

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: P179662

Luminaire Tested: **LDA6A45835D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179662
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: LDA6A45835D010TE LARH20SP 6LAL1LI 30°
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 20° Spot, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4115.0 lumens
Efficiency: N/A
Efficacy: 77.6 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

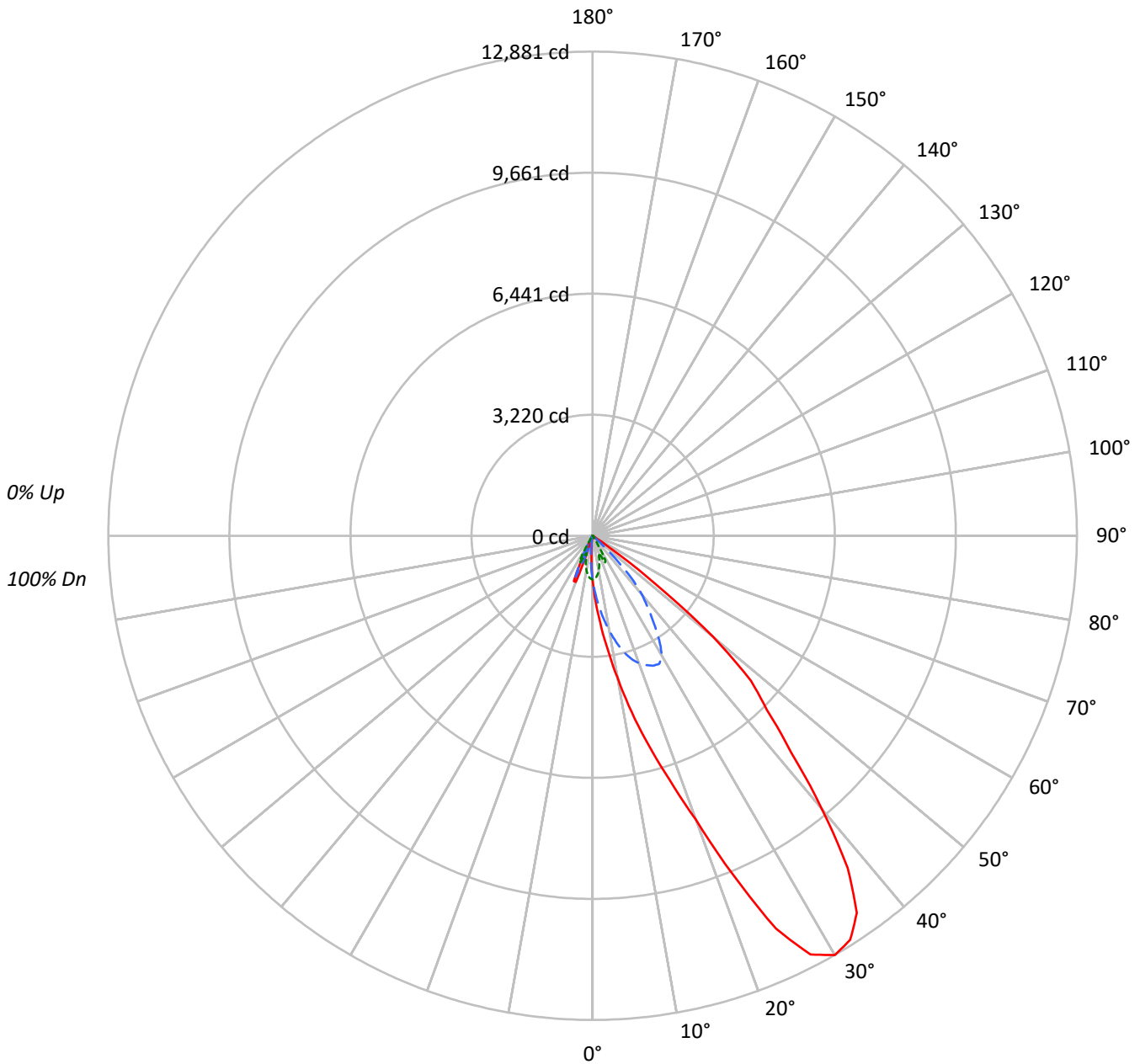
Input Watts (W): 53
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	63860	63860	63860
5°	127878	60747	16289
10°	214464	51931	4453
15°	327505	38933	6470
20°	469239	28469	76184
25°	697613	47235	39075
30°	815385	20889	6077
35°	819881	4350	3212
40°	678865	2433	1861
45°	508154	1551	1473
50°	356125	1109	853
55°	57250	860	669
60°	3508	877	548
65°	1038	1167	519
70°	641	1282	801
75°	424	1483	1059
80°	316	2210	1578
85°	629	4403	1887



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	120.7	2.9
10°-20°	509.7	12.4
20°-30°	1226.3	29.8
30°-40°	1306.6	31.8
40°-50°	814.8	19.8
50°-60°	119.1	2.9
60°-70°	7.6	0.2
70°-80°	5.9	0.1
80°-90°	4.5	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°	1856.6	45.1
0°-40°	3163.2	76.9
0°-60°	4097.0	99.6
0°-90°	4115.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4115.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1165	1165	1165	1165	1165	
5°	2324	1864	1104	550	296	269
15°	5771	3207	686	106	114	1712
25°	11533	3814	781	809	646	5197
35°	12251	2830	65	60	48	7391
45°	6554	828	20	23	19	5159
55°	599	14	9	10	7	1059
65°	8	6	9	8	4	12
75°	2	4	7	7	5	2
85°	1	4	7	6	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°	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9
2.5°	1732.9	1673.9	1693.9	1649.9	1633.9	1637.9	1605.9	1579.9	1565.9	1531.9	1496.9
5°	2323.8	2255.8	2275.8	2209.8	2168.8	2159.8	2109.9	2053.9	2003.9	1927.9	1863.9
7.5°	3040.8	2956.8	2970.8	2871.8	2788.8	2760.8	2684.8	2575.8	2474.8	2345.8	2222.8
10°	3852.7	3773.7	3769.7	3618.7	3476.8	3421.8	3310.8	3130.8	2958.8	2764.8	2562.8
12.5°	4809.7	4690.7	4670.7	4476.7	4264.7	4174.7	4019.7	3744.7	3472.8	3189.8	2898.8
15°	5770.6	5642.6	5610.6	5366.6	5070.6	4949.7	4742.7	4376.7	4001.7	3601.7	3206.8
17.5°	6794.5	6589.5	6416.6	6134.6	5792.6	5668.6	5400.6	4931.7	4459.7	3965.7	3437.8
20°	8043.4	7814.5	7571.5	7089.5	6462.6	6218.6	5924.6	5395.6	4806.7	4235.7	3608.7
22.5°	9755.3	9379.3	8863.4	8088.4	7226.5	6878.5	6424.6	5739.6	5073.6	4432.7	3722.7
25°	11533.2	11014.2	10447.3	9256.4	7925.4	7500.5	6903.5	6002.6	5285.6	4577.7	3813.7
27.5°	12557.1	12140.2	11497.2	10249.3	8492.4	7934.4	7246.5	6200.6	5420.6	4647.7	3839.7
30°	12881.1	12543.1	11959.2	10679.3	8682.4	8017.4	7278.5	6202.6	5355.6	4525.7	3689.7
32.5°	12746.1	12425.1	11779.2	10410.3	8334.4	7722.5	7005.5	5950.6	5035.6	4150.7	3304.8
35°	12251.1	11827.2	11042.2	9517.3	7742.5	7134.5	6464.6	5499.6	4543.7	3641.7	2829.8
37.5°	11140.2	10700.3	9807.3	8372.4	6979.5	6450.6	5911.6	4994.7	4048.7	3178.8	2415.8
40°	9486.3	9021.4	8287.4	7280.5	6156.6	5795.6	5340.6	4435.7	3524.8	2724.8	2032.9
42.5°	7817.5	7519.5	7084.5	6286.6	5503.6	5147.6	4705.7	3826.7	3020.8	2256.8	1543.9
45°	6554.5	6318.6	6029.6	5525.6	4786.7	4451.7	4040.7	3213.8	2354.8	1507.9	827.9
47.5°	5711.6	5423.6	5171.6	4609.7	3816.7	3409.8	2973.8	2117.9	1357.9	654.0	229.0
50°	4175.7	3828.7	3593.8	2963.8	2243.8	1904.9	1585.9	982.9	440.0	146.0	38.0
52.5°	2116.9	1854.9	1716.9	1296.9	856.9	641.0	471.0	203.0	87.0	29.0	22.0
55°	599.0	482.0	432.0	285.0	155.0	109.0	71.0	36.0	26.0	20.0	14.0
57.5°	62.0	53.0	50.0	41.0	33.0	31.0	28.0	22.0	17.0	14.0	9.0
60°	32.0	29.0	28.0	25.0	21.0	19.0	18.0	15.0	11.0	8.0	7.0
62.5°	17.0	16.0	14.0	13.0	11.0	11.0	10.0	8.0	7.0	7.0	6.0
65°	8.0	8.0	8.0	8.0	7.0	7.0	6.0	6.0	6.0	6.0	6.0
67.5°	6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
70°	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0
72.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	4.0	4.0
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	4.0	4.0
77.5°	1.0	1.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	4.0	4.0
80°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	3.0	4.0	4.0
82.5°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	3.0	4.0	4.0
85°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	3.0	4.0	4.0
87.5°	0.0	0.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	4.0	4.0
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°	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9
2.5°	1454.9	1429.9	1389.9	1349.9	1337.9	1304.9	1265.9	1219.9	1176.9	1142.9	1109.9
5°	1760.9	1693.9	1618.9	1517.9	1481.9	1425.9	1341.9	1251.9	1173.9	1103.9	1038.9
7.5°	2065.9	1939.9	1802.9	1656.9	1594.9	1511.9	1379.9	1252.9	1136.9	1033.9	936.9
10°	2335.8	2141.9	1948.9	1747.9	1660.9	1553.9	1377.9	1215.9	1067.9	932.9	810.9
12.5°	2584.8	2316.8	2060.9	1802.9	1693.9	1564.9	1347.9	1151.9	975.9	817.9	675.0
15°	2802.8	2457.8	2140.9	1828.9	1690.9	1542.9	1288.9	1063.9	867.9	686.0	531.0
17.5°	2954.8	2537.8	2163.8	1801.9	1649.9	1479.9	1198.9	958.9	743.9	553.0	376.0
20°	3045.8	2558.8	2141.9	1742.9	1574.9	1398.9	1114.9	871.9	663.0	488.0	340.0
22.5°	3095.8	2568.8	2125.9	1721.9	1550.9	1382.9	1118.9	886.9	708.0	590.0	578.0
25°	3145.8	2600.8	2153.9	1745.9	1585.9	1429.9	1177.9	940.9	818.9	780.9	793.9
27.5°	3142.8	2580.8	2127.9	1723.9	1569.9	1407.9	1126.9	877.9	793.9	734.9	686.0
30°	2964.8	2390.8	1927.9	1498.9	1322.9	1106.9	750.9	516.0	395.0	330.0	297.0
32.5°	2552.8	1949.9	1472.9	1041.9	869.9	629.0	323.0	170.0	146.0	130.0	116.0
35°	2121.9	1552.9	1108.9	657.0	437.0	239.0	111.0	72.0	67.0	65.0	64.0
37.5°	1749.9	1227.9	728.9	263.0	157.0	89.0	51.0	46.0	45.0	46.0	45.0
40°	1380.9	809.9	289.0	88.0	48.0	39.0	36.0	33.0	33.0	34.0	33.0
42.5°	826.9	302.0	88.0	33.0	31.0	28.0	27.0	26.0	25.0	26.0	26.0
45°	273.0	77.0	29.0	23.0	22.0	21.0	20.0	20.0	20.0	20.0	21.0
47.5°	62.0	27.0	20.0	17.0	17.0	16.0	16.0	15.0	16.0	16.0	17.0
50°	24.0	17.0	14.0	13.0	13.0	12.0	12.0	12.0	12.0	13.0	13.0
52.5°	15.0	12.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	11.0
55°	10.0	9.0	8.0	8.0	8.0	8.0	8.0	9.0	9.0	9.0	9.0
57.5°	7.0	7.0	7.0	7.0	8.0	7.0	8.0	7.0	7.0	8.0	9.0
60°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	8.0	9.0
62.5°	6.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0	9.0
65°	6.0	6.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0	9.0	9.0
67.5°	5.0	6.0	6.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0	9.0
70°	5.0	5.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	8.0	8.0
72.5°	5.0	5.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	8.0
75°	5.0	5.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	8.0
77.5°	5.0	5.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	8.0
80°	5.0	5.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	8.0
82.5°	5.0	5.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0
85°	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0
87.5°	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0
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°	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9
2.5°	1065.9	1024.9	1004.9	974.9	976.9	926.9	907.9	871.9	851.9	830.9	806.9
5°	959.9	887.9	836.9	796.9	774.9	710.0	666.0	609.0	550.0	493.0	446.0
7.5°	826.9	731.9	654.0	603.0	572.0	441.0	357.0	290.0	264.0	244.0	224.0
10°	679.0	561.0	423.0	353.0	310.0	248.0	223.0	185.0	158.0	133.0	118.0
12.5°	530.0	350.0	253.0	232.0	217.0	161.0	127.0	118.0	96.0	91.0	89.0
15°	333.0	230.0	179.0	154.0	134.0	112.0	103.0	102.0	106.0	107.0	106.0
17.5°	236.0	184.0	135.0	132.0	132.0	144.0	146.0	155.0	163.0	170.0	171.0
20°	303.0	272.0	317.0	337.0	372.0	415.0	478.0	566.0	643.0	720.9	780.9
22.5°	580.0	648.0	747.9	782.9	841.9	933.9	1020.9	1101.9	1183.9	1244.9	1257.9
25°	852.9	899.9	958.9	945.9	963.9	958.9	909.9	843.9	808.9	744.9	722.9
27.5°	653.0	604.0	563.0	516.0	493.0	449.0	386.0	346.0	310.0	274.0	259.0
30°	266.0	233.0	209.0	192.0	182.0	158.0	146.0	133.0	127.0	118.0	113.0
32.5°	104.0	98.0	95.0	92.0	91.0	88.0	85.0	81.0	80.0	80.0	76.0
35°	62.0	62.0	62.0	61.0	62.0	61.0	60.0	59.0	60.0	60.0	57.0
37.5°	44.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	44.0	44.0	41.0
40°	33.0	34.0	35.0	34.0	35.0	35.0	34.0	33.0	33.0	33.0	31.0
42.5°	27.0	27.0	27.0	27.0	28.0	27.0	27.0	27.0	27.0	27.0	26.0
45°	22.0	22.0	22.0	22.0	23.0	23.0	22.0	22.0	23.0	23.0	22.0
47.5°	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.0	16.0	16.0	15.0
50°	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	14.0	13.0	13.0
52.5°	11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.0
55°	10.0	10.0	11.0	11.0	11.0	11.0	11.0	10.0	10.0	10.0	9.0
57.5°	9.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.0	9.0	8.0
60°	9.0	9.0	10.0	10.0	10.0	10.0	9.0	9.0	8.0	8.0	7.0
62.5°	9.0	9.0	10.0	10.0	10.0	9.0	9.0	8.0	8.0	7.0	7.0
65°	9.0	10.0	10.0	10.0	10.0	9.0	9.0	8.0	8.0	7.0	7.0
67.5°	9.0	10.0	10.0	10.0	10.0	9.0	9.0	8.0	8.0	7.0	7.0
70°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.0	8.0	7.0	7.0
72.5°	8.0	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	7.0	7.0
75°	8.0	8.0	8.0	8.0	9.0	8.0	8.0	8.0	7.0	7.0	6.0
77.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0
80°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	6.0	6.0
82.5°	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	6.0	6.0	6.0
85°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	5.0	5.0
87.5°	7.0	7.0	7.0	7.0	7.0	6.0	6.0	5.0	4.0	4.0	3.0
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: P179662

CATALOG NUMBER: LDA6A45835D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9	1164.9
2.5°	780.9	763.9	759.9	759.9	750.9	732.9	729.9	723.9
5°	395.0	353.0	345.0	336.0	321.0	303.0	298.0	296.0
7.5°	204.0	186.0	183.0	177.0	168.0	159.0	157.0	156.0
10°	120.0	109.0	104.0	95.0	86.0	81.0	81.0	80.0
12.5°	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0
15°	108.0	111.0	111.0	112.0	113.0	114.0	116.0	114.0
17.5°	182.0	197.0	196.0	198.0	205.0	214.0	210.0	215.0
20°	883.9	998.9	1031.9	1064.9	1164.9	1258.9	1239.9	1305.9
22.5°	1269.9	1304.9	1290.9	1281.9	1302.9	1291.9	1338.9	1307.9
25°	681.0	674.0	674.0	644.0	650.0	635.0	655.0	646.0
27.5°	251.0	229.0	227.0	213.0	222.0	201.0	207.0	203.0
30°	108.0	109.0	105.0	102.0	99.0	97.0	97.0	96.0
32.5°	74.0	74.0	72.0	70.0	68.0	66.0	65.0	64.0
35°	55.0	55.0	53.0	52.0	51.0	49.0	48.0	48.0
37.5°	40.0	40.0	39.0	38.0	36.0	35.0	34.0	34.0
40°	31.0	30.0	29.0	29.0	27.0	27.0	26.0	26.0
42.5°	25.0	25.0	25.0	24.0	23.0	22.0	22.0	22.0
45°	22.0	22.0	21.0	20.0	20.0	20.0	19.0	19.0
47.5°	15.0	15.0	14.0	14.0	13.0	13.0	12.0	12.0
50°	12.0	12.0	12.0	12.0	11.0	10.0	10.0	10.0
52.5°	11.0	10.0	10.0	10.0	9.0	9.0	8.0	8.0
55°	9.0	9.0	8.0	8.0	7.0	7.0	7.0	7.0
57.5°	8.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
60°	7.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0
62.5°	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0
65°	6.0	6.0	6.0	5.0	5.0	5.0	5.0	4.0
67.5°	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0
70°	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0
72.5°	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0
75°	6.0	6.0	6.0	6.0	5.0	5.0	5.0	5.0
77.5°	6.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
80°	6.0	5.0	5.0	5.0	5.0	4.0	4.0	5.0
82.5°	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
85°	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0
87.5°	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)