5.1	5.1	6.0	6.0	6.0	6.0	6.0	6.8	6.8	7.7
77.5°	4.3	5.1	5.1	6.0	6.0	6.0	6.0	6.8	6.8	6.8	7.7
80°	4.3	5.1	5.1	6.0	6.0	6.0	6.0	6.8	6.8	6.8	6.8
82.5°	4.3	5.1	5.1	6.0	6.0	6.0	6.0	6.8	6.8	6.8	6.8
85°	4.3	5.1	5.1	6.0	6.0	6.0	6.0	6.0	6.8	6.8	6.8
87.5°	4.3	5.1	5.1	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5
2.5°	1027.6	1013.1	961.8	955.0	946.4	904.5	887.4	858.3	817.3	805.3	790.8
5°	927.6	879.7	804.5	784.0	761.7	695.9	655.7	607.9	554.8	525.8	498.4
7.5°	800.2	733.5	633.5	593.3	568.5	496.7	432.6	368.5	290.7	246.2	218.0
10°	658.3	566.8	462.5	416.3	383.0	278.7	218.0	189.8	163.3	141.9	123.1
12.5°	515.5	412.1	294.1	241.1	214.6	177.8	144.5	109.4	97.5	96.6	93.2
15°	377.9	262.5	198.3	178.7	159.9	114.6	113.7	113.7	117.1	119.7	120.5
17.5°	278.7	230.8	181.2	169.3	177.8	184.7	196.6	214.6	229.1	270.2	261.6
20°	408.7	405.2	442.0	489.0	522.4	593.3	683.1	784.8	890.8	1008.8	1098.6
22.5°	701.0	786.5	853.2	909.6	939.6	1019.9	1090.9	1125.9	1146.5	1136.2	1121.7
25°	856.6	887.4	866.9	847.2	849.8	777.1	724.1	656.6	599.3	547.2	516.4
27.5°	512.1	468.5	406.9	364.2	355.6	306.9	271.0	233.4	222.3	188.1	173.5
30°	184.7	171.8	152.2	136.8	135.1	122.3	114.6	106.0	105.2	97.5	93.2
32.5°	83.8	83.8	76.9	78.7	76.9	74.4	73.5	71.0	71.0	68.4	66.7
35°	54.7	55.6	54.7	54.7	53.9	53.9	53.9	52.2	53.0	51.3	48.7
37.5°	40.2	41.0	39.3	40.2	40.2	40.2	40.2	39.3	38.5	36.8	35.9
40°	30.8	30.8	30.8	30.8	30.8	30.8	30.8	29.9	29.9	29.1	27.4
42.5°	23.9	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	23.9	23.9
45°	19.7	20.5	19.7	20.5	20.5	20.5	19.7	19.7	19.7	18.8	18.0
47.5°	15.4	15.4	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	13.7
50°	12.0	12.0	12.0	12.0	12.0	12.0	12.8	12.0	12.0	12.0	12.0
52.5°	9.4	10.3	10.3	11.1	11.1	11.1	11.1	11.1	10.3	10.3	9.4
55°	8.5	9.4	9.4	10.3	10.3	10.3	10.3	9.4	9.4	9.4	8.5
57.5°	8.5	9.4	9.4	9.4	9.4	9.4	9.4	8.5	8.5	7.7	7.7
60°	8.5	8.5	8.5	9.4	9.4	8.5	8.5	7.7	7.7	6.8	6.8
62.5°	8.5	8.5	8.5	9.4	9.4	8.5	8.5	7.7	6.8	6.8	6.0
65°	8.5	9.4	8.5	9.4	9.4	8.5	8.5	7.7	6.8	6.8	6.0
67.5°	8.5	9.4	9.4	9.4	8.5	8.5	8.5	7.7	6.8	6.8	6.0
70°	7.7	8.5	8.5	8.5	8.5	8.5	7.7	7.7	6.8	6.8	6.0
72.5°	7.7	8.5	7.7	8.5	8.5	7.7	7.7	7.7	6.8	6.8	6.0
75°	7.7	7.7	7.7	7.7	7.7	7.7	7.7	6.8	6.8	6.0	6.0
77.5°	7.7	7.7	7.7	7.7	7.7	7.7	6.8	6.8	6.8	6.0	6.0
80°	7.7	7.7	7.7	7.7	7.7	7.7	6.8	6.8	6.0	6.0	5.1
82.5°	6.8	7.7	7.7	7.7	7.7	7.7	6.8	6.8	6.0	6.0	5.1
85°	6.8	6.8	6.8	6.8	6.8	6.8	6.0	6.0	5.1	4.3	4.3
87.5°	6.0	6.8	6.0	6.0	6.0	6.0	5.1	4.3	3.4	3.4	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: P179914

CATALOG NUMBER: LDA6A55935D010TE LARH20SP 6LAL1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5	1128.5
2.5°	767.7	746.4	747.2	750.6	729.3	718.1	715.6	704.5
5°	461.7	436.9	432.6	429.2	399.3	387.3	377.9	389.8
7.5°	198.3	188.9	187.2	184.7	171.0	164.1	160.7	164.1
10°	98.3	92.3	93.2	94.0	89.8	87.2	86.3	85.5
12.5°	97.5	96.6	97.5	97.5	98.3	96.6	97.5	97.5
15°	126.5	126.5	129.1	130.8	135.1	134.2	135.9	137.6
17.5°	315.5	299.2	307.8	307.8	346.2	312.0	341.1	314.6
20°	1239.6	1297.8	1356.8	1406.4	1456.8	1472.2	1502.1	1493.6
22.5°	1099.4	1106.3	1097.7	1088.3	1085.8	1088.3	1042.2	1049.0
25°	471.9	468.5	454.8	440.3	444.6	448.0	431.7	416.3
27.5°	161.6	157.3	153.0	149.6	147.9	145.3	140.2	136.8
30°	91.5	88.9	87.2	86.3	84.6	82.9	80.4	78.7
32.5°	65.8	64.1	63.3	62.4	60.7	59.0	56.4	55.6
35°	48.7	47.0	46.2	45.3	43.6	41.9	41.0	40.2
37.5°	35.9	34.2	34.2	34.2	31.6	29.9	29.1	28.2
40°	27.4	26.5	26.5	26.5	24.8	23.9	23.1	23.1
42.5°	23.9	23.1	23.1	23.1	21.4	20.5	20.5	19.7
45°	18.0	17.1	17.1	16.2	15.4	15.4	14.5	13.7
47.5°	13.7	12.8	12.8	12.8	12.0	11.1	11.1	10.3
50°	11.1	11.1	10.3	11.1	9.4	9.4	9.4	8.5
52.5°	9.4	9.4	8.5	8.5	7.7	7.7	7.7	6.8
55°	8.5	7.7	7.7	7.7	6.8	6.8	6.8	6.0
57.5°	6.8	6.8	6.0	6.0	5.1	5.1	5.1	5.1
60°	6.0	6.0	5.1	5.1	4.3	4.3	4.3	4.3
62.5°	6.0	5.1	5.1	5.1	4.3	4.3	4.3	4.3
65°	6.0	5.1	5.1	5.1	4.3	4.3	4.3	4.3
67.5°	6.0	5.1	5.1	5.1	4.3	4.3	4.3	4.3
70°	6.0	6.0	5.1	5.1	5.1	4.3	4.3	4.3
72.5°	6.0	6.0	5.1	5.1	5.1	5.1	4.3	4.3
75°	5.1	5.1	5.1	5.1	4.3	4.3	4.3	4.3
77.5°	5.1	5.1	5.1	5.1	4.3	4.3	4.3	4.3
80°	5.1	5.1	4.3	4.3	4.3	4.3	4.3	4.3
82.5°	5.1	4.3	4.3	4.3	4.3	3.4	3.4	3.4
85°	3.4	3.4	3.4	3.4	2.6	2.6	2.6	2.6
87.5°	2.6	1.7	1.7	1.7	0.9	0.9	0.9	0.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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















(END OF REPORT)