

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: P179638

Luminaire Tested: **LDA6A45835D010TE LARH20SP 6LA1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179638
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: LDA6A45835D010TE LARH20SP 6LA1LI 30°
Description: PORTFOLIO 6" Adjustable Reflector, Angle-cut Trim, 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: 4449.0 lumens
Efficiency: N/A
Efficacy: 83.9 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

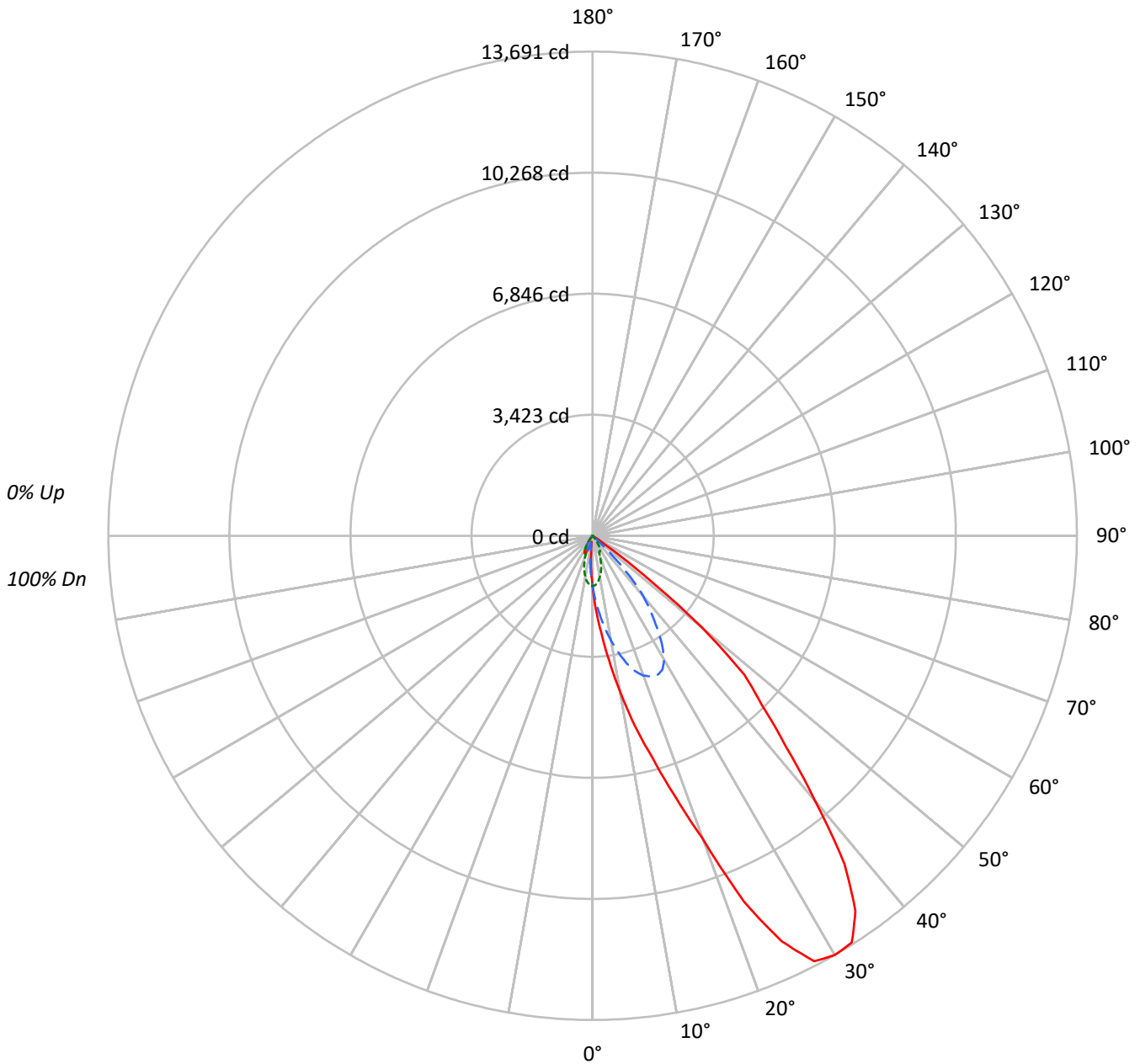
Input Watts (W): 53
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91					91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83					83			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	75					75			
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67					67			
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	61					61			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55					55			
7	76	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49					49			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45					45			
9	66	55	48	43	65	54	47	43	53	47	43	52	47	43	51	46	42	41					41			
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	37					37			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	78058	78058	78058
5°	150220	74780	28010
10°	248476	65624	10076
15°	366835	52946	16061
20°	532653	33720	27186
25°	765177	29457	32966
30°	866659	25510	23991
35°	866734	13251	12314
40°	700054	4938	5153
45°	524209	1706	1861
50°	343161	682	597
55°	40333	573	96
60°	1206	658	0
65°	259	778	0
70°	160	962	0
75°	0	1483	0
80°	0	2210	316
85°	0	4403	629



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.9	3.3
10°-20°	595.3	13.4
20°-30°	1306.0	29.4
30°-40°	1449.9	32.6
40°-50°	839.3	18.9
50°-60°	99.7	2.2
60°-70°	3.9	0.1
70°-80°	4.2	0.1
80°-90°	3.9	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°	2048.2	46.0
0°-40°	3498.1	78.6
0°-60°	4437.1	99.7
0°-90°	4449.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4449.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1424	1424	1424	1424	1424	
5°	2730	2207	1359	778	509	314
15°	6464	3739	933	253	283	1941
25°	12650	4342	487	542	545	5713
35°	12951	3167	198	195	184	7808
45°	6762	746	22	26	24	5284
55°	422	6	6	4	1	928
65°	2	4	6	4	0	3
75°	0	4	7	4	0	0
85°	0	4	7	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°	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9
2.5°	2070.9	2029.9	1988.9	1985.9	1951.9	1906.9	1937.9	1871.9	1891.9	1841.9	1810.9
5°	2729.8	2684.8	2624.8	2607.8	2549.8	2482.8	2507.8	2391.8	2379.8	2283.9	2206.9
7.5°	3537.8	3485.8	3391.8	3346.8	3250.8	3150.8	3162.8	2976.8	2920.8	2762.8	2621.8
10°	4463.7	4426.7	4291.7	4198.7	4047.7	3901.7	3876.7	3601.8	3479.8	3231.8	3009.8
12.5°	5502.6	5447.6	5260.7	5119.7	4913.7	4728.7	4673.7	4279.7	4060.7	3701.8	3386.8
15°	6463.6	6426.6	6265.6	6053.6	5792.6	5553.6	5459.6	4999.7	4653.7	4176.7	3738.8
17.5°	7695.5	7593.5	7303.5	6887.6	6514.6	6276.6	6162.6	5586.6	5162.7	4580.7	4021.7
20°	9130.4	8992.4	8548.4	7972.5	7353.5	6935.5	6684.6	6064.6	5539.6	4863.7	4205.7
22.5°	11207.3	10926.3	10083.3	9051.4	8190.5	7632.5	7273.5	6372.6	5814.6	5040.7	4307.7
25°	12650.2	12403.2	11633.2	10276.3	8896.4	8254.5	7749.5	6627.6	5994.6	5145.7	4341.7
27.5°	13564.1	13433.1	12547.2	11191.3	9442.4	8607.4	8036.5	6788.6	6062.6	5142.7	4272.7
30°	13691.1	13699.1	12877.2	11436.3	9485.4	8616.4	7974.5	6719.6	5921.6	4948.7	4045.7
32.5°	13636.1	13527.1	12513.2	10972.3	9009.4	8246.5	7636.5	6428.6	5581.6	4558.7	3651.8
35°	12951.2	12708.2	11636.2	9936.4	8316.5	7590.5	7021.5	5962.6	5040.7	4041.7	3166.8
37.5°	11695.2	11310.3	10113.3	8665.4	7466.5	6826.6	6396.6	5366.7	4480.7	3503.8	2684.8
40°	9782.4	9368.4	8524.4	7513.5	6568.6	6129.6	5716.6	4712.7	3849.7	2953.8	2218.9
42.5°	8093.5	7866.5	7236.5	6462.6	5833.6	5381.6	4987.7	4031.7	3245.8	2418.8	1571.9
45°	6761.6	6607.6	6210.6	5642.6	5018.7	4606.7	4247.7	3272.8	2371.8	1535.9	746.0
47.5°	5822.6	5651.6	5201.7	4603.7	3870.7	3422.8	3018.8	2040.9	1294.9	594.0	174.0
50°	4023.7	3821.8	3342.8	2766.8	2139.9	1802.9	1520.9	824.9	340.0	103.0	20.0
52.5°	1820.9	1680.9	1380.9	1058.9	700.0	520.0	339.0	143.0	36.0	15.0	11.0
55°	422.0	370.0	281.0	173.0	86.0	57.0	38.0	15.0	11.0	8.0	6.0
57.5°	27.0	24.0	21.0	17.0	14.0	12.0	11.0	8.0	6.0	5.0	4.0
60°	11.0	11.0	10.0	8.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0
62.5°	5.0	5.0	5.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0
65°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	4.0
67.5°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	3.0	3.0	4.0
70°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	3.0	4.0	4.0
72.5°	0.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	3.0	4.0	4.0
75°	0.0	0.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	4.0	4.0
77.5°	0.0	0.0	1.0	1.0	2.0	2.0	2.0	2.0	3.0	4.0	4.0
80°	0.0	0.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	4.0	4.0
82.5°	0.0	0.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	4.0	4.0
85°	0.0	0.0	1.0	1.0	1.0	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°	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9
2.5°	1764.9	1721.9	1676.9	1630.9	1609.9	1575.9	1521.9	1483.9	1449.9	1404.9	1347.9
5°	2113.9	2017.9	1916.9	1822.9	1776.9	1716.9	1611.9	1526.9	1447.9	1358.9	1270.9
7.5°	2461.8	2295.9	2135.9	1982.9	1908.9	1822.9	1660.9	1529.9	1405.9	1282.9	1162.9
10°	2770.8	2530.8	2301.9	2088.9	1988.9	1873.9	1661.9	1486.9	1330.9	1178.9	1033.9
12.5°	3058.8	2733.8	2434.8	2158.9	2027.9	1889.9	1632.9	1424.9	1237.9	1060.9	891.9
15°	3312.8	2902.8	2528.8	2191.9	2038.9	1873.9	1579.9	1341.9	1132.9	932.9	716.0
17.5°	3493.8	2999.8	2562.8	2172.9	2000.9	1817.9	1493.9	1238.9	1012.9	767.0	508.0
20°	3589.8	3029.8	2540.8	2112.9	1927.9	1729.9	1392.9	1129.9	870.9	578.0	415.0
22.5°	3623.8	3011.8	2479.8	2027.9	1832.9	1631.9	1289.9	1015.9	708.0	490.0	425.0
25°	3607.8	2957.8	2400.8	1927.9	1732.9	1530.9	1189.9	869.9	573.0	487.0	453.0
27.5°	3500.8	2836.8	2252.9	1777.9	1581.9	1381.9	1015.9	642.0	507.0	457.0	466.0
30°	3264.8	2590.8	1999.9	1532.9	1347.9	1136.9	691.0	472.0	398.0	403.0	403.0
32.5°	2884.8	2222.9	1646.9	1217.9	978.9	709.0	394.0	296.0	301.0	300.0	296.0
35°	2418.8	1815.9	1263.9	748.0	480.0	326.0	199.0	193.0	199.0	198.0	195.0
37.5°	1990.9	1391.9	782.9	300.0	193.0	141.0	118.0	118.0	120.0	120.0	119.0
40°	1501.9	817.9	274.0	99.0	69.0	66.0	67.0	67.0	68.0	69.0	70.0
42.5°	840.9	270.0	72.0	39.0	39.0	37.0	37.0	37.0	39.0	39.0	40.0
45°	227.0	58.0	24.0	23.0	22.0	21.0	21.0	21.0	22.0	22.0	23.0
47.5°	34.0	17.0	14.0	13.0	13.0	12.0	12.0	12.0	13.0	13.0	13.0
50°	13.0	10.0	9.0	8.0	8.0	8.0	7.0	7.0	8.0	8.0	8.0
52.5°	8.0	7.0	6.0	5.0	6.0	5.0	5.0	5.0	6.0	6.0	6.0
55°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	6.0
57.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	6.0
60°	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	6.0
62.5°	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	6.0
65°	4.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
67.5°	4.0	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
70°	5.0	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
72.5°	5.0	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0
75°	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0
77.5°	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0
80°	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0
82.5°	5.0	5.0	6.0	6.0	6.0	7.0	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	7.0	7.0	7.0	7.0
87.5°	5.0	5.0	6.0	6.0	6.0	7.0	6.0	6.0	7.0	7.0	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°	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9
2.5°	1307.9	1284.9	1242.9	1213.9	1201.9	1177.9	1132.9	1127.9	1073.9	1045.9	1016.9
5°	1195.9	1138.9	1067.9	1022.9	996.9	945.9	875.9	843.9	777.9	735.0	672.0
7.5°	1058.9	970.9	873.9	816.9	774.9	689.0	565.0	491.0	393.0	336.0	295.0
10°	901.9	784.9	638.0	544.0	475.0	374.0	297.0	273.0	247.0	226.0	206.0
12.5°	718.0	521.0	379.0	324.0	298.0	268.0	236.0	208.0	203.0	205.0	212.0
15°	489.0	348.0	300.0	278.0	260.0	231.0	238.0	246.0	253.0	258.0	267.0
17.5°	368.0	322.0	275.0	276.0	283.0	290.0	301.0	313.0	323.0	330.0	342.0
20°	363.0	334.0	340.0	352.0	360.0	370.0	389.0	400.0	413.0	422.0	435.0
22.5°	395.0	421.0	429.0	438.0	450.0	461.0	481.0	496.0	506.0	515.0	524.0
25°	469.0	489.0	496.0	503.0	511.0	519.0	532.0	545.0	542.0	545.0	546.0
27.5°	474.0	489.0	492.0	496.0	496.0	503.0	503.0	511.0	498.0	496.0	492.0
30°	408.0	413.0	416.0	416.0	412.0	417.0	412.0	418.0	403.0	398.0	393.0
32.5°	301.0	308.0	305.0	304.0	301.0	306.0	300.0	306.0	293.0	290.0	285.0
35°	193.0	204.0	199.0	202.0	200.0	205.0	201.0	205.0	195.0	194.0	191.0
37.5°	121.0	125.0	123.0	124.0	124.0	127.0	125.0	127.0	123.0	123.0	120.0
40°	71.0	73.0	73.0	74.0	75.0	76.0	75.0	77.0	75.0	76.0	73.0
42.5°	41.0	42.0	42.0	43.0	44.0	44.0	44.0	46.0	44.0	45.0	43.0
45°	23.0	25.0	24.0	25.0	25.0	26.0	26.0	26.0	26.0	26.0	25.0
47.5°	14.0	15.0	15.0	15.0	15.0	15.0	16.0	16.0	15.0	15.0	15.0
50°	9.0	9.0	9.0	9.0	10.0	10.0	10.0	9.0	9.0	9.0	8.0
52.5°	6.0	6.0	6.0	6.0	7.0	6.0	6.0	6.0	5.0	5.0	5.0
55°	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	3.0	3.0
57.5°	6.0	6.0	6.0	6.0	6.0	5.0	5.0	4.0	4.0	3.0	3.0
60°	6.0	6.0	6.0	6.0	6.0	5.0	5.0	4.0	4.0	3.0	3.0
62.5°	6.0	6.0	6.0	6.0	6.0	5.0	5.0	4.0	4.0	3.0	3.0
65°	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	3.0	3.0
67.5°	6.0	7.0	6.0	6.0	6.0	6.0	5.0	5.0	4.0	3.0	3.0
70°	6.0	7.0	6.0	6.0	6.0	6.0	5.0	5.0	4.0	3.0	3.0
72.5°	7.0	7.0	7.0	6.0	6.0	6.0	6.0	5.0	4.0	3.0	3.0
75°	7.0	7.0	7.0	6.0	6.0	6.0	6.0	5.0	4.0	3.0	3.0
77.5°	7.0	7.0	7.0	7.0	7.0	6.0	6.0	5.0	4.0	4.0	3.0
80°	7.0	7.0	7.0	7.0	7.0	6.0	6.0	5.0	4.0	4.0	3.0
82.5°	7.0	7.0	7.0	7.0	7.0	6.0	6.0	5.0	4.0	4.0	3.0
85°	7.0	7.0	7.0	7.0	7.0	6.0	6.0	5.0	4.0	4.0	3.0
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: P179638

CATALOG NUMBER: LDA6A45835D010TE LARH20SP 6LA1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9	1423.9
2.5°	1023.9	1013.9	1006.9	990.9	981.9	971.9	956.9	949.9
5°	650.0	620.0	601.0	573.0	530.0	540.0	517.0	509.0
7.5°	280.0	267.0	263.0	257.0	247.0	242.0	241.0	239.0
10°	192.0	181.0	180.0	181.0	182.0	181.0	181.0	181.0
12.5°	216.0	217.0	219.0	222.0	223.0	223.0	222.0	222.0
15°	272.0	274.0	277.0	281.0	283.0	283.0	283.0	283.0
17.5°	349.0	352.0	357.0	361.0	365.0	365.0	365.0	366.0
20°	449.0	449.0	455.0	460.0	463.0	464.0	465.0	466.0
22.5°	538.0	539.0	543.0	547.0	550.0	549.0	547.0	547.0
25°	555.0	552.0	553.0	553.0	552.0	547.0	547.0	545.0
27.5°	495.0	491.0	491.0	488.0	487.0	485.0	481.0	479.0
30°	393.0	391.0	390.0	387.0	392.0	385.0	381.0	379.0
32.5°	283.0	284.0	283.0	280.0	285.0	278.0	276.0	273.0
35°	190.0	191.0	190.0	188.0	188.0	188.0	186.0	184.0
37.5°	120.0	119.0	120.0	120.0	122.0	119.0	119.0	117.0
40°	73.0	73.0	74.0	74.0	75.0	73.0	72.0	72.0
42.5°	43.0	43.0	44.0	44.0	45.0	43.0	43.0	43.0
45°	25.0	25.0	25.0	25.0	26.0	25.0	24.0	24.0
47.5°	14.0	14.0	14.0	14.0	14.0	14.0	14.0	13.0
50°	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0
52.5°	5.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0
55°	2.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0
57.5°	2.0	2.0	2.0	1.0	1.0	1.0	0.0	0.0
60°	2.0	2.0	1.0	1.0	1.0	0.0	0.0	0.0
62.5°	2.0	2.0	1.0	1.0	1.0	0.0	0.0	0.0
65°	2.0	2.0	1.0	1.0	1.0	0.0	0.0	0.0
67.5°	2.0	2.0	2.0	1.0	1.0	0.0	0.0	0.0
70°	2.0	2.0	2.0	1.0	1.0	1.0	0.0	0.0
72.5°	2.0	2.0	2.0	1.0	1.0	1.0	0.0	0.0
75°	3.0	2.0	2.0	2.0	1.0	1.0	0.0	0.0
77.5°	3.0	2.0	2.0	2.0	1.0	1.0	1.0	0.0
80°	3.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0
82.5°	3.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0
85°	3.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0
87.5°	3.0	2.0	2.0	2.0	1.0	1.0	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)