

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: P179659

Luminaire Tested: **LDA6A45940D010TE LARH40FL 6LA1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179659  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26672)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA6A45940D010TE LARH40FL 6LA1LI 30°  
Description: PORTFOLIO 6" Adjustable Reflector, Angle-cut Trim, Self-flanged, 40° Flood, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4469.1 lumens  
Efficiency: N/A  
Efficacy: 84.3 lumens/watt  
Spacing Criteria (0/90/45): 2.54 / 0.51 / 1.33  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

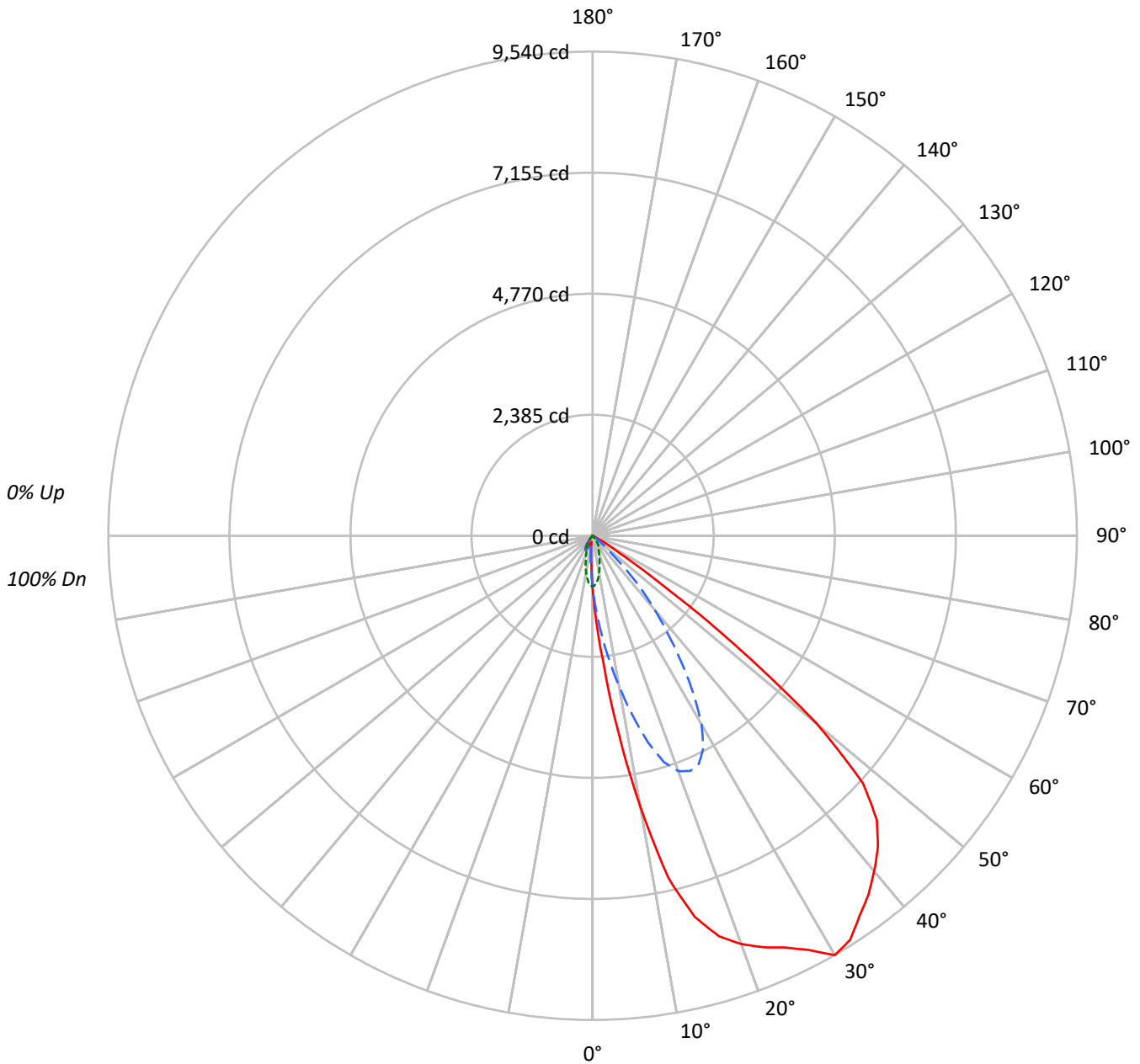
Input Watts (W): 53  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20					20					20					20					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	103	110	107	104	102	103	101	99	99	97	96	95	94	93	91								
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	86	84	82								
3	98	90	84	79	96	89	83	79	86	81	77	84	80	76	81	78	75	73								
4	92	82	75	70	90	81	75	70	79	73	69	77	72	68	75	71	67	65								
5	85	75	68	62	83	74	67	62	72	66	62	70	65	61	69	64	60	59								
6	80	69	61	56	78	68	61	56	66	60	55	64	59	55	63	58	54	53								
7	74	63	55	50	73	62	55	50	61	54	50	59	54	49	58	53	49	47								
8	69	58	50	45	68	57	50	45	56	49	45	55	49	45	54	48	45	43								
9	65	53	46	41	64	53	46	41	52	45	41	51	45	41	50	44	40	39								
10	61	49	42	37	60	49	42	37	48	41	37	47	41	37	46	41	37	35								

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

	0°	90°	180°
0°	54996	54996	54996
5°	140634	50704	18501
10°	302249	40903	6808
15°	440911	29915	7792
20°	499272	21509	12012
25°	541241	17299	18630
30°	603909	14205	17939
35°	612962	9189	11952
40°	617485	4408	6047
45°	613622	1845	2527
50°	491293	827	827
55°	146518	593	86
60°	29910	680	0
65°	2854	804	0
70°	289	1122	0
75°	0	1483	0
80°	0	2494	284
85°	0	4969	566



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	129.5	2.9
10°-20°	626.8	14.0
20°-30°	1152.0	25.8
30°-40°	1321.7	29.6
40°-50°	999.9	22.4
50°-60°	221.6	5.0
60°-70°	9.4	0.2
70°-80°	4.1	0.1
80°-90°	4.1	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°	1908.3	42.7
0°-40°	3230.0	72.3
0°-60°	4451.5	99.6
0°-90°	4469.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4469.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1003	1003	1003	1003	1003	
5°	2556	1909	921	451	336	338
15°	7769	4214	527	136	137	2165
25°	8948	4954	286	277	308	4175
35°	9159	3058	137	172	179	5737
45°	7915	865	24	31	33	5907
55°	1533	33	6	4	1	1898
65°	22	4	6	4	0	59
75°	0	4	7	4	0	0
85°	0	4	8	4	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°	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2
2.5°	1699.3	1682.6	1687.0	1708.1	1621.0	1618.3	1577.9	1572.6	1532.1	1458.2	1421.2
5°	2555.6	2545.0	2526.5	2533.6	2434.1	2367.2	2296.8	2245.8	2142.0	2002.0	1908.8
7.5°	3921.3	3806.9	3751.5	3645.0	3518.3	3388.9	3258.7	3107.3	2889.1	2645.3	2448.2
10°	5429.7	5379.5	5266.0	5198.3	4917.5	4727.4	4525.0	4215.3	3815.7	3374.0	3006.1
12.5°	6908.1	6849.2	6677.6	6533.2	6159.2	5989.4	5726.3	5335.5	4828.6	4199.4	3617.7
15°	7768.8	7782.0	7587.5	7580.5	7258.4	7037.5	6809.6	6347.6	5704.3	4981.8	4213.5
17.5°	8273.0	8305.6	8112.9	8167.4	7846.2	7617.4	7447.6	7109.6	6425.9	5559.1	4673.8
20°	8558.2	8610.1	8405.0	8447.3	8172.7	8017.8	7845.3	7510.9	6907.2	5950.7	4935.1
22.5°	8775.5	8795.8	8567.8	8624.2	8324.1	8169.2	8046.9	7733.6	7137.8	6157.5	5017.0
25°	8948.0	8999.0	8738.6	8743.0	8444.6	8289.7	8154.2	7869.1	7236.4	6212.0	4954.5
27.5°	9196.2	9237.5	8854.7	8821.3	8532.6	8361.9	8214.9	7934.2	7232.0	6090.6	4718.6
30°	9540.3	9309.7	8918.1	8831.8	8507.1	8333.7	8176.2	7811.9	7070.0	5763.2	4290.1
32.5°	9441.7	9255.1	8868.8	8731.5	8409.4	8223.7	8043.3	7599.8	6694.3	5256.3	3705.7
35°	9159.2	9099.4	8693.7	8650.6	8260.7	8066.2	7884.9	7278.6	6117.9	4593.7	3058.1
37.5°	8920.7	8818.6	8557.3	8489.5	8080.3	7865.6	7576.9	6799.0	5355.8	3748.9	2442.0
40°	8628.6	8559.9	8307.3	8235.2	7761.7	7434.4	7081.5	5929.5	4435.3	2918.1	1885.9
42.5°	8317.9	8256.3	8017.8	7866.5	7235.5	6802.5	6254.3	4877.0	3414.5	2199.2	1413.3
45°	7914.9	7827.7	7529.4	7247.8	6343.2	5723.6	5106.7	3721.6	2499.2	1565.5	865.1
47.5°	7222.3	7084.1	6722.4	6156.6	5045.1	4450.2	3807.8	2523.9	1543.5	806.1	435.6
50°	5760.6	5519.5	5038.1	4364.9	3231.4	2661.2	2157.8	1283.1	662.7	415.4	256.1
52.5°	3550.0	3329.1	2919.0	2269.6	1489.9	1147.5	903.8	597.5	365.2	235.0	95.0
55°	1533.0	1394.8	1198.6	914.3	649.5	534.2	429.4	298.3	188.3	72.2	32.6
57.5°	579.1	537.7	487.5	400.4	299.2	249.9	210.3	132.0	45.8	27.3	18.5
60°	272.8	247.3	218.2	173.4	114.4	82.7	51.9	33.4	22.0	15.0	10.6
62.5°	74.8	56.3	46.6	37.8	29.0	25.5	22.0	16.7	12.3	7.9	6.2
65°	22.0	19.4	18.5	15.8	13.2	11.4	9.7	7.9	6.2	4.4	4.4
67.5°	7.9	7.9	7.0	6.2	5.3	4.4	4.4	3.5	3.5	3.5	3.5
70°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6	2.6	3.5	3.5
72.5°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	2.6	3.5	3.5
75°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	2.6	3.5	3.5
77.5°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5	4.4
80°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5	4.4
82.5°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5	4.4
85°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5	4.4
87.5°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5	4.4
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2
2.5°	1390.4	1339.4	1267.2	1230.3	1197.7	1188.9	1122.0	1078.9	1027.9	975.1	919.6
5°	1821.6	1691.4	1553.2	1437.1	1378.1	1343.8	1213.5	1115.9	1021.7	921.4	836.0
7.5°	2249.3	2016.1	1814.6	1627.1	1524.2	1446.7	1260.2	1113.2	970.7	840.4	725.1
10°	2662.9	2326.8	2005.6	1752.1	1610.4	1495.1	1254.0	1063.1	884.4	734.8	614.3
12.5°	3081.8	2591.6	2164.8	1819.0	1650.0	1502.2	1211.8	979.5	790.3	631.9	506.9
15°	3455.8	2797.6	2264.3	1834.8	1630.7	1456.4	1129.1	873.0	684.7	527.1	418.0
17.5°	3715.4	2908.5	2270.4	1776.8	1549.7	1362.3	1013.8	761.2	578.2	439.1	343.2
20°	3833.3	2904.9	2186.8	1656.2	1418.6	1223.2	877.4	646.8	482.2	368.7	286.9
22.5°	3798.1	2794.0	2039.0	1485.5	1258.4	1063.1	750.7	545.6	414.5	316.8	251.7
25°	3622.1	2600.4	1865.6	1314.7	1085.9	903.8	636.3	466.4	359.9	286.0	228.8
27.5°	3334.4	2336.4	1632.4	1115.0	905.5	763.9	535.9	403.0	316.8	252.6	238.5
30°	2913.7	2016.1	1358.7	899.4	731.3	604.6	434.7	324.7	253.4	224.4	225.3
32.5°	2450.0	1663.2	1068.3	687.3	550.9	466.4	321.2	227.0	185.7	183.9	184.8
35°	1988.0	1295.4	794.7	502.5	403.9	336.2	206.8	142.6	138.2	137.3	139.0
37.5°	1577.9	963.6	572.9	351.1	267.5	205.0	111.8	96.8	93.3	95.0	95.9
40°	1178.3	675.9	387.2	207.7	130.2	94.2	67.8	62.5	60.7	61.6	61.6
42.5°	810.5	422.4	230.6	86.2	62.5	51.9	43.1	40.5	38.7	37.8	38.7
45°	436.5	263.1	89.8	44.0	37.0	33.4	27.3	25.5	24.6	23.8	23.8
47.5°	279.0	97.7	40.5	27.3	23.8	22.0	18.5	16.7	15.8	15.0	15.0
50°	104.7	37.8	24.6	17.6	15.0	14.1	11.4	10.6	9.7	9.7	9.7
52.5°	36.1	22.9	15.8	11.4	9.7	8.8	7.9	7.0	7.0	7.0	7.0
55°	20.2	14.1	9.7	7.0	7.0	6.2	6.2	6.2	6.2	6.2	6.2
57.5°	12.3	7.9	6.2	5.3	5.3	5.3	5.3	6.2	6.2	6.2	6.2
60°	7.0	5.3	5.3	5.3	5.3	5.3	5.3	5.3	6.2	6.2	6.2
62.5°	4.4	4.4	4.4	4.4	4.4	5.3	5.3	6.2	6.2	6.2	6.2
65°	4.4	4.4	4.4	4.4	4.4	5.3	5.3	6.2	6.2	6.2	6.2
67.5°	3.5	4.4	4.4	5.3	5.3	5.3	5.3	6.2	6.2	7.0	6.2
70°	4.4	4.4	4.4	5.3	5.3	5.3	6.2	6.2	7.0	7.0	7.0
72.5°	4.4	4.4	4.4	5.3	5.3	5.3	6.2	6.2	7.0	7.0	7.0
75°	4.4	4.4	5.3	5.3	5.3	6.2	6.2	7.0	7.0	7.0	7.0
77.5°	4.4	4.4	5.3	5.3	5.3	6.2	6.2	7.0	7.0	7.9	7.0
80°	4.4	4.4	5.3	6.2	6.2	6.2	6.2	7.0	7.0	7.9	7.9
82.5°	4.4	5.3	5.3	6.2	6.2	6.2	7.0	7.0	7.9	7.9	7.9
85°	4.4	5.3	5.3	6.2	6.2	6.2	7.0	7.0	7.9	7.9	7.9
87.5°	4.4	5.3	5.3	6.2	6.2	6.2	7.0	7.0	7.9	7.9	7.9
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°	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2
2.5°	889.7	838.7	797.3	798.2	763.9	737.5	704.0	685.5	670.6	645.9	623.1
5°	773.5	695.2	636.3	624.8	585.2	544.7	503.4	472.6	450.6	426.8	404.8
7.5°	647.7	557.9	490.2	474.3	440.9	403.0	365.2	334.4	308.0	282.5	256.1
10°	525.4	443.5	381.9	366.1	332.6	293.0	257.0	229.7	209.4	189.2	169.0
12.5°	425.0	352.9	294.8	274.6	247.3	216.5	187.4	161.0	139.0	130.2	127.6
15°	344.1	275.4	229.7	213.0	190.1	158.4	141.7	137.3	136.4	136.4	136.4
17.5°	278.1	224.4	183.0	165.4	154.0	152.2	152.2	152.2	153.1	154.9	158.4
20°	233.2	185.7	169.8	171.6	171.6	173.4	176.9	179.5	183.0	187.4	192.7
22.5°	206.8	197.1	195.4	200.6	201.5	206.8	213.8	219.1	225.3	232.3	236.7
25°	226.2	229.7	232.3	240.2	242.9	251.7	262.2	270.2	277.2	285.1	290.4
27.5°	246.4	252.6	257.8	265.8	267.5	279.0	287.8	293.0	298.3	301.8	305.4
30°	232.3	238.5	243.8	250.8	250.8	263.1	267.5	271.9	276.3	278.1	281.6
32.5°	191.0	197.1	202.4	207.7	208.6	217.4	222.6	224.4	227.9	228.8	231.4
35°	143.4	146.1	151.4	155.8	156.6	162.8	167.2	169.0	171.6	171.6	173.4
37.5°	98.6	100.3	104.7	107.4	109.1	113.5	116.2	117.9	119.7	120.6	121.4
40°	64.2	65.1	67.8	70.4	72.2	74.8	76.6	78.3	79.2	81.0	81.0
42.5°	39.6	40.5	42.2	44.0	44.0	46.6	47.5	49.3	50.2	51.0	51.0
45°	24.6	25.5	25.5	26.4	27.3	28.2	29.9	29.9	30.8	30.8	30.8
47.5°	15.0	15.8	15.0	15.8	15.8	16.7	17.6	17.6	17.6	17.6	17.6
50°	9.7	9.7	9.7	9.7	9.7	9.7	10.6	10.6	10.6	10.6	9.7
52.5°	7.0	7.0	6.2	7.0	6.2	6.2	6.2	6.2	6.2	6.2	5.3
55°	6.2	6.2	6.2	6.2	5.3	5.3	5.3	4.4	4.4	3.5	3.5
57.5°	6.2	6.2	5.3	5.3	5.3	4.4	4.4	4.4	3.5	3.5	2.6
60°	6.2	6.2	5.3	5.3	5.3	4.4	4.4	3.5	3.5	2.6	2.6
62.5°	6.2	6.2	5.3	5.3	5.3	5.3	4.4	4.4	3.5	3.5	2.6
65°	6.2	6.2	6.2	5.3	5.3	5.3	4.4	4.4	3.5	3.5	2.6
67.5°	6.2	6.2	6.2	6.2	5.3	5.3	5.3	4.4	3.5	3.5	2.6
70°	6.2	6.2	6.2	6.2	6.2	5.3	5.3	4.4	4.4	3.5	2.6
72.5°	7.0	7.0	6.2	6.2	6.2	5.3	5.3	4.4	4.4	3.5	3.5
75°	7.0	7.0	6.2	6.2	6.2	5.3	5.3	4.4	4.4	3.5	3.5
77.5°	7.0	7.0	7.0	7.0	6.2	6.2	5.3	5.3	4.4	4.4	3.5
80°	7.0	7.0	7.0	7.0	6.2	6.2	6.2	5.3	4.4	4.4	3.5
82.5°	7.0	7.0	7.0	7.0	7.0	6.2	6.2	5.3	4.4	4.4	3.5
85°	7.0	7.0	7.0	7.0	7.0	6.2	6.2	5.3	4.4	4.4	3.5
87.5°	7.0	7.0	7.0	7.0	7.0	6.2	6.2	5.3	4.4	4.4	3.5
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: P179659

CATALOG NUMBER: LDA6A45940D010TE LARH40FL 6LA1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2	1003.2
2.5°	601.9	590.5	589.6	579.9	560.6	570.3	557.9	549.1
5°	385.4	373.1	360.8	362.6	348.5	351.1	341.4	336.2
7.5°	244.6	231.4	227.9	227.9	212.1	212.1	205.9	202.4
10°	154.0	143.4	139.9	133.8	126.7	125.8	123.2	122.3
12.5°	125.0	125.0	122.3	123.2	123.2	123.2	122.3	122.3
15°	136.4	137.3	134.6	135.5	137.3	136.4	137.3	137.3
17.5°	157.5	161.9	158.4	160.2	163.7	162.8	163.7	164.6
20°	192.7	199.8	195.4	198.9	203.3	202.4	205.0	205.9
22.5°	240.2	249.0	244.6	248.2	255.2	253.4	257.0	258.7
25°	293.0	301.8	296.6	301.0	305.4	307.1	307.1	308.0
27.5°	305.4	310.6	307.1	311.5	313.3	315.0	313.3	314.2
30°	279.8	284.2	280.7	285.1	285.1	286.9	285.1	283.4
32.5°	230.6	234.1	229.7	235.0	234.1	235.0	235.8	236.7
35°	174.2	176.0	173.4	174.2	175.1	176.0	178.6	178.6
37.5°	121.4	124.1	121.4	122.3	122.3	124.1	125.8	125.8
40°	81.0	83.6	81.0	82.7	81.8	82.7	84.5	84.5
42.5°	51.0	52.8	51.0	51.9	51.9	51.9	52.8	53.7
45°	30.8	31.7	30.8	31.7	31.7	31.7	32.6	32.6
47.5°	17.6	18.5	17.6	17.6	18.5	17.6	18.5	18.5
50°	9.7	9.7	9.7	9.7	9.7	8.8	8.8	9.7
52.5°	5.3	5.3	4.4	4.4	4.4	4.4	4.4	4.4
55°	2.6	2.6	1.8	1.8	1.8	0.9	1.8	0.9
57.5°	1.8	1.8	0.9	0.9	0.9	0.9	0.0	0.0
60°	1.8	1.8	0.9	0.9	0.9	0.0	0.0	0.0
62.5°	1.8	1.8	0.9	0.9	0.9	0.0	0.0	0.0
65°	1.8	1.8	0.9	0.9	0.9	0.0	0.0	0.0
67.5°	2.6	1.8	0.9	0.9	0.9	0.0	0.0	0.0
70°	2.6	1.8	1.8	0.9	0.9	0.0	0.0	0.0
72.5°	2.6	1.8	1.8	1.8	0.9	0.9	0.0	0.0
75°	2.6	1.8	1.8	1.8	0.9	0.9	0.0	0.0
77.5°	2.6	2.6	1.8	1.8	0.9	0.9	0.9	0.0
80°	2.6	2.6	1.8	1.8	1.8	0.9	0.9	0.9
82.5°	2.6	2.6	1.8	1.8	1.8	0.9	0.9	0.9
85°	2.6	2.6	1.8	1.8	1.8	0.9	0.9	0.9
87.5°	2.6	2.6	1.8	1.8	1.8	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)