

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: P179915

Luminaire Tested: **LDA6A55940D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179915
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26689)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A55940D010TE LARH20SP 6LAL1LI 30°
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 20° Spot, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4054.3 lumens
Efficiency: N/A
Efficacy: 66.5 lumens/watt
Spacing Criteria (0/90/45): 2.34 / 0.96 / 1.3
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

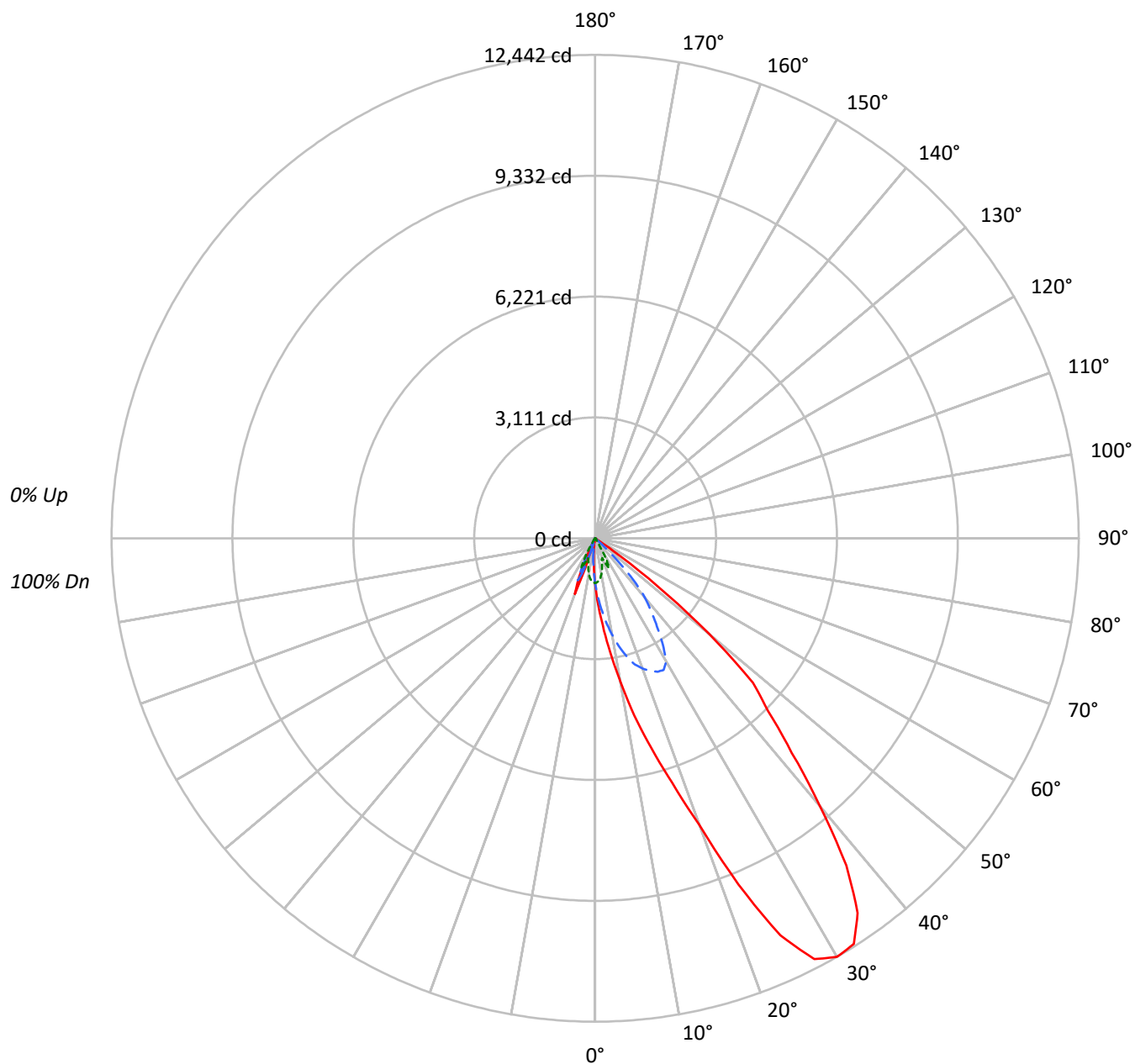
Input Watts (W): 61
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102
1	112	109	106	104	110	107	104	102	103	101	99		99	97	96		96
2	105	100	95	91	103	98	94	90	95	91	88		92	89	86		89
3	99	91	85	80	97	90	84	80	87	82	78		84	80	77		82
4	92	83	76	71	90	82	76	71	80	74	70		77	73	69		76
5	86	76	69	64	84	75	68	63	73	67	63		71	66	62		70
6	80	70	62	57	79	69	62	57	67	61	57		66	60	56		64
7	75	64	57	51	74	63	56	51	62	56	51		60	55	51		59
8	70	59	52	47	69	58	51	46	57	51	46		56	50	46		55
9	66	54	47	42	64	54	47	42	53	46	42		52	46	42		51
10	62	50	43	38	61	50	43	38	49	43	38		48	42	38		47

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	63268	63268	63268
5°	123701	60142	21940
10°	208213	51641	4865
15°	317079	39104	7991
20°	458196	31678	89106
25°	681910	51245	25756
30°	787621	17547	5089
35°	787872	3922	2751
40°	643964	2190	1689
45°	487640	1427	1085
50°	323844	972	742
55°	52060	832	583
60°	3256	866	482
65°	1025	1129	571
70°	561	1266	705
75°	360	1483	932
80°	284	2210	1389
85°	566	4403	1635



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	120.5	3.0
10°-20°	515.1	12.7
20°-30°	1212.6	29.9
30°-40°	1277.7	31.5
40°-50°	796.7	19.6
50°-60°	114.5	2.8
60°-70°	7.3	0.2
70°-80°	5.7	0.1
80°-90°	4.3	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°	1848.2	45.6
0°-40°	3125.9	77.1
0°-60°	4037.0	99.6
0°-90°	4054.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4054.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1154	1154	1154	1154	1154	
5°	2248	1820	1093	567	399	261
15°	5587	3162	689	120	141	1664
25°	11274	3791	847	613	426	5073
35°	11773	2777	59	54	41	7101
45°	6290	768	18	20	14	4923
55°	545	14	9	10	6	979
65°	8	6	9	7	4	12
75°	2	4	7	7	4	2
85°	1	4	7	5	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°	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1
2.5°	1684.8	1673.5	1677.0	1650.7	1615.8	1631.5	1592.1	1593.0	1568.5	1506.5	1479.4
5°	2247.9	2246.1	2243.5	2195.4	2133.4	2140.4	2082.6	2060.8	1997.8	1888.5	1819.5
7.5°	2947.4	2948.2	2935.1	2818.0	2748.9	2744.5	2653.6	2588.0	2470.8	2298.6	2172.7
10°	3740.4	3764.9	3741.2	3561.1	3432.6	3434.4	3270.9	3145.0	2957.0	2706.0	2526.8
12.5°	4671.5	4675.0	4638.3	4401.4	4205.5	4190.6	3971.2	3730.8	3444.8	3117.0	2856.4
15°	5586.9	5611.4	5564.2	5272.2	4999.4	4958.3	4678.5	4361.1	4006.2	3520.9	3162.4
17.5°	6602.0	6563.6	6438.5	6020.6	5692.7	5632.4	5331.6	4916.3	4463.4	3876.8	3406.4
20°	7854.1	7867.2	7602.3	6978.0	6423.7	6188.5	5839.6	5385.0	4820.2	4138.2	3569.0
22.5°	9643.0	9572.1	9003.8	7994.0	7160.7	6846.9	6349.4	5722.5	5086.8	4336.7	3690.5
25°	11273.6	11087.3	10563.6	9174.3	7869.8	7481.6	6966.6	6010.1	5308.0	4483.5	3791.1
27.5°	12210.0	12126.9	11533.2	10131.7	8442.5	7896.0	7171.2	6221.7	5439.2	4556.1	3819.9
30°	12442.5	12457.4	11929.3	10449.1	8578.0	7953.8	7204.5	6215.6	5350.9	4426.7	3653.8
32.5°	12383.1	12302.7	11642.5	10098.5	8216.9	7648.6	6879.2	5937.6	4999.4	4041.1	3240.3
35°	11772.8	11654.8	10842.5	9186.6	7604.0	7051.4	6353.7	5482.0	4508.9	3549.8	2776.9
37.5°	10611.7	10475.3	9538.0	8091.9	6868.7	6400.9	5797.7	4974.9	4013.2	3091.6	2369.4
40°	8998.6	8829.0	8045.6	7042.7	6078.3	5751.3	5241.6	4396.1	3499.1	2658.0	1993.5
42.5°	7490.4	7409.0	6938.7	6078.3	5428.7	5113.1	4599.0	3812.1	2986.7	2214.7	1475.9
45°	6289.9	6235.7	5923.6	5377.1	4717.9	4422.3	3938.0	3170.3	2272.4	1491.6	768.5
47.5°	5505.6	5367.5	5062.4	4488.8	3756.1	3388.0	2926.4	2088.8	1281.8	661.0	236.1
50°	3797.2	3810.3	3465.8	2833.7	2210.3	1899.0	1568.5	960.9	424.0	144.3	41.1
52.5°	1999.6	1851.8	1609.6	1202.2	836.7	638.3	466.0	192.4	76.9	28.9	21.9
55°	544.7	478.3	382.1	270.2	146.0	102.3	67.3	35.8	25.4	20.1	14.0
57.5°	53.3	50.7	46.3	37.6	32.4	29.7	27.1	21.9	17.5	12.2	8.7
60°	29.7	28.9	27.1	23.6	21.0	19.2	17.5	14.9	10.5	7.9	7.0
62.5°	16.6	15.7	14.9	13.1	11.4	10.5	10.5	8.7	7.0	6.1	6.1
65°	7.9	7.9	7.9	7.9	7.9	7.0	6.1	6.1	6.1	6.1	6.1
67.5°	6.1	6.1	6.1	5.2	5.2	5.2	5.2	5.2	5.2	4.4	5.2
70°	3.5	3.5	4.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.4
72.5°	1.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	4.4
75°	1.7	1.7	1.7	1.7	2.6	2.6	2.6	2.6	3.5	3.5	4.4
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	2.6	2.6	3.5	3.5	4.4
80°	0.9	0.9	0.9	1.7	1.7	1.7	1.7	2.6	3.5	3.5	4.4
82.5°	0.9	0.9	0.9	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4
85°	0.9	0.9	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.5	4.4
87.5°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.5	4.4
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1
2.5°	1451.4	1408.5	1365.7	1322.9	1321.1	1295.8	1258.2	1208.3	1167.2	1132.3	1098.2
5°	1750.4	1662.1	1573.8	1485.5	1459.3	1413.8	1332.5	1240.7	1162.0	1092.9	1026.5
7.5°	2050.3	1901.7	1761.8	1623.6	1568.5	1499.5	1372.7	1239.8	1126.1	1024.7	925.9
10°	2317.8	2101.9	1905.2	1711.1	1631.5	1541.4	1370.9	1202.2	1057.9	927.7	801.8
12.5°	2564.4	2263.6	2014.4	1769.6	1661.2	1551.9	1343.8	1142.7	970.5	814.9	669.7
15°	2781.2	2412.3	2091.4	1795.9	1663.0	1531.8	1287.0	1060.6	867.3	689.0	531.6
17.5°	2936.0	2486.6	2116.7	1772.3	1617.5	1470.6	1203.1	960.9	752.8	566.6	414.4
20°	3030.4	2517.2	2103.6	1728.5	1564.2	1412.0	1141.0	905.8	703.8	543.0	439.8
22.5°	3092.5	2546.9	2108.9	1727.7	1563.3	1419.9	1167.2	946.9	782.5	696.0	683.7
25°	3158.9	2588.9	2147.3	1767.0	1614.0	1481.1	1236.3	1021.2	883.9	847.2	852.5
27.5°	3155.4	2570.5	2110.6	1732.9	1572.0	1437.4	1150.6	878.7	750.2	647.0	609.4
30°	2967.5	2358.1	1860.6	1437.4	1247.7	1082.4	704.7	458.1	316.5	277.2	237.8
32.5°	2527.7	1910.4	1391.1	994.1	780.8	583.2	277.2	146.9	125.0	104.9	95.3
35°	2101.9	1523.1	1040.4	600.7	379.5	235.2	99.7	65.6	62.1	58.6	58.6
37.5°	1737.3	1196.1	672.4	253.6	139.0	84.8	48.1	43.7	42.0	41.1	41.1
40°	1358.7	779.9	291.2	83.9	44.6	38.5	34.1	32.4	31.5	30.6	31.5
42.5°	801.8	313.9	84.8	31.5	29.7	28.0	25.4	24.5	24.5	23.6	24.5
45°	272.8	81.3	28.0	22.7	21.0	21.0	19.2	19.2	19.2	18.4	20.1
47.5°	70.8	25.4	18.4	16.6	15.7	15.7	14.9	14.9	14.9	14.9	15.7
50°	24.5	16.6	13.1	12.2	11.4	12.2	11.4	11.4	11.4	11.4	12.2
52.5°	14.9	11.4	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
55°	9.6	8.7	7.9	7.9	7.9	7.9	7.9	8.7	8.7	8.7	8.7
57.5°	7.9	7.0	7.0	7.0	7.0	7.0	7.9	7.0	7.0	7.9	8.7
60°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.9	7.9	8.7
62.5°	6.1	7.0	7.0	7.0	7.0	7.0	7.0	7.9	7.9	7.9	8.7
65°	6.1	6.1	6.1	7.0	7.0	7.0	7.9	7.9	7.9	8.7	8.7
67.5°	5.2	5.2	6.1	6.1	7.0	7.0	7.0	7.9	7.9	7.9	8.7
70°	5.2	5.2	5.2	6.1	6.1	6.1	6.1	7.0	7.0	7.9	7.9
72.5°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.9
75°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.9
77.5°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.9
80°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
82.5°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
85°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0
87.5°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
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°	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1
2.5°	1050.9	1036.1	983.6	976.6	967.9	925.0	907.6	877.8	835.9	823.6	808.8
5°	948.6	899.7	822.7	801.8	779.0	711.7	670.6	621.6	567.4	537.7	509.7
7.5°	818.4	750.2	647.9	606.8	581.4	508.0	442.4	376.8	297.3	251.8	223.0
10°	673.2	579.7	473.0	425.8	391.7	285.0	223.0	194.1	167.0	145.1	125.9
12.5°	527.2	421.4	300.8	246.6	219.5	181.9	147.8	111.9	99.7	98.8	95.3
15°	386.5	268.4	202.8	182.7	163.5	117.2	116.3	116.3	119.8	122.4	123.3
17.5°	285.0	236.1	185.4	173.1	181.9	188.9	201.1	219.5	234.3	276.3	267.5
20°	417.9	414.4	452.0	500.1	534.2	606.8	698.6	802.6	911.0	1031.7	1123.5
22.5°	716.9	804.4	872.6	930.3	960.9	1043.1	1115.6	1151.5	1172.5	1162.0	1147.1
25°	876.1	907.6	886.6	866.5	869.1	794.8	740.6	671.5	612.9	559.6	528.1
27.5°	523.7	479.1	416.2	372.5	363.7	313.9	277.2	238.7	227.3	192.4	177.5
30°	188.9	175.7	155.6	139.9	138.1	125.0	117.2	108.4	107.5	99.7	95.3
32.5°	85.7	85.7	78.7	80.4	78.7	76.1	75.2	72.6	72.6	69.9	68.2
35°	56.0	56.8	56.0	56.0	55.1	55.1	55.1	53.3	54.2	52.5	49.8
37.5°	41.1	42.0	40.2	41.1	41.1	41.1	41.1	40.2	39.3	37.6	36.7
40°	31.5	31.5	31.5	31.5	31.5	31.5	31.5	30.6	30.6	29.7	28.0
42.5°	24.5	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	24.5	24.5
45°	20.1	21.0	20.1	21.0	21.0	21.0	20.1	20.1	20.1	19.2	18.4
47.5°	15.7	15.7	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.0
50°	12.2	12.2	12.2	12.2	12.2	12.2	13.1	12.2	12.2	12.2	12.2
52.5°	9.6	10.5	10.5	11.4	11.4	11.4	11.4	11.4	10.5	10.5	9.6
55°	8.7	9.6	9.6	10.5	10.5	10.5	10.5	9.6	9.6	9.6	8.7
57.5°	8.7	9.6	9.6	9.6	9.6	9.6	9.6	8.7	8.7	7.9	7.9
60°	8.7	8.7	8.7	9.6	9.6	8.7	8.7	7.9	7.9	7.0	7.0
62.5°	8.7	8.7	8.7	9.6	9.6	8.7	8.7	7.9	7.0	7.0	6.1
65°	8.7	9.6	8.7	9.6	9.6	8.7	8.7	7.9	7.0	7.0	6.1
67.5°	8.7	9.6	9.6	9.6	8.7	8.7	8.7	7.9	7.0	7.0	6.1
70°	7.9	8.7	8.7	8.7	8.7	8.7	7.9	7.9	7.0	7.0	6.1
72.5°	7.9	8.7	7.9	8.7	8.7	7.9	7.9	7.9	7.0	7.0	6.1
75°	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.0	7.0	6.1	6.1
77.5°	7.9	7.9	7.9	7.9	7.9	7.9	7.0	7.0	7.0	6.1	6.1
80°	7.9	7.9	7.9	7.9	7.9	7.9	7.0	7.0	6.1	6.1	5.2
82.5°	7.0	7.9	7.9	7.9	7.9	7.9	7.0	7.0	6.1	6.1	5.2
85°	7.0	7.0	7.0	7.0	7.0	7.0	6.1	6.1	5.2	4.4	4.4
87.5°	6.1	7.0	6.1	6.1	6.1	6.1	5.2	4.4	3.5	3.5	2.6
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: P179915

CATALOG NUMBER: LDA6A55940D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1	1154.1
2.5°	785.1	763.3	764.2	767.7	745.8	734.4	731.8	720.4
5°	472.1	446.8	442.4	438.9	408.3	396.1	386.5	398.7
7.5°	202.8	193.2	191.5	188.9	174.9	167.9	164.4	167.9
10°	100.5	94.4	95.3	96.2	91.8	89.2	88.3	87.4
12.5°	99.7	98.8	99.7	99.7	100.5	98.8	99.7	99.7
15°	129.4	129.4	132.0	133.8	138.1	137.3	139.0	140.8
17.5°	322.6	306.0	314.8	314.8	354.1	319.1	348.9	321.8
20°	1267.8	1327.2	1387.6	1438.3	1489.9	1505.6	1536.2	1527.4
22.5°	1124.4	1131.4	1122.6	1113.0	1110.4	1113.0	1065.8	1072.8
25°	482.6	479.1	465.1	450.3	454.6	458.1	441.5	425.8
27.5°	165.2	160.9	156.5	153.0	151.3	148.6	143.4	139.9
30°	93.6	90.9	89.2	88.3	86.6	84.8	82.2	80.4
32.5°	67.3	65.6	64.7	63.8	62.1	60.3	57.7	56.8
35°	49.8	48.1	47.2	46.3	44.6	42.8	42.0	41.1
37.5°	36.7	35.0	35.0	35.0	32.4	30.6	29.7	28.9
40°	28.0	27.1	27.1	27.1	25.4	24.5	23.6	23.6
42.5°	24.5	23.6	23.6	23.6	21.9	21.0	21.0	20.1
45°	18.4	17.5	17.5	16.6	15.7	15.7	14.9	14.0
47.5°	14.0	13.1	13.1	13.1	12.2	11.4	11.4	10.5
50°	11.4	11.4	10.5	11.4	9.6	9.6	9.6	8.7
52.5°	9.6	9.6	8.7	8.7	7.9	7.9	7.9	7.0
55°	8.7	7.9	7.9	7.9	7.0	7.0	7.0	6.1
57.5°	7.0	7.0	6.1	6.1	5.2	5.2	5.2	5.2
60°	6.1	6.1	5.2	5.2	4.4	4.4	4.4	4.4
62.5°	6.1	5.2	5.2	5.2	4.4	4.4	4.4	4.4
65°	6.1	5.2	5.2	5.2	4.4	4.4	4.4	4.4
67.5°	6.1	5.2	5.2	5.2	4.4	4.4	4.4	4.4
70°	6.1	6.1	5.2	5.2	5.2	4.4	4.4	4.4
72.5°	6.1	6.1	5.2	5.2	5.2	5.2	4.4	4.4
75°	5.2	5.2	5.2	5.2	4.4	4.4	4.4	4.4
77.5°	5.2	5.2	5.2	5.2	4.4	4.4	4.4	4.4
80°	5.2	5.2	4.4	4.4	4.4	4.4	4.4	4.4
82.5°	5.2	4.4	4.4	4.4	4.4	3.5	3.5	3.5
85°	3.5	3.5	3.5	3.5	2.6	2.6	2.6	2.6
87.5°	2.6	1.7	1.7	1.7	0.9	0.9	0.9	0.9
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)