

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: P179655

Luminaire Tested: **LDA6A45840D010TE LARH40FL 6LA1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179655
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: LDA6A45840D010TE LARH40FL 6LA1LI 30°
Description: PORTFOLIO 6" Adjustable Reflector, Angle-cut Trim, Self-flanged, 40° Flood, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5280.3 lumens
Efficiency: N/A
Efficacy: 99.6 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

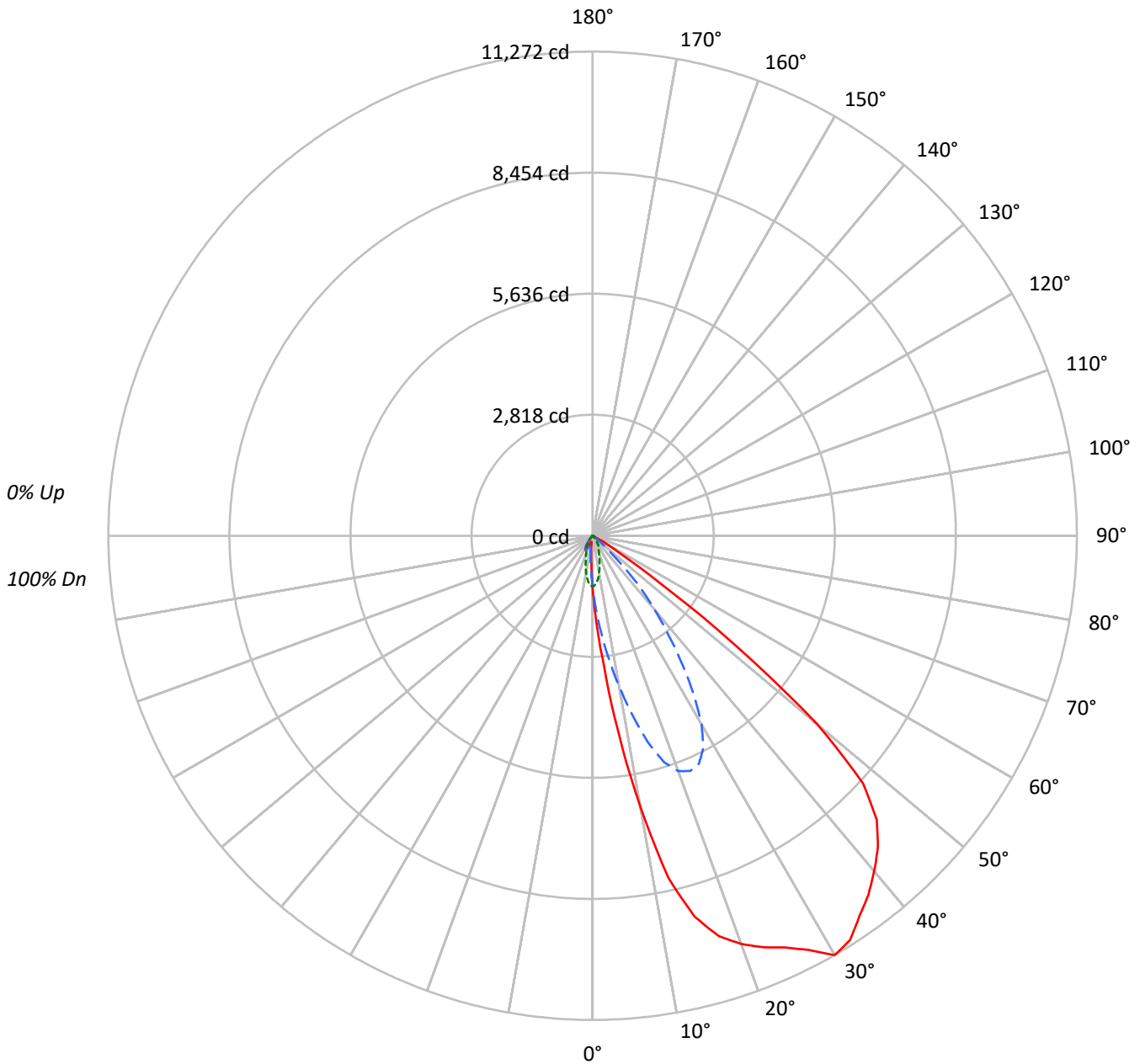
Input Watts (W): 53
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	64978	64978	64978
5°	166156	59905	21858
10°	357113	48329	8044
15°	520939	35346	9206
20°	589895	25418	14194
25°	639485	20439	22011
30°	713521	16781	21193
35°	724221	10855	14127
40°	729567	5210	7142
45°	724998	2179	2985
50°	580467	972	972
55°	173107	698	96
60°	35337	800	0
65°	3373	947	0
70°	337	1330	0
75°	0	1758	0
80°	0	2968	316
85°	0	5913	629



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	153.1	2.9
10°-20°	740.6	14.0
20°-30°	1361.1	25.8
30°-40°	1561.6	29.6
40°-50°	1181.5	22.4
50°-60°	261.8	5.0
60°-70°	11.1	0.2
70°-80°	4.9	0.1
80°-90°	4.8	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°	2254.7	42.7
0°-40°	3816.3	72.3
0°-60°	5259.5	99.6
0°-90°	5280.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5280.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1185	1185	1185	1185	1185	
5°	3019	2255	1089	532	397	399
15°	9179	4978	623	161	162	2558
25°	10572	5854	338	328	364	4932
35°	10822	3613	162	203	211	6779
45°	9352	1022	28	36	38	6979
55°	1811	38	7	5	1	2242
65°	26	5	7	4	0	69
75°	0	4	8	5	0	0
85°	0	5	9	5	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°	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3
2.5°	2007.8	1988.0	1993.2	2018.2	1915.2	1912.1	1864.3	1858.0	1810.2	1722.9	1679.2
5°	3019.4	3007.0	2985.1	2993.4	2876.0	2796.9	2713.8	2653.4	2530.8	2365.4	2255.2
7.5°	4633.1	4498.0	4432.5	4306.7	4156.9	4004.1	3850.2	3671.4	3413.5	3125.5	2892.6
10°	6415.3	6356.0	6221.9	6141.8	5810.1	5585.5	5346.4	4980.4	4508.4	3986.4	3551.8
12.5°	8162.1	8092.4	7889.6	7719.1	7277.2	7076.6	6765.7	6304.0	5705.1	4961.7	4274.4
15°	9178.9	9194.5	8964.7	8956.4	8575.9	8314.9	8045.6	7499.7	6739.7	5886.0	4978.3
17.5°	9774.7	9813.2	9585.5	9649.9	9270.4	9000.1	8799.4	8400.2	7592.3	6568.1	5522.1
20°	10111.6	10172.9	9930.7	9980.6	9656.2	9473.2	9269.4	8874.3	8161.0	7030.8	5830.9
22.5°	10368.4	10392.3	10123.0	10189.6	9835.0	9652.0	9507.5	9137.3	8433.4	7275.1	5927.6
25°	10572.2	10632.5	10324.7	10329.9	9977.5	9794.5	9634.3	9297.5	8549.9	7339.6	5853.8
27.5°	10865.4	10914.3	10462.0	10422.5	10081.4	9879.7	9706.1	9374.4	8544.7	7196.1	5575.1
30°	11271.9	10999.5	10536.8	10434.9	10051.3	9846.4	9660.3	9229.9	8353.4	6809.3	5068.8
32.5°	11155.5	10935.1	10478.6	10316.4	9935.9	9716.5	9503.3	8979.3	7909.4	6210.4	4378.4
35°	10821.7	10751.0	10271.7	10220.8	9760.1	9530.4	9316.2	8599.8	7228.4	5427.5	3613.1
37.5°	10540.0	10419.4	10110.5	10030.5	9547.0	9293.3	8952.3	8033.1	6327.9	4429.3	2885.3
40°	10194.8	10113.7	9815.3	9730.0	9170.6	8783.8	8366.9	7005.8	5240.3	3447.8	2228.2
42.5°	9827.7	9755.0	9473.2	9294.3	8548.8	8037.3	7389.5	5762.3	4034.2	2598.3	1669.8
45°	9351.5	9248.6	8896.1	8563.4	7494.5	6762.5	6033.7	4397.1	2952.9	1849.7	1022.1
47.5°	8533.2	8370.0	7942.7	7274.1	5960.9	5258.0	4499.0	2982.0	1823.7	952.4	514.7
50°	6806.2	6521.3	5952.6	5157.2	3818.0	3144.2	2549.5	1516.0	782.9	490.8	302.6
52.5°	4194.4	3933.4	3448.9	2681.5	1760.3	1355.8	1067.8	706.0	431.5	277.6	112.3
55°	1811.2	1648.0	1416.1	1080.3	767.3	631.1	507.4	352.5	222.5	85.3	38.5
57.5°	684.2	635.3	576.0	473.1	353.5	295.3	248.5	156.0	54.1	32.2	21.8
60°	322.3	292.2	257.9	204.8	135.2	97.7	61.3	39.5	26.0	17.7	12.5
62.5°	88.4	66.5	55.1	44.7	34.3	30.2	26.0	19.8	14.6	9.4	7.3
65°	26.0	22.9	21.8	18.7	15.6	13.5	11.4	9.4	7.3	5.2	5.2
67.5°	9.4	9.4	8.3	7.3	6.2	5.2	5.2	4.2	4.2	4.2	4.2
70°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1	3.1	4.2	4.2
72.5°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	4.2	4.2
75°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	4.2	4.2
77.5°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2	5.2
80°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2	5.2
82.5°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2	5.2
85°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2	5.2
87.5°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2	5.2
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3
2.5°	1642.8	1582.5	1497.2	1453.6	1415.1	1404.7	1325.7	1274.7	1214.4	1152.0	1086.5
5°	2152.3	1998.4	1835.2	1697.9	1628.3	1587.7	1433.8	1318.4	1207.2	1088.6	987.8
7.5°	2657.6	2382.1	2144.0	1922.5	1800.9	1709.4	1488.9	1315.3	1146.8	993.0	856.8
10°	3146.3	2749.1	2369.6	2070.1	1902.7	1766.5	1481.6	1256.0	1045.0	868.2	725.7
12.5°	3641.2	3062.1	2557.8	2149.2	1949.5	1774.9	1431.7	1157.2	933.7	746.5	598.9
15°	4083.1	3305.4	2675.3	2167.9	1926.7	1720.8	1334.0	1031.4	808.9	622.8	493.9
17.5°	4389.8	3436.4	2682.6	2099.3	1831.0	1609.5	1197.8	899.4	683.1	518.8	405.5
20°	4529.2	3432.2	2583.8	1956.8	1676.1	1445.3	1036.6	764.2	569.8	435.7	339.0
22.5°	4487.6	3301.2	2409.1	1755.1	1486.8	1256.0	886.9	644.6	489.7	374.3	297.4
25°	4279.6	3072.5	2204.3	1553.4	1283.1	1067.8	751.7	551.1	425.3	337.9	270.3
27.5°	3939.6	2760.5	1928.7	1317.4	1069.9	902.5	633.2	476.2	374.3	298.4	281.8
30°	3442.6	2382.1	1605.4	1062.6	864.0	714.3	513.6	383.7	299.4	265.1	266.2
32.5°	2894.7	1965.1	1262.3	812.0	650.9	551.1	379.5	268.3	219.4	217.3	218.3
35°	2348.8	1530.5	938.9	593.7	477.2	397.2	244.3	168.4	163.2	162.2	164.3
37.5°	1864.3	1138.5	676.9	414.9	316.1	242.3	132.0	114.4	110.2	112.3	113.3
40°	1392.2	798.5	457.5	245.4	153.9	111.3	80.1	73.8	71.7	72.8	72.8
42.5°	957.6	499.1	272.4	101.9	73.8	61.3	50.9	47.8	45.7	44.7	45.7
45°	515.7	310.9	106.1	52.0	43.7	39.5	32.2	30.2	29.1	28.1	28.1
47.5°	329.6	115.4	47.8	32.2	28.1	26.0	21.8	19.8	18.7	17.7	17.7
50°	123.7	44.7	29.1	20.8	17.7	16.6	13.5	12.5	11.4	11.4	11.4
52.5°	42.6	27.0	18.7	13.5	11.4	10.4	9.4	8.3	8.3	8.3	8.3
55°	23.9	16.6	11.4	8.3	8.3	7.3	7.3	7.3	7.3	7.3	7.3
57.5°	14.6	9.4	7.3	6.2	6.2	6.2	6.2	7.3	7.3	7.3	7.3
60°	8.3	6.2	6.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3
62.5°	5.2	5.2	5.2	5.2	5.2	6.2	6.2	7.3	7.3	7.3	7.3
65°	5.2	5.2	5.2	5.2	5.2	6.2	6.2	7.3	7.3	7.3	7.3
67.5°	4.2	5.2	5.2	6.2	6.2	6.2	6.2	7.3	7.3	8.3	7.3
70°	5.2	5.2	5.2	6.2	6.2	6.2	7.3	7.3	8.3	8.3	8.3
72.5°	5.2	5.2	5.2	6.2	6.2	6.2	7.3	7.3	8.3	8.3	8.3
75°	5.2	5.2	6.2	6.2	6.2	7.3	7.3	8.3	8.3	8.3	8.3
77.5°	5.2	5.2	6.2	6.2	6.2	7.3	7.3	8.3	8.3	9.4	8.3
80°	5.2	5.2	6.2	7.3	7.3	7.3	7.3	8.3	8.3	9.4	9.4
82.5°	5.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3	9.4	9.4	9.4
85°	5.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3	9.4	9.4	9.4
87.5°	5.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3	9.4	9.4	9.4
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3
2.5°	1051.2	990.9	942.0	943.1	902.5	871.3	831.8	810.0	792.3	763.2	736.1
5°	913.9	821.4	751.7	738.2	691.4	643.6	594.7	558.3	532.4	504.3	478.3
7.5°	765.3	659.2	579.1	560.4	520.9	476.2	431.5	395.1	363.9	333.8	302.6
10°	620.7	524.0	451.3	432.5	393.0	346.2	303.6	271.4	247.5	223.5	199.6
12.5°	502.2	416.9	348.3	324.4	292.2	255.8	221.5	190.3	164.3	153.9	150.8
15°	406.5	325.4	271.4	251.6	224.6	187.2	167.4	162.2	161.2	161.2	161.2
17.5°	328.6	265.1	216.3	195.5	182.0	179.9	179.9	179.9	180.9	183.0	187.2
20°	275.5	219.4	200.7	202.8	202.8	204.8	209.0	212.1	216.3	221.5	227.7
22.5°	244.3	232.9	230.8	237.1	238.1	244.3	252.7	258.9	266.2	274.5	279.7
25°	267.2	271.4	274.5	283.9	287.0	297.4	309.8	319.2	327.5	336.9	343.1
27.5°	291.1	298.4	304.6	314.0	316.1	329.6	340.0	346.2	352.5	356.6	360.8
30°	274.5	281.8	288.0	296.3	296.3	310.9	316.1	321.3	326.5	328.6	332.7
32.5°	225.6	232.9	239.1	245.4	246.4	256.8	263.1	265.1	269.3	270.3	273.5
35°	169.5	172.6	178.8	184.0	185.1	192.4	197.6	199.6	202.8	202.8	204.8
37.5°	116.5	118.5	123.7	126.8	128.9	134.1	137.2	139.3	141.4	142.4	143.5
40°	75.9	76.9	80.1	83.2	85.3	88.4	90.5	92.5	93.6	95.7	95.7
42.5°	46.8	47.8	49.9	52.0	52.0	55.1	56.1	58.2	59.3	60.3	60.3
45°	29.1	30.2	30.2	31.2	32.2	33.3	35.4	35.4	36.4	36.4	36.4
47.5°	17.7	18.7	17.7	18.7	18.7	19.8	20.8	20.8	20.8	20.8	20.8
50°	11.4	11.4	11.4	11.4	11.4	11.4	12.5	12.5	12.5	12.5	11.4
52.5°	8.3	8.3	7.3	8.3	7.3	7.3	7.3	7.3	7.3	7.3	6.2
55°	7.3	7.3	7.3	7.3	6.2	6.2	6.2	5.2	5.2	4.2	4.2
57.5°	7.3	7.3	6.2	6.2	6.2	5.2	5.2	5.2	4.2	4.2	3.1
60°	7.3	7.3	6.2	6.2	6.2	5.2	5.2	4.2	4.2	3.1	3.1
62.5°	7.3	7.3	6.2	6.2	6.2	6.2	5.2	5.2	4.2	4.2	3.1
65°	7.3	7.3	7.3	6.2	6.2	6.2	5.2	5.2	4.2	4.2	3.1
67.5°	7.3	7.3	7.3	7.3	6.2	6.2	6.2	5.2	4.2	4.2	3.1
70°	7.3	7.3	7.3	7.3	7.3	6.2	6.2	5.2	5.2	4.2	3.1
72.5°	8.3	8.3	7.3	7.3	7.3	6.2	6.2	5.2	5.2	4.2	4.2
75°	8.3	8.3	7.3	7.3	7.3	6.2	6.2	5.2	5.2	4.2	4.2
77.5°	8.3	8.3	8.3	8.3	7.3	7.3	6.2	6.2	5.2	5.2	4.2
80°	8.3	8.3	8.3	8.3	7.3	7.3	7.3	6.2	5.2	5.2	4.2
82.5°	8.3	8.3	8.3	8.3	8.3	7.3	7.3	6.2	5.2	5.2	4.2
85°	8.3	8.3	8.3	8.3	8.3	7.3	7.3	6.2	5.2	5.2	4.2
87.5°	8.3	8.3	8.3	8.3	8.3	7.3	7.3	6.2	5.2	5.2	4.2
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: P179655

CATALOG NUMBER: LDA6A45840D010TE LARH40FL 6LA1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3	1185.3
2.5°	711.2	697.7	696.6	685.2	662.3	673.8	659.2	648.8
5°	455.4	440.9	426.3	428.4	411.7	414.9	403.4	397.2
7.5°	289.1	273.5	269.3	269.3	250.6	250.6	243.3	239.1
10°	182.0	169.5	165.3	158.0	149.7	148.7	145.6	144.5
12.5°	147.6	147.6	144.5	145.6	145.6	145.6	144.5	144.5
15°	161.2	162.2	159.1	160.1	162.2	161.2	162.2	162.2
17.5°	186.1	191.3	187.2	189.2	193.4	192.4	193.4	194.4
20°	227.7	236.0	230.8	235.0	240.2	239.1	242.3	243.3
22.5°	283.9	294.2	289.1	293.2	301.5	299.4	303.6	305.7
25°	346.2	356.6	350.4	355.6	360.8	362.9	362.9	363.9
27.5°	360.8	367.0	362.9	368.1	370.2	372.2	370.2	371.2
30°	330.6	335.8	331.7	336.9	336.9	339.0	336.9	334.8
32.5°	272.4	276.6	271.4	277.6	276.6	277.6	278.7	279.7
35°	205.9	208.0	204.8	205.9	206.9	208.0	211.1	211.1
37.5°	143.5	146.6	143.5	144.5	144.5	146.6	148.7	148.7
40°	95.7	98.8	95.7	97.7	96.7	97.7	99.8	99.8
42.5°	60.3	62.4	60.3	61.3	61.3	61.3	62.4	63.4
45°	36.4	37.4	36.4	37.4	37.4	37.4	38.5	38.5
47.5°	20.8	21.8	20.8	20.8	21.8	20.8	21.8	21.8
50°	11.4	11.4	11.4	11.4	11.4	10.4	10.4	11.4
52.5°	6.2	6.2	5.2	5.2	5.2	5.2	5.2	5.2
55°	3.1	3.1	2.1	2.1	2.1	1.0	2.1	1.0
57.5°	2.1	2.1	1.0	1.0	1.0	1.0	0.0	0.0
60°	2.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
62.5°	2.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
65°	2.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
67.5°	3.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
70°	3.1	2.1	2.1	1.0	1.0	0.0	0.0	0.0
72.5°	3.1	2.1	2.1	2.1	1.0	1.0	0.0	0.0
75°	3.1	2.1	2.1	2.1	1.0	1.0	0.0	0.0
77.5°	3.1	3.1	2.1	2.1	1.0	1.0	1.0	0.0
80°	3.1	3.1	2.1	2.1	2.1	1.0	1.0	1.0
82.5°	3.1	3.1	2.1	2.1	2.1	1.0	1.0	1.0
85°	3.1	3.1	2.1	2.1	2.1	1.0	1.0	1.0
87.5°	3.1	3.1	2.1	2.1	2.1	1.0	1.0	1.0
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)