

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: P179647

Luminaire Tested: **LDA6A45840D010TE LARH30NF 6LA1LI 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P179647  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26671)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA6A45840D010TE LARH30NF 6LA1LI 30°  
Description: PORTFOLIO 6" Adjustable Reflector, Angle-cut Trim, Self-flanged, 30°  
Narrow Flood, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5061.9 lumens  
Efficiency: N/A  
Efficacy: 95.5 lumens/watt  
Spacing Criteria (0/90/45): 2.69 / 0.5 / 1.42  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

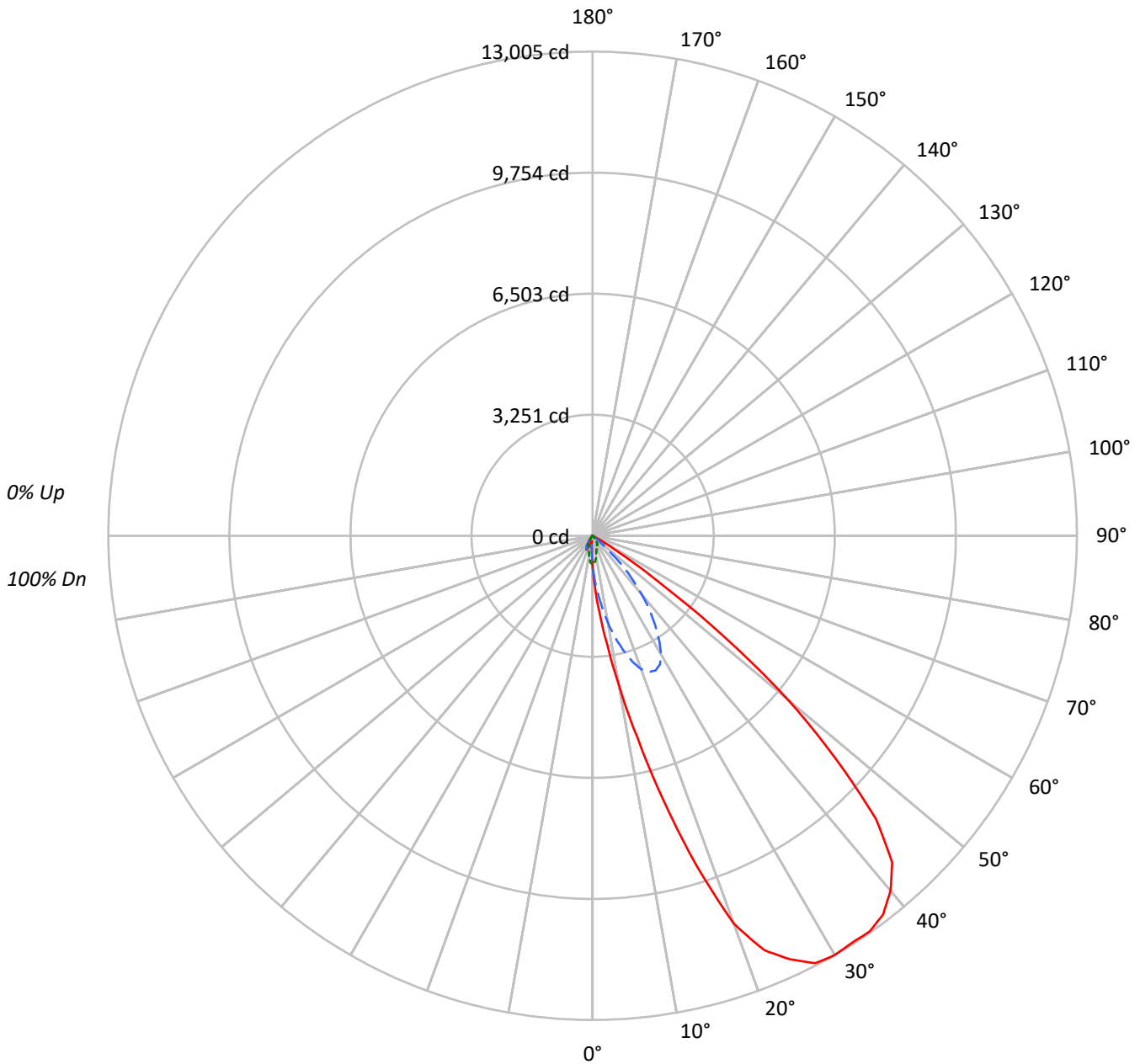
Input Watts (W): 53  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	101	102	100	98	99	97	95	95	94	93	91																			
2	105	99	94	89	102	97	92	88	94	90	86	91	87	85	88	85	83	81																			
3	98	89	83	78	95	88	82	78	85	80	76	83	79	75	80	77	74	72																			
4	91	81	74	69	89	80	73	68	78	72	68	75	71	67	73	69	66	64																			
5	84	74	66	61	82	73	66	61	71	65	60	69	64	59	67	63	59	57																			
6	78	67	60	54	77	66	59	54	65	58	53	63	57	53	62	57	53	51																			
7	73	61	54	48	71	60	53	48	59	53	48	58	52	48	56	51	47	45																			
8	68	56	48	43	66	55	48	43	54	48	43	53	47	43	52	46	42	41																			
9	63	51	44	39	62	51	44	39	50	43	39	49	43	39	48	42	38	37																			
10	59	47	40	35	58	47	40	35	46	39	35	45	39	35	44	39	35	33																			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	42529	42529	42529
5°	112101	38741	13334
10°	226510	30160	8105
15°	417080	22605	11686
20°	646635	18079	19473
25°	759201	16041	24721
30°	823215	16129	19155
35°	868026	9603	10299
40°	890325	4093	4466
45°	834094	1613	1535
50°	583205	708	358
55°	204638	698	0
60°	41269	800	0
65°	2568	947	0
70°	497	1330	0
75°	0	1758	0
80°	0	2620	316
85°	0	5913	629



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	99.4	2.0
10°-20°	555.0	11.0
20°-30°	1311.9	25.9
30°-40°	1598.2	31.6
40°-50°	1188.8	23.5
50°-60°	287.8	5.7
60°-70°	10.7	0.2
70°-80°	5.2	0.1
80°-90°	5.0	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°	1966.3	38.8
0°-40°	3564.5	70.4
0°-60°	5041.1	99.6
0°-90°	5061.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5061.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	776	776	776	776	776	
5°	2037	1523	704	329	242	256
15°	7349	3185	398	183	206	2215
25°	12551	3994	265	385	409	5764
35°	12970	2917	144	156	154	8078
45°	10759	1112	21	23	20	7902
55°	2141	24	7	5	0	2422
65°	20	5	7	5	0	66
75°	0	5	8	6	0	0
85°	0	5	9	6	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°	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8
2.5°	1352.9	1330.0	1327.9	1305.1	1296.7	1293.6	1261.4	1249.9	1207.3	1199.0	1138.7
5°	2037.1	2001.8	1994.5	1942.5	1904.0	1851.0	1822.9	1775.1	1674.2	1621.2	1523.4
7.5°	2898.2	2851.4	2841.0	2759.9	2679.8	2610.1	2551.9	2440.6	2255.5	2128.6	1929.0
10°	4069.1	3938.1	3890.2	3718.6	3553.3	3423.3	3355.7	3111.3	2832.7	2662.1	2383.4
12.5°	5556.1	5337.7	5248.3	4983.1	4692.0	4478.8	4347.8	3964.0	3510.7	3184.1	2785.9
15°	7348.9	7095.2	6935.0	6601.2	6071.9	5768.3	5536.4	4921.8	4260.4	3766.5	3185.2
17.5°	9300.8	9102.1	8863.0	8339.9	7487.2	7122.2	6701.0	5895.1	4988.3	4301.0	3541.9
20°	11084.2	10751.4	10571.5	9989.2	9001.3	8519.8	8000.9	6793.6	5632.0	4736.7	3815.3
22.5°	12050.2	11727.8	11619.7	11114.3	10208.6	9673.0	9012.7	7584.9	6126.0	5035.1	3960.9
25°	12551.4	12257.2	12264.4	11807.9	10990.6	10487.3	9815.5	8182.9	6462.9	5192.2	3994.2
27.5°	12943.5	12581.6	12518.2	12177.1	11450.2	10935.5	10287.6	8508.4	6586.6	5175.5	3903.7
30°	13004.8	12708.5	12754.2	12280.0	11616.6	11081.0	10407.2	8490.7	6459.8	4966.5	3668.7
32.5°	12963.2	12668.9	12774.0	12259.2	11544.8	10957.3	10207.5	8145.4	6087.5	4579.7	3323.5
35°	12970.5	12632.5	12554.6	12118.8	11268.2	10578.8	9674.1	7515.3	5537.4	4076.4	2916.9
37.5°	12815.6	12360.1	12373.6	11799.6	10733.7	9819.7	8795.4	6675.0	4886.4	3538.7	2508.2
40°	12441.2	12100.1	11992.0	11139.3	9716.7	8645.6	7657.7	5762.0	4133.6	2977.2	2028.8
42.5°	11907.7	11497.0	11179.8	9998.5	8275.4	7292.7	6439.0	4810.5	3422.3	2440.6	1575.4
45°	10758.7	10314.6	9700.1	8282.7	6823.7	5971.0	5258.7	3904.8	2768.2	1886.4	1111.6
47.5°	8826.6	8409.6	7777.3	6586.6	5448.0	4737.7	4182.4	3058.3	2023.6	1189.6	551.1
50°	6838.3	6521.1	6038.6	5005.0	4053.5	3389.0	2894.0	1920.7	1032.6	542.8	230.9
52.5°	4457.0	4232.3	3802.9	3016.7	2290.9	1795.9	1460.0	817.4	486.7	228.8	67.6
55°	2141.1	2024.7	1713.7	1242.7	899.5	738.3	623.9	396.2	184.1	55.1	23.9
57.5°	853.7	828.8	738.3	556.3	426.4	361.9	280.8	109.2	36.4	22.9	14.6
60°	376.4	365.0	305.7	202.8	109.2	62.4	45.8	27.0	17.7	13.5	9.4
62.5°	54.1	49.9	42.6	33.3	27.0	22.9	19.8	14.6	9.4	7.3	6.2
65°	19.8	19.8	17.7	14.6	12.5	11.4	10.4	7.3	5.2	5.2	5.2
67.5°	8.3	8.3	8.3	6.2	6.2	5.2	4.2	4.2	4.2	4.2	5.2
70°	3.1	3.1	3.1	2.1	2.1	2.1	3.1	3.1	3.1	4.2	5.2
72.5°	0.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	4.2	5.2
75°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	4.2	5.2
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	5.2	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	5.2	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°	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8
2.5°	1087.7	1073.2	1024.3	975.4	968.1	947.3	904.7	854.8	790.3	749.8	709.2
5°	1396.6	1323.8	1241.6	1147.0	1117.9	1076.3	986.9	891.2	784.1	704.0	629.1
7.5°	1757.4	1595.2	1440.2	1288.4	1231.2	1166.8	1030.5	893.3	746.6	630.2	536.6
10°	2095.4	1845.8	1605.6	1390.3	1305.1	1217.7	1034.7	857.9	675.9	541.8	446.1
12.5°	2432.3	2074.6	1746.0	1464.2	1348.7	1236.4	1011.8	794.5	588.6	460.7	383.7
15°	2697.5	2281.5	1847.9	1501.6	1358.1	1220.8	955.7	707.1	503.3	398.3	329.6
17.5°	2881.5	2400.1	1886.4	1486.0	1321.7	1166.8	867.3	605.2	434.7	349.4	282.8
20°	3008.4	2437.5	1859.3	1421.5	1243.7	1073.2	756.0	513.7	385.8	309.9	243.3
22.5°	3043.7	2401.1	1782.4	1324.8	1141.8	966.1	640.6	453.4	350.4	278.7	236.1
25°	3009.4	2308.5	1666.9	1209.4	1017.0	832.9	543.9	417.0	323.4	265.2	274.5
27.5°	2884.6	2145.3	1506.8	1060.7	863.1	689.4	478.3	373.3	284.9	279.7	291.2
30°	2678.7	1911.3	1316.5	870.4	682.2	550.1	401.4	294.3	249.6	254.8	262.1
32.5°	2382.4	1624.3	1072.1	644.7	500.2	413.9	287.0	203.8	197.6	201.7	206.9
35°	2008.0	1321.7	802.8	445.1	354.6	284.9	168.5	144.5	141.4	143.5	145.6
37.5°	1629.5	1021.2	545.9	299.5	215.3	144.5	100.9	94.6	92.5	93.6	94.6
40°	1264.5	710.2	343.2	143.5	84.2	71.8	62.4	59.3	57.2	57.2	58.2
42.5°	923.4	421.2	170.5	56.2	45.8	42.6	37.4	35.4	33.3	34.3	35.4
45°	516.8	187.2	58.2	31.2	28.1	26.0	22.9	21.8	20.8	20.8	20.8
47.5°	220.5	65.5	28.1	19.8	17.7	16.6	14.6	13.5	12.5	12.5	12.5
50°	72.8	26.0	17.7	13.5	11.4	10.4	9.4	8.3	8.3	8.3	9.4
52.5°	26.0	16.6	11.4	9.4	8.3	8.3	7.3	7.3	7.3	7.3	7.3
55°	15.6	11.4	8.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
57.5°	10.4	7.3	7.3	6.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3
60°	7.3	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3
62.5°	6.2	5.2	5.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	7.3
65°	5.2	5.2	5.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	7.3
67.5°	5.2	5.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	7.3	8.3
70°	5.2	5.2	6.2	6.2	6.2	7.3	7.3	7.3	7.3	8.3	8.3
72.5°	5.2	6.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3	8.3
75°	5.2	6.2	6.2	7.3	7.3	7.3	7.3	8.3	8.3	8.3	8.3
77.5°	5.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3	8.3	8.3
80°	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3	8.3	8.3	9.4
82.5°	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3	8.3	8.3	9.4
85°	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3	8.3	9.4	9.4
87.5°	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3	8.3	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°	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8
2.5°	667.6	636.4	592.7	578.2	548.0	526.2	502.3	475.2	470.0	443.0	439.9
5°	556.3	506.4	456.5	437.8	411.8	390.0	366.0	340.0	328.6	302.6	287.0
7.5°	458.6	410.8	366.0	347.3	322.4	294.3	266.2	239.2	223.6	198.6	186.1
10°	384.8	336.9	289.1	270.4	247.5	216.3	186.1	158.1	147.7	141.4	142.5
12.5°	321.3	273.5	225.7	204.9	180.9	156.0	154.9	152.9	157.0	156.0	157.0
15°	269.3	218.4	172.6	166.4	166.4	170.5	174.7	175.7	183.0	183.0	185.1
17.5°	221.5	186.1	188.2	188.2	192.4	199.7	208.0	212.1	223.6	224.6	228.8
20°	205.9	214.2	223.6	225.7	232.9	244.4	255.8	264.1	278.7	282.8	291.2
22.5°	244.4	258.9	273.5	277.6	287.0	303.6	324.4	331.7	349.4	349.4	360.8
25°	288.0	309.9	324.4	329.6	340.0	354.6	368.1	372.3	384.8	380.6	384.8
27.5°	305.7	321.3	330.7	335.9	338.0	350.4	356.7	354.6	362.9	356.7	356.7
30°	271.4	282.8	288.0	291.2	291.2	300.5	300.5	297.4	302.6	297.4	294.3
32.5°	213.2	221.5	225.7	225.7	224.6	230.9	228.8	224.6	226.7	223.6	216.3
35°	148.7	154.9	158.1	157.0	156.0	161.2	158.1	154.9	156.0	153.9	148.7
37.5°	97.7	98.8	100.9	102.9	101.9	106.1	104.0	101.9	102.9	100.9	97.7
40°	59.3	61.4	63.4	63.4	63.4	64.5	64.5	63.4	65.5	63.4	61.4
42.5°	35.4	37.4	37.4	37.4	38.5	38.5	39.5	37.4	39.5	37.4	36.4
45°	21.8	21.8	21.8	22.9	21.8	22.9	22.9	21.8	22.9	21.8	20.8
47.5°	13.5	13.5	13.5	13.5	13.5	13.5	13.5	12.5	13.5	12.5	11.4
50°	8.3	9.4	8.3	8.3	8.3	8.3	8.3	7.3	7.3	6.2	6.2
52.5°	7.3	7.3	7.3	7.3	7.3	7.3	6.2	6.2	5.2	4.2	4.2
55°	7.3	7.3	7.3	6.2	6.2	6.2	6.2	5.2	5.2	4.2	3.1
57.5°	7.3	7.3	6.2	6.2	6.2	6.2	5.2	5.2	4.2	3.1	3.1
60°	7.3	7.3	7.3	6.2	6.2	6.2	5.2	5.2	4.2	3.1	3.1
62.5°	7.3	7.3	7.3	6.2	6.2	6.2	6.2	5.2	4.2	3.1	3.1
65°	7.3	7.3	7.3	7.3	7.3	6.2	6.2	5.2	5.2	4.2	3.1
67.5°	8.3	7.3	7.3	7.3	7.3	7.3	6.2	5.2	5.2	4.2	3.1
70°	8.3	8.3	7.3	7.3	7.3	7.3	6.2	6.2	5.2	4.2	3.1
72.5°	8.3	8.3	8.3	8.3	7.3	7.3	7.3	6.2	5.2	4.2	4.2
75°	8.3	8.3	8.3	8.3	8.3	7.3	7.3	6.2	6.2	5.2	4.2
77.5°	9.4	8.3	8.3	8.3	8.3	8.3	7.3	6.2	6.2	5.2	4.2
80°	9.4	9.4	8.3	8.3	8.3	8.3	7.3	6.2	6.2	5.2	4.2
82.5°	9.4	9.4	8.3	8.3	8.3	8.3	7.3	7.3	6.2	5.2	4.2
85°	9.4	9.4	8.3	8.3	8.3	8.3	7.3	6.2	6.2	5.2	4.2
87.5°	9.4	9.4	8.3	8.3	8.3	8.3	7.3	6.2	6.2	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: P179647

CATALOG NUMBER: LDA6A45840D010TE LARH30NF 6LA1LI 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	775.8	775.8	775.8	775.8	775.8	775.8	775.8	775.8
2.5°	421.2	419.1	411.8	413.9	408.7	397.2	398.3	394.1
5°	276.6	270.4	263.1	263.1	255.8	245.4	245.4	242.3
7.5°	168.5	159.1	151.8	150.8	143.5	138.3	138.3	137.3
10°	142.5	143.5	143.5	144.5	143.5	143.5	144.5	145.6
12.5°	160.1	163.3	163.3	164.3	163.3	165.3	165.3	167.4
15°	191.3	196.5	197.6	199.7	198.6	201.7	203.8	205.9
17.5°	240.2	246.5	248.5	254.8	253.7	256.9	258.9	263.1
20°	302.6	312.0	315.1	323.4	322.4	325.5	330.7	333.8
22.5°	372.3	383.7	384.8	392.0	391.0	394.1	396.2	397.2
25°	391.0	398.3	397.2	401.4	401.4	402.4	402.4	408.7
27.5°	357.7	362.9	362.9	362.9	364.0	365.0	365.0	370.2
30°	294.3	296.4	297.4	294.3	296.4	297.4	297.4	302.6
32.5°	218.4	219.4	220.5	216.3	219.4	219.4	219.4	223.6
35°	150.8	150.8	151.8	148.7	150.8	151.8	150.8	153.9
37.5°	98.8	98.8	98.8	98.8	98.8	98.8	97.7	100.9
40°	61.4	62.4	61.4	61.4	60.3	60.3	60.3	62.4
42.5°	36.4	36.4	35.4	35.4	35.4	35.4	36.4	36.4
45°	20.8	20.8	19.8	19.8	18.7	19.8	19.8	19.8
47.5°	11.4	10.4	10.4	10.4	9.4	9.4	9.4	10.4
50°	5.2	5.2	5.2	4.2	4.2	4.2	3.1	4.2
52.5°	3.1	2.1	2.1	2.1	1.0	1.0	0.0	1.0
55°	2.1	2.1	1.0	1.0	0.0	0.0	0.0	0.0
57.5°	2.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0
60°	2.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0
62.5°	2.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0
65°	2.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0
67.5°	2.1	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	1.0
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)