

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: P179674

Luminaire Tested: **LDA6A45935D010TE LARH30NF 6LAL1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179674  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26674)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA6A45935D010TE LARH30NF 6LAL1LI 30°  
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 30° Narrow Flood, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3834.4 lumens  
Efficiency: N/A  
Efficacy: 72.3 lumens/watt  
Spacing Criteria (0/90/45): 2.68 / 0.47 / 1.42  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

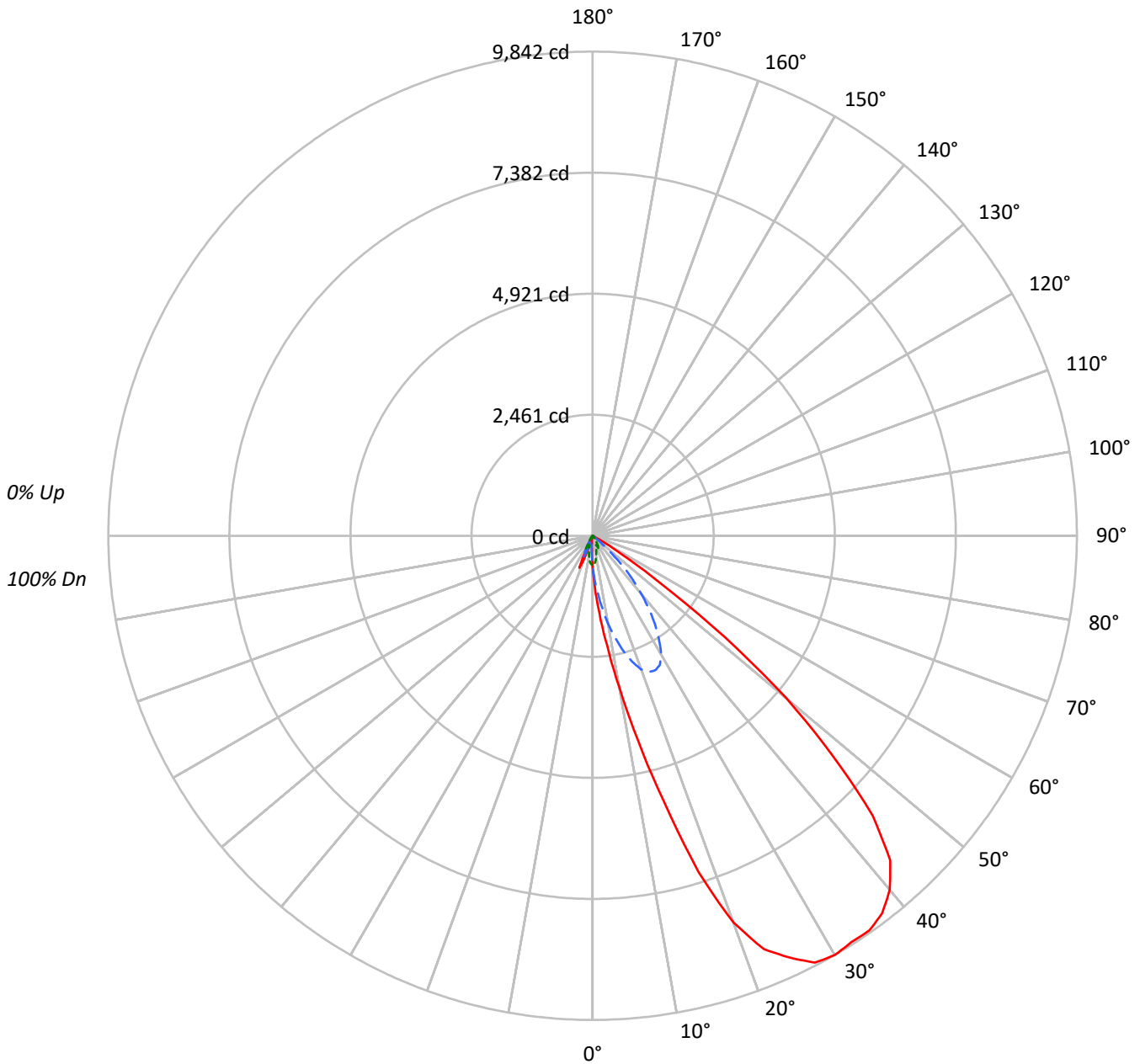
Input Watts (W): 53  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	112	109	106	103	110	107	104	101	102	100	98	99	97	95	95	94	92	91																			
2	105	99	94	89	102	97	92	88	94	90	86	90	87	85	88	85	83	81																			
3	98	89	83	78	95	88	82	78	85	80	76	83	79	75	80	77	74	72																			
4	91	81	74	69	89	80	73	68	78	72	67	75	71	67	73	69	66	64																			
5	84	74	66	61	82	73	66	61	71	65	60	69	64	59	67	63	59	57																			
6	78	67	59	54	77	66	59	54	65	58	53	63	57	53	61	57	53	51																			
7	73	61	54	48	71	60	53	48	59	53	48	58	52	47	56	51	47	45																			
8	68	56	48	43	66	55	48	43	54	48	43	53	47	43	52	46	42	41																			
9	63	51	44	39	62	51	44	39	50	43	39	49	43	39	48	42	38	37																			
10	59	47	40	35	58	47	40	35	46	39	35	45	39	35	44	39	35	33																			

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

	0°	90°	180°
0°	33122	33122	33122
5°	87288	30217	9746
10°	174284	23157	3869
15°	317300	16254	4234
20°	487902	11668	26696
25°	572198	17426	22090
30°	623001	10945	6438
35°	655699	4537	2664
40°	672360	2004	1517
45°	624142	1310	1116
50°	437785	1015	503
55°	160109	726	325
60°	33813	746	186
65°	2854	882	221
70°	946	1090	401
75°	169	1440	720
80°	253	2147	1073
85°	0	4277	1069



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	76.0	2.0
10°-20°	418.0	10.9
20°-30°	1010.2	26.3
30°-40°	1187.6	31.0
40°-50°	897.2	23.4
50°-60°	225.1	5.9
60°-70°	10.9	0.3
70°-80°	5.2	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°	1504.2	39.2
0°-40°	2691.9	70.2
0°-60°	3814.1	99.5
0°-90°	3834.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3834.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	604	604	604	604	604	
5°	1586	1152	549	233	177	198
15°	5591	2425	286	77	75	1692
25°	9460	3017	288	400	365	4352
35°	9798	2223	68	48	40	6101
45°	8051	874	17	18	14	5932
55°	1675	25	8	7	3	1853
65°	22	6	7	6	2	59
75°	1	4	7	6	3	2
85°	0	4	7	5	2	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°	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2
2.5°	1054.1	1037.1	1025.3	1005.0	994.8	999.0	977.8	949.0	940.6	915.1	871.1
5°	1586.2	1568.4	1540.5	1497.3	1465.1	1460.0	1418.5	1349.0	1304.9	1239.7	1151.5
7.5°	2239.5	2224.3	2177.7	2113.3	2059.0	2038.7	1977.7	1855.7	1758.2	1627.7	1476.1
10°	3130.9	3071.6	2984.3	2853.9	2729.3	2671.7	2564.1	2362.4	2203.9	2025.2	1819.2
12.5°	4248.6	4143.5	4002.0	3806.3	3591.9	3484.3	3313.1	3004.7	2727.6	2420.9	2120.9
15°	5590.8	5484.9	5279.8	4976.5	4631.6	4458.7	4206.2	3719.8	3307.2	2857.2	2425.1
17.5°	7174.5	7001.6	6728.8	6289.0	5755.2	5484.0	5126.4	4452.8	3837.6	3250.4	2691.2
20°	8363.3	8237.0	7978.6	7518.5	6882.1	6533.0	6052.6	5124.7	4330.8	3564.8	2892.8
22.5°	9092.9	8979.3	8742.1	8357.4	7772.7	7385.5	6844.0	5714.5	4713.8	3782.5	2993.7
25°	9459.8	9378.4	9213.2	8877.6	8366.7	7977.7	7430.4	6150.9	4973.1	3900.3	3017.4
27.5°	9782.6	9646.2	9377.6	9148.8	8696.3	8300.6	7782.0	6367.8	5063.7	3886.8	2957.2
30°	9841.9	9763.9	9552.1	9225.0	8803.9	8404.0	7857.4	6336.4	4961.2	3729.2	2793.7
32.5°	9791.1	9723.3	9563.1	9206.4	8735.3	8293.8	7693.9	6078.8	4660.4	3436.8	2517.5
35°	9797.8	9690.2	9409.8	9104.7	8516.7	7998.1	7293.9	5607.7	4239.3	3057.2	2223.4
37.5°	9668.2	9491.1	9259.8	8866.6	8072.6	7429.5	6624.5	5000.2	3732.6	2670.0	1880.3
40°	9395.4	9260.6	8953.0	8348.9	7316.0	6507.6	5763.6	4302.8	3179.2	2247.2	1532.8
42.5°	8949.7	8788.7	8359.1	7448.2	6220.4	5515.4	4846.0	3589.4	2635.2	1837.9	1203.2
45°	8050.6	7804.9	7243.1	6156.8	5109.5	4511.3	3965.6	2926.7	2136.2	1437.9	873.6
47.5°	6614.4	6405.1	5811.1	4904.4	4080.0	3617.3	3152.1	2308.2	1589.6	924.5	449.1
50°	5133.2	4968.0	4514.7	3719.0	3031.0	2581.9	2215.8	1473.5	847.3	425.4	201.7
52.5°	3377.5	3273.3	2884.4	2321.7	1740.4	1420.1	1153.2	639.7	394.9	189.0	69.5
55°	1675.2	1541.3	1355.8	1005.0	727.0	588.1	499.1	315.2	163.5	54.2	24.6
57.5°	683.0	653.3	588.1	454.2	349.1	294.9	235.6	98.3	36.4	22.0	15.3
60°	308.4	294.9	255.9	179.6	97.4	60.2	42.4	27.1	18.6	13.6	10.2
62.5°	54.2	50.0	44.1	33.9	27.1	23.7	20.3	15.3	11.9	9.3	7.6
65°	22.0	22.0	20.3	17.8	14.4	13.6	11.9	9.3	7.6	6.8	5.9
67.5°	11.9	11.0	11.0	9.3	8.5	7.6	6.8	5.9	5.9	5.1	5.1
70°	5.9	5.9	5.9	5.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2
72.5°	3.4	3.4	3.4	3.4	3.4	3.4	2.5	2.5	2.5	3.4	3.4
75°	0.8	0.8	0.8	0.8	1.7	1.7	1.7	2.5	3.4	3.4	4.2
77.5°	0.8	0.8	0.8	0.8	1.7	1.7	1.7	2.5	3.4	3.4	4.2
80°	0.8	0.8	0.8	0.8	1.7	1.7	1.7	2.5	3.4	3.4	4.2
82.5°	0.0	0.0	0.8	0.8	1.7	1.7	1.7	2.5	2.5	3.4	4.2
85°	0.0	0.0	0.8	0.8	1.7	1.7	1.7	2.5	2.5	3.4	4.2
87.5°	0.0	0.0	0.8	0.8	0.8	1.7	1.7	2.5	2.5	3.4	4.2
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°	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2
2.5°	869.4	825.3	791.4	759.2	751.6	725.3	700.8	658.4	620.3	584.7	544.0
5°	1117.6	1031.2	959.2	888.9	866.0	821.9	762.6	686.3	615.2	549.1	479.6
7.5°	1388.0	1241.4	1113.4	994.8	953.3	890.6	794.8	686.3	583.8	488.9	404.2
10°	1653.2	1434.6	1241.4	1070.2	1007.5	926.1	794.8	656.7	526.2	416.0	332.2
12.5°	1909.1	1609.1	1348.1	1121.9	1039.7	938.0	773.6	605.0	453.3	344.9	274.5
15°	2109.0	1756.5	1423.5	1142.2	1039.7	921.9	724.5	533.0	379.6	286.4	223.7
17.5°	2259.0	1843.8	1449.0	1122.7	1004.1	871.9	649.9	448.2	312.7	237.3	177.1
20°	2346.3	1865.9	1422.7	1066.0	936.3	796.5	557.6	369.4	265.2	200.0	143.2
22.5°	2366.6	1835.3	1361.7	993.1	859.2	717.7	476.2	330.5	255.9	204.2	178.8
25°	2343.8	1773.5	1281.2	919.4	786.3	646.5	446.6	355.9	306.7	288.1	308.4
27.5°	2253.1	1658.3	1182.0	837.2	703.3	572.8	423.7	358.4	308.4	300.0	290.6
30°	2091.2	1484.5	1029.5	684.7	543.1	434.7	300.8	213.5	170.3	172.9	171.2
32.5°	1837.9	1232.0	805.8	478.7	373.7	294.0	199.1	126.3	118.6	118.6	116.9
35°	1559.1	1000.7	605.9	336.4	260.1	206.8	118.6	92.4	78.0	67.8	61.0
37.5°	1275.3	778.7	417.7	227.1	165.2	105.9	56.8	46.6	41.5	39.0	38.1
40°	987.2	548.2	266.9	124.6	72.9	46.6	36.4	31.4	28.8	28.0	28.0
42.5°	730.4	353.3	144.0	49.1	39.0	32.2	26.3	22.9	22.0	22.0	21.2
45°	439.8	177.1	54.2	30.5	25.4	22.9	19.5	17.8	16.9	16.9	17.8
47.5°	203.4	66.1	29.7	20.3	18.6	16.9	15.3	14.4	14.4	14.4	15.3
50°	73.7	28.8	18.6	14.4	13.6	12.7	11.9	11.0	11.0	11.9	11.9
52.5°	28.0	17.8	13.6	11.0	10.2	10.2	9.3	9.3	9.3	9.3	9.3
55°	16.9	12.7	10.2	8.5	8.5	7.6	7.6	7.6	7.6	7.6	7.6
57.5°	11.0	9.3	7.6	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
60°	8.5	6.8	5.9	5.9	5.9	5.9	5.9	6.8	6.8	6.8	6.8
62.5°	6.8	5.9	5.9	5.9	5.9	5.9	5.9	5.9	6.8	6.8	6.8
65°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	6.8	6.8	6.8	7.6
67.5°	5.1	5.1	5.1	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8
70°	4.2	4.2	5.1	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8
72.5°	4.2	5.1	5.1	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8
75°	4.2	5.1	5.1	5.1	5.9	5.9	5.9	5.9	6.8	6.8	6.8
77.5°	4.2	5.1	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8	7.6
80°	4.2	5.1	5.1	5.9	5.9	5.9	5.9	6.8	6.8	6.8	7.6
82.5°	4.2	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8	7.6	7.6
85°	4.2	5.1	5.1	5.9	5.9	5.9	6.8	6.8	6.8	6.8	7.6
87.5°	4.2	5.1	5.1	5.9	5.9	5.9	5.9	6.8	6.8	6.8	6.8
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°	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2
2.5°	522.0	487.2	462.7	440.6	432.1	412.7	391.5	366.9	346.6	344.9	327.9
5°	433.0	384.7	350.0	327.9	316.9	296.6	272.0	255.9	233.0	226.2	209.3
7.5°	350.0	305.0	272.8	252.5	239.8	215.2	187.3	169.5	150.8	136.4	117.8
10°	284.7	241.5	206.8	186.4	173.7	147.4	118.6	98.3	81.3	78.0	76.3
12.5°	228.8	184.7	150.0	127.9	114.4	89.8	82.2	78.8	76.3	73.7	73.7
15°	177.9	133.0	95.7	87.3	84.7	82.2	80.5	78.8	77.1	76.3	77.1
17.5°	129.6	94.1	89.8	89.0	87.3	87.3	89.0	89.8	91.5	93.2	95.7
20°	114.4	115.2	124.6	131.3	128.8	141.5	159.3	173.7	208.4	229.6	258.4
22.5°	205.1	235.6	278.8	305.0	319.4	361.8	408.4	478.7	514.3	565.2	610.9
25°	350.8	386.4	423.7	433.8	441.5	445.7	439.8	407.6	399.9	385.5	381.3
27.5°	262.7	245.7	251.7	254.2	251.7	248.3	238.1	220.3	216.1	209.3	211.0
30°	155.1	150.0	156.8	155.9	155.9	155.9	152.5	138.1	131.3	123.7	118.6
32.5°	114.4	105.1	97.4	90.7	88.1	83.9	81.3	75.4	72.9	69.5	69.5
35°	56.8	54.2	54.2	52.5	51.7	52.5	52.5	50.0	48.3	47.5	47.5
37.5°	37.3	37.3	38.1	37.3	37.3	37.3	37.3	36.4	35.6	34.7	34.7
40°	28.0	28.0	28.8	28.8	28.0	28.0	28.0	27.1	27.1	27.1	27.1
42.5°	22.0	22.0	22.0	22.0	21.2	22.0	22.0	22.0	21.2	21.2	20.3
45°	18.6	17.8	17.8	17.8	17.8	17.8	18.6	17.8	17.8	16.9	16.9
47.5°	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	14.4	14.4
50°	11.9	11.9	11.9	11.9	11.9	11.0	11.0	10.2	10.2	9.3	9.3
52.5°	9.3	9.3	8.5	8.5	8.5	8.5	8.5	8.5	7.6	7.6	7.6
55°	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	6.8	5.9	5.9
57.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	5.9	5.9	5.1
60°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	5.9	5.1	5.1	5.1
62.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	5.9	5.1	5.1	4.2
65°	7.6	7.6	7.6	7.6	6.8	6.8	6.8	5.9	5.9	5.1	5.1
67.5°	7.6	7.6	7.6	7.6	7.6	6.8	6.8	6.8	5.9	5.9	5.1
70°	7.6	7.6	7.6	7.6	7.6	6.8	6.8	6.8	5.9	5.9	5.1
72.5°	7.6	7.6	7.6	7.6	7.6	6.8	6.8	6.8	5.9	5.9	5.1
75°	7.6	7.6	7.6	7.6	7.6	6.8	6.8	6.8	5.9	5.9	5.1
77.5°	7.6	7.6	7.6	7.6	7.6	6.8	6.8	6.8	5.9	5.9	5.1
80°	7.6	7.6	7.6	7.6	7.6	6.8	6.8	6.8	5.9	5.9	5.1
82.5°	7.6	7.6	7.6	7.6	7.6	6.8	6.8	6.8	5.9	5.9	5.1
85°	7.6	7.6	6.8	6.8	6.8	6.8	6.8	5.9	5.1	5.1	4.2
87.5°	6.8	6.8	6.8	6.8	6.8	5.9	5.9	5.1	4.2	4.2	3.4
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: P179674

CATALOG NUMBER: LDA6A45935D010TE LARH30NF 6LAL1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	604.2	604.2	604.2	604.2	604.2	604.2	604.2	604.2
2.5°	324.5	312.7	310.1	313.5	300.0	300.0	300.0	305.9
5°	202.5	190.7	187.3	188.1	177.1	169.5	173.7	177.1
7.5°	110.2	97.4	93.2	93.2	82.2	78.0	78.8	80.5
10°	73.7	72.0	72.0	71.2	69.5	68.6	69.5	69.5
12.5°	71.2	70.3	70.3	69.5	69.5	68.6	68.6	69.5
15°	74.6	74.6	74.6	73.7	73.7	72.9	74.6	74.6
17.5°	94.9	96.6	100.0	101.7	105.1	101.7	107.6	106.8
20°	278.8	306.7	358.4	377.9	433.8	406.7	465.2	457.6
22.5°	631.3	651.6	660.1	664.3	665.2	692.3	696.5	705.8
25°	372.8	367.7	363.5	363.5	348.3	366.1	362.7	365.2
27.5°	199.1	197.4	193.2	194.9	187.3	193.2	194.9	194.9
30°	112.7	109.3	105.9	105.9	99.1	102.5	101.7	101.7
32.5°	65.2	63.6	61.9	61.0	59.3	59.3	58.5	58.5
35°	44.9	44.1	43.2	42.4	40.7	39.8	39.8	39.8
37.5°	33.0	32.2	31.4	31.4	30.5	28.8	28.8	28.8
40°	25.4	24.6	23.7	23.7	22.9	21.2	21.2	21.2
42.5°	19.5	18.6	17.8	16.9	16.9	16.1	15.3	15.3
45°	16.1	16.1	15.3	15.3	14.4	14.4	14.4	14.4
47.5°	13.6	13.6	12.7	12.7	12.7	11.9	11.9	11.0
50°	8.5	7.6	7.6	6.8	6.8	5.9	5.9	5.9
52.5°	6.8	5.9	5.9	5.1	5.1	4.2	4.2	4.2
55°	5.1	5.1	4.2	4.2	4.2	3.4	3.4	3.4
57.5°	4.2	4.2	3.4	3.4	3.4	2.5	2.5	2.5
60°	4.2	3.4	3.4	2.5	2.5	2.5	1.7	1.7
62.5°	4.2	3.4	3.4	2.5	2.5	1.7	1.7	1.7
65°	4.2	3.4	3.4	2.5	2.5	2.5	2.5	1.7
67.5°	4.2	4.2	3.4	3.4	3.4	2.5	2.5	2.5
70°	5.1	4.2	4.2	3.4	3.4	3.4	3.4	2.5
72.5°	5.1	4.2	4.2	4.2	3.4	3.4	3.4	3.4
75°	5.1	4.2	4.2	4.2	3.4	3.4	3.4	3.4
77.5°	5.1	4.2	4.2	4.2	3.4	3.4	3.4	3.4
80°	5.1	4.2	4.2	4.2	3.4	3.4	3.4	3.4
82.5°	4.2	4.2	4.2	3.4	3.4	3.4	3.4	3.4
85°	3.4	3.4	3.4	2.5	2.5	2.5	2.5	1.7
87.5°	2.5	2.5	1.7	1.7	0.8	0.8	0.8	0.8
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)