

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: P179671

Luminaire Tested: **LDA6A45840D010TE LARH30NF 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179671
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26674)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A45840D010TE LARH30NF 6LAL1LI 30°
Description: PORTFOLIO 6" Lensed Adjustable, 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: 4705.2 lumens
Efficiency: N/A
Efficacy: 88.8 lumens/watt
Spacing Criteria (0/90/45): 2.68 / 0.47 / 1.42
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

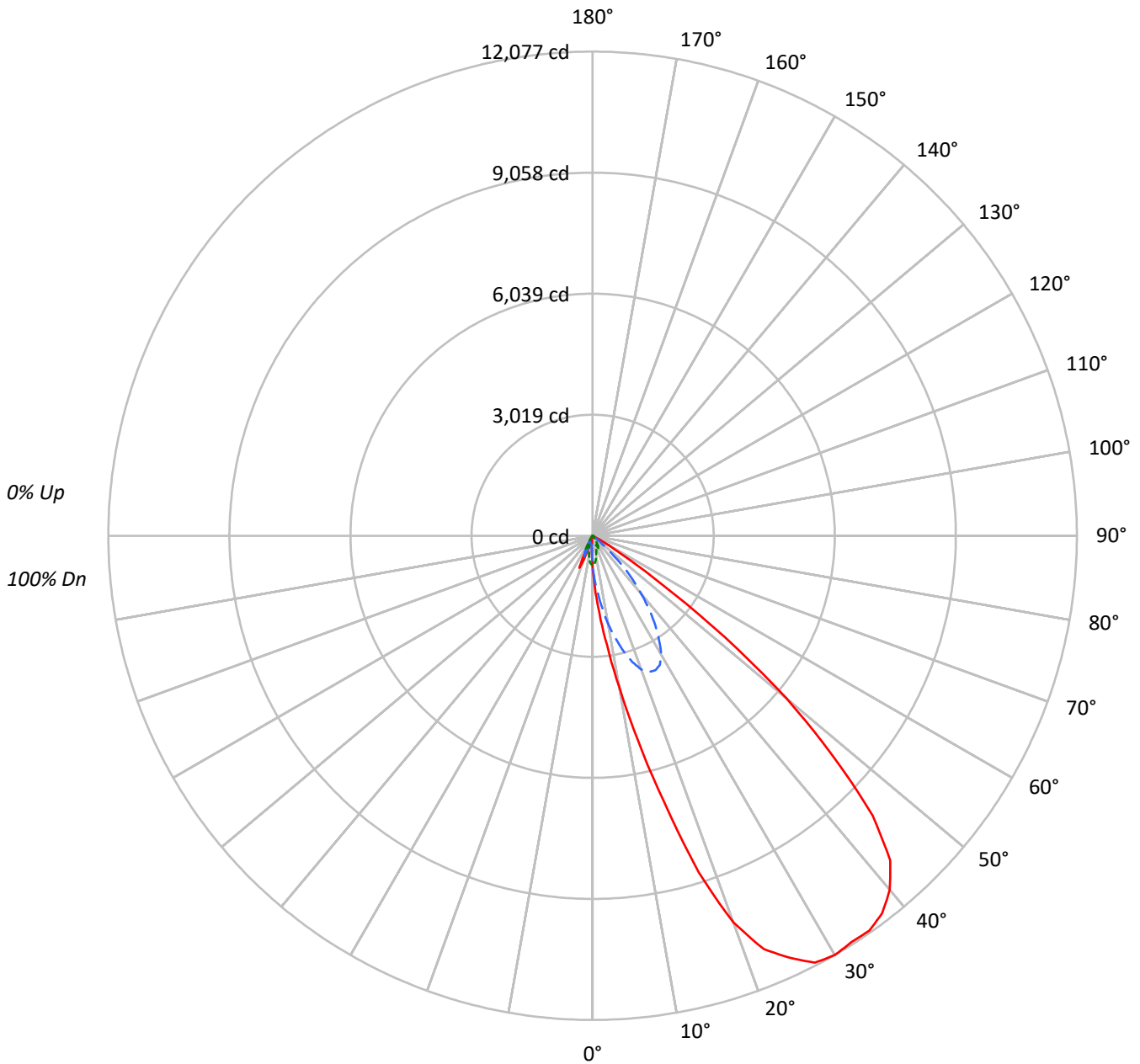
Input Watts (W): 53
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	101	102	100	98	99	97	95	95	94	92	91																			
2	105	99	94	89	102	97	92	88	94	90	86	90	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	67	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	59	54	77	66	59	54	65	58	53	63	57	53	61	57	53	51																			
7	73	61	54	48	71	60	53	48	59	53	48	58	52	47	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°	40644	40644	40644
5°	107115	37079	11958
10°	213868	28417	4748
15°	389361	19943	5193
20°	598710	14316	32757
25°	702149	21382	27104
30°	764497	13426	7900
35°	804623	5568	3273
40°	825060	2455	1861
45°	765893	1613	1372
50°	537210	1245	623
55°	196476	898	401
60°	41499	910	230
65°	3502	1077	272
70°	1170	1330	497
75°	212	1758	890
80°	316	2620	1326
85°	0	5221	1321



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	93.3	2.0
10°-20°	512.9	10.9
20°-30°	1239.7	26.3
30°-40°	1457.3	31.0
40°-50°	1100.9	23.4
50°-60°	276.2	5.9
60°-70°	13.4	0.3
70°-80°	6.4	0.1
80°-90°	5.2	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°	1845.9	39.2
0°-40°	3303.2	70.2
0°-60°	4680.3	99.5
0°-90°	4705.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4705.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	741	741	741	741	741	
5°	1946	1413	674	286	217	243
15°	6860	2976	351	95	92	2076
25°	11608	3703	354	491	448	5340
35°	12023	2728	83	59	49	7487
45°	9879	1072	21	22	18	7279
55°	2056	30	9	8	4	2274
65°	27	7	8	7	2	73
75°	1	5	8	7	4	3
85°	0	5	8	6	2	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°	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4
2.5°	1293.5	1272.7	1258.1	1233.2	1220.7	1225.9	1199.9	1164.6	1154.2	1123.0	1068.9
5°	1946.5	1924.6	1890.3	1837.3	1797.8	1791.6	1740.6	1655.3	1601.3	1521.2	1413.1
7.5°	2748.2	2729.4	2672.3	2593.2	2526.7	2501.7	2426.9	2277.1	2157.6	1997.4	1811.3
10°	3842.0	3769.2	3662.1	3502.0	3349.2	3278.5	3146.4	2898.9	2704.5	2485.1	2232.4
12.5°	5213.5	5084.6	4910.9	4670.7	4407.7	4275.6	4065.6	3687.1	3347.1	2970.7	2602.6
15°	6860.5	6730.6	6478.9	6106.7	5683.5	5471.4	5161.5	4564.7	4058.3	3506.2	2975.9
17.5°	8803.9	8591.8	8257.0	7717.3	7062.2	6729.5	6290.7	5464.1	4709.2	3988.6	3302.4
20°	10262.7	10107.8	9790.7	9226.0	8445.2	8016.8	7427.2	6288.6	5314.4	4374.4	3549.8
22.5°	11158.0	11018.6	10727.5	10255.4	9538.0	9062.8	8398.4	7012.3	5784.3	4641.6	3673.6
25°	11608.2	11508.4	11305.6	10893.9	10266.9	9789.6	9117.9	7547.8	6102.5	4786.1	3702.7
27.5°	12004.4	11837.0	11507.3	11226.6	10671.4	10185.8	9549.4	7814.0	6213.8	4769.5	3628.9
30°	12077.2	11981.5	11721.5	11320.2	10803.4	10312.6	9642.0	7775.5	6088.0	4576.1	3428.2
32.5°	12014.8	11931.6	11735.1	11297.3	10719.2	10177.5	9441.3	7459.4	5718.8	4217.4	3089.2
35°	12023.1	11891.0	11546.9	11172.5	10450.9	9814.6	8950.5	6881.3	5202.1	3751.6	2728.4
37.5°	11864.0	11646.7	11362.8	10880.4	9906.1	9116.9	8129.1	6135.8	4580.3	3276.4	2307.3
40°	11529.2	11363.9	10986.4	10245.0	8977.5	7985.6	7072.6	5280.0	3901.3	2757.5	1881.0
42.5°	10982.3	10784.7	10257.5	9139.7	7633.1	6768.0	5946.6	4404.5	3233.7	2255.3	1476.5
45°	9879.0	9577.5	8888.1	7555.1	6269.9	5535.8	4866.2	3591.4	2621.3	1764.5	1072.0
47.5°	8116.6	7859.8	7130.9	6018.3	5006.6	4438.9	3868.0	2832.4	1950.6	1134.4	551.1
50°	6299.0	6096.3	5540.0	4563.6	3719.3	3168.2	2719.0	1808.2	1039.8	522.0	247.5
52.5°	4144.6	4016.7	3539.4	2849.0	2135.7	1742.7	1415.2	785.0	484.5	231.9	85.3
55°	2055.7	1891.4	1663.7	1233.2	892.1	721.6	612.4	386.8	200.7	66.5	30.2
57.5°	838.1	801.7	721.6	557.3	428.4	361.8	289.1	120.6	44.7	27.0	18.7
60°	378.5	361.8	314.0	220.4	119.6	73.8	52.0	33.3	22.9	16.6	12.5
62.5°	66.5	61.3	54.1	41.6	33.3	29.1	25.0	18.7	14.6	11.4	9.4
65°	27.0	27.0	25.0	21.8	17.7	16.6	14.6	11.4	9.4	8.3	7.3
67.5°	14.6	13.5	13.5	11.4	10.4	9.4	8.3	7.3	7.3	6.2	6.2
70°	7.3	7.3	7.3	6.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
72.5°	4.2	4.2	4.2	4.2	4.2	4.2	3.1	3.1	3.1	4.2	4.2
75°	1.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2	5.2
77.5°	1.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2	5.2
80°	1.0	1.0	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	3.1	4.2	5.2
85°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	4.2	5.2
87.5°	0.0	0.0	1.0	1.0	1.0	2.1	2.1	3.1	3.1	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°	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4
2.5°	1066.8	1012.8	971.2	931.7	922.3	890.1	859.9	807.9	761.1	717.5	667.5
5°	1371.5	1265.4	1177.0	1090.7	1062.7	1008.6	935.8	842.2	754.9	673.8	588.5
7.5°	1703.2	1523.3	1366.3	1220.7	1169.8	1092.8	975.3	842.2	716.4	600.0	496.0
10°	2028.6	1760.4	1523.3	1313.3	1236.3	1136.5	975.3	805.8	645.7	510.5	407.6
12.5°	2342.6	1974.6	1654.3	1376.7	1275.8	1151.0	949.3	742.4	556.3	423.2	336.9
15°	2588.0	2155.5	1746.8	1401.6	1275.8	1131.3	889.0	654.0	465.8	351.4	274.5
17.5°	2772.1	2262.6	1778.0	1377.7	1232.2	1069.9	797.5	550.0	383.7	291.1	217.3
20°	2879.2	2289.6	1745.8	1308.1	1149.0	977.4	684.2	453.3	325.5	245.4	175.7
22.5°	2904.1	2252.2	1670.9	1218.6	1054.3	880.7	584.4	405.5	314.0	250.6	219.4
25°	2876.1	2176.3	1572.2	1128.2	964.9	793.4	548.0	436.7	376.4	353.5	378.5
27.5°	2764.8	2034.9	1450.5	1027.3	863.0	702.9	519.9	439.8	378.5	368.1	356.6
30°	2566.2	1821.7	1263.3	840.1	666.5	533.4	369.1	262.0	209.0	212.1	210.0
32.5°	2255.3	1511.9	988.8	587.5	458.5	360.8	244.4	154.9	145.6	145.6	143.5
35°	1913.2	1228.0	743.4	412.8	319.2	253.7	145.6	113.3	95.7	83.2	74.9
37.5°	1564.9	955.6	512.6	278.7	202.8	130.0	69.7	57.2	50.9	47.8	46.8
40°	1211.4	672.7	327.5	152.8	89.4	57.2	44.7	38.5	35.4	34.3	34.3
42.5°	896.3	433.6	176.8	60.3	47.8	39.5	32.2	28.1	27.0	27.0	26.0
45°	539.7	217.3	66.5	37.4	31.2	28.1	23.9	21.8	20.8	20.8	21.8
47.5°	249.5	81.1	36.4	25.0	22.9	20.8	18.7	17.7	17.7	17.7	18.7
50°	90.5	35.4	22.9	17.7	16.6	15.6	14.6	13.5	13.5	14.6	14.6
52.5°	34.3	21.8	16.6	13.5	12.5	12.5	11.4	11.4	11.4	11.4	11.4
55°	20.8	15.6	12.5	10.4	10.4	9.4	9.4	9.4	9.4	9.4	9.4
57.5°	13.5	11.4	9.4	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
60°	10.4	8.3	7.3	7.3	7.3	7.3	7.3	8.3	8.3	8.3	8.3
62.5°	8.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	8.3	8.3	8.3
65°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	8.3	8.3	8.3	9.4
67.5°	6.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3
70°	5.2	5.2	6.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3
72.5°	5.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3
75°	5.2	6.2	6.2	6.2	7.3	7.3	7.3	7.3	8.3	8.3	8.3
77.5°	5.2	6.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3	9.4
80°	5.2	6.2	6.2	7.3	7.3	7.3	7.3	8.3	8.3	8.3	9.4
82.5°	5.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3	9.4	9.4
85°	5.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3	8.3	8.3	9.4
87.5°	5.2	6.2	6.2	7.3	7.3	7.3	7.3	8.3	8.3	8.3	8.3
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°	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4
2.5°	640.5	597.9	567.7	540.7	530.3	506.4	480.4	450.2	425.3	423.2	402.4
5°	531.3	472.1	429.4	402.4	388.9	363.9	333.8	314.0	285.9	277.6	256.8
7.5°	429.4	374.3	334.8	309.9	294.3	264.1	229.8	208.0	185.1	167.4	144.5
10°	349.4	296.3	253.7	228.8	213.2	180.9	145.6	120.6	99.8	95.7	93.6
12.5°	280.7	226.7	184.0	157.0	140.4	110.2	100.9	96.7	93.6	90.5	90.5
15°	218.4	163.2	117.5	107.1	104.0	100.9	98.8	96.7	94.6	93.6	94.6
17.5°	159.1	115.4	110.2	109.2	107.1	107.1	109.2	110.2	112.3	114.4	117.5
20°	140.4	141.4	152.8	161.2	158.0	173.6	195.5	213.2	255.8	281.8	317.1
22.5°	251.6	289.1	342.1	374.3	392.0	444.0	501.2	587.5	631.2	693.5	749.7
25°	430.5	474.1	519.9	532.4	541.7	546.9	539.7	500.1	490.8	473.1	467.9
27.5°	322.3	301.5	308.8	311.9	308.8	304.7	292.2	270.3	265.1	256.8	258.9
30°	190.3	184.0	192.4	191.3	191.3	191.3	187.2	169.5	161.2	151.8	145.6
32.5°	140.4	128.9	119.6	111.3	108.1	102.9	99.8	92.5	89.4	85.3	85.3
35°	69.7	66.5	66.5	64.5	63.4	64.5	64.5	61.3	59.3	58.2	58.2
37.5°	45.8	45.8	46.8	45.8	45.8	45.8	45.8	44.7	43.7	42.6	42.6
40°	34.3	34.3	35.4	35.4	34.3	34.3	34.3	33.3	33.3	33.3	33.3
42.5°	27.0	27.0	27.0	27.0	26.0	27.0	27.0	27.0	26.0	26.0	25.0
45°	22.9	21.8	21.8	21.8	21.8	21.8	22.9	21.8	21.8	20.8	20.8
47.5°	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	17.7	17.7
50°	14.6	14.6	14.6	14.6	14.6	13.5	13.5	12.5	12.5	11.4	11.4
52.5°	11.4	11.4	10.4	10.4	10.4	10.4	10.4	10.4	9.4	9.4	9.4
55°	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	8.3	7.3	7.3
57.5°	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	7.3	7.3	6.2
60°	8.3	8.3	8.3	8.3	8.3	8.3	8.3	7.3	6.2	6.2	6.2
62.5°	8.3	8.3	8.3	8.3	8.3	8.3	8.3	7.3	6.2	6.2	5.2
65°	9.4	9.4	9.4	9.4	8.3	8.3	8.3	7.3	7.3	6.2	6.2
67.5°	9.4	9.4	9.4	9.4	9.4	8.3	8.3	8.3	7.3	7.3	6.2
70°	9.4	9.4	9.4	9.4	9.4	8.3	8.3	8.3	7.3	7.3	6.2
72.5°	9.4	9.4	9.4	9.4	9.4	8.3	8.3	8.3	7.3	7.3	6.2
75°	9.4	9.4	9.4	9.4	9.4	8.3	8.3	8.3	7.3	7.3	6.2
77.5°	9.4	9.4	9.4	9.4	9.4	8.3	8.3	8.3	7.3	7.3	6.2
80°	9.4	9.4	9.4	9.4	9.4	8.3	8.3	8.3	7.3	7.3	6.2
82.5°	9.4	9.4	9.4	9.4	9.4	8.3	8.3	8.3	7.3	7.3	6.2
85°	9.4	9.4	8.3	8.3	8.3	8.3	8.3	7.3	6.2	6.2	5.2
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: P179671

CATALOG NUMBER: LDA6A45840D010TE LARH30NF 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	741.4	741.4	741.4	741.4	741.4	741.4	741.4	741.4
2.5°	398.2	383.7	380.6	384.7	368.1	368.1	368.1	375.4
5°	248.5	234.0	229.8	230.8	217.3	208.0	213.2	217.3
7.5°	135.2	119.6	114.4	114.4	100.9	95.7	96.7	98.8
10°	90.5	88.4	88.4	87.3	85.3	84.2	85.3	85.3
12.5°	87.3	86.3	86.3	85.3	85.3	84.2	84.2	85.3
15°	91.5	91.5	91.5	90.5	90.5	89.4	91.5	91.5
17.5°	116.5	118.5	122.7	124.8	128.9	124.8	132.1	131.0
20°	342.1	376.4	439.8	463.7	532.4	499.1	570.8	561.5
22.5°	774.6	799.6	810.0	815.2	816.2	849.5	854.7	866.1
25°	457.5	451.3	446.1	446.1	427.4	449.2	445.0	448.1
27.5°	244.4	242.3	237.1	239.2	229.8	237.1	239.2	239.2
30°	138.3	134.1	130.0	130.0	121.7	125.8	124.8	124.8
32.5°	80.1	78.0	75.9	74.9	72.8	72.8	71.7	71.7
35°	55.1	54.1	53.0	52.0	49.9	48.9	48.9	48.9
37.5°	40.6	39.5	38.5	38.5	37.4	35.4	35.4	35.4
40°	31.2	30.2	29.1	29.1	28.1	26.0	26.0	26.0
42.5°	23.9	22.9	21.8	20.8	20.8	19.8	18.7	18.7
45°	19.8	19.8	18.7	18.7	17.7	17.7	17.7	17.7
47.5°	16.6	16.6	15.6	15.6	15.6	14.6	14.6	13.5
50°	10.4	9.4	9.4	8.3	8.3	7.3	7.3	7.3
52.5°	8.3	7.3	7.3	6.2	6.2	5.2	5.2	5.2
55°	6.2	6.2	5.2	5.2	5.2	4.2	4.2	4.2
57.5°	5.2	5.2	4.2	4.2	4.2	3.1	3.1	3.1
60°	5.2	4.2	4.2	3.1	3.1	3.1	2.1	2.1
62.5°	5.2	4.2	4.2	3.1	3.1	2.1	2.1	2.1
65°	5.2	4.2	4.2	3.1	3.1	3.1	3.1	2.1
67.5°	5.2	5.2	4.2	4.2	4.2	3.1	3.1	3.1
70°	6.2	5.2	5.2	4.2	4.2	4.2	4.2	3.1
72.5°	6.2	5.2	5.2	5.2	4.2	4.2	4.2	4.2
75°	6.2	5.2	5.2	5.2	4.2	4.2	4.2	4.2
77.5°	6.2	5.2	5.2	5.2	4.2	4.2	4.2	4.2
80°	6.2	5.2	5.2	5.2	4.2	4.2	4.2	4.2
82.5°	5.2	5.2	5.2	4.2	4.2	4.2	4.2	4.2
85°	4.2	4.2	4.2	3.1	3.1	3.1	3.1	2.1
87.5°	3.1	3.1	2.1	2.1	1.0	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)