

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: P179919

Luminaire Tested: **LDA6A65840D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179919
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: LDA6A65840D010TE LARH20SP 6LAL1LI 30°
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 20° Spot, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5677.9 lumens
Efficiency: N/A
Efficacy: 72.8 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

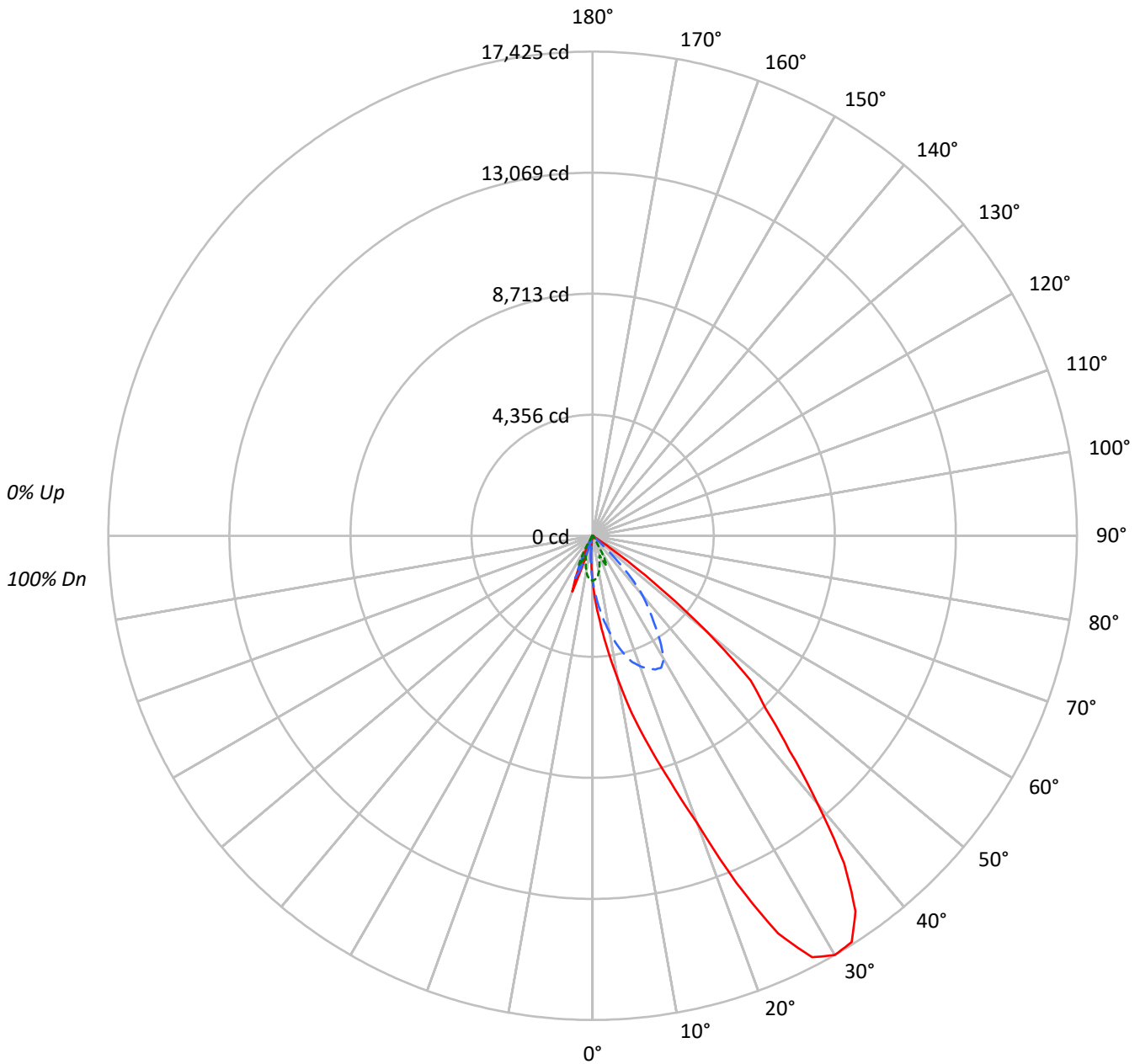
Input Watts (W): 78
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P179919

CATALOG NUMBER: LDA6A65840D010TE LARH20SP 6LAL1LI 30°

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	94	90	95	91	88	92	89	86	89	86	84	82																			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74																			
4	92	83	76	71	90	82	76	71	80	74	70	77	73	69	76	72	68	67																			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	70	65	62	60																			
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54																			
7	75	64	57	51	74	63	56	51	62	56	51	60	55	51	59	54	50	49																			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	61	50	43	38	49	43	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	88606	88606	88606
5°	173239	84228	30729
10°	291589	72316	6814
15°	444060	54762	11186
20°	641682	44361	124792
25°	954981	71768	36069
30°	1103030	24573	7134
35°	1103381	5488	3848
40°	901840	3070	2369
45°	682916	1992	1520
50°	453529	1356	1040
55°	72905	1166	822
60°	4561	1206	669
65°	1427	1583	791
70°	785	1763	978
75°	508	2076	1292
80°	379	3094	1926
85°	755	6164	2327



TEST NUMBER: P179919

CATALOG NUMBER: LDA6A65840D010TE LARH20SP 6LAL1LI 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	168.7	3.0
10°-20°	721.4	12.7
20°-30°	1698.2	29.9
30°-40°	1789.3	31.5
40°-50°	1115.7	19.6
50°-60°	160.3	2.8
60°-70°	10.2	0.2
70°-80°	8.0	0.1
80°-90°	6.0	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°	2588.3	45.6
0°-40°	4377.6	77.1
0°-60°	5653.6	99.6
0°-90°	5677.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5677.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1616	1616	1616	1616	1616	
5°	3148	2548	1531	795	558	365
15°	7824	4429	965	168	197	2330
25°	15788	5309	1186	858	596	7104
35°	16487	3889	82	76	58	9945
45°	8809	1076	26	28	20	6894
55°	763	20	12	14	9	1371
65°	11	9	12	10	6	16
75°	2	6	10	10	6	3
85°	1	6	10	7	4	1
90°	0	0	0	0	0	



TEST NUMBER: P179919

CATALOG NUMBER: LDA6A65840D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3
2.5°	2359.5	2343.6	2348.5	2311.8	2262.8	2284.8	2229.7	2231.0	2196.7	2109.7	2071.8
5°	3148.1	3145.6	3142.0	3074.6	2987.7	2997.5	2916.7	2886.0	2797.9	2644.8	2548.1
7.5°	4127.6	4128.9	4110.5	3946.4	3849.7	3843.6	3716.2	3624.4	3460.3	3219.1	3042.8
10°	5238.2	5272.5	5239.4	4987.2	4807.2	4809.7	4580.7	4404.4	4141.1	3789.7	3538.7
12.5°	6542.3	6547.2	6495.7	6163.9	5889.6	5868.8	5561.5	5224.8	4824.4	4365.2	4000.3
15°	7824.3	7858.6	7792.4	7383.5	7001.4	6943.9	6552.1	6107.6	5610.5	4930.9	4428.9
17.5°	9245.9	9192.0	9016.9	8431.6	7972.4	7887.9	7466.7	6885.1	6250.9	5429.2	4770.5
20°	10999.3	11017.7	10646.7	9772.4	8996.1	8666.7	8178.1	7541.4	6750.4	5795.4	4998.2
22.5°	13504.5	13405.4	12609.5	11195.2	10028.3	9588.7	8892.0	8014.1	7123.9	6073.3	5168.4
25°	15788.1	15527.3	14793.9	12848.2	11021.3	10477.7	9756.5	8416.9	7433.7	6279.0	5309.2
27.5°	17099.5	16983.2	16151.8	14189.0	11823.4	11058.1	10043.0	8713.2	7617.3	6380.6	5349.7
30°	17425.2	17446.1	16706.5	14633.5	12013.1	11138.9	10089.5	8704.7	7493.7	6199.4	5117.0
32.5°	17342.0	17229.3	16304.9	14142.5	11507.4	10711.5	9634.0	8315.3	7001.4	5659.4	4537.8
35°	16487.3	16322.0	15184.5	12865.4	10649.1	9875.2	8898.1	7677.3	6314.5	4971.3	3888.9
37.5°	14861.2	14670.2	13357.6	11332.3	9619.3	8964.2	8119.4	6967.2	5620.3	4329.7	3318.3
40°	12602.1	12364.6	11267.5	9863.0	8512.4	8054.5	7340.6	6156.6	4900.3	3722.3	2791.8
42.5°	10489.9	10376.0	9717.3	8512.4	7602.7	7160.6	6440.6	5338.6	4182.7	3101.5	2066.9
45°	8808.7	8732.8	8295.7	7530.4	6607.2	6193.3	5515.0	4439.9	3182.4	2088.9	1076.3
47.5°	7710.4	7516.9	7089.6	6286.4	5260.3	4744.8	4098.3	2925.2	1795.1	925.7	330.6
50°	5317.8	5336.2	4853.7	3968.5	3095.4	2659.5	2196.7	1345.7	593.9	202.0	57.5
52.5°	2800.3	2593.4	2254.2	1683.6	1171.8	893.9	652.6	269.4	107.8	40.4	30.6
55°	762.8	669.8	535.1	378.4	204.5	143.3	94.3	50.2	35.5	28.2	19.6
57.5°	74.7	71.0	64.9	52.7	45.3	41.6	38.0	30.6	24.5	17.1	12.2
60°	41.6	40.4	38.0	33.1	29.4	26.9	24.5	20.8	14.7	11.0	9.8
62.5°	23.3	22.0	20.8	18.4	15.9	14.7	14.7	12.2	9.8	8.6	8.6
65°	11.0	11.0	11.0	11.0	11.0	9.8	8.6	8.6	8.6	8.6	8.6
67.5°	8.6	8.6	8.6	7.3	7.3	7.3	7.3	7.3	7.3	6.1	7.3
70°	4.9	4.9	6.1	4.9	4.9	4.9	4.9	4.9	4.9	4.9	6.1
72.5°	2.4	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.9	4.9	6.1
75°	2.4	2.4	2.4	2.4	3.7	3.7	3.7	3.7	4.9	4.9	6.1
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.7	3.7	4.9	4.9	6.1
80°	1.2	1.2	1.2	2.4	2.4	2.4	2.4	3.7	4.9	4.9	6.1
82.5°	1.2	1.2	1.2	1.2	2.4	2.4	2.4	3.7	4.9	4.9	6.1
85°	1.2	1.2	1.2	1.2	2.4	2.4	2.4	3.7	3.7	4.9	6.1
87.5°	0.0	0.0	1.2	1.2	2.4	2.4	2.4	3.7	3.7	4.9	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



TEST NUMBER: P179919

CATALOG NUMBER: LDA6A65840D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3
2.5°	2032.6	1972.6	1912.6	1852.6	1850.2	1814.6	1762.0	1692.2	1634.6	1585.7	1537.9
5°	2451.4	2327.7	2204.0	2080.4	2043.6	1979.9	1866.1	1737.5	1627.3	1530.6	1437.5
7.5°	2871.4	2663.2	2467.3	2273.8	2196.7	2099.9	1922.4	1736.3	1577.1	1435.1	1296.7
10°	3246.0	2943.6	2668.1	2396.3	2284.8	2158.7	1919.9	1683.6	1481.6	1299.1	1122.8
12.5°	3591.3	3170.1	2821.1	2478.3	2326.5	2173.4	1882.0	1600.4	1359.1	1141.2	937.9
15°	3895.0	3378.3	2928.9	2515.0	2328.9	2145.2	1802.4	1485.3	1214.7	964.9	744.5
17.5°	4111.7	3482.4	2964.4	2482.0	2265.2	2059.5	1684.9	1345.7	1054.3	793.4	580.4
20°	4244.0	3525.2	2946.0	2420.8	2190.6	1977.5	1597.9	1268.5	985.7	760.4	615.9
22.5°	4330.9	3566.8	2953.4	2419.5	2189.3	1988.5	1634.6	1326.1	1095.9	974.7	957.5
25°	4424.0	3625.6	3007.3	2474.6	2260.3	2074.2	1731.4	1430.2	1237.9	1186.5	1193.8
27.5°	4419.1	3599.9	2955.8	2426.9	2201.6	2013.0	1611.4	1230.6	1050.6	906.1	853.4
30°	4155.8	3302.4	2605.6	2013.0	1747.3	1515.9	986.9	641.6	443.3	388.2	333.1
32.5°	3539.9	2675.4	1948.1	1392.2	1093.4	816.7	388.2	205.7	175.1	146.9	133.5
35°	2943.6	2133.0	1457.1	841.2	531.4	329.4	139.6	91.8	86.9	82.0	82.0
37.5°	2433.0	1675.1	941.6	355.1	194.7	118.8	67.3	61.2	58.8	57.5	57.5
40°	1902.8	1092.2	407.7	117.5	62.4	53.9	47.8	45.3	44.1	42.9	44.1
42.5°	1122.8	439.6	118.8	44.1	41.6	39.2	35.5	34.3	34.3	33.1	34.3
45°	382.0	113.9	39.2	31.8	29.4	29.4	26.9	26.9	26.9	25.7	28.2
47.5°	99.2	35.5	25.7	23.3	22.0	22.0	20.8	20.8	20.8	20.8	22.0
50°	34.3	23.3	18.4	17.1	15.9	17.1	15.9	15.9	15.9	15.9	17.1
52.5°	20.8	15.9	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
55°	13.5	12.2	11.0	11.0	11.0	11.0	11.0	12.2	12.2	12.2	12.2
57.5°	11.0	9.8	9.8	9.8	9.8	9.8	11.0	9.8	9.8	11.0	12.2
60°	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	11.0	11.0	12.2
62.5°	8.6	9.8	9.8	9.8	9.8	9.8	9.8	11.0	11.0	11.0	12.2
65°	8.6	8.6	8.6	9.8	9.8	9.8	11.0	11.0	11.0	12.2	12.2
67.5°	7.3	7.3	8.6	8.6	9.8	9.8	9.8	11.0	11.0	11.0	12.2
70°	7.3	7.3	7.3	8.6	8.6	8.6	8.6	9.8	9.8	11.0	11.0
72.5°	6.1	7.3	7.3	8.6	8.6	8.6	8.6	9.8	9.8	9.8	11.0
75°	6.1	7.3	7.3	8.6	8.6	8.6	8.6	8.6	9.8	9.8	11.0
77.5°	6.1	7.3	7.3	8.6	8.6	8.6	8.6	9.8	9.8	9.8	11.0
80°	6.1	7.3	7.3	8.6	8.6	8.6	8.6	9.8	9.8	9.8	9.8
82.5°	6.1	7.3	7.3	8.6	8.6	8.6	8.6	9.8	9.8	9.8	9.8
85°	6.1	7.3	7.3	8.6	8.6	8.6	8.6	8.6	9.8	9.8	9.8
87.5°	6.1	7.3	7.3	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
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: P179919

CATALOG NUMBER: LDA6A65840D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3
2.5°	1471.8	1451.0	1377.5	1367.7	1355.5	1295.5	1271.0	1229.4	1170.6	1153.4	1132.6
5°	1328.5	1260.0	1152.2	1122.8	1091.0	996.7	939.2	870.6	794.7	753.0	713.9
7.5°	1146.1	1050.6	907.3	849.8	814.3	711.4	619.6	527.7	416.3	352.6	312.2
10°	942.8	811.8	662.4	596.3	548.6	399.2	312.2	271.8	233.9	203.3	176.3
12.5°	738.3	590.2	421.2	345.3	307.3	254.7	206.9	156.7	139.6	138.4	133.5
15°	541.2	375.9	284.1	255.9	229.0	164.1	162.9	162.9	167.8	171.4	172.6
17.5°	399.2	330.6	259.6	242.4	254.7	264.5	281.6	307.3	328.2	386.9	374.7
20°	585.3	580.4	633.0	700.4	748.1	849.8	978.3	1124.1	1275.9	1444.9	1573.4
22.5°	1004.1	1126.5	1222.0	1302.8	1345.7	1460.8	1562.4	1612.6	1642.0	1627.3	1606.5
25°	1226.9	1271.0	1241.6	1213.4	1217.1	1113.0	1037.1	940.4	858.3	783.7	739.6
27.5°	733.4	671.0	582.8	521.6	509.4	439.6	388.2	334.3	318.4	269.4	248.6
30°	264.5	246.1	218.0	195.9	193.5	175.1	164.1	151.8	150.6	139.6	133.5
32.5°	120.0	120.0	110.2	112.7	110.2	106.5	105.3	101.6	101.6	98.0	95.5
35°	78.4	79.6	78.4	78.4	77.1	77.1	77.1	74.7	75.9	73.5	69.8
37.5°	57.5	58.8	56.3	57.5	57.5	57.5	57.5	56.3	55.1	52.7	51.4
40°	44.1	44.1	44.1	44.1	44.1	44.1	44.1	42.9	42.9	41.6	39.2
42.5°	34.3	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	34.3	34.3
45°	28.2	29.4	28.2	29.4	29.4	29.4	28.2	28.2	28.2	26.9	25.7
47.5°	22.0	22.0	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	19.6
50°	17.1	17.1	17.1	17.1	17.1	17.1	18.4	17.1	17.1	17.1	17.1
52.5°	13.5	14.7	14.7	15.9	15.9	15.9	15.9	15.9	14.7	14.7	13.5
55°	12.2	13.5	13.5	14.7	14.7	14.7	14.7	13.5	13.5	13.5	12.2
57.5°	12.2	13.5	13.5	13.5	13.5	13.5	13.5	12.2	12.2	11.0	11.0
60°	12.2	12.2	12.2	13.5	13.5	12.2	12.2	11.0	11.0	9.8	9.8
62.5°	12.2	12.2	12.2	13.5	13.5	12.2	12.2	11.0	9.8	9.8	8.6
65°	12.2	13.5	12.2	13.5	13.5	12.2	12.2	11.0	9.8	9.8	8.6
67.5°	12.2	13.5	13.5	13.5	12.2	12.2	12.2	11.0	9.8	9.8	8.6
70°	11.0	12.2	12.2	12.2	12.2	12.2	11.0	11.0	9.8	9.8	8.6
72.5°	11.0	12.2	11.0	12.2	12.2	11.0	11.0	11.0	9.8	9.8	8.6
75°	11.0	11.0	11.0	11.0	11.0	11.0	11.0	9.8	9.8	8.6	8.6
77.5°	11.0	11.0	11.0	11.0	11.0	11.0	9.8	9.8	9.8	8.6	8.6
80°	11.0	11.0	11.0	11.0	11.0	11.0	9.8	9.8	8.6	8.6	7.3
82.5°	9.8	11.0	11.0	11.0	11.0	11.0	9.8	9.8	8.6	8.6	7.3
85°	9.8	9.8	9.8	9.8	9.8	9.8	8.6	8.6	7.3	6.1	6.1
87.5°	8.6	9.8	8.6	8.6	8.6	8.6	7.3	6.1	4.9	4.9	3.7
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: P179919

CATALOG NUMBER: LDA6A65840D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3	1616.3
2.5°	1099.6	1069.0	1070.2	1075.1	1044.5	1028.5	1024.9	1009.0
5°	661.2	625.7	619.6	614.7	571.8	554.7	541.2	558.4
7.5°	284.1	270.6	268.2	264.5	244.9	235.1	230.2	235.1
10°	140.8	132.2	133.5	134.7	128.6	124.9	123.7	122.4
12.5°	139.6	138.4	139.6	139.6	140.8	138.4	139.6	139.6
15°	181.2	181.2	184.9	187.3	193.5	192.2	194.7	197.1
17.5°	451.8	428.6	440.8	440.8	495.9	446.9	488.6	450.6
20°	1775.5	1858.7	1943.2	2014.2	2086.5	2108.5	2151.4	2139.1
22.5°	1574.7	1584.4	1572.2	1558.7	1555.1	1558.7	1492.6	1502.4
25°	675.9	671.0	651.4	630.6	636.7	641.6	618.4	596.3
27.5°	231.4	225.3	219.2	214.3	211.8	208.2	200.8	195.9
30°	131.0	127.3	124.9	123.7	121.2	118.8	115.1	112.7
32.5°	94.3	91.8	90.6	89.4	86.9	84.5	80.8	79.6
35°	69.8	67.3	66.1	64.9	62.4	60.0	58.8	57.5
37.5°	51.4	49.0	49.0	49.0	45.3	42.9	41.6	40.4
40°	39.2	38.0	38.0	38.0	35.5	34.3	33.1	33.1
42.5°	34.3	33.1	33.1	33.1	30.6	29.4	29.4	28.2
45°	25.7	24.5	24.5	23.3	22.0	22.0	20.8	19.6
47.5°	19.6	18.4	18.4	18.4	17.1	15.9	15.9	14.7
50°	15.9	15.9	14.7	15.9	13.5	13.5	13.5	12.2
52.5°	13.5	13.5	12.2	12.2	11.0	11.0	11.0	9.8
55°	12.2	11.0	11.0	11.0	9.8	9.8	9.8	8.6
57.5°	9.8	9.8	8.6	8.6	7.3	7.3	7.3	7.3
60°	8.6	8.6	7.3	7.3	6.1	6.1	6.1	6.1
62.5°	8.6	7.3	7.3	7.3	6.1	6.1	6.1	6.1
65°	8.6	7.3	7.3	7.3	6.1	6.1	6.1	6.1
67.5°	8.6	7.3	7.3	7.3	6.1	6.1	6.1	6.1
70°	8.6	8.6	7.3	7.3	7.3	6.1	6.1	6.1
72.5°	8.6	8.6	7.3	7.3	7.3	7.3	6.1	6.1
75°	7.3	7.3	7.3	7.3	6.1	6.1	6.1	6.1
77.5°	7.3	7.3	7.3	7.3	6.1	6.1	6.1	6.1
80°	7.3	7.3	6.1	6.1	6.1	6.1	6.1	6.1
82.5°	7.3	6.1	6.1	6.1	6.1	4.9	4.9	4.9
85°	4.9	4.9	4.9	4.9	3.7	3.7	3.7	3.7
87.5°	3.7	2.4	2.4	2.4	1.2	1.2	1.2	1.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - - 90°-270°













(END OF REPORT)