

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: P179923

Luminaire Tested: **LDA6A65940D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179923
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: LDA6A65940D010TE 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: 4837.2 lumens
Efficiency: N/A
Efficacy: 62.0 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

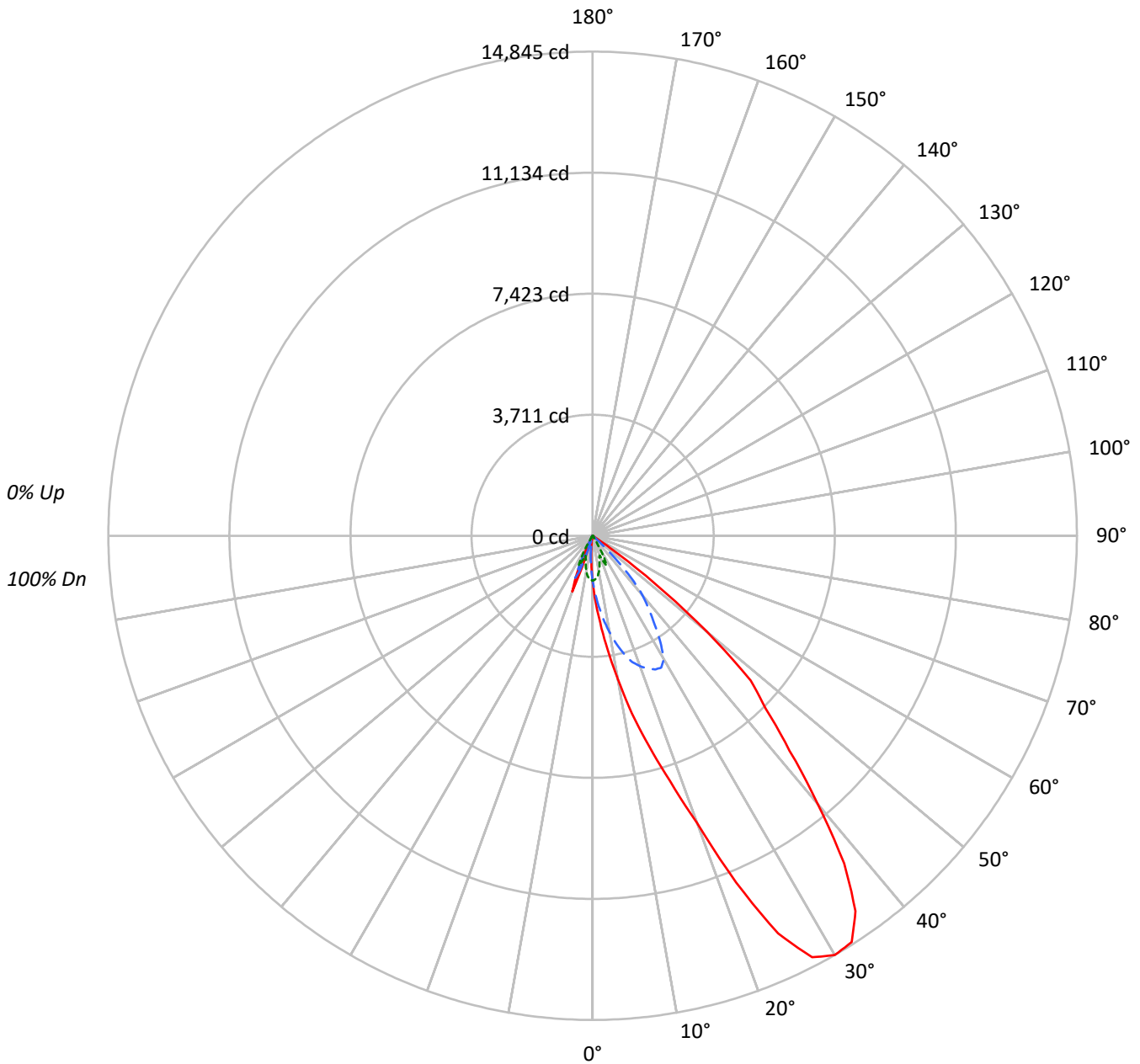
Input Watts (W): 78
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	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					100			
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	105	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82					82			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74					74			
4	92	83	76	71	90	82	76	71	80	74	70	77	73	69	76	72	68	67					67			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	70	65	62	60					60			
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54					54			
7	75	64	57	51	74	63	56	51	62	56	51	60	55	51	59	54	50	49					49			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44					44			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40					40			
10	62	50	43	38	61	50	43	38	49	43	38	48	42	38	47	42	38	36					36			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	75487	75487	75487
5°	147589	71759	26178
10°	248420	61611	5806
15°	378311	46652	9535
20°	546678	37792	106316
25°	813591	61141	30728
30°	939721	20934	6077
35°	940022	4678	3279
40°	768318	2612	2018
45°	581805	1698	1295
50°	386384	1160	887
55°	62115	994	698
60°	3892	1031	570
65°	1219	1349	675
70°	673	1507	833
75°	445	1758	1101
80°	316	2620	1642
85°	629	5221	1950



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	143.7	3.0
10°-20°	614.6	12.7
20°-30°	1446.8	29.9
30°-40°	1524.4	31.5
40°-50°	950.5	19.6
50°-60°	136.6	2.8
60°-70°	8.7	0.2
70°-80°	6.8	0.1
80°-90°	5.1	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°	2205.1	45.6
0°-40°	3729.5	77.1
0°-60°	4816.6	99.6
0°-90°	4837.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4837.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1377	1377	1377	1377	1377	
5°	2682	2171	1304	677	476	311
15°	6666	3773	822	143	168	1985
25°	13451	4523	1011	731	508	6052
35°	14046	3313	70	65	49	8473
45°	7504	917	22	24	17	5874
55°	650	17	10	12	7	1168
65°	9	7	10	8	5	14
75°	2	5	8	8	5	2
85°	1	5	8	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°	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0
2.5°	2010.2	1996.6	2000.8	1969.5	1927.8	1946.6	1899.6	1900.7	1871.4	1797.4	1765.0
5°	2682.0	2679.9	2676.8	2619.4	2545.3	2553.7	2484.8	2458.7	2383.6	2253.2	2170.8
7.5°	3516.5	3517.6	3501.9	3362.1	3279.7	3274.5	3166.0	3087.8	2948.0	2742.5	2592.3
10°	4462.7	4491.9	4463.7	4248.8	4095.5	4097.6	3902.5	3752.3	3528.0	3228.6	3014.8
12.5°	5573.6	5577.8	5534.0	5251.3	5017.6	4999.9	4738.1	4451.2	4110.1	3718.9	3408.0
15°	6665.8	6695.1	6638.7	6290.3	5964.8	5915.8	5582.0	5203.3	4779.8	4200.8	3773.1
17.5°	7877.0	7831.1	7681.9	7183.3	6792.1	6720.1	6361.2	5865.7	5325.4	4625.4	4064.2
20°	9370.8	9386.4	9070.3	8325.5	7664.2	7383.5	6967.3	6424.9	5751.0	4937.3	4258.2
22.5°	11505.1	11420.6	10742.5	9537.7	8543.5	8169.0	7575.5	6827.5	6069.2	5174.1	4403.2
25°	13450.6	13228.4	12603.6	10946.0	9389.6	8926.4	8312.0	7170.7	6333.1	5349.4	4523.2
27.5°	14567.8	14468.7	13760.4	12088.2	10072.8	9420.8	8556.1	7423.2	6489.5	5435.9	4557.6
30°	14845.3	14863.1	14233.0	12466.9	10234.5	9489.7	8595.7	7415.9	6384.2	5281.6	4359.4
32.5°	14774.4	14678.4	13890.8	12048.6	9803.7	9125.6	8207.6	7084.2	5964.8	4821.5	3866.0
35°	14046.3	13905.4	12936.3	10960.6	9072.4	8413.1	7580.7	6540.7	5379.6	4235.3	3313.1
37.5°	12660.9	12498.2	11379.9	9654.5	8195.1	7637.0	6917.2	5935.6	4788.1	3688.6	2827.0
40°	10736.3	10533.9	9599.2	8402.7	7252.1	6862.0	6253.8	5245.0	4174.8	3171.2	2378.4
42.5°	8936.8	8839.8	8278.6	7252.1	6477.0	6100.4	5487.1	4548.2	3563.5	2642.3	1760.9
45°	7504.5	7439.9	7067.5	6415.5	5628.9	5276.3	4698.4	3782.5	2711.2	1779.6	916.9
47.5°	6568.8	6404.0	6039.9	5355.6	4481.4	4042.3	3491.5	2492.1	1529.3	788.6	281.7
50°	4530.5	4546.1	4135.1	3380.9	2637.1	2265.8	1871.4	1146.4	505.9	172.1	49.0
52.5°	2385.7	2209.4	1920.5	1434.4	998.3	761.5	556.0	229.5	91.8	34.4	26.1
55°	649.9	570.6	455.9	322.3	174.2	122.1	80.3	42.8	30.3	24.0	16.7
57.5°	63.6	60.5	55.3	44.9	38.6	35.5	32.3	26.1	20.9	14.6	10.4
60°	35.5	34.4	32.3	28.2	25.0	22.9	20.9	17.7	12.5	9.4	8.3
62.5°	19.8	18.8	17.7	15.6	13.6	12.5	12.5	10.4	8.3	7.3	7.3
65°	9.4	9.4	9.4	9.4	9.4	8.3	7.3	7.3	7.3	7.3	7.3
67.5°	7.3	7.3	7.3	6.3	6.3	6.3	6.3	6.3	6.3	5.2	6.3
70°	4.2	4.2	5.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	5.2
72.5°	2.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	5.2
75°	2.1	2.1	2.1	2.1	3.1	3.1	3.1	3.1	4.2	4.2	5.2
77.5°	2.1	2.1	2.1	2.1	2.1	2.1	3.1	3.1	4.2	4.2	5.2
80°	1.0	1.0	1.0	2.1	2.1	2.1	2.1	3.1	4.2	4.2	5.2
82.5°	1.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2	5.2
85°	1.0	1.0	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	2.1	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°	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0
2.5°	1731.7	1680.5	1629.4	1578.3	1576.2	1546.0	1501.1	1441.7	1392.6	1350.9	1310.2
5°	2088.4	1983.1	1877.7	1772.3	1741.0	1686.8	1589.8	1480.3	1386.4	1304.0	1224.7
7.5°	2446.2	2268.9	2102.0	1937.2	1871.4	1789.0	1637.8	1479.2	1343.6	1222.6	1104.7
10°	2765.4	2507.8	2273.1	2041.5	1946.6	1839.1	1635.7	1434.4	1262.2	1106.8	956.6
12.5°	3059.6	2700.8	2403.5	2111.4	1982.0	1851.6	1603.3	1363.4	1157.9	972.2	799.1
15°	3318.3	2878.1	2495.3	2142.7	1984.1	1827.6	1535.5	1265.4	1034.8	822.0	634.2
17.5°	3503.0	2966.8	2525.5	2114.5	1929.9	1754.6	1435.4	1146.4	898.2	676.0	494.5
20°	3615.6	3003.3	2509.9	2062.3	1866.2	1684.7	1361.3	1080.7	839.8	647.8	524.7
22.5°	3689.7	3038.7	2516.1	2061.3	1865.2	1694.1	1392.6	1129.8	933.6	830.4	815.8
25°	3769.0	3088.8	2562.0	2108.2	1925.7	1767.1	1475.0	1218.4	1054.6	1010.8	1017.1
27.5°	3764.8	3066.9	2518.2	2067.6	1875.6	1715.0	1372.8	1048.4	895.0	771.9	727.1
30°	3540.5	2813.4	2219.9	1715.0	1488.6	1291.4	840.8	546.6	377.6	330.7	283.7
32.5°	3015.8	2279.3	1659.7	1186.1	931.5	695.8	330.7	175.3	149.2	125.2	113.7
35°	2507.8	1817.2	1241.4	716.7	452.7	280.6	118.9	78.2	74.1	69.9	69.9
37.5°	2072.8	1427.1	802.2	302.5	165.9	101.2	57.4	52.2	50.1	49.0	49.0
40°	1621.1	930.5	347.4	100.1	53.2	45.9	40.7	38.6	37.6	36.5	37.6
42.5°	956.6	374.5	101.2	37.6	35.5	33.4	30.3	29.2	29.2	28.2	29.2
45°	325.5	97.0	33.4	27.1	25.0	25.0	22.9	22.9	22.9	21.9	24.0
47.5°	84.5	30.3	21.9	19.8	18.8	18.8	17.7	17.7	17.7	17.7	18.8
50°	29.2	19.8	15.6	14.6	13.6	14.6	13.6	13.6	13.6	13.6	14.6
52.5°	17.7	13.6	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
55°	11.5	10.4	9.4	9.4	9.4	9.4	9.4	10.4	10.4	10.4	10.4
57.5°	9.4	8.3	8.3	8.3	8.3	8.3	9.4	8.3	8.3	9.4	10.4
60°	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	9.4	9.4	10.4
62.5°	7.3	8.3	8.3	8.3	8.3	8.3	8.3	9.4	9.4	9.4	10.4
65°	7.3	7.3	7.3	8.3	8.3	8.3	9.4	9.4	9.4	10.4	10.4
67.5°	6.3	6.3	7.3	7.3	8.3	8.3	8.3	9.4	9.4	9.4	10.4
70°	6.3	6.3	6.3	7.3	7.3	7.3	7.3	8.3	8.3	9.4	9.4
72.5°	5.2	6.3	6.3	7.3	7.3	7.3	7.3	8.3	8.3	8.3	9.4
75°	5.2	6.3	6.3	7.3	7.3	7.3	7.3	7.3	8.3	8.3	9.4
77.5°	5.2	6.3	6.3	7.3	7.3	7.3	7.3	8.3	8.3	8.3	9.4
80°	5.2	6.3	6.3	7.3	7.3	7.3	7.3	8.3	8.3	8.3	8.3
82.5°	5.2	6.3	6.3	7.3	7.3	7.3	7.3	8.3	8.3	8.3	8.3
85°	5.2	6.3	6.3	7.3	7.3	7.3	7.3	7.3	8.3	8.3	8.3
87.5°	5.2	6.3	6.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
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°	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0
2.5°	1253.9	1236.2	1173.6	1165.2	1154.8	1103.7	1082.8	1047.3	997.3	982.7	964.9
5°	1131.8	1073.4	981.6	956.6	929.5	849.1	800.1	741.7	677.0	641.5	608.2
7.5°	976.4	895.0	773.0	724.0	693.7	606.1	527.8	449.6	354.7	300.4	266.0
10°	803.2	691.6	564.4	508.0	467.3	340.1	266.0	231.6	199.2	173.2	150.2
12.5°	629.0	502.8	358.8	294.2	261.8	217.0	176.3	133.5	118.9	117.9	113.7
15°	461.1	320.3	242.0	218.0	195.1	139.8	138.7	138.7	142.9	146.0	147.1
17.5°	340.1	281.7	221.2	206.5	217.0	225.3	239.9	261.8	279.6	329.6	319.2
20°	498.6	494.5	539.3	596.7	637.4	724.0	833.5	957.6	1087.0	1230.9	1340.5
22.5°	855.4	959.7	1041.1	1109.9	1146.4	1244.5	1331.1	1373.9	1398.9	1386.4	1368.6
25°	1045.3	1082.8	1057.8	1033.8	1036.9	948.2	883.6	801.2	731.3	667.6	630.1
27.5°	624.9	571.7	496.5	444.4	434.0	374.5	330.7	284.8	271.2	229.5	211.8
30°	225.3	209.7	185.7	166.9	164.8	149.2	139.8	129.4	128.3	118.9	113.7
32.5°	102.2	102.2	93.9	96.0	93.9	90.8	89.7	86.6	86.6	83.5	81.4
35°	66.8	67.8	66.8	66.8	65.7	65.7	65.7	63.6	64.7	62.6	59.5
37.5°	49.0	50.1	48.0	49.0	49.0	49.0	49.0	48.0	46.9	44.9	43.8
40°	37.6	37.6	37.6	37.6	37.6	37.6	37.6	36.5	36.5	35.5	33.4
42.5°	29.2	30.3	30.3	30.3	30.3	30.3	30.3	30.3	30.3	29.2	29.2
45°	24.0	25.0	24.0	25.0	25.0	25.0	24.0	24.0	24.0	22.9	21.9
47.5°	18.8	18.8	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	16.7
50°	14.6	14.6	14.6	14.6	14.6	14.6	15.6	14.6	14.6	14.6	14.6
52.5°	11.5	12.5	12.5	13.6	13.6	13.6	13.6	13.6	12.5	12.5	11.5
55°	10.4	11.5	11.5	12.5	12.5	12.5	12.5	11.5	11.5	11.5	10.4
57.5°	10.4	11.5	11.5	11.5	11.5	11.5	11.5	10.4	10.4	9.4	9.4
60°	10.4	10.4	10.4	11.5	11.5	10.4	10.4	9.4	9.4	8.3	8.3
62.5°	10.4	10.4	10.4	11.5	11.5	10.4	10.4	9.4	8.3	8.3	7.3
65°	10.4	11.5	10.4	11.5	11.5	10.4	10.4	9.4	8.3	8.3	7.3
67.5°	10.4	11.5	11.5	11.5	10.4	10.4	10.4	9.4	8.3	8.3	7.3
70°	9.4	10.4	10.4	10.4	10.4	10.4	9.4	9.4	8.3	8.3	7.3
72.5°	9.4	10.4	9.4	10.4	10.4	9.4	9.4	9.4	8.3	8.3	7.3
75°	9.4	9.4	9.4	9.4	9.4	9.4	9.4	8.3	8.3	7.3	7.3
77.5°	9.4	9.4	9.4	9.4	9.4	9.4	8.3	8.3	8.3	7.3	7.3
80°	9.4	9.4	9.4	9.4	9.4	9.4	8.3	8.3	7.3	7.3	6.3
82.5°	8.3	9.4	9.4	9.4	9.4	9.4	8.3	8.3	7.3	7.3	6.3
85°	8.3	8.3	8.3	8.3	8.3	8.3	7.3	7.3	6.3	5.2	5.2
87.5°	7.3	8.3	7.3	7.3	7.3	7.3	6.3	5.2	4.2	4.2	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: P179923

CATALOG NUMBER: LDA6A65940D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0	1377.0
2.5°	936.8	910.7	911.7	915.9	889.8	876.3	873.1	859.6
5°	563.3	533.1	527.8	523.7	487.2	472.6	461.1	475.7
7.5°	242.0	230.5	228.5	225.3	208.6	200.3	196.1	200.3
10°	120.0	112.7	113.7	114.7	109.5	106.4	105.4	104.3
12.5°	118.9	117.9	118.9	118.9	120.0	117.9	118.9	118.9
15°	154.4	154.4	157.5	159.6	164.8	163.8	165.9	168.0
17.5°	384.9	365.1	375.5	375.5	422.5	380.8	416.2	383.9
20°	1512.6	1583.5	1655.5	1716.0	1777.6	1796.3	1832.8	1822.4
22.5°	1341.5	1349.9	1339.4	1328.0	1324.8	1328.0	1271.6	1280.0
25°	575.8	571.7	555.0	537.2	542.4	546.6	526.8	508.0
27.5°	197.2	191.9	186.7	182.6	180.5	177.3	171.1	166.9
30°	111.6	108.5	106.4	105.4	103.3	101.2	98.1	96.0
32.5°	80.3	78.2	77.2	76.2	74.1	72.0	68.8	67.8
35°	59.5	57.4	56.3	55.3	53.2	51.1	50.1	49.0
37.5°	43.8	41.7	41.7	41.7	38.6	36.5	35.5	34.4
40°	33.4	32.3	32.3	32.3	30.3	29.2	28.2	28.2
42.5°	29.2	28.2	28.2	28.2	26.1	25.0	25.0	24.0
45°	21.9	20.9	20.9	19.8	18.8	18.8	17.7	16.7
47.5°	16.7	15.6	15.6	15.6	14.6	13.6	13.6	12.5
50°	13.6	13.6	12.5	13.6	11.5	11.5	11.5	10.4
52.5°	11.5	11.5	10.4	10.4	9.4	9.4	9.4	8.3
55°	10.4	9.4	9.4	9.4	8.3	8.3	8.3	7.3
57.5°	8.3	8.3	7.3	7.3	6.3	6.3	6.3	6.3
60°	7.3	7.3	6.3	6.3	5.2	5.2	5.2	5.2
62.5°	7.3	6.3	6.3	6.3	5.2	5.2	5.2	5.2
65°	7.3	6.3	6.3	6.3	5.2	5.2	5.2	5.2
67.5°	7.3	6.3	6.3	6.3	5.2	5.2	5.2	5.2
70°	7.3	7.3	6.3	6.3	6.3	5.2	5.2	5.2
72.5°	7.3	7.3	6.3	6.3	6.3	6.3	5.2	5.2
75°	6.3	6.3	6.3	6.3	5.2	5.2	5.2	5.2
77.5°	6.3	6.3	6.3	6.3	5.2	5.2	5.2	5.2
80°	6.3	6.3	5.2	5.2	5.2	5.2	5.2	5.2
82.5°	6.3	5.2	5.2	5.2	5.2	4.2	4.2	4.2
85°	4.2	4.2	4.2	4.2	3.1	3.1	3.1	3.1
87.5°	3.1	2.1	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)