

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: P179874

Luminaire Tested: **LDA6A65935D010TE LARH20SP 6LA1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179874
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26686)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A65935D010TE LARH20SP 6LA1LI 30°
Description: PORTFOLIO 6" Adjustable Reflector, Angle-cut Trim, Self-flanged, 20° Spot, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5134.8 lumens
Efficiency: N/A
Efficacy: 65.8 lumens/watt
Spacing Criteria (0/90/45): 2.35 / 0.6 / 1.31
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

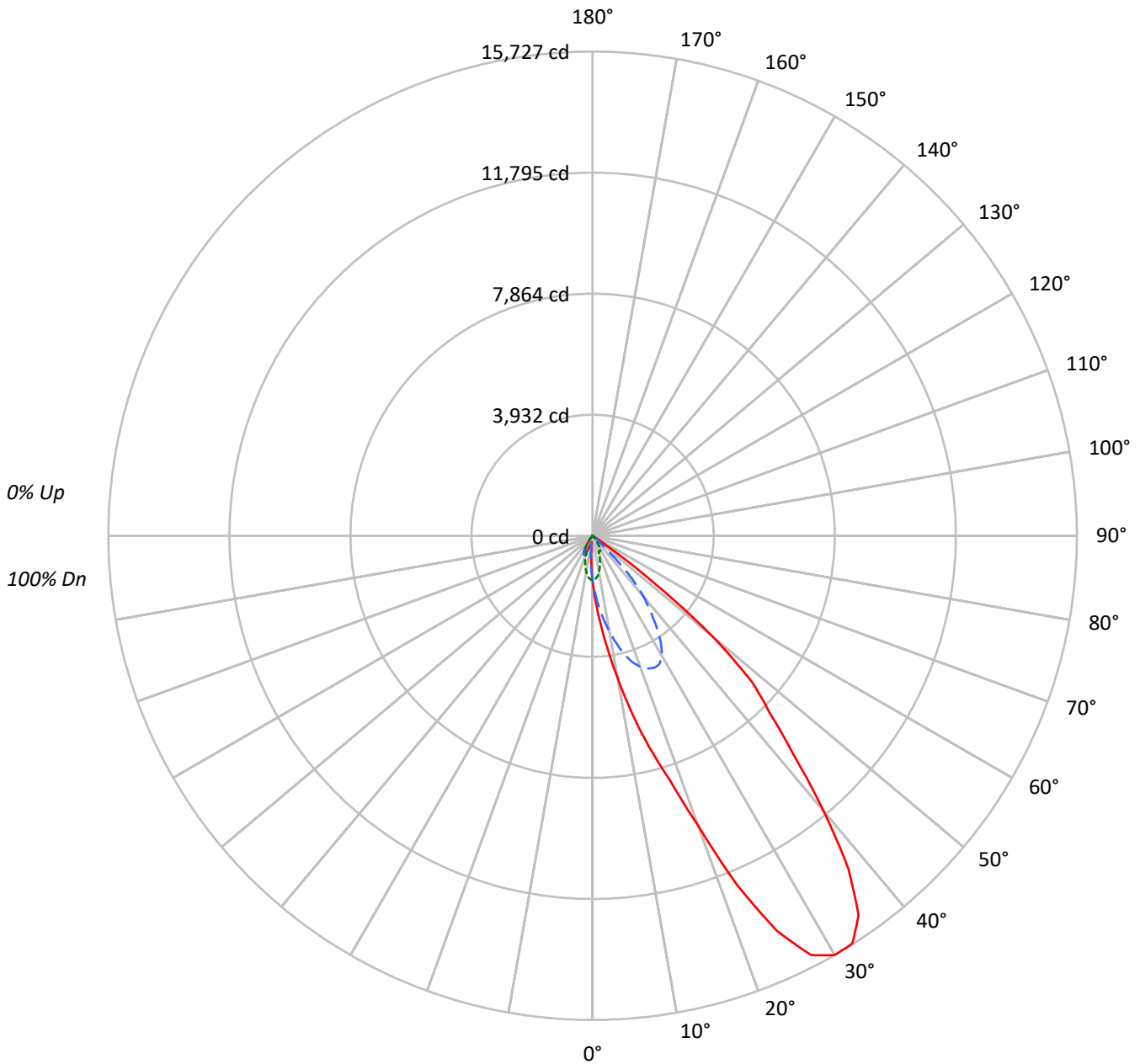
Input Watts (W): 78
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					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	94	90	95	91	88	92	89	86	89	86	84	82								
3	99	91	85	80	96	89	84	80	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	50	59	54	50	49								
8	70	59	51	46	69	58	51	46	57	50	46	56	50	46	54	49	46	44								
9	66	54	47	42	64	53	47	42	52	46	42	51	46	42	50	45	41	40								
10	61	50	43	38	60	49	43	38	48	42	38	48	42	38	47	41	38	36								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	79467	79467	79467
5°	153984	75732	25545
10°	261618	66270	11473
15°	403135	52861	18235
20°	583582	34396	31719
25°	856223	33195	40787
30°	995558	31448	31252
35°	1007674	16657	16523
40°	834285	6276	6934
45°	630096	2132	2527
50°	431099	785	785
55°	59964	679	96
60°	1568	669	0
65°	402	921	0
70°	160	1138	0
75°	0	1504	0
80°	0	2589	316
85°	0	5158	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	152.1	3.0
10°-20°	642.9	12.5
20°-30°	1466.5	28.6
30°-40°	1697.1	33.0
40°-50°	1023.5	19.9
50°-60°	139.0	2.7
60°-70°	4.5	0.1
70°-80°	4.9	0.1
80°-90°	4.5	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°	2261.4	44.0
0°-40°	3958.5	77.1
0°-60°	5121.0	99.7
0°-90°	5134.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5134.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1450	1450	1450	1450	1450	
5°	2798	2291	1376	753	464	326
15°	7103	3993	931	287	321	2103
25°	14155	4731	549	660	674	6406
35°	15057	3607	249	254	247	9074
45°	8127	982	28	34	33	6355
55°	627	7	7	5	1	1230
65°	3	4	7	4	0	5
75°	0	5	7	5	0	0
85°	0	5	8	5	0	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°	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6
2.5°	2096.4	2077.0	2085.2	2063.7	2009.7	1998.4	1997.4	1983.1	1937.2	1901.5	1858.7
5°	2798.2	2797.2	2802.3	2756.4	2661.5	2631.9	2617.7	2583.0	2471.8	2386.1	2291.2
7.5°	3674.5	3668.4	3662.3	3578.6	3429.7	3372.6	3335.8	3210.4	3057.3	2905.3	2736.0
10°	4699.8	4696.7	4673.2	4526.3	4287.6	4182.5	4111.1	3912.2	3666.4	3450.1	3162.4
12.5°	5890.3	5862.7	5820.9	5605.6	5278.2	5163.9	5006.8	4691.6	4314.1	3982.6	3580.7
15°	7103.2	7063.4	6988.9	6712.5	6306.5	6111.6	5916.8	5501.6	4989.5	4508.0	3992.8
17.5°	8289.6	8245.7	8071.3	7602.0	7205.2	6967.5	6751.2	6181.0	5579.1	4959.9	4307.0
20°	10003.4	9844.3	9540.3	8800.7	8063.1	7634.7	7381.7	6778.8	6034.1	5312.9	4530.4
22.5°	12292.6	11939.6	11291.9	10090.1	9036.3	8418.1	8004.0	7202.1	6361.6	5543.4	4668.1
25°	14155.4	13995.2	13258.7	11548.9	9904.5	9176.1	8599.7	7538.8	6600.3	5697.4	4731.4
27.5°	15356.1	15316.3	14474.7	12756.8	10613.5	9657.6	9013.9	7761.2	6715.5	5730.1	4700.8
30°	15727.4	15789.6	14981.7	13166.9	10818.5	9754.5	9050.6	7764.2	6626.8	5582.2	4504.9
32.5°	15699.9	15702.9	14712.4	12812.9	10484.9	9473.0	8744.6	7506.1	6299.3	5211.9	4132.6
35°	15057.2	14899.1	13779.0	11725.4	9708.6	8816.0	8138.6	7006.3	5759.7	4654.9	3607.2
37.5°	13646.3	13439.2	12133.5	10332.9	8789.5	7964.2	7417.4	6350.3	5117.0	4060.1	3064.5
40°	11658.1	11364.3	10287.0	9038.4	7783.6	7163.4	6704.3	5616.9	4429.4	3476.6	2555.4
42.5°	9667.8	9524.0	8811.9	7796.9	6937.9	6354.4	5875.0	4848.7	3768.4	2901.3	1911.7
45°	8127.4	8004.0	7525.5	6856.3	6013.7	5481.2	5019.1	4047.9	2927.8	1946.4	982.4
47.5°	7005.3	6905.3	6447.2	5744.4	4820.1	4237.6	3761.2	2654.4	1658.7	840.6	245.9
50°	5054.8	4952.8	4503.9	3689.8	2855.4	2367.7	2025.0	1185.4	470.3	170.4	25.5
52.5°	2477.9	2394.3	2089.2	1563.9	1049.7	754.9	551.9	222.4	54.1	18.4	12.2
55°	627.4	576.4	480.5	302.0	147.9	88.8	57.1	20.4	13.3	10.2	7.1
57.5°	35.7	34.7	31.6	23.5	17.3	15.3	13.3	10.2	7.1	6.1	5.1
60°	14.3	13.3	12.2	10.2	8.2	7.1	7.1	5.1	4.1	4.1	4.1
62.5°	6.1	6.1	6.1	5.1	4.1	4.1	4.1	3.1	4.1	4.1	4.1
65°	3.1	3.1	3.1	2.0	2.0	2.0	3.1	3.1	3.1	4.1	4.1
67.5°	2.0	1.0	1.0	1.0	2.0	2.0	2.0	3.1	3.1	4.1	4.1
70°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.1	3.1	4.1	5.1
72.5°	0.0	1.0	1.0	1.0	2.0	2.0	2.0	3.1	3.1	4.1	5.1
75°	0.0	1.0	1.0	1.0	2.0	2.0	2.0	3.1	4.1	4.1	5.1
77.5°	0.0	1.0	1.0	1.0	2.0	2.0	2.0	3.1	4.1	4.1	5.1
80°	0.0	1.0	1.0	1.0	2.0	2.0	2.0	3.1	4.1	4.1	5.1
82.5°	0.0	0.0	1.0	1.0	2.0	2.0	2.0	3.1	4.1	4.1	5.1
85°	0.0	0.0	1.0	1.0	2.0	2.0	2.0	3.1	4.1	4.1	5.1
87.5°	0.0	0.0	1.0	1.0	2.0	2.0	2.0	3.1	3.1	4.1	5.1
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6
2.5°	1803.6	1766.9	1712.8	1677.1	1642.4	1609.8	1555.7	1525.1	1470.0	1419.0	1375.1
5°	2177.0	2085.2	1974.0	1879.1	1817.9	1757.7	1648.5	1567.9	1467.0	1376.2	1292.5
7.5°	2554.4	2392.2	2209.6	2053.5	1958.7	1865.8	1702.6	1572.0	1429.2	1299.7	1176.2
10°	2897.2	2653.4	2395.3	2171.9	2043.3	1923.0	1707.7	1534.3	1350.7	1190.5	1035.4
12.5°	3215.5	2881.9	2545.2	2253.5	2094.3	1949.5	1686.3	1474.1	1255.8	1066.0	885.5
15°	3499.1	3070.6	2654.4	2300.4	2113.7	1942.3	1636.3	1389.4	1143.6	931.4	702.9
17.5°	3714.3	3187.9	2702.3	2293.3	2079.0	1888.3	1550.6	1283.3	1024.2	767.1	509.0
20°	3844.9	3237.9	2692.1	2238.2	2004.6	1802.6	1448.6	1168.1	880.4	589.6	448.9
22.5°	3900.0	3233.8	2644.2	2155.5	1912.8	1708.7	1350.7	1055.8	729.4	533.5	468.2
25°	3909.2	3192.0	2576.9	2064.8	1822.0	1619.0	1251.7	928.3	633.5	548.8	524.3
27.5°	3838.8	3094.1	2450.4	1934.2	1694.4	1484.3	1103.8	737.6	594.7	546.8	563.1
30°	3630.7	2870.7	2227.0	1704.6	1473.1	1262.9	788.6	578.4	493.7	496.8	500.9
32.5°	3264.4	2499.3	1867.9	1369.0	1116.0	832.4	490.7	386.6	375.4	375.4	373.4
35°	2775.8	2045.4	1465.9	866.1	555.0	399.9	254.0	255.0	249.9	248.9	247.9
37.5°	2270.8	1613.9	928.3	358.1	240.8	167.3	150.0	152.0	150.0	153.0	151.0
40°	1790.3	996.7	338.7	114.3	84.7	81.6	83.7	85.7	85.7	87.7	87.7
42.5°	1040.5	330.5	88.8	45.9	45.9	43.9	44.9	46.9	47.9	49.0	47.9
45°	309.1	68.3	28.6	25.5	25.5	24.5	24.5	25.5	26.5	27.5	27.5
47.5°	49.0	19.4	16.3	14.3	14.3	14.3	14.3	14.3	15.3	15.3	16.3
50°	15.3	12.2	10.2	9.2	9.2	8.2	8.2	9.2	9.2	9.2	10.2
52.5°	9.2	7.1	7.1	6.1	7.1	7.1	6.1	7.1	7.1	7.1	8.2
55°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	7.1	7.1
57.5°	5.1	5.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
60°	5.1	5.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	7.1
62.5°	5.1	5.1	6.1	6.1	6.1	6.1	6.1	6.1	7.1	7.1	7.1
65°	5.1	5.1	6.1	6.1	6.1	6.1	6.1	7.1	7.1	7.1	7.1
67.5°	5.1	6.1	6.1	6.1	6.1	7.1	7.1	7.1	7.1	7.1	7.1
70°	5.1	6.1	6.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
72.5°	5.1	6.1	6.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
75°	6.1	6.1	6.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	8.2
77.5°	6.1	6.1	7.1	7.1	7.1	7.1	7.1	7.1	8.2	8.2	8.2
80°	6.1	6.1	7.1	7.1	7.1	7.1	7.1	8.2	8.2	8.2	8.2
82.5°	6.1	6.1	7.1	7.1	7.1	7.1	7.1	8.2	8.2	8.2	8.2
85°	6.1	6.1	7.1	7.1	7.1	7.1	7.1	8.2	8.2	8.2	8.2
87.5°	6.1	6.1	7.1	7.1	7.1	7.1	7.1	8.2	8.2	8.2	8.2
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6
2.5°	1337.4	1290.5	1268.0	1236.4	1214.0	1164.0	1143.6	1108.9	1080.3	1033.4	1036.5
5°	1221.1	1132.3	1072.2	1025.2	992.6	913.0	860.0	803.9	752.9	689.6	666.1
7.5°	1059.9	950.8	859.0	802.8	761.0	654.9	537.6	445.8	376.4	326.4	307.1
10°	898.7	756.9	611.1	524.3	464.2	362.1	310.1	285.6	263.2	235.7	217.3
12.5°	711.0	509.0	376.4	341.7	317.3	283.6	249.9	223.4	228.5	229.5	236.7
15°	485.6	366.2	324.4	300.9	274.4	255.0	266.3	273.4	286.7	287.7	296.9
17.5°	394.8	343.8	310.1	309.1	311.1	322.4	339.7	348.9	366.2	370.3	383.6
20°	394.8	365.2	393.8	393.8	398.9	414.2	436.6	449.9	469.3	476.4	492.7
22.5°	449.9	470.3	506.0	510.1	512.1	528.4	557.0	570.3	592.7	596.8	614.1
25°	548.8	567.2	599.8	602.9	603.9	616.2	637.6	644.7	660.0	651.9	662.1
27.5°	580.5	588.6	609.0	611.1	606.0	611.1	619.2	619.2	624.3	608.0	611.1
30°	510.1	512.1	522.3	523.3	512.1	514.1	515.2	514.1	513.1	495.8	495.8
32.5°	378.5	378.5	391.7	388.7	376.4	379.5	379.5	379.5	378.5	364.2	362.1
35°	251.0	252.0	263.2	261.2	252.0	254.0	254.0	257.1	254.0	245.9	243.8
37.5°	153.0	154.0	159.1	160.2	157.1	158.1	159.1	158.1	160.2	156.1	154.0
40°	88.8	90.8	94.9	95.9	94.9	94.9	95.9	96.9	101.0	95.9	93.9
42.5°	52.0	53.0	55.1	55.1	55.1	55.1	56.1	57.1	58.1	57.1	56.1
45°	29.6	30.6	31.6	31.6	32.6	31.6	32.6	32.6	33.7	32.6	32.6
47.5°	17.3	17.3	18.4	18.4	19.4	18.4	19.4	19.4	19.4	18.4	18.4
50°	10.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	10.2	10.2
52.5°	8.2	8.2	8.2	8.2	8.2	7.1	7.1	7.1	7.1	6.1	6.1
55°	7.1	7.1	7.1	7.1	7.1	7.1	6.1	5.1	5.1	4.1	4.1
57.5°	6.1	7.1	7.1	7.1	7.1	6.1	6.1	5.1	4.1	3.1	3.1
60°	7.1	7.1	7.1	7.1	6.1	6.1	6.1	5.1	4.1	3.1	3.1
62.5°	7.1	7.1	7.1	7.1	7.1	6.1	6.1	5.1	4.1	3.1	3.1
65°	7.1	7.1	7.1	7.1	7.1	6.1	6.1	5.1	4.1	3.1	3.1
67.5°	7.1	7.1	7.1	7.1	7.1	6.1	6.1	5.1	4.1	4.1	3.1
70°	7.1	8.2	8.2	7.1	7.1	7.1	6.1	5.1	5.1	4.1	3.1
72.5°	7.1	8.2	8.2	7.1	7.1	7.1	6.1	5.1	5.1	4.1	3.1
75°	8.2	8.2	8.2	8.2	7.1	7.1	6.1	6.1	5.1	4.1	3.1
77.5°	8.2	8.2	8.2	8.2	7.1	7.1	6.1	6.1	5.1	4.1	3.1
80°	8.2	8.2	8.2	8.2	8.2	7.1	7.1	6.1	5.1	4.1	4.1
82.5°	8.2	8.2	8.2	8.2	8.2	7.1	7.1	6.1	5.1	4.1	4.1
85°	8.2	8.2	8.2	8.2	8.2	7.1	7.1	6.1	5.1	4.1	3.1
87.5°	8.2	8.2	8.2	8.2	7.1	7.1	6.1	6.1	5.1	4.1	3.1
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: P179874

CATALOG NUMBER: LDA6A65935D010TE LARH20SP 6LA1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6	1449.6
2.5°	998.7	975.2	965.0	981.4	973.2	948.7	953.8	938.5
5°	595.8	560.1	537.6	547.8	515.2	485.6	485.6	464.2
7.5°	287.7	276.5	270.3	272.4	265.2	256.1	251.0	251.0
10°	202.0	197.9	198.9	198.9	205.0	204.0	207.1	206.1
12.5°	239.7	241.8	242.8	246.9	252.0	252.0	255.0	253.0
15°	307.1	305.0	311.1	312.2	320.3	321.3	325.4	321.3
17.5°	390.7	394.8	400.9	399.9	416.2	417.2	417.2	416.2
20°	502.9	506.0	512.1	514.1	533.5	535.6	542.7	543.7
22.5°	625.3	625.3	628.4	632.5	650.8	651.9	654.9	654.9
25°	667.2	661.0	662.1	667.2	677.4	673.3	676.3	674.3
27.5°	613.1	603.9	601.9	609.0	616.2	604.9	609.0	609.0
30°	497.8	489.7	487.6	494.8	499.9	487.6	491.7	493.7
32.5°	364.2	359.1	358.1	363.2	367.2	357.0	361.1	364.2
35°	245.9	243.8	241.8	242.8	248.9	240.8	244.8	246.9
37.5°	156.1	152.0	153.0	155.1	159.1	154.0	158.1	158.1
40°	95.9	93.9	93.9	95.9	97.9	93.9	95.9	96.9
42.5°	56.1	56.1	56.1	57.1	58.1	56.1	56.1	57.1
45°	32.6	31.6	31.6	32.6	33.7	31.6	32.6	32.6
47.5°	18.4	17.3	17.3	18.4	18.4	17.3	18.4	18.4
50°	10.2	9.2	9.2	10.2	10.2	9.2	9.2	9.2
52.5°	5.1	5.1	5.1	5.1	5.1	5.1	4.1	4.1
55°	3.1	3.1	2.0	2.0	2.0	2.0	2.0	1.0
57.5°	2.0	2.0	1.0	1.0	1.0	1.0	0.0	0.0
60°	2.0	2.0	1.0	1.0	1.0	0.0	0.0	0.0
62.5°	2.0	2.0	1.0	1.0	1.0	0.0	0.0	0.0
65°	2.0	2.0	1.0	1.0	1.0	0.0	0.0	0.0
67.5°	2.0	2.0	1.0	1.0	1.0	0.0	0.0	0.0
70°	3.1	2.0	2.0	1.0	1.0	1.0	0.0	0.0
72.5°	3.1	2.0	2.0	2.0	1.0	1.0	0.0	0.0
75°	3.1	2.0	2.0	2.0	1.0	1.0	0.0	0.0
77.5°	3.1	2.0	2.0	2.0	1.0	1.0	1.0	0.0
80°	3.1	2.0	2.0	2.0	1.0	1.0	1.0	1.0
82.5°	3.1	2.0	2.0	2.0	1.0	1.0	1.0	1.0
85°	3.1	2.0	2.0	2.0	1.0	1.0	1.0	0.0
87.5°	3.1	2.0	2.0	2.0	1.0	1.0	1.0	0.0
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)