

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: P179640

Luminaire Tested: **LDA6A45927D010TE LARH20SP 6LA1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179640  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26670)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA6A45927D010TE LARH20SP 6LA1LI 30°  
Description: PORTFOLIO 6" Adjustable Reflector, Angle-cut Trim, Self-flanged, 20° Spot, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3419.3 lumens  
Efficiency: N/A  
Efficacy: 64.5 lumens/watt  
Spacing Criteria (0/90/45): 2.28 / 0.6 / 1.28  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

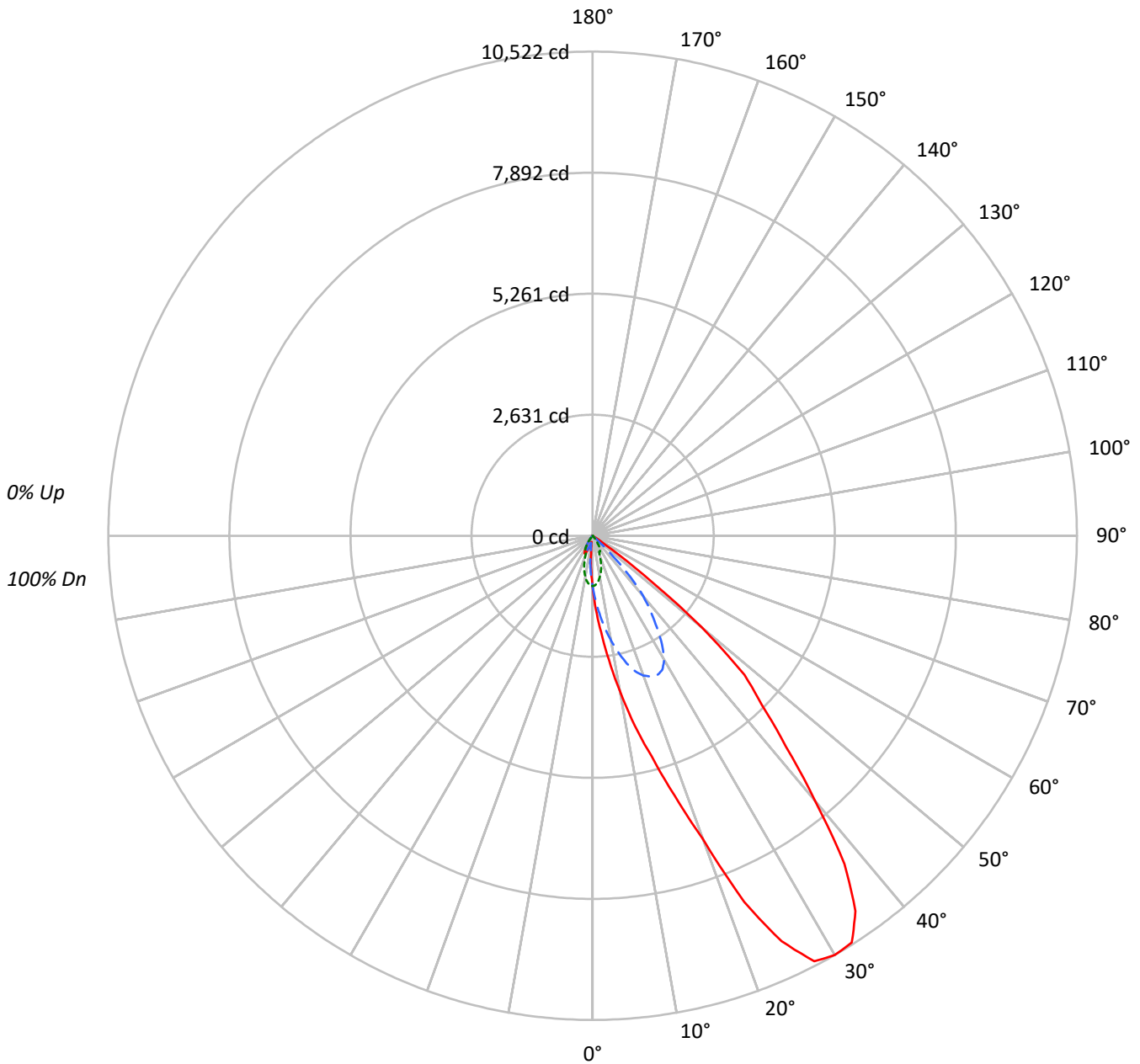
Input Watts (W): 53  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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	84	83																			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	75																			
4	92	84	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67																			
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	61																			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55																			
7	76	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	48	43	65	54	47	43	53	47	43	52	47	43	51	46	42	41																			
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	37																			

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

	0°	90°	180°
0°	59990	59990	59990
5°	115452	57473	21528
10°	190967	50439	7743
15°	281931	40693	12344
20°	409372	25914	20891
25°	588076	22640	25332
30°	666071	19604	18440
35°	666132	10186	9463
40°	538029	3793	3957
45°	402879	1310	1427
50°	263744	520	461
55°	30995	440	76
60°	932	504	0
65°	195	597	0
70°	128	737	0
75°	0	1144	0
80°	0	1705	253
85°	0	3397	503



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	112.9	3.3
10°-20°	457.5	13.4
20°-30°	1003.8	29.4
30°-40°	1114.3	32.6
40°-50°	645.1	18.9
50°-60°	76.6	2.2
60°-70°	2.9	0.1
70°-80°	3.2	0.1
80°-90°	3.0	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°	1574.2	46.0
0°-40°	2688.4	78.6
0°-60°	3410.1	99.7
0°-90°	3419.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3419.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1094	1094	1094	1094	1094	
5°	2098	1696	1044	598	391	241
15°	4968	2873	717	194	218	1492
25°	9722	3337	374	416	419	4391
35°	9954	2434	152	150	141	6001
45°	5197	573	17	20	18	4061
55°	324	5	5	3	1	713
65°	2	3	5	3	0	3
75°	0	3	5	3	0	0
85°	0	3	5	3	1	0
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°	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3
2.5°	1591.6	1560.1	1528.6	1526.2	1500.1	1465.5	1489.4	1438.6	1454.0	1415.6	1391.8
5°	2098.0	2063.4	2017.3	2004.3	1959.7	1908.2	1927.4	1838.3	1829.0	1755.3	1696.1
7.5°	2719.0	2679.0	2606.8	2572.2	2498.4	2421.6	2430.8	2287.8	2244.8	2123.4	2015.0
10°	3430.6	3402.2	3298.4	3226.9	3110.9	2998.7	2979.5	2768.1	2674.4	2483.8	2313.2
12.5°	4229.1	4186.8	4043.1	3934.7	3776.4	3634.3	3592.0	3289.2	3120.9	2845.0	2602.9
15°	4967.6	4939.2	4815.4	4652.5	4451.9	4268.3	4196.0	3842.5	3576.6	3210.0	2873.4
17.5°	5914.4	5836.0	5613.1	5293.5	5006.8	4823.9	4736.3	4293.6	3967.8	3520.5	3090.9
20°	7017.2	6911.2	6569.9	6127.3	5651.6	5330.3	5137.4	4661.0	4257.5	3738.0	3232.3
22.5°	8613.4	8397.4	7749.6	6956.5	6294.8	5866.0	5590.1	4897.7	4468.8	3874.0	3310.7
25°	9722.3	9532.5	8940.8	7897.9	6837.4	6344.0	5955.9	5093.6	4607.2	3954.7	3336.8
27.5°	10424.7	10324.1	9643.2	8601.1	7257.0	6615.3	6176.5	5217.4	4659.4	3952.4	3283.8
30°	10522.3	10528.5	9896.8	8789.4	7290.0	6622.2	6128.8	5164.3	4551.1	3803.3	3109.4
32.5°	10480.1	10396.3	9617.1	8432.8	6924.2	6337.8	5869.1	4940.7	4289.8	3503.6	2806.6
35°	9953.7	9766.9	8943.1	7636.6	6391.6	5833.7	5396.4	4582.6	3874.0	3106.3	2433.9
37.5°	8988.4	8692.5	7772.6	6659.9	5738.4	5246.6	4916.1	4124.6	3443.7	2692.8	2063.4
40°	7518.3	7200.1	6551.5	5774.5	5048.3	4710.9	4393.5	3622.0	2958.7	2270.2	1705.3
42.5°	6220.3	6045.8	5561.7	4966.8	4483.4	4136.1	3833.3	3098.6	2494.6	1859.0	1208.1
45°	5196.6	5078.3	4773.2	4336.7	3857.1	3540.5	3264.6	2515.3	1822.9	1180.4	573.3
47.5°	4475.0	4343.6	3997.8	3538.2	2974.9	2630.6	2320.1	1568.5	995.2	456.5	133.7
50°	3092.5	2937.2	2569.1	2126.4	1644.6	1385.6	1168.9	634.0	261.3	79.2	15.4
52.5°	1399.4	1291.9	1061.3	813.8	538.0	399.6	260.5	109.9	27.7	11.5	8.5
55°	324.3	284.3	215.9	133.0	66.1	43.8	29.2	11.5	8.5	6.1	4.6
57.5°	20.7	18.4	16.1	13.1	10.8	9.2	8.5	6.1	4.6	3.8	3.1
60°	8.5	8.5	7.7	6.1	5.4	4.6	4.6	3.1	3.1	3.1	3.1
62.5°	3.8	3.8	3.8	3.1	2.3	2.3	2.3	2.3	2.3	2.3	3.1
65°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3	2.3	3.1
67.5°	0.8	0.8	0.8	0.8	1.5	1.5	1.5	1.5	2.3	2.3	3.1
70°	0.8	0.8	0.8	0.8	1.5	1.5	1.5	1.5	2.3	3.1	3.1
72.5°	0.0	0.8	0.8	0.8	1.5	1.5	1.5	1.5	2.3	3.1	3.1
75°	0.0	0.0	0.8	0.8	0.8	1.5	1.5	1.5	2.3	3.1	3.1
77.5°	0.0	0.0	0.8	0.8	1.5	1.5	1.5	1.5	2.3	3.1	3.1
80°	0.0	0.0	0.8	0.8	0.8	1.5	1.5	1.5	2.3	3.1	3.1
82.5°	0.0	0.0	0.8	0.8	0.8	1.5	1.5	1.5	2.3	3.1	3.1
85°	0.0	0.0	0.8	0.8	0.8	1.5	1.5	1.5	2.3	3.1	3.1
87.5°	0.0	0.0	0.8	0.8	0.8	1.5	1.5	1.5	2.3	3.1	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



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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3
2.5°	1356.4	1323.4	1288.8	1253.4	1237.3	1211.2	1169.7	1140.5	1114.3	1079.7	1035.9
5°	1624.6	1550.8	1473.2	1401.0	1365.6	1319.5	1238.8	1173.5	1112.8	1044.4	976.8
7.5°	1892.1	1764.5	1641.5	1523.9	1467.1	1401.0	1276.5	1175.8	1080.5	986.0	893.8
10°	2129.5	1945.1	1769.1	1605.4	1528.6	1440.2	1277.3	1142.8	1022.9	906.1	794.6
12.5°	2350.9	2101.1	1871.3	1659.2	1558.5	1452.5	1255.0	1095.1	951.4	815.4	685.5
15°	2546.1	2231.0	1943.5	1684.6	1567.0	1440.2	1214.2	1031.3	870.7	717.0	550.2
17.5°	2685.2	2305.5	1969.7	1670.0	1537.8	1397.1	1148.1	952.2	778.5	589.4	390.4
20°	2758.9	2328.6	1952.8	1623.8	1481.7	1329.5	1070.5	868.4	669.4	444.2	318.9
22.5°	2785.1	2314.7	1905.9	1558.5	1408.7	1254.2	991.4	780.8	544.1	376.6	326.6
25°	2772.8	2273.2	1845.2	1481.7	1331.8	1176.6	914.5	668.6	440.4	374.3	348.1
27.5°	2690.5	2180.2	1731.4	1366.4	1215.8	1062.1	780.8	493.4	389.6	351.2	358.1
30°	2509.2	1991.2	1537.0	1178.1	1035.9	873.8	531.0	362.7	305.9	309.7	309.7
32.5°	2217.1	1708.4	1265.7	936.0	752.4	544.9	302.8	227.5	231.3	230.6	227.5
35°	1859.0	1395.6	971.4	574.8	368.9	250.5	152.9	148.3	152.9	152.2	149.9
37.5°	1530.1	1069.8	601.7	230.6	148.3	108.4	90.7	90.7	92.2	92.2	91.5
40°	1154.3	628.6	210.6	76.1	53.0	50.7	51.5	51.5	52.3	53.0	53.8
42.5°	646.3	207.5	55.3	30.0	30.0	28.4	28.4	28.4	30.0	30.0	30.7
45°	174.5	44.6	18.4	17.7	16.9	16.1	16.1	16.1	16.9	16.9	17.7
47.5°	26.1	13.1	10.8	10.0	10.0	9.2	9.2	9.2	10.0	10.0	10.0
50°	10.0	7.7	6.9	6.1	6.1	6.1	5.4	5.4	6.1	6.1	6.1
52.5°	6.1	5.4	4.6	3.8	4.6	3.8	3.8	3.8	4.6	4.6	4.6
55°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.6	4.6
57.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.6	4.6
60°	3.1	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.6	4.6	4.6
62.5°	3.1	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.6	4.6	4.6
65°	3.1	3.8	3.8	3.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6
67.5°	3.1	3.8	3.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
70°	3.8	3.8	3.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
72.5°	3.8	3.8	3.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.4
75°	3.8	3.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.4	5.4
77.5°	3.8	3.8	4.6	4.6	4.6	4.6	4.6	4.6	5.4	5.4	5.4
80°	3.8	3.8	4.6	4.6	4.6	4.6	4.6	4.6	5.4	5.4	5.4
82.5°	3.8	3.8	4.6	4.6	4.6	5.4	4.6	5.4	5.4	5.4	5.4
85°	3.8	3.8	4.6	4.6	4.6	4.6	4.6	5.4	5.4	5.4	5.4
87.5°	3.8	3.8	4.6	4.6	4.6	5.4	4.6	4.6	5.4	5.4	5.4
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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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3
2.5°	1005.2	987.5	955.2	933.0	923.7	905.3	870.7	866.9	825.4	803.9	781.6
5°	919.1	875.3	820.8	786.2	766.2	727.0	673.2	648.6	597.9	564.9	516.4
7.5°	813.8	746.2	671.7	627.9	595.6	529.5	434.2	377.3	302.0	258.2	226.7
10°	693.2	603.3	490.3	418.1	365.0	287.4	228.2	209.8	189.8	173.7	158.3
12.5°	551.8	400.4	291.3	249.0	229.0	206.0	181.4	159.8	156.0	157.5	162.9
15°	375.8	267.4	230.6	213.6	199.8	177.5	182.9	189.1	194.4	198.3	205.2
17.5°	282.8	247.5	211.3	212.1	217.5	222.9	231.3	240.5	248.2	253.6	262.8
20°	279.0	256.7	261.3	270.5	276.7	284.3	298.9	307.4	317.4	324.3	334.3
22.5°	303.6	323.5	329.7	336.6	345.8	354.3	369.7	381.2	388.9	395.8	402.7
25°	360.4	375.8	381.2	386.6	392.7	398.9	408.8	418.8	416.5	418.8	419.6
27.5°	364.3	375.8	378.1	381.2	381.2	386.6	386.6	392.7	382.7	381.2	378.1
30°	313.5	317.4	319.7	319.7	316.6	320.5	316.6	321.2	309.7	305.9	302.0
32.5°	231.3	236.7	234.4	233.6	231.3	235.2	230.6	235.2	225.2	222.9	219.0
35°	148.3	156.8	152.9	155.2	153.7	157.5	154.5	157.5	149.9	149.1	146.8
37.5°	93.0	96.1	94.5	95.3	95.3	97.6	96.1	97.6	94.5	94.5	92.2
40°	54.6	56.1	56.1	56.9	57.6	58.4	57.6	59.2	57.6	58.4	56.1
42.5°	31.5	32.3	32.3	33.0	33.8	33.8	33.8	35.4	33.8	34.6	33.0
45°	17.7	19.2	18.4	19.2	19.2	20.0	20.0	20.0	20.0	20.0	19.2
47.5°	10.8	11.5	11.5	11.5	11.5	11.5	12.3	12.3	11.5	11.5	11.5
50°	6.9	6.9	6.9	6.9	7.7	7.7	7.7	6.9	6.9	6.9	6.1
52.5°	4.6	4.6	4.6	4.6	5.4	4.6	4.6	4.6	3.8	3.8	3.8
55°	4.6	4.6	4.6	4.6	4.6	3.8	3.8	3.8	3.1	2.3	2.3
57.5°	4.6	4.6	4.6	4.6	4.6	3.8	3.8	3.1	3.1	2.3	2.3
60°	4.6	4.6	4.6	4.6	4.6	3.8	3.8	3.1	3.1	2.3	2.3
62.5°	4.6	4.6	4.6	4.6	4.6	3.8	3.8	3.1	3.1	2.3	2.3
65°	4.6	4.6	4.6	4.6	4.6	3.8	3.8	3.8	3.1	2.3	2.3
67.5°	4.6	5.4	4.6	4.6	4.6	4.6	3.8	3.8	3.1	2.3	2.3
70°	4.6	5.4	4.6	4.6	4.6	4.6	3.8	3.8	3.1	2.3	2.3
72.5°	5.4	5.4	5.4	4.6	4.6	4.6	4.6	3.8	3.1	2.3	2.3
75°	5.4	5.4	5.4	4.6	4.6	4.6	4.6	3.8	3.1	2.3	2.3
77.5°	5.4	5.4	5.4	5.4	5.4	4.6	4.6	3.8	3.1	3.1	2.3
80°	5.4	5.4	5.4	5.4	5.4	4.6	4.6	3.8	3.1	3.1	2.3
82.5°	5.4	5.4	5.4	5.4	5.4	4.6	4.6	3.8	3.1	3.1	2.3
85°	5.4	5.4	5.4	5.4	5.4	4.6	4.6	3.8	3.1	3.1	2.3
87.5°	5.4	5.4	5.4	5.4	5.4	4.6	4.6	3.8	3.1	3.1	2.3
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: P179640

CATALOG NUMBER: LDA6A45927D010TE LARH20SP 6LA1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3	1094.3
2.5°	786.9	779.3	773.9	761.6	754.7	747.0	735.5	730.1
5°	499.5	476.5	461.9	440.4	407.3	415.0	397.3	391.2
7.5°	215.2	205.2	202.1	197.5	189.8	186.0	185.2	183.7
10°	147.6	139.1	138.3	139.1	139.9	139.1	139.1	139.1
12.5°	166.0	166.8	168.3	170.6	171.4	171.4	170.6	170.6
15°	209.0	210.6	212.9	215.9	217.5	217.5	217.5	217.5
17.5°	268.2	270.5	274.4	277.4	280.5	280.5	280.5	281.3
20°	345.1	345.1	349.7	353.5	355.8	356.6	357.4	358.1
22.5°	413.5	414.2	417.3	420.4	422.7	421.9	420.4	420.4
25°	426.5	424.2	425.0	425.0	424.2	420.4	420.4	418.8
27.5°	380.4	377.3	377.3	375.0	374.3	372.7	369.7	368.1
30°	302.0	300.5	299.7	297.4	301.3	295.9	292.8	291.3
32.5°	217.5	218.3	217.5	215.2	219.0	213.6	212.1	209.8
35°	146.0	146.8	146.0	144.5	144.5	144.5	142.9	141.4
37.5°	92.2	91.5	92.2	92.2	93.8	91.5	91.5	89.9
40°	56.1	56.1	56.9	56.9	57.6	56.1	55.3	55.3
42.5°	33.0	33.0	33.8	33.8	34.6	33.0	33.0	33.0
45°	19.2	19.2	19.2	19.2	20.0	19.2	18.4	18.4
47.5°	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.0
50°	6.1	6.1	6.1	6.1	6.1	5.4	5.4	5.4
52.5°	3.8	3.1	3.1	3.1	3.1	2.3	2.3	2.3
55°	1.5	1.5	1.5	1.5	1.5	0.8	0.8	0.8
57.5°	1.5	1.5	1.5	0.8	0.8	0.8	0.0	0.0
60°	1.5	1.5	0.8	0.8	0.8	0.0	0.0	0.0
62.5°	1.5	1.5	0.8	0.8	0.8	0.0	0.0	0.0
65°	1.5	1.5	0.8	0.8	0.8	0.0	0.0	0.0
67.5°	1.5	1.5	1.5	0.8	0.8	0.0	0.0	0.0
70°	1.5	1.5	1.5	0.8	0.8	0.8	0.0	0.0
72.5°	1.5	1.5	1.5	0.8	0.8	0.8	0.0	0.0
75°	2.3	1.5	1.5	1.5	0.8	0.8	0.0	0.0
77.5°	2.3	1.5	1.5	1.5	0.8	0.8	0.8	0.0
80°	2.3	1.5	1.5	1.5	0.8	0.8	0.8	0.8
82.5°	2.3	1.5	1.5	1.5	0.8	0.8	0.8	0.8
85°	2.3	1.5	1.5	1.5	0.8	0.8	0.8	0.8
87.5°	2.3	1.5	1.5	1.5	0.8	0.8	0.0	0.0
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)