

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: P179667

Luminaire Tested: **LDA6A45940D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179667
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26673)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A45940D010TE LARH20SP 6LAL1LI 30°
Description: PORTFOLIO 6" Lensed Adjustable, 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: 3621.6 lumens
Efficiency: N/A
Efficacy: 68.3 lumens/watt
Spacing Criteria (0/90/45): 2.36 / 0.56 / 1.31
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

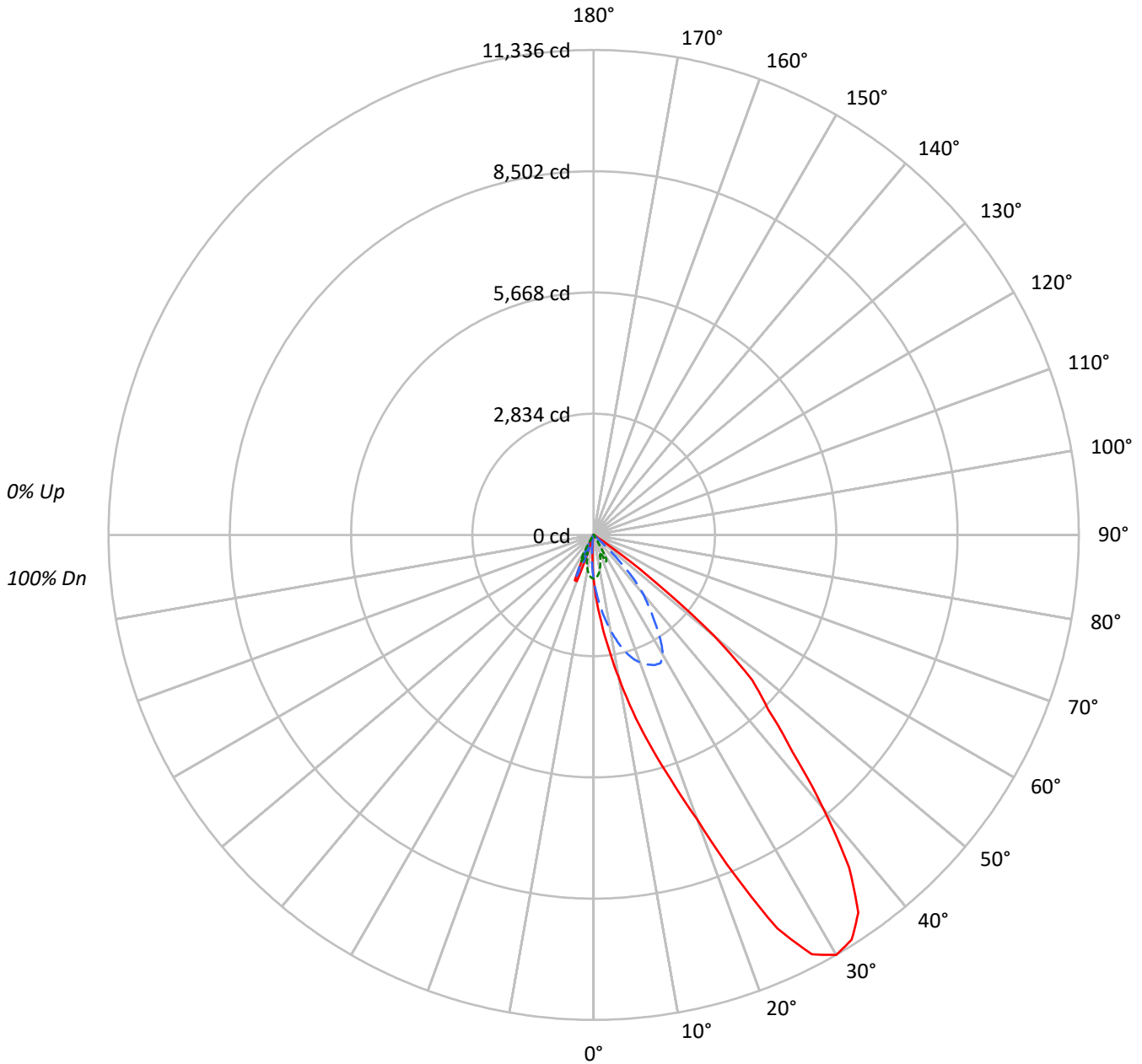
Input Watts (W): 53
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	93	90	95	91	88	91	88	86	89	86	84	82																			
3	99	91	85	80	96	89	84	79	87	82	78	84	80	77	82	79	76	74																			
4	92	83	76	71	90	82	76	71	79	74	70	77	73	69	75	71	68	66																			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	69	65	61	60																			
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	55	54																			
7	75	64	56	51	73	63	56	51	62	55	51	60	55	51	59	54	50	49																			
8	70	59	51	46	69	58	51	46	57	50	46	56	50	46	55	49	46	44																			
9	66	54	47	42	64	53	47	42	52	46	42	51	46	42	50	45	41	40																			
10	62	50	43	38	60	49	43	38	48	42	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	56202	56202	56202
5°	112546	53461	14335
10°	188746	45707	3919
15°	288231	34262	5692
20°	412972	25056	67048
25°	613959	41573	34387
30°	717610	18383	5349
35°	721565	3828	2824
40°	597462	2140	1639
45°	447217	1364	1295
50°	313423	972	751
55°	50378	755	593
60°	3092	767	482
65°	908	1025	454
70°	561	1122	705
75°	381	1313	932
80°	284	1957	1389
85°	566	3900	1635



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	106.2	2.9
10°-20°	448.5	12.4
20°-30°	1079.2	29.8
30°-40°	1149.9	31.8
40°-50°	717.1	19.8
50°-60°	104.8	2.9
60°-70°	6.6	0.2
70°-80°	5.2	0.1
80°-90°	4.0	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°	1634.0	45.1
0°-40°	2783.9	76.9
0°-60°	3605.7	99.6
0°-90°	3621.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3621.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1025	1025	1025	1025	1025	
5°	2045	1640	972	484	260	237
15°	5079	2822	604	93	100	1507
25°	10150	3356	687	712	568	4574
35°	10782	2490	57	53	42	6505
45°	5768	729	18	20	17	4541
55°	527	12	8	9	6	932
65°	7	5	8	7	4	11
75°	2	4	6	6	4	2
85°	1	4	6	5	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°	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2
2.5°	1525.1	1473.2	1490.8	1452.0	1438.0	1441.5	1413.3	1390.4	1378.1	1348.2	1317.4
5°	2045.2	1985.3	2002.9	1944.9	1908.8	1900.8	1856.8	1807.6	1763.6	1696.7	1640.4
7.5°	2676.1	2602.2	2614.5	2527.4	2454.4	2429.7	2362.9	2266.9	2178.1	2064.5	1956.3
10°	3390.7	3321.2	3317.7	3184.8	3059.8	3011.4	2913.8	2755.4	2604.0	2433.3	2255.5
12.5°	4232.9	4128.2	4110.6	3939.9	3753.3	3674.1	3537.7	3295.7	3056.3	2807.3	2551.2
15°	5078.6	4966.0	4937.8	4723.1	4462.6	4356.1	4173.9	3851.9	3521.9	3169.8	2822.2
17.5°	5979.8	5799.3	5647.1	5398.9	5098.0	4988.8	4753.0	4340.3	3924.9	3490.2	3025.5
20°	7078.9	6877.4	6663.5	6239.4	5687.6	5472.9	5214.1	4748.6	4230.3	3727.8	3176.0
22.5°	8585.5	8254.6	7800.5	7118.5	6359.9	6053.7	5654.1	5051.3	4465.2	3901.1	3276.3
25°	10150.2	9693.4	9194.5	8146.4	6975.1	6601.0	6075.7	5282.8	4651.8	4028.7	3356.4
27.5°	11051.3	10684.4	10118.5	9020.2	7474.0	6983.0	6377.5	5457.0	4770.6	4090.3	3379.3
30°	11336.5	11039.0	10525.1	9398.6	7641.2	7056.0	6405.7	5458.8	4713.4	3983.0	3247.3
32.5°	11217.6	10935.2	10366.7	9161.9	7335.0	6796.4	6165.4	5237.0	4431.8	3653.0	2908.5
35°	10782.0	10408.9	9718.1	8376.1	6814.0	6279.0	5689.3	4840.1	3998.8	3205.0	2490.5
37.5°	9804.3	9417.1	8631.3	7368.4	6142.6	5677.0	5202.7	4395.7	3563.2	2797.6	2126.1
40°	8348.8	7939.6	7293.6	6407.4	5418.3	5100.6	4700.2	3903.8	3102.1	2398.1	1789.1
42.5°	6880.0	6617.8	6235.0	5532.7	4843.6	4530.4	4141.4	3367.8	2658.5	1986.2	1358.8
45°	5768.5	5560.9	5306.5	4863.0	4212.7	3917.9	3556.2	2828.4	2072.5	1327.1	728.7
47.5°	5026.7	4773.2	4551.5	4056.9	3359.0	3000.9	2617.2	1863.9	1195.1	575.5	201.5
50°	3675.0	3369.6	3162.8	2608.4	1974.8	1676.4	1395.7	865.1	387.2	128.5	33.4
52.5°	1863.0	1632.4	1511.0	1141.4	754.2	564.1	414.5	178.6	76.6	25.5	19.4
55°	527.1	424.2	380.2	250.8	136.4	95.9	62.5	31.7	22.9	17.6	12.3
57.5°	54.6	46.6	44.0	36.1	29.0	27.3	24.6	19.4	15.0	12.3	7.9
60°	28.2	25.5	24.6	22.0	18.5	16.7	15.8	13.2	9.7	7.0	6.2
62.5°	15.0	14.1	12.3	11.4	9.7	9.7	8.8	7.0	6.2	6.2	5.3
65°	7.0	7.0	7.0	7.0	6.2	6.2	5.3	5.3	5.3	5.3	5.3
67.5°	5.3	5.3	5.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
70°	3.5	3.5	3.5	3.5	2.6	2.6	2.6	2.6	2.6	3.5	3.5
72.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6	2.6	3.5	3.5
75°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6	2.6	3.5	3.5
77.5°	0.9	0.9	1.8	1.8	1.8	1.8	1.8	2.6	2.6	3.5	3.5
80°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	2.6	2.6	3.5	3.5
82.5°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	2.6	2.6	3.5	3.5
85°	0.9	0.9	0.9	0.9	1.8	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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2
2.5°	1280.4	1258.4	1223.2	1188.0	1177.5	1148.4	1114.1	1073.6	1035.8	1005.9	976.8
5°	1549.7	1490.8	1424.8	1335.9	1304.2	1254.9	1181.0	1101.8	1033.1	971.5	914.3
7.5°	1818.1	1707.2	1586.7	1458.2	1403.6	1330.6	1214.4	1102.7	1000.6	909.9	824.6
10°	2055.7	1885.0	1715.2	1538.3	1461.7	1367.6	1212.7	1070.1	939.9	821.1	713.7
12.5°	2274.9	2039.0	1813.7	1586.7	1490.8	1377.2	1186.3	1013.8	858.9	719.9	594.0
15°	2466.7	2163.1	1884.1	1609.6	1488.1	1357.9	1134.3	936.3	763.9	603.7	467.3
17.5°	2600.5	2233.5	1904.4	1585.8	1452.0	1302.4	1055.1	843.9	654.7	486.7	330.9
20°	2680.5	2252.0	1885.0	1533.9	1386.0	1231.2	981.2	767.4	583.5	429.5	299.2
22.5°	2724.6	2260.8	1870.9	1515.4	1364.9	1217.1	984.7	780.6	623.1	519.2	508.7
25°	2768.6	2288.9	1895.6	1536.5	1395.7	1258.4	1036.7	828.1	720.7	687.3	698.7
27.5°	2765.9	2271.3	1872.7	1517.2	1381.6	1239.1	991.8	772.7	698.7	646.8	603.7
30°	2609.3	2104.1	1696.7	1319.2	1164.3	974.2	660.9	454.1	347.6	290.4	261.4
32.5°	2246.7	1716.0	1296.3	917.0	765.6	553.5	284.2	149.6	128.5	114.4	102.1
35°	1867.4	1366.7	975.9	578.2	384.6	210.3	97.7	63.4	59.0	57.2	56.3
37.5°	1540.0	1080.7	641.5	231.4	138.2	78.3	44.9	40.5	39.6	40.5	39.6
40°	1215.3	712.8	254.3	77.4	42.2	34.3	31.7	29.0	29.0	29.9	29.0
42.5°	727.8	265.8	77.4	29.0	27.3	24.6	23.8	22.9	22.0	22.9	22.9
45°	240.2	67.8	25.5	20.2	19.4	18.5	17.6	17.6	17.6	17.6	18.5
47.5°	54.6	23.8	17.6	15.0	15.0	14.1	14.1	13.2	14.1	14.1	15.0
50°	21.1	15.0	12.3	11.4	11.4	10.6	10.6	10.6	10.6	11.4	11.4
52.5°	13.2	10.6	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	9.7
55°	8.8	7.9	7.0	7.0	7.0	7.0	7.0	7.9	7.9	7.9	7.9
57.5°	6.2	6.2	6.2	6.2	7.0	6.2	7.0	6.2	6.2	7.0	7.9
60°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	7.0	7.0	7.9
62.5°	5.3	6.2	6.2	6.2	6.2	6.2	6.2	7.0	7.0	7.0	7.9
65°	5.3	5.3	6.2	6.2	6.2	6.2	7.0	7.0	7.0	7.9	7.9
67.5°	4.4	5.3	5.3	6.2	6.2	6.2	6.2	7.0	7.0	7.0	7.9
70°	4.4	4.4	5.3	5.3	5.3	5.3	6.2	6.2	6.2	7.0	7.0
72.5°	4.4	4.4	5.3	5.3	5.3	5.3	5.3	6.2	6.2	6.2	7.0
75°	4.4	4.4	5.3	5.3	5.3	5.3	5.3	6.2	6.2	6.2	7.0
77.5°	4.4	4.4	5.3	5.3	5.3	5.3	5.3	6.2	6.2	6.2	7.0
80°	4.4	4.4	5.3	5.3	5.3	5.3	6.2	6.2	6.2	6.2	7.0
82.5°	4.4	4.4	5.3	5.3	5.3	5.3	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	5.3	6.2	6.2	6.2
87.5°	4.4	4.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2
2.5°	938.1	902.0	884.4	858.0	859.8	815.8	799.1	767.4	749.8	731.3	710.2
5°	844.8	781.5	736.6	701.4	682.0	624.8	586.1	535.9	484.0	433.9	392.5
7.5°	727.8	644.2	575.5	530.7	503.4	388.1	314.2	255.2	232.3	214.7	197.1
10°	597.5	493.7	372.2	310.6	272.8	218.2	196.2	162.8	139.0	117.0	103.8
12.5°	466.4	308.0	222.6	204.2	191.0	141.7	111.8	103.8	84.5	80.1	78.3
15°	293.0	202.4	157.5	135.5	117.9	98.6	90.6	89.8	93.3	94.2	93.3
17.5°	207.7	161.9	118.8	116.2	116.2	126.7	128.5	136.4	143.4	149.6	150.5
20°	266.6	239.4	279.0	296.6	327.4	365.2	420.7	498.1	565.9	634.5	687.3
22.5°	510.4	570.3	658.3	689.1	741.0	821.9	898.5	969.8	1041.9	1095.6	1107.1
25°	750.7	792.0	843.9	832.5	848.3	843.9	800.8	742.7	711.9	655.6	636.3
27.5°	574.7	531.5	495.5	454.1	433.9	395.1	339.7	304.5	272.8	241.1	227.9
30°	234.1	205.0	183.9	169.0	160.2	139.0	128.5	117.0	111.8	103.8	99.4
32.5°	91.5	86.2	83.6	81.0	80.1	77.4	74.8	71.3	70.4	70.4	66.9
35°	54.6	54.6	54.6	53.7	54.6	53.7	52.8	51.9	52.8	52.8	50.2
37.5°	38.7	39.6	39.6	39.6	39.6	39.6	39.6	39.6	38.7	38.7	36.1
40°	29.0	29.9	30.8	29.9	30.8	30.8	29.9	29.0	29.0	29.0	27.3
42.5°	23.8	23.8	23.8	23.8	24.6	23.8	23.8	23.8	23.8	23.8	22.9
45°	19.4	19.4	19.4	19.4	20.2	20.2	19.4	19.4	20.2	20.2	19.4
47.5°	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.1	14.1	14.1	13.2
50°	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	12.3	11.4	11.4
52.5°	9.7	9.7	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	9.7
55°	8.8	8.8	9.7	9.7	9.7	9.7	9.7	8.8	8.8	8.8	7.9
57.5°	7.9	8.8	8.8	8.8	8.8	8.8	8.8	8.8	7.9	7.9	7.0
60°	7.9	7.9	8.8	8.8	8.8	8.8	7.9	7.9	7.0	7.0	6.2
62.5°	7.9	7.9	8.8	8.8	8.8	7.9	7.9	7.0	7.0	6.2	6.2
65°	7.9	8.8	8.8	8.8	8.8	7.9	7.9	7.0	7.0	6.2	6.2
67.5°	7.9	8.8	8.8	8.8	8.8	7.9	7.9	7.0	7.0	6.2	6.2
70°	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.0	7.0	6.2	6.2
72.5°	7.0	7.9	7.9	7.9	7.9	7.9	7.0	7.0	7.0	6.2	6.2
75°	7.0	7.0	7.0	7.0	7.9	7.0	7.0	7.0	6.2	6.2	5.3
77.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.2	6.2	6.2	5.3
80°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.2	6.2	5.3	5.3
82.5°	7.0	7.0	7.0	7.0	7.0	7.0	6.2	6.2	5.3	5.3	5.3
85°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	5.3	5.3	4.4	4.4
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: P179667

CATALOG NUMBER: LDA6A45940D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2	1025.2
2.5°	687.3	672.3	668.8	668.8	660.9	645.1	642.4	637.1
5°	347.6	310.6	303.6	295.7	282.5	266.6	262.2	260.5
7.5°	179.5	163.7	161.0	155.8	147.8	139.9	138.2	137.3
10°	105.6	95.9	91.5	83.6	75.7	71.3	71.3	70.4
12.5°	78.3	78.3	78.3	78.3	78.3	78.3	78.3	78.3
15°	95.0	97.7	97.7	98.6	99.4	100.3	102.1	100.3
17.5°	160.2	173.4	172.5	174.2	180.4	188.3	184.8	189.2
20°	777.9	879.1	908.2	937.2	1025.2	1107.9	1091.2	1149.3
22.5°	1117.6	1148.4	1136.1	1128.2	1146.7	1137.0	1178.4	1151.1
25°	599.3	593.1	593.1	566.7	572.0	558.8	576.4	568.5
27.5°	220.9	201.5	199.8	187.4	195.4	176.9	182.2	178.6
30°	95.0	95.9	92.4	89.8	87.1	85.4	85.4	84.5
32.5°	65.1	65.1	63.4	61.6	59.8	58.1	57.2	56.3
35°	48.4	48.4	46.6	45.8	44.9	43.1	42.2	42.2
37.5°	35.2	35.2	34.3	33.4	31.7	30.8	29.9	29.9
40°	27.3	26.4	25.5	25.5	23.8	23.8	22.9	22.9
42.5°	22.0	22.0	22.0	21.1	20.2	19.4	19.4	19.4
45°	19.4	19.4	18.5	17.6	17.6	17.6	16.7	16.7
47.5°	13.2	13.2	12.3	12.3	11.4	11.4	10.6	10.6
50°	10.6	10.6	10.6	10.6	9.7	8.8	8.8	8.8
52.5°	9.7	8.8	8.8	8.8	7.9	7.9	7.0	7.0
55°	7.9	7.9	7.0	7.0	6.2	6.2	6.2	6.2
57.5°	7.0	6.2	6.2	6.2	5.3	5.3	5.3	5.3
60°	6.2	5.3	5.3	5.3	4.4	4.4	4.4	4.4
62.5°	5.3	5.3	5.3	5.3	4.4	4.4	4.4	4.4
65°	5.3	5.3	5.3	4.4	4.4	4.4	4.4	3.5
67.5°	5.3	5.3	5.3	5.3	4.4	4.4	4.4	4.4
70°	5.3	5.3	5.3	5.3	4.4	4.4	4.4	4.4
72.5°	5.3	5.3	5.3	5.3	4.4	4.4	4.4	4.4
75°	5.3	5.3	5.3	5.3	4.4	4.4	4.4	4.4
77.5°	5.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4
80°	5.3	4.4	4.4	4.4	4.4	3.5	3.5	4.4
82.5°	4.4	4.4	4.4	4.4	3.5	3.5	3.5	3.5
85°	3.5	3.5	3.5	3.5	2.6	2.6	2.6	2.6
87.5°	2.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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)