

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: P179643

Luminaire Tested: **LDA6A45940D010TE LARH20SP 6LA1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179643
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: LDA6A45940D010TE LARH20SP 6LA1LI 30°
Description: PORTFOLIO 6" Adjustable Reflector, Angle-cut Trim, Self-flanged, 20° Spot, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3915.5 lumens
Efficiency: N/A
Efficacy: 73.9 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

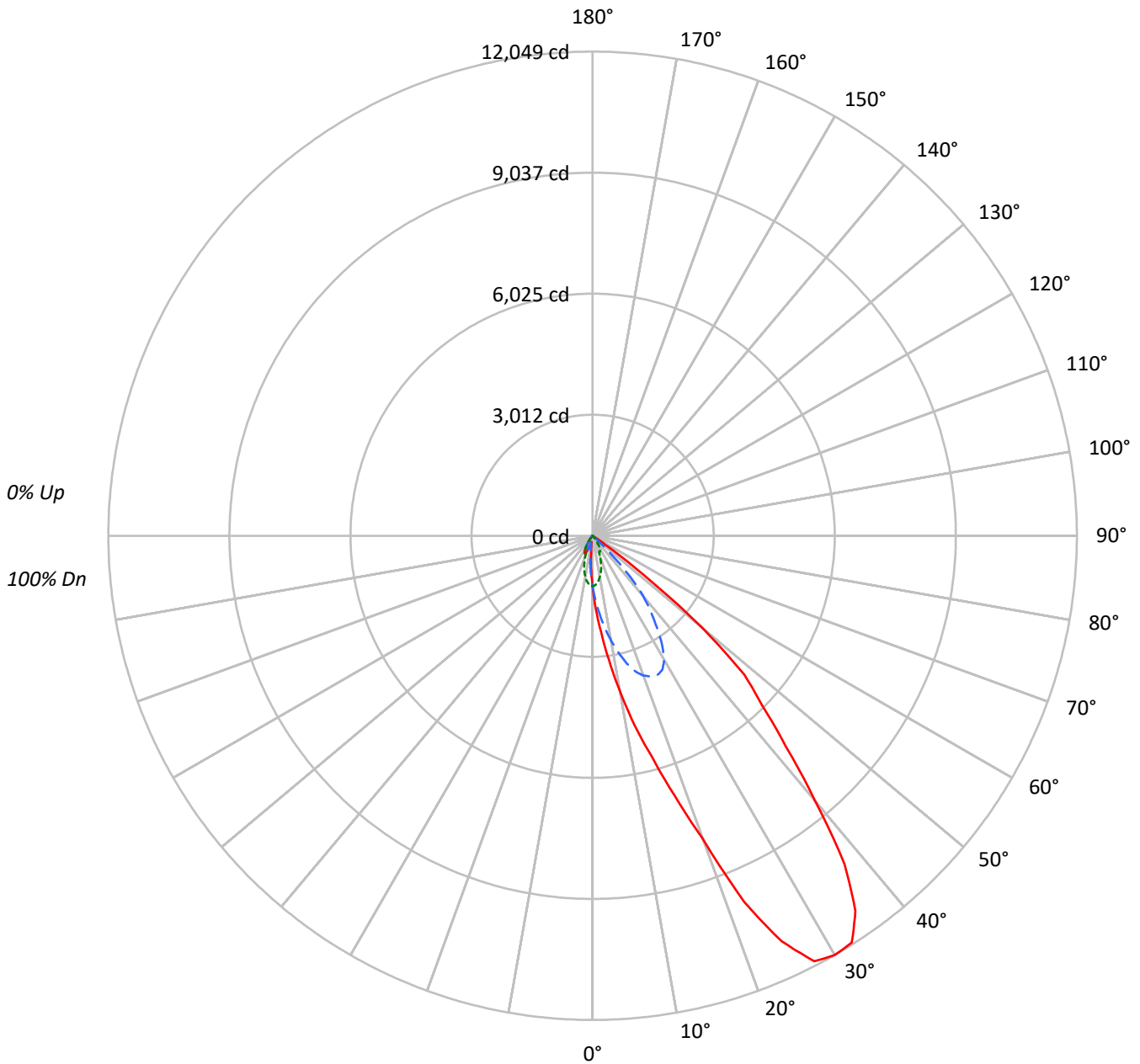
Input Watts (W): 53
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P179643

CATALOG NUMBER: LDA6A45940D010TE LARH20SP 6LA1LI 30°

Luminous Intensity Polar Plot





TEST NUMBER: P179643

CATALOG NUMBER: LDA6A45940D010TE LARH20SP 6LA1LI 30°

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	83	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°	68701	68701	68701
5°	132209	65815	24648
10°	218678	57759	8868
15°	322845	46601	14132
20°	468778	29677	23925
25°	673418	25925	29010
30°	762731	22453	21111
35°	762796	11658	10835
40°	616104	4344	4537
45°	461342	1504	1636
50°	302011	597	529
55°	35497	507	86
60°	1064	581	0
65°	233	687	0
70°	144	850	0
75°	0	1313	0
80°	0	1957	284
85°	0	3900	566



TEST NUMBER: P179643

CATALOG NUMBER: LDA6A45940D010TE LARH20SP 6LA1LI 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	129.3	3.3
10°-20°	523.9	13.4
20°-30°	1149.4	29.4
30°-40°	1276.0	32.6
40°-50°	738.7	18.9
50°-60°	87.8	2.2
60°-70°	3.4	0.1
70°-80°	3.7	0.1
80°-90°	3.4	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°	1802.6	46.0
0°-40°	3078.6	78.6
0°-60°	3905.0	99.7
0°-90°	3915.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3915.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1253	1253	1253	1253	1253	
5°	2402	1942	1196	685	448	276
15°	5688	3290	821	223	249	1708
25°	11133	3821	429	477	480	5028
35°	11398	2787	174	172	162	6872
45°	5951	656	19	23	21	4651
55°	371	5	5	4	1	817
65°	2	4	5	4	0	3
75°	0	4	6	4	0	0
85°	0	4	6	4	1	0
90°	0	0	0	0	0	



TEST NUMBER: P179643

CATALOG NUMBER: LDA6A45940D010TE LARH20SP 6LA1LI 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2
2.5°	1822.5	1786.5	1750.4	1747.7	1717.8	1678.2	1705.5	1647.4	1665.0	1621.0	1593.7
5°	2402.5	2362.9	2310.1	2295.1	2244.1	2185.1	2207.1	2105.0	2094.5	2010.0	1942.2
7.5°	3113.5	3067.8	2985.1	2945.4	2861.0	2773.0	2783.5	2619.8	2570.6	2431.5	2307.4
10°	3928.4	3895.9	3777.1	3695.2	3562.3	3433.9	3411.9	3169.9	3062.5	2844.2	2648.9
12.5°	4842.8	4794.4	4629.8	4505.7	4324.5	4161.6	4113.2	3766.5	3573.8	3257.9	2980.7
15°	5688.5	5655.9	5514.2	5327.7	5098.0	4887.7	4804.9	4400.1	4095.6	3675.9	3290.4
17.5°	6772.7	6682.9	6427.7	6061.6	5733.4	5523.9	5423.6	4916.7	4543.6	4031.4	3539.5
20°	8035.5	7914.1	7523.3	7016.5	6471.7	6103.9	5883.0	5337.4	4875.3	4280.4	3701.4
22.5°	9863.3	9616.1	8874.2	7966.0	7208.3	6717.2	6401.3	5608.4	5117.4	4436.2	3791.2
25°	11133.2	10915.8	10238.2	9044.0	7829.6	7264.6	6820.2	5832.8	5275.8	4528.6	3821.1
27.5°	11937.6	11822.3	11042.6	9849.3	8310.1	7575.3	7072.8	5974.5	5335.6	4526.0	3760.4
30°	12049.3	12056.4	11333.0	10064.9	8347.9	7583.2	7018.2	5913.8	5211.5	4355.3	3560.6
32.5°	12000.9	11905.0	11012.7	9656.5	7929.0	7257.6	6720.8	5657.7	4912.3	4012.0	3213.9
35°	11398.1	11184.3	10240.9	8744.8	7319.2	6680.3	6179.5	5247.6	4436.2	3557.1	2787.0
37.5°	10292.8	9954.0	8900.6	7626.3	6571.2	6007.9	5629.5	4723.1	3943.4	3083.6	2362.9
40°	8609.3	8245.0	7502.2	6612.5	5780.9	5394.6	5031.1	4147.6	3388.1	2599.6	1952.8
42.5°	7122.9	6923.2	6368.8	5687.6	5134.1	4736.3	4389.6	3548.3	2856.6	2128.8	1383.4
45°	5950.7	5815.2	5465.8	4966.0	4416.9	4054.3	3738.4	2880.3	2087.4	1351.7	656.5
47.5°	5124.4	4973.9	4577.9	4051.6	3406.6	3012.3	2656.8	1796.1	1139.6	522.7	153.1
50°	3541.2	3363.5	2941.9	2435.0	1883.3	1586.7	1338.5	726.0	299.2	90.6	17.6
52.5°	1602.5	1479.3	1215.3	931.9	616.0	457.6	298.3	125.8	31.7	13.2	9.7
55°	371.4	325.6	247.3	152.2	75.7	50.2	33.4	13.2	9.7	7.0	5.3
57.5°	23.8	21.1	18.5	15.0	12.3	10.6	9.7	7.0	5.3	4.4	3.5
60°	9.7	9.7	8.8	7.0	6.2	5.3	5.3	3.5	3.5	3.5	3.5
62.5°	4.4	4.4	4.4	3.5	2.6	2.6	2.6	2.6	2.6	2.6	3.5
65°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6	2.6	3.5
67.5°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8	2.6	2.6	3.5
70°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8	2.6	3.5	3.5
72.5°	0.0	0.9	0.9	0.9	1.8	1.8	1.8	1.8	2.6	3.5	3.5
75°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5
77.5°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5
80°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5
82.5°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5
85°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.6	3.5	3.5
87.5°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.6	3.5	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: P179643

CATALOG NUMBER: LDA6A45940D010TE LARH20SP 6LA1LI 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2
2.5°	1553.2	1515.4	1475.8	1435.3	1416.8	1386.9	1339.4	1306.0	1276.0	1236.4	1186.3
5°	1860.4	1775.9	1687.0	1604.3	1563.8	1511.0	1418.6	1343.8	1274.3	1196.0	1118.5
7.5°	2166.6	2020.5	1879.7	1745.1	1680.0	1604.3	1461.7	1346.4	1237.3	1129.1	1023.5
10°	2438.6	2227.3	2025.8	1838.4	1750.4	1649.2	1462.6	1308.6	1171.3	1037.6	909.9
12.5°	2692.0	2406.0	2142.9	1900.0	1784.7	1663.3	1437.1	1254.0	1089.5	933.7	785.0
15°	2915.5	2554.7	2225.6	1929.0	1794.4	1649.2	1390.4	1181.0	997.1	821.1	630.1
17.5°	3074.8	2640.1	2255.5	1912.3	1760.9	1599.9	1314.8	1090.4	891.5	675.0	447.1
20°	3159.3	2666.5	2236.1	1859.5	1696.7	1522.4	1225.9	994.4	766.5	508.7	365.2
22.5°	3189.2	2650.6	2182.5	1784.7	1613.1	1436.2	1135.2	894.1	623.1	431.2	374.0
25°	3175.1	2603.1	2112.9	1696.7	1525.1	1347.3	1047.2	765.6	504.3	428.6	398.7
27.5°	3081.0	2496.6	1982.7	1564.7	1392.2	1216.2	894.1	565.0	446.2	402.2	410.1
30°	2873.3	2280.1	1760.1	1349.1	1186.3	1000.6	608.1	415.4	350.3	354.7	354.7
32.5°	2538.9	1956.3	1449.4	1071.9	861.5	623.9	346.7	260.5	264.9	264.0	260.5
35°	2128.8	1598.1	1112.4	658.3	422.4	286.9	175.1	169.8	175.1	174.2	171.6
37.5°	1752.1	1225.0	689.1	264.0	169.8	124.1	103.8	103.8	105.6	105.6	104.7
40°	1321.8	719.9	241.1	87.1	60.7	58.1	59.0	59.0	59.8	60.7	61.6
42.5°	740.1	237.6	63.4	34.3	34.3	32.6	32.6	32.6	34.3	34.3	35.2
45°	199.8	51.0	21.1	20.2	19.4	18.5	18.5	18.5	19.4	19.4	20.2
47.5°	29.9	15.0	12.3	11.4	11.4	10.6	10.6	10.6	11.4	11.4	11.4
50°	11.4	8.8	7.9	7.0	7.0	7.0	6.2	6.2	7.0	7.0	7.0
52.5°	7.0	6.2	5.3	4.4	5.3	4.4	4.4	4.4	5.3	5.3	5.3
55°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.3	5.3
57.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.3	5.3
60°	3.5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.3	5.3	5.3
62.5°	3.5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.3	5.3	5.3
65°	3.5	4.4	4.4	4.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3
67.5°	3.5	4.4	4.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
70°	4.4	4.4	4.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
72.5°	4.4	4.4	4.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	6.2
75°	4.4	4.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	6.2	6.2
77.5°	4.4	4.4	5.3	5.3	5.3	5.3	5.3	5.3	6.2	6.2	6.2
80°	4.4	4.4	5.3	5.3	5.3	5.3	5.3	5.3	6.2	6.2	6.2
82.5°	4.4	4.4	5.3	5.3	5.3	6.2	5.3	6.2	6.2	6.2	6.2
85°	4.4	4.4	5.3	5.3	5.3	5.3	5.3	6.2	6.2	6.2	6.2
87.5°	4.4	4.4	5.3	5.3	5.3	6.2	5.3	5.3	6.2	6.2	6.2
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: P179643

CATALOG NUMBER: LDA6A45940D010TE LARH20SP 6LA1LI 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2
2.5°	1151.1	1130.8	1093.9	1068.4	1057.8	1036.7	997.1	992.7	945.1	920.5	895.0
5°	1052.5	1002.4	939.9	900.3	877.4	832.5	770.9	742.7	684.7	646.8	591.4
7.5°	931.9	854.5	769.1	719.0	682.0	606.3	497.2	432.1	345.9	295.7	259.6
10°	793.8	690.8	561.5	478.7	418.0	329.1	261.4	240.2	217.4	198.9	181.3
12.5°	631.9	458.5	333.5	285.1	262.2	235.8	207.7	183.0	178.6	180.4	186.6
15°	430.3	306.2	264.0	244.6	228.8	203.3	209.4	216.5	222.6	227.0	235.0
17.5°	323.8	283.4	242.0	242.9	249.0	255.2	264.9	275.4	284.2	290.4	301.0
20°	319.4	293.9	299.2	309.8	316.8	325.6	342.3	352.0	363.5	371.4	382.8
22.5°	347.6	370.5	377.5	385.5	396.0	405.7	423.3	436.5	445.3	453.2	461.1
25°	412.7	430.3	436.5	442.7	449.7	456.7	468.2	479.6	477.0	479.6	480.5
27.5°	417.1	430.3	433.0	436.5	436.5	442.7	442.7	449.7	438.3	436.5	433.0
30°	359.1	363.5	366.1	366.1	362.6	367.0	362.6	367.9	354.7	350.3	345.9
32.5°	264.9	271.0	268.4	267.5	264.9	269.3	264.0	269.3	257.8	255.2	250.8
35°	169.8	179.5	175.1	177.8	176.0	180.4	176.9	180.4	171.6	170.7	168.1
37.5°	106.5	110.0	108.2	109.1	109.1	111.8	110.0	111.8	108.2	108.2	105.6
40°	62.5	64.2	64.2	65.1	66.0	66.9	66.0	67.8	66.0	66.9	64.2
42.5°	36.1	37.0	37.0	37.8	38.7	38.7	38.7	40.5	38.7	39.6	37.8
45°	20.2	22.0	21.1	22.0	22.0	22.9	22.9	22.9	22.9	22.9	22.0
47.5°	12.3	13.2	13.2	13.2	13.2	13.2	14.1	14.1	13.2	13.2	13.2
50°	7.9	7.9	7.9	7.9	8.8	8.8	8.8	7.9	7.9	7.9	7.0
52.5°	5.3	5.3	5.3	5.3	6.2	5.3	5.3	5.3	4.4	4.4	4.4
55°	5.3	5.3	5.3	5.3	5.3	4.4	4.4	4.4	3.5	2.6	2.6
57.5°	5.3	5.3	5.3	5.3	5.3	4.4	4.4	3.5	3.5	2.6	2.6
60°	5.3	5.3	5.3	5.3	5.3	4.4	4.4	3.5	3.5	2.6	2.6
62.5°	5.3	5.3	5.3	5.3	5.3	4.4	4.4	3.5	3.5	2.6	2.6
65°	5.3	5.3	5.3	5.3	5.3	4.4	4.4	4.4	3.5	2.6	2.6
67.5°	5.3	6.2	5.3	5.3	5.3	5.3	4.4	4.4	3.5	2.6	2.6
70°	5.3	6.2	5.3	5.3	5.3	5.3	4.4	4.4	3.5	2.6	2.6
72.5°	6.2	6.2	6.2	5.3	5.3	5.3	5.3	4.4	3.5	2.6	2.6
75°	6.2	6.2	6.2	5.3	5.3	5.3	5.3	4.4	3.5	2.6	2.6
77.5°	6.2	6.2	6.2	6.2	6.2	5.3	5.3	4.4	3.5	3.5	2.6
80°	6.2	6.2	6.2	6.2	6.2	5.3	5.3	4.4	3.5	3.5	2.6
82.5°	6.2	6.2	6.2	6.2	6.2	5.3	5.3	4.4	3.5	3.5	2.6
85°	6.2	6.2	6.2	6.2	6.2	5.3	5.3	4.4	3.5	3.5	2.6
87.5°	6.2	6.2	6.2	6.2	6.2	5.3	5.3	4.4	3.5	3.5	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: P179643

CATALOG NUMBER: LDA6A45940D010TE LARH20SP 6LA1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2
2.5°	901.1	892.3	886.2	872.1	864.2	855.4	842.2	836.0
5°	572.0	545.6	528.9	504.3	466.4	475.2	455.0	447.9
7.5°	246.4	235.0	231.4	226.2	217.4	213.0	212.1	210.3
10°	169.0	159.3	158.4	159.3	160.2	159.3	159.3	159.3
12.5°	190.1	191.0	192.7	195.4	196.2	196.2	195.4	195.4
15°	239.4	241.1	243.8	247.3	249.0	249.0	249.0	249.0
17.5°	307.1	309.8	314.2	317.7	321.2	321.2	321.2	322.1
20°	395.1	395.1	400.4	404.8	407.5	408.3	409.2	410.1
22.5°	473.5	474.3	477.9	481.4	484.0	483.1	481.4	481.4
25°	488.4	485.8	486.7	486.7	485.8	481.4	481.4	479.6
27.5°	435.6	432.1	432.1	429.5	428.6	426.8	423.3	421.5
30°	345.9	344.1	343.2	340.6	345.0	338.8	335.3	333.5
32.5°	249.0	249.9	249.0	246.4	250.8	244.6	242.9	240.2
35°	167.2	168.1	167.2	165.4	165.4	165.4	163.7	161.9
37.5°	105.6	104.7	105.6	105.6	107.4	104.7	104.7	103.0
40°	64.2	64.2	65.1	65.1	66.0	64.2	63.4	63.4
42.5°	37.8	37.8	38.7	38.7	39.6	37.8	37.8	37.8
45°	22.0	22.0	22.0	22.0	22.9	22.0	21.1	21.1
47.5°	12.3	12.3	12.3	12.3	12.3	12.3	12.3	11.4
50°	7.0	7.0	7.0	7.0	7.0	6.2	6.2	6.2
52.5°	4.4	3.5	3.5	3.5	3.5	2.6	2.6	2.6
55°	1.8	1.8	1.8	1.8	1.8	0.9	0.9	0.9
57.5°	1.8	1.8	1.8	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°	1.8	1.8	1.8	0.9	0.9	0.0	0.0	0.0
70°	1.8	1.8	1.8	0.9	0.9	0.9	0.0	0.0
72.5°	1.8	1.8	1.8	0.9	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	1.8	1.8	1.8	0.9	0.9	0.9	0.0
80°	2.6	1.8	1.8	1.8	0.9	0.9	0.9	0.9
82.5°	2.6	1.8	1.8	1.8	0.9	0.9	0.9	0.9
85°	2.6	1.8	1.8	1.8	0.9	0.9	0.9	0.9
87.5°	2.6	1.8	1.8	1.8	0.9	0.9	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)