

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: P179660

Luminaire Tested: **LDA6A45827D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179660
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: LDA6A45827D010TE LARH20SP 6LAL1LI 30°
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 20° Spot, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3747.5 lumens
Efficiency: N/A
Efficacy: 70.7 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

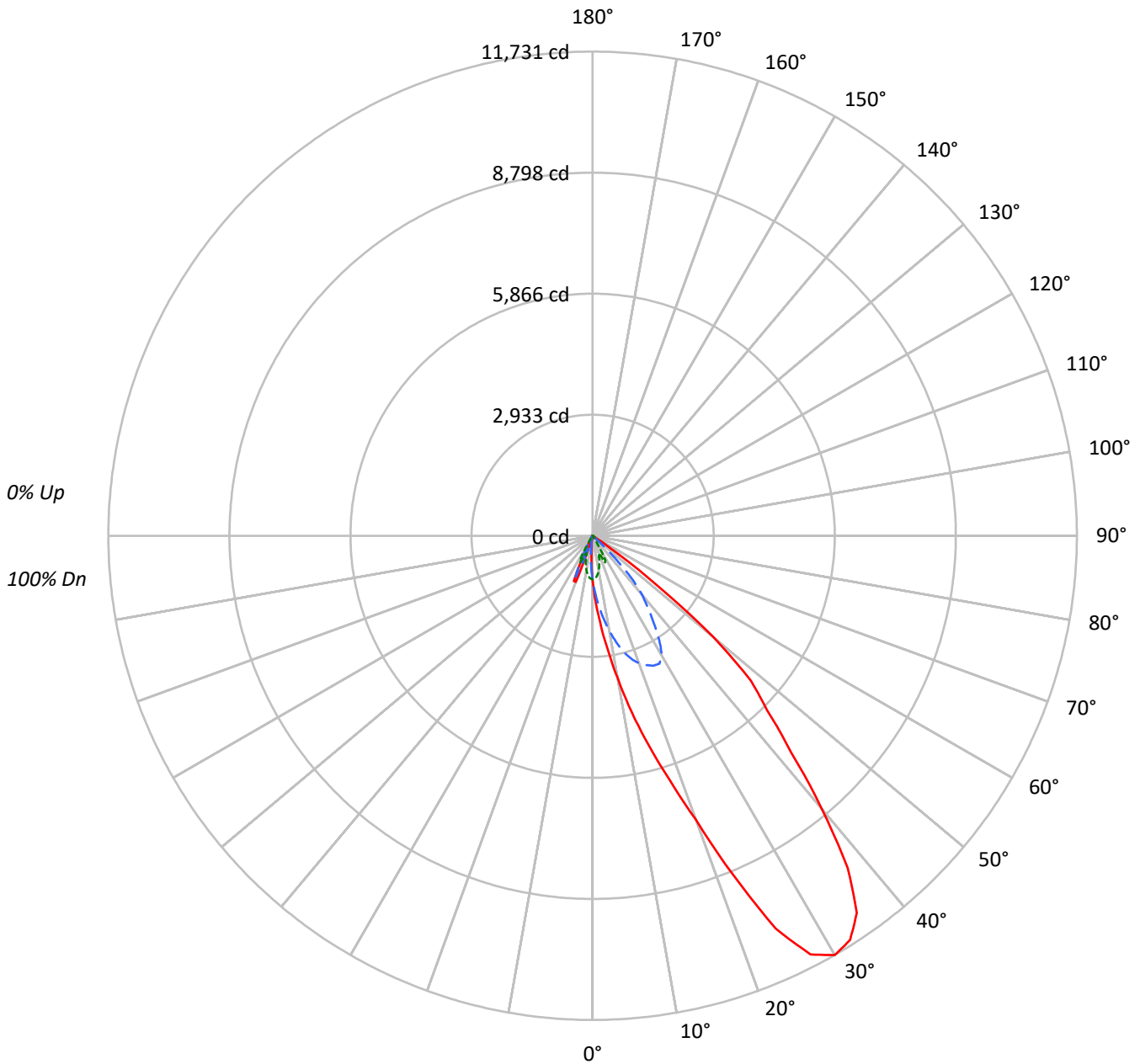
Input Watts (W): 53
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	58159	58159	58159
5°	116459	55321	14830
10°	195315	47294	4058
15°	298254	35454	5891
20°	427335	25926	69382
25°	635311	43019	35585
30°	742564	19022	5532
35°	746661	3962	2925
40°	618237	2218	1696
45°	462777	1411	1341
50°	324322	1006	776
55°	52137	784	612
60°	3191	800	504
65°	947	1064	467
70°	577	1170	737
75°	381	1356	974
80°	284	2020	1452
85°	566	4026	1698



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	109.9	2.9
10°-20°	464.1	12.4
20°-30°	1116.8	29.8
30°-40°	1189.9	31.8
40°-50°	742.0	19.8
50°-60°	108.4	2.9
60°-70°	6.9	0.2
70°-80°	5.4	0.1
80°-90°	4.1	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°	1690.8	45.1
0°-40°	2880.7	76.9
0°-60°	3731.1	99.6
0°-90°	3747.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3747.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1061	1061	1061	1061	1061	
5°	2116	1697	1005	501	270	245
15°	5255	2920	625	96	104	1559
25°	10503	3473	711	737	588	4733
35°	11157	2577	59	55	44	6731
45°	5969	754	18	21	17	4699
55°	546	13	8	9	6	965
65°	7	6	8	7	4	11
75°	2	4	6	6	5	2
85°	1	4	6	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°	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9
2.5°	1578.1	1524.4	1542.6	1502.5	1488.0	1491.6	1462.5	1438.8	1426.0	1395.1	1363.2
5°	2116.3	2054.4	2072.6	2012.5	1975.2	1967.0	1921.4	1870.4	1824.9	1755.7	1697.4
7.5°	2769.2	2692.7	2705.5	2615.3	2539.7	2514.2	2445.0	2345.8	2253.8	2136.3	2024.3
10°	3508.7	3436.7	3433.1	3295.6	3166.3	3116.2	3015.1	2851.2	2694.5	2517.9	2333.9
12.5°	4380.1	4271.8	4253.5	4076.9	3883.8	3801.9	3660.7	3410.3	3162.6	2904.9	2639.9
15°	5255.2	5138.7	5109.5	4887.3	4617.8	4507.6	4319.1	3985.8	3644.3	3280.1	2920.4
17.5°	6187.7	6001.0	5843.5	5586.7	5275.3	5162.4	4918.3	4491.2	4061.4	3611.6	3130.7
20°	7325.1	7116.6	6895.3	6456.4	5885.4	5663.2	5395.5	4913.8	4377.4	3857.4	3286.5
22.5°	8884.1	8541.7	8071.8	7366.1	6581.1	6264.2	5850.8	5227.0	4620.5	4036.8	3390.3
25°	10503.2	10030.6	9514.2	8429.7	7217.6	6830.6	6287.0	5466.5	4813.6	4168.9	3473.1
27.5°	11435.7	11055.9	10470.4	9333.9	7734.0	7225.8	6599.3	5646.8	4936.5	4232.6	3496.8
30°	11730.7	11422.9	10891.1	9725.5	7907.0	7301.4	6628.5	5648.6	4877.3	4121.5	3360.2
32.5°	11607.8	11315.5	10727.2	9480.6	7590.1	7032.8	6379.9	5419.2	4585.9	3780.0	3009.6
35°	11157.0	10770.9	10056.1	8667.4	7051.0	6497.3	5887.2	5008.5	4137.9	3316.5	2577.1
37.5°	10145.3	9744.6	8931.4	7624.7	6356.2	5874.5	5383.6	4548.6	3687.1	2894.9	2200.1
40°	8639.1	8215.7	7547.3	6630.3	5606.7	5278.0	4863.7	4039.5	3210.0	2481.5	1851.3
42.5°	7119.3	6847.9	6451.8	5725.1	5012.1	4687.9	4285.4	3485.0	2751.0	2055.3	1406.0
45°	5969.2	5754.3	5491.1	5032.1	4359.2	4054.1	3679.8	2926.8	2144.5	1373.2	754.0
47.5°	5201.5	4939.2	4709.8	4198.0	3475.9	3105.2	2708.2	1928.7	1236.6	595.6	208.5
50°	3802.8	3486.8	3272.8	2699.1	2043.5	1734.7	1444.3	895.1	400.7	133.0	34.6
52.5°	1927.8	1689.2	1563.5	1181.1	780.4	583.7	428.9	184.9	79.2	26.4	20.0
55°	545.5	438.9	393.4	259.5	141.1	99.3	64.7	32.8	23.7	18.2	12.7
57.5°	56.5	48.3	45.5	37.3	30.1	28.2	25.5	20.0	15.5	12.7	8.2
60°	29.1	26.4	25.5	22.8	19.1	17.3	16.4	13.7	10.0	7.3	6.4
62.5°	15.5	14.6	12.7	11.8	10.0	10.0	9.1	7.3	6.4	6.4	5.5
65°	7.3	7.3	7.3	7.3	6.4	6.4	5.5	5.5	5.5	5.5	5.5
67.5°	5.5	5.5	5.5	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
70°	3.6	3.6	3.6	3.6	2.7	2.7	2.7	2.7	2.7	3.6	3.6
72.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.7	2.7	3.6	3.6
75°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.7	2.7	3.6	3.6
77.5°	0.9	0.9	1.8	1.8	1.8	1.8	1.8	2.7	2.7	3.6	3.6
80°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	2.7	2.7	3.6	3.6
82.5°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	2.7	2.7	3.6	3.6
85°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8	2.7	3.6	3.6
87.5°	0.0	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6
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°	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9
2.5°	1325.0	1302.2	1265.8	1229.3	1218.4	1188.4	1152.9	1111.0	1071.8	1040.8	1010.8
5°	1603.6	1542.6	1474.3	1382.3	1349.6	1298.6	1222.1	1140.1	1069.1	1005.3	946.1
7.5°	1881.4	1766.6	1641.9	1508.9	1452.5	1376.9	1256.7	1141.0	1035.4	941.6	853.3
10°	2127.2	1950.6	1774.8	1591.8	1512.6	1415.1	1254.8	1107.3	972.6	849.6	738.5
12.5°	2354.0	2109.9	1876.8	1641.9	1542.6	1425.1	1227.5	1049.0	888.8	744.9	614.7
15°	2552.5	2238.3	1949.7	1665.5	1539.9	1405.1	1173.8	968.9	790.4	624.7	483.5
17.5°	2690.9	2311.2	1970.6	1641.0	1502.5	1347.7	1091.8	873.3	677.5	503.6	342.4
20°	2773.8	2330.3	1950.6	1587.2	1434.2	1274.0	1015.4	794.1	603.7	444.4	309.6
22.5°	2819.3	2339.4	1936.0	1568.1	1412.4	1259.4	1019.0	807.7	644.7	537.3	526.3
25°	2864.8	2368.5	1961.5	1590.0	1444.3	1302.2	1072.7	856.9	745.8	711.2	723.0
27.5°	2862.1	2350.3	1937.8	1569.9	1429.7	1282.2	1026.3	799.5	723.0	669.3	624.7
30°	2700.0	2177.3	1755.7	1365.0	1204.8	1008.1	683.9	469.9	359.7	300.5	270.5
32.5°	2324.8	1775.7	1341.4	948.9	792.2	572.8	294.1	154.8	133.0	118.4	105.6
35°	1932.4	1414.2	1009.9	598.3	397.9	217.6	101.1	65.6	61.0	59.2	58.3
37.5°	1593.6	1118.3	663.8	239.5	143.0	81.0	46.4	41.9	41.0	41.9	41.0
40°	1257.6	737.6	263.2	80.1	43.7	35.5	32.8	30.1	30.1	31.0	30.1
42.5°	753.1	275.0	80.1	30.1	28.2	25.5	24.6	23.7	22.8	23.7	23.7
45°	248.6	70.1	26.4	20.9	20.0	19.1	18.2	18.2	18.2	18.2	19.1
47.5°	56.5	24.6	18.2	15.5	15.5	14.6	14.6	13.7	14.6	14.6	15.5
50°	21.9	15.5	12.7	11.8	11.8	10.9	10.9	10.9	10.9	11.8	11.8
52.5°	13.7	10.9	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	10.0
55°	9.1	8.2	7.3	7.3	7.3	7.3	7.3	8.2	8.2	8.2	8.2
57.5°	6.4	6.4	6.4	6.4	7.3	6.4	7.3	6.4	6.4	7.3	8.2
60°	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	7.3	7.3	8.2
62.5°	5.5	6.4	6.4	6.4	6.4	6.4	6.4	7.3	7.3	7.3	8.2
65°	5.5	5.5	6.4	6.4	6.4	6.4	7.3	7.3	7.3	8.2	8.2
67.5°	4.6	5.5	5.5	6.4	6.4	6.4	6.4	7.3	7.3	7.3	8.2
70°	4.6	4.6	5.5	5.5	5.5	5.5	6.4	6.4	6.4	7.3	7.3
72.5°	4.6	4.6	5.5	5.5	5.5	5.5	5.5	6.4	6.4	6.4	7.3
75°	4.6	4.6	5.5	5.5	5.5	5.5	5.5	6.4	6.4	6.4	7.3
77.5°	4.6	4.6	5.5	5.5	5.5	5.5	5.5	6.4	6.4	6.4	7.3
80°	4.6	4.6	5.5	5.5	5.5	5.5	6.4	6.4	6.4	6.4	7.3
82.5°	4.6	4.6	5.5	5.5	5.5	5.5	5.5	6.4	6.4	6.4	6.4
85°	4.6	4.6	5.5	5.5	5.5	5.5	5.5	5.5	6.4	6.4	6.4
87.5°	4.6	4.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.4
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°	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9
2.5°	970.7	933.4	915.2	887.9	889.7	844.2	826.9	794.1	775.9	756.7	734.9
5°	874.2	808.6	762.2	725.8	705.7	646.5	606.5	554.6	500.8	448.9	406.1
7.5°	753.1	666.6	595.6	549.1	520.9	401.6	325.1	264.1	240.4	222.2	204.0
10°	618.3	510.9	385.2	321.5	282.3	225.8	203.1	168.5	143.9	121.1	107.5
12.5°	482.6	318.7	230.4	211.3	197.6	146.6	115.6	107.5	87.4	82.9	81.0
15°	303.2	209.4	163.0	140.2	122.0	102.0	93.8	92.9	96.5	97.4	96.5
17.5°	214.9	167.6	122.9	120.2	120.2	131.1	133.0	141.1	148.4	154.8	155.7
20°	275.9	247.7	288.7	306.9	338.8	377.9	435.3	515.4	585.5	656.6	711.2
22.5°	528.2	590.1	681.2	713.0	766.7	850.5	929.8	1003.5	1078.2	1133.7	1145.6
25°	776.8	819.6	873.3	861.5	877.8	873.3	828.7	768.6	736.7	678.4	658.4
27.5°	594.6	550.0	512.7	469.9	448.9	408.9	351.5	315.1	282.3	249.5	235.9
30°	242.2	212.2	190.3	174.8	165.7	143.9	133.0	121.1	115.6	107.5	102.9
32.5°	94.7	89.2	86.5	83.8	82.9	80.1	77.4	73.8	72.9	72.9	69.2
35°	56.5	56.5	56.5	55.5	56.5	55.5	54.6	53.7	54.6	54.6	51.9
37.5°	40.1	41.0	41.0	41.0	41.0	41.0	41.0	41.0	40.1	40.1	37.3
40°	30.1	31.0	31.9	31.0	31.9	31.9	31.0	30.1	30.1	30.1	28.2
42.5°	24.6	24.6	24.6	24.6	25.5	24.6	24.6	24.6	24.6	24.6	23.7
45°	20.0	20.0	20.0	20.0	20.9	20.9	20.0	20.0	20.9	20.9	20.0
47.5°	15.5	15.5	15.5	15.5	15.5	15.5	15.5	14.6	14.6	14.6	13.7
50°	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	12.7	11.8	11.8
52.5°	10.0	10.0	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.0
55°	9.1	9.1	10.0	10.0	10.0	10.0	10.0	9.1	9.1	9.1	8.2
57.5°	8.2	9.1	9.1	9.1	9.1	9.1	9.1	9.1	8.2	8.2	7.3
60°	8.2	8.2	9.1	9.1	9.1	9.1	8.2	8.2	7.3	7.3	6.4
62.5°	8.2	8.2	9.1	9.1	9.1	8.2	8.2	7.3	7.3	6.4	6.4
65°	8.2	9.1	9.1	9.1	9.1	8.2	8.2	7.3	7.3	6.4	6.4
67.5°	8.2	9.1	9.1	9.1	9.1	8.2	8.2	7.3	7.3	6.4	6.4
70°	8.2	8.2	8.2	8.2	8.2	8.2	8.2	7.3	7.3	6.4	6.4
72.5°	7.3	8.2	8.2	8.2	8.2	8.2	7.3	7.3	7.3	6.4	6.4
75°	7.3	7.3	7.3	7.3	8.2	7.3	7.3	7.3	6.4	6.4	5.5
77.5°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	6.4	6.4	6.4	5.5
80°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	6.4	6.4	5.5	5.5
82.5°	7.3	7.3	7.3	7.3	7.3	7.3	6.4	6.4	5.5	5.5	5.5
85°	6.4	6.4	6.4	6.4	6.4	6.4	6.4	5.5	5.5	4.6	4.6
87.5°	6.4	6.4	6.4	6.4	6.4	5.5	5.5	4.6	3.6	3.6	2.7
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: P179660

CATALOG NUMBER: LDA6A45827D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9	1060.9
2.5°	711.2	695.7	692.1	692.1	683.9	667.5	664.8	659.3
5°	359.7	321.5	314.2	306.0	292.3	275.9	271.4	269.5
7.5°	185.8	169.4	166.6	161.2	153.0	144.8	143.0	142.1
10°	109.3	99.3	94.7	86.5	78.3	73.8	73.8	72.9
12.5°	81.0	81.0	81.0	81.0	81.0	81.0	81.0	81.0
15°	98.3	101.1	101.1	102.0	102.9	103.8	105.6	103.8
17.5°	165.7	179.4	178.5	180.3	186.7	194.9	191.2	195.8
20°	805.0	909.7	939.8	969.8	1060.9	1146.5	1129.2	1189.3
22.5°	1156.5	1188.4	1175.6	1167.4	1186.5	1176.5	1219.3	1191.1
25°	620.1	613.8	613.8	586.4	591.9	578.2	596.5	588.3
27.5°	228.6	208.5	206.7	194.0	202.2	183.0	188.5	184.9
30°	98.3	99.3	95.6	92.9	90.2	88.3	88.3	87.4
32.5°	67.4	67.4	65.6	63.7	61.9	60.1	59.2	58.3
35°	50.1	50.1	48.3	47.4	46.4	44.6	43.7	43.7
37.5°	36.4	36.4	35.5	34.6	32.8	31.9	31.0	31.0
40°	28.2	27.3	26.4	26.4	24.6	24.6	23.7	23.7
42.5°	22.8	22.8	22.8	21.9	20.9	20.0	20.0	20.0
45°	20.0	20.0	19.1	18.2	18.2	18.2	17.3	17.3
47.5°	13.7	13.7	12.7	12.7	11.8	11.8	10.9	10.9
50°	10.9	10.9	10.9	10.9	10.0	9.1	9.1	9.1
52.5°	10.0	9.1	9.1	9.1	8.2	8.2	7.3	7.3
55°	8.2	8.2	7.3	7.3	6.4	6.4	6.4	6.4
57.5°	7.3	6.4	6.4	6.4	5.5	5.5	5.5	5.5
60°	6.4	5.5	5.5	5.5	4.6	4.6	4.6	4.6
62.5°	5.5	5.5	5.5	5.5	4.6	4.6	4.6	4.6
65°	5.5	5.5	5.5	4.6	4.6	4.6	4.6	3.6
67.5°	5.5	5.5	5.5	5.5	4.6	4.6	4.6	4.6
70°	5.5	5.5	5.5	5.5	4.6	4.6	4.6	4.6
72.5°	5.5	5.5	5.5	5.5	4.6	4.6	4.6	4.6
75°	5.5	5.5	5.5	5.5	4.6	4.6	4.6	4.6
77.5°	5.5	4.6	4.6	4.6	4.6	4.6	4.6	4.6
80°	5.5	4.6	4.6	4.6	4.6	3.6	3.6	4.6
82.5°	4.6	4.6	4.6	4.6	3.6	3.6	3.6	3.6
85°	3.6	3.6	3.6	3.6	2.7	2.7	2.7	2.7
87.5°	2.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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)