

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: P179922

Luminaire Tested: **LDA6A65935D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179922  
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: LDA6A65935D010TE 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: 4729.9 lumens  
Efficiency: N/A  
Efficacy: 60.6 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

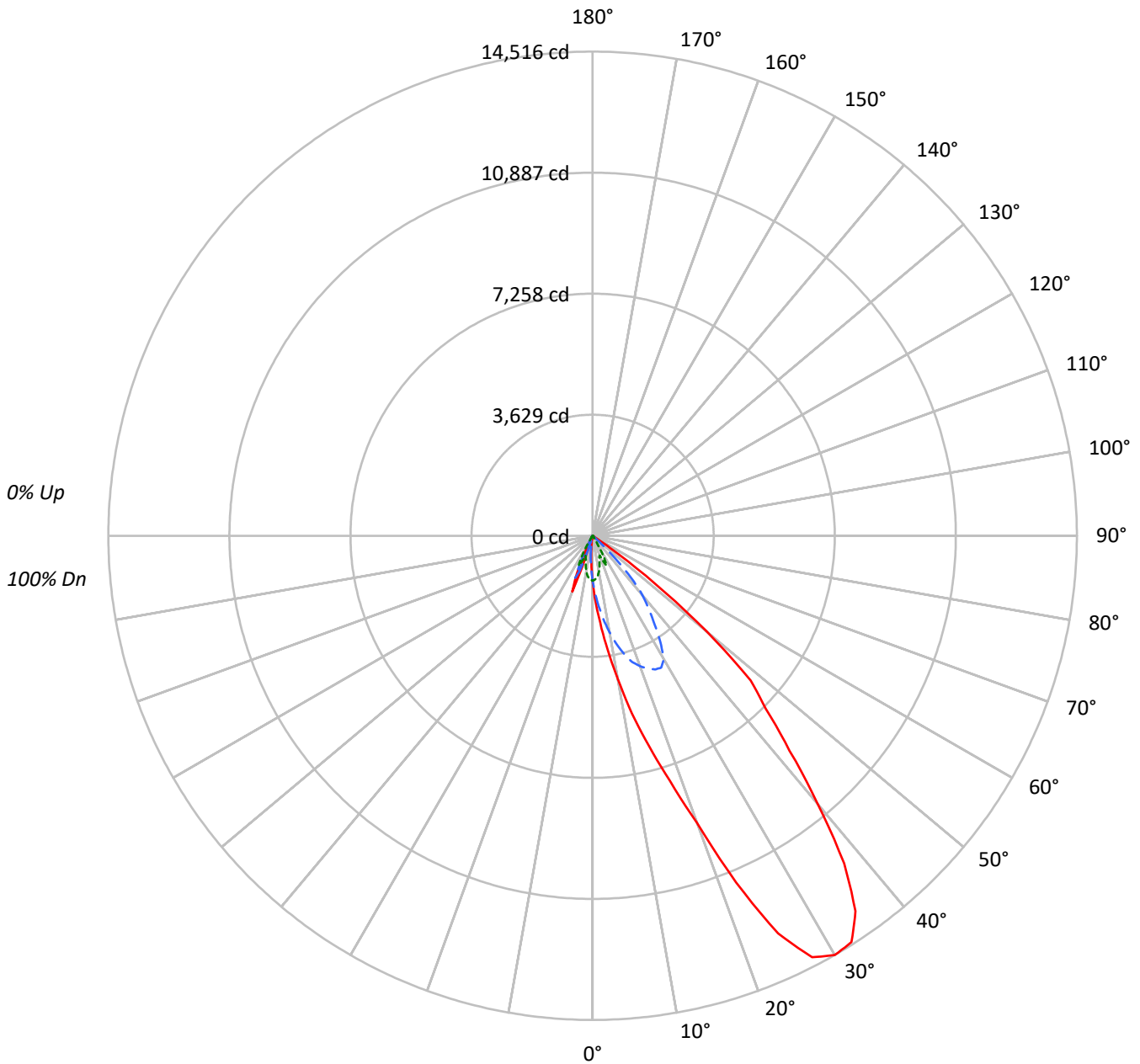
Input Watts (W): 78  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
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	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°	73810	73810	73810
5°	144315	70163	25594
10°	242904	60242	5678
15°	369917	45619	9319
20°	534543	36952	103959
25°	795536	59786	30044
30°	918869	20465	5938
35°	919162	4571	3206
40°	751265	2555	1968
45°	568896	1659	1264
50°	377804	1134	870
55°	60739	975	679
60°	3805	1009	559
65°	1193	1323	662
70°	657	1475	817
75°	424	1737	1080
80°	316	2589	1610
85°	629	5158	1950



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	140.6	3.0
10°-20°	600.9	12.7
20°-30°	1414.7	29.9
30°-40°	1490.6	31.5
40°-50°	929.4	19.6
50°-60°	133.6	2.8
60°-70°	8.5	0.2
70°-80°	6.7	0.1
80°-90°	5.0	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°	2156.2	45.6
0°-40°	3646.7	77.1
0°-60°	4709.7	99.6
0°-90°	4729.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4729.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1346	1346	1346	1346	1346	
5°	2622	2123	1275	662	465	304
15°	6518	3689	804	140	164	1941
25°	13152	4423	988	715	497	5918
35°	13735	3240	68	63	48	8285
45°	7338	897	21	24	16	5743
55°	636	16	10	11	7	1142
65°	9	7	10	8	5	13
75°	2	5	8	8	5	2
85°	1	5	8	6	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°	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4
2.5°	1965.6	1952.3	1956.4	1925.8	1885.0	1903.4	1857.5	1858.5	1829.9	1757.5	1725.9
5°	2622.5	2620.4	2617.4	2561.3	2488.8	2497.0	2429.7	2404.2	2330.7	2203.2	2122.7
7.5°	3438.5	3439.5	3424.2	3287.5	3206.9	3201.8	3095.8	3019.3	2882.6	2681.6	2534.7
10°	4363.6	4392.2	4364.7	4154.5	4004.6	4006.6	3815.9	3669.0	3449.7	3157.0	2947.9
12.5°	5450.0	5454.0	5411.2	5134.8	4906.3	4889.0	4632.9	4352.4	4018.9	3636.4	3332.4
15°	6517.9	6546.5	6491.4	6150.7	5832.5	5784.5	5458.1	5087.9	4673.7	4107.6	3689.4
17.5°	7702.2	7657.3	7511.4	7023.9	6641.4	6571.0	6220.1	5735.6	5207.2	4522.8	3974.0
20°	9162.8	9178.1	8869.1	8140.8	7494.1	7219.7	6812.7	6282.3	5623.4	4827.8	4163.7
22.5°	11249.8	11167.2	10504.2	9326.0	8354.0	7987.8	7407.4	6676.0	5934.5	5059.3	4305.5
25°	13152.1	12934.9	12323.9	10703.1	9181.2	8728.3	8127.5	7011.6	6192.5	5230.7	4422.8
27.5°	14244.6	14147.7	13455.1	11820.0	9849.3	9211.8	8366.2	7258.5	6345.5	5315.3	4456.5
30°	14515.9	14533.2	13917.2	12190.3	10007.4	9279.1	8405.0	7251.3	6242.5	5164.4	4262.7
32.5°	14446.5	14352.7	13582.6	11781.2	9586.1	8923.1	8025.5	6927.0	5832.5	4714.5	3780.2
35°	13734.6	13596.9	12649.3	10717.3	8871.1	8226.5	7412.5	6395.5	5260.2	4141.3	3239.6
37.5°	12380.0	12220.9	11127.4	9440.3	8013.3	7467.6	6763.8	5803.9	4681.9	3606.8	2764.3
40°	10498.0	10300.2	9386.2	8216.3	7091.2	6709.7	6115.0	5128.7	4082.1	3100.9	2325.6
42.5°	8738.5	8643.6	8094.9	7091.2	6333.3	5965.1	5365.3	4447.3	3484.4	2583.7	1721.8
45°	7338.0	7274.8	6910.6	6273.1	5504.0	5159.3	4594.2	3698.6	2651.0	1740.2	896.6
47.5°	6423.1	6261.9	5905.9	5236.8	4382.0	3952.6	3414.0	2436.8	1495.3	771.1	275.4
50°	4429.9	4445.2	4043.4	3305.9	2578.6	2215.5	1829.9	1121.0	494.7	168.3	47.9
52.5°	2332.8	2160.4	1877.9	1402.5	976.2	744.6	543.7	224.4	89.8	33.7	25.5
55°	635.5	558.0	445.7	315.2	170.3	119.3	78.5	41.8	29.6	23.5	16.3
57.5°	62.2	59.2	54.1	43.9	37.7	34.7	31.6	25.5	20.4	14.3	10.2
60°	34.7	33.7	31.6	27.5	24.5	22.4	20.4	17.3	12.2	9.2	8.2
62.5°	19.4	18.4	17.3	15.3	13.3	12.2	12.2	10.2	8.2	7.1	7.1
65°	9.2	9.2	9.2	9.2	9.2	8.2	7.1	7.1	7.1	7.1	7.1
67.5°	7.1	7.1	7.1	6.1	6.1	6.1	6.1	6.1	6.1	5.1	6.1
70°	4.1	4.1	5.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.1
72.5°	2.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.1	4.1	5.1
75°	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1	4.1	4.1	5.1
77.5°	2.0	2.0	2.0	2.0	2.0	2.0	3.1	3.1	4.1	4.1	5.1
80°	1.0	1.0	1.0	2.0	2.0	2.0	2.0	3.1	4.1	4.1	5.1
82.5°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.1	4.1	4.1	5.1
85°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.1	3.1	4.1	5.1
87.5°	0.0	0.0	1.0	1.0	2.0	2.0	2.0	3.1	3.1	4.1	5.1
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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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4
2.5°	1693.2	1643.3	1593.3	1543.3	1541.3	1511.7	1467.8	1409.7	1361.7	1320.9	1281.1
5°	2042.1	1939.1	1836.0	1733.0	1702.4	1649.4	1554.5	1447.4	1355.6	1275.0	1197.5
7.5°	2391.9	2218.5	2055.3	1894.2	1829.9	1749.3	1601.4	1446.4	1313.8	1195.5	1080.2
10°	2704.1	2452.1	2222.6	1996.2	1903.4	1798.3	1599.4	1402.5	1234.2	1082.2	935.4
12.5°	2991.7	2640.8	2350.1	2064.5	1938.0	1810.5	1567.8	1333.2	1132.2	950.7	781.3
15°	3244.7	2814.2	2439.9	2095.1	1940.1	1787.1	1501.5	1237.3	1011.9	803.8	620.2
17.5°	3425.2	2900.9	2469.5	2067.6	1887.0	1715.7	1403.5	1121.0	878.2	661.0	483.5
20°	3535.4	2936.6	2454.2	2016.6	1824.8	1647.3	1331.1	1056.7	821.1	633.4	513.1
22.5°	3607.8	2971.3	2460.3	2015.6	1823.8	1656.5	1361.7	1104.7	912.9	811.9	797.7
25°	3685.3	3020.3	2505.2	2061.5	1883.0	1727.9	1442.3	1191.4	1031.2	988.4	994.5
27.5°	3681.3	2998.9	2462.3	2021.7	1834.0	1676.9	1342.3	1025.1	875.2	754.8	711.0
30°	3461.9	2751.0	2170.6	1676.9	1455.6	1262.8	822.1	534.5	369.2	323.3	277.4
32.5°	2948.9	2228.7	1622.9	1159.8	910.9	680.4	323.3	171.4	145.9	122.4	111.2
35°	2452.1	1776.9	1213.8	700.8	442.7	274.4	116.3	76.5	72.4	68.3	68.3
37.5°	2026.8	1395.4	784.4	295.8	162.2	98.9	56.1	51.0	49.0	47.9	47.9
40°	1585.1	909.9	339.7	97.9	52.0	44.9	39.8	37.7	36.7	35.7	36.7
42.5°	935.4	366.2	98.9	36.7	34.7	32.6	29.6	28.6	28.6	27.5	28.6
45°	318.2	94.9	32.6	26.5	24.5	24.5	22.4	22.4	22.4	21.4	23.5
47.5°	82.6	29.6	21.4	19.4	18.4	18.4	17.3	17.3	17.3	17.3	18.4
50°	28.6	19.4	15.3	14.3	13.3	14.3	13.3	13.3	13.3	13.3	14.3
52.5°	17.3	13.3	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
55°	11.2	10.2	9.2	9.2	9.2	9.2	9.2	10.2	10.2	10.2	10.2
57.5°	9.2	8.2	8.2	8.2	8.2	8.2	9.2	8.2	8.2	9.2	10.2
60°	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	9.2	9.2	10.2
62.5°	7.1	8.2	8.2	8.2	8.2	8.2	8.2	9.2	9.2	9.2	10.2
65°	7.1	7.1	7.1	8.2	8.2	8.2	9.2	9.2	9.2	10.2	10.2
67.5°	6.1	6.1	7.1	7.1	8.2	8.2	8.2	9.2	9.2	9.2	10.2
70°	6.1	6.1	6.1	7.1	7.1	7.1	7.1	8.2	8.2	9.2	9.2
72.5°	5.1	6.1	6.1	7.1	7.1	7.1	7.1	8.2	8.2	8.2	9.2
75°	5.1	6.1	6.1	7.1	7.1	7.1	7.1	7.1	8.2	8.2	9.2
77.5°	5.1	6.1	6.1	7.1	7.1	7.1	7.1	8.2	8.2	8.2	9.2
80°	5.1	6.1	6.1	7.1	7.1	7.1	7.1	8.2	8.2	8.2	8.2
82.5°	5.1	6.1	6.1	7.1	7.1	7.1	7.1	8.2	8.2	8.2	8.2
85°	5.1	6.1	6.1	7.1	7.1	7.1	7.1	7.1	8.2	8.2	8.2
87.5°	5.1	6.1	6.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
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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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4
2.5°	1226.1	1208.7	1147.5	1139.4	1129.2	1079.2	1058.8	1024.1	975.1	960.9	943.5
5°	1106.7	1049.6	959.8	935.4	908.8	830.3	782.4	725.2	662.0	627.3	594.7
7.5°	954.7	875.2	755.8	707.9	678.3	592.6	516.1	439.6	346.8	293.8	260.1
10°	785.4	676.3	551.8	496.7	457.0	332.5	260.1	226.4	194.8	169.3	146.9
12.5°	615.1	491.6	350.9	287.6	256.0	212.2	172.4	130.6	116.3	115.3	111.2
15°	450.8	313.1	236.6	213.2	190.7	136.7	135.7	135.7	139.7	142.8	143.8
17.5°	332.5	275.4	216.2	202.0	212.2	220.3	234.6	256.0	273.4	322.3	312.1
20°	487.6	483.5	527.4	583.5	623.2	707.9	815.0	936.4	1062.9	1203.6	1310.7
22.5°	836.4	938.4	1018.0	1085.3	1121.0	1216.9	1301.5	1343.4	1367.8	1355.6	1338.3
25°	1022.1	1058.8	1034.3	1010.8	1013.9	927.2	864.0	783.4	715.0	652.8	616.1
27.5°	611.0	559.0	485.5	434.5	424.3	366.2	323.3	278.5	265.2	224.4	207.1
30°	220.3	205.0	181.6	163.2	161.2	145.9	136.7	126.5	125.5	116.3	111.2
32.5°	100.0	100.0	91.8	93.8	91.8	88.7	87.7	84.7	84.7	81.6	79.6
35°	65.3	66.3	65.3	65.3	64.3	64.3	64.3	62.2	63.2	61.2	58.1
37.5°	47.9	49.0	46.9	47.9	47.9	47.9	47.9	46.9	45.9	43.9	42.8
40°	36.7	36.7	36.7	36.7	36.7	36.7	36.7	35.7	35.7	34.7	32.6
42.5°	28.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	28.6	28.6
45°	23.5	24.5	23.5	24.5	24.5	24.5	23.5	23.5	23.5	22.4	21.4
47.5°	18.4	18.4	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	16.3
50°	14.3	14.3	14.3	14.3	14.3	14.3	15.3	14.3	14.3	14.3	14.3
52.5°	11.2	12.2	12.2	13.3	13.3	13.3	13.3	13.3	12.2	12.2	11.2
55°	10.2	11.2	11.2	12.2	12.2	12.2	12.2	11.2	11.2	11.2	10.2
57.5°	10.2	11.2	11.2	11.2	11.2	11.2	11.2	10.2	10.2	9.2	9.2
60°	10.2	10.2	10.2	11.2	11.2	10.2	10.2	9.2	9.2	8.2	8.2
62.5°	10.2	10.2	10.2	11.2	11.2	10.2	10.2	9.2	8.2	8.2	7.1
65°	10.2	11.2	10.2	11.2	11.2	10.2	10.2	9.2	8.2	8.2	7.1
67.5°	10.2	11.2	11.2	11.2	10.2	10.2	10.2	9.2	8.2	8.2	7.1
70°	9.2	10.2	10.2	10.2	10.2	10.2	9.2	9.2	8.2	8.2	7.1
72.5°	9.2	10.2	9.2	10.2	10.2	9.2	9.2	9.2	8.2	8.2	7.1
75°	9.2	9.2	9.2	9.2	9.2	9.2	9.2	8.2	8.2	7.1	7.1
77.5°	9.2	9.2	9.2	9.2	9.2	9.2	8.2	8.2	8.2	7.1	7.1
80°	9.2	9.2	9.2	9.2	9.2	9.2	8.2	8.2	7.1	7.1	6.1
82.5°	8.2	9.2	9.2	9.2	9.2	9.2	8.2	8.2	7.1	7.1	6.1
85°	8.2	8.2	8.2	8.2	8.2	8.2	7.1	7.1	6.1	5.1	5.1
87.5°	7.1	8.2	7.1	7.1	7.1	7.1	6.1	5.1	4.1	4.1	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





TEST NUMBER: P179922

CATALOG NUMBER: LDA6A65935D010TE LARH20SP 6LAL1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4	1346.4
2.5°	916.0	890.5	891.5	895.6	870.1	856.8	853.8	840.5
5°	550.8	521.2	516.1	512.1	476.3	462.1	450.8	465.1
7.5°	236.6	225.4	223.4	220.3	204.0	195.8	191.8	195.8
10°	117.3	110.2	111.2	112.2	107.1	104.0	103.0	102.0
12.5°	116.3	115.3	116.3	116.3	117.3	115.3	116.3	116.3
15°	151.0	151.0	154.0	156.1	161.2	160.1	162.2	164.2
17.5°	376.4	357.0	367.2	367.2	413.1	372.3	407.0	375.4
20°	1479.0	1548.4	1618.8	1677.9	1738.1	1756.5	1792.2	1782.0
22.5°	1311.7	1319.9	1309.7	1298.5	1295.4	1298.5	1243.4	1251.6
25°	563.1	559.0	542.7	525.3	530.4	534.5	515.1	496.7
27.5°	192.8	187.7	182.6	178.5	176.5	173.4	167.3	163.2
30°	109.1	106.1	104.0	103.0	101.0	98.9	95.9	93.8
32.5°	78.5	76.5	75.5	74.5	72.4	70.4	67.3	66.3
35°	58.1	56.1	55.1	54.1	52.0	50.0	49.0	47.9
37.5°	42.8	40.8	40.8	40.8	37.7	35.7	34.7	33.7
40°	32.6	31.6	31.6	31.6	29.6	28.6	27.5	27.5
42.5°	28.6	27.5	27.5	27.5	25.5	24.5	24.5	23.5
45°	21.4	20.4	20.4	19.4	18.4	18.4	17.3	16.3
47.5°	16.3	15.3	15.3	15.3	14.3	13.3	13.3	12.2
50°	13.3	13.3	12.2	13.3	11.2	11.2	11.2	10.2
52.5°	11.2	11.2	10.2	10.2	9.2	9.2	9.2	8.2
55°	10.2	9.2	9.2	9.2	8.2	8.2	8.2	7.1
57.5°	8.2	8.2	7.1	7.1	6.1	6.1	6.1	6.1
60°	7.1	7.1	6.1	6.1	5.1	5.1	5.1	5.1
62.5°	7.1	6.1	6.1	6.1	5.1	5.1	5.1	5.1
65°	7.1	6.1	6.1	6.1	5.1	5.1	5.1	5.1
67.5°	7.1	6.1	6.1	6.1	5.1	5.1	5.1	5.1
70°	7.1	7.1	6.1	6.1	6.1	5.1	5.1	5.1
72.5°	7.1	7.1	6.1	6.1	6.1	6.1	5.1	5.1
75°	6.1	6.1	6.1	6.1	5.1	5.1	5.1	5.1
77.5°	6.1	6.1	6.1	6.1	5.1	5.1	5.1	5.1
80°	6.1	6.1	5.1	5.1	5.1	5.1	5.1	5.1
82.5°	6.1	5.1	5.1	5.1	5.1	4.1	4.1	4.1
85°	4.1	4.1	4.1	4.1	3.1	3.1	3.1	3.1
87.5°	3.1	2.0	2.0	2.0	1.0	1.0	1.0	1.0
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)