

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: P179870

Luminaire Tested: **LDA6A65835D010TE LARH20SP 6LA1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179870
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: LDA6A65835D010TE LARH20SP 6LA1LI 30°
Description: PORTFOLIO 6" Adjustable Reflector, Angle-cut Trim, Self-flanged, 20° Spot, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6006.2 lumens
Efficiency: N/A
Efficacy: 77.0 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

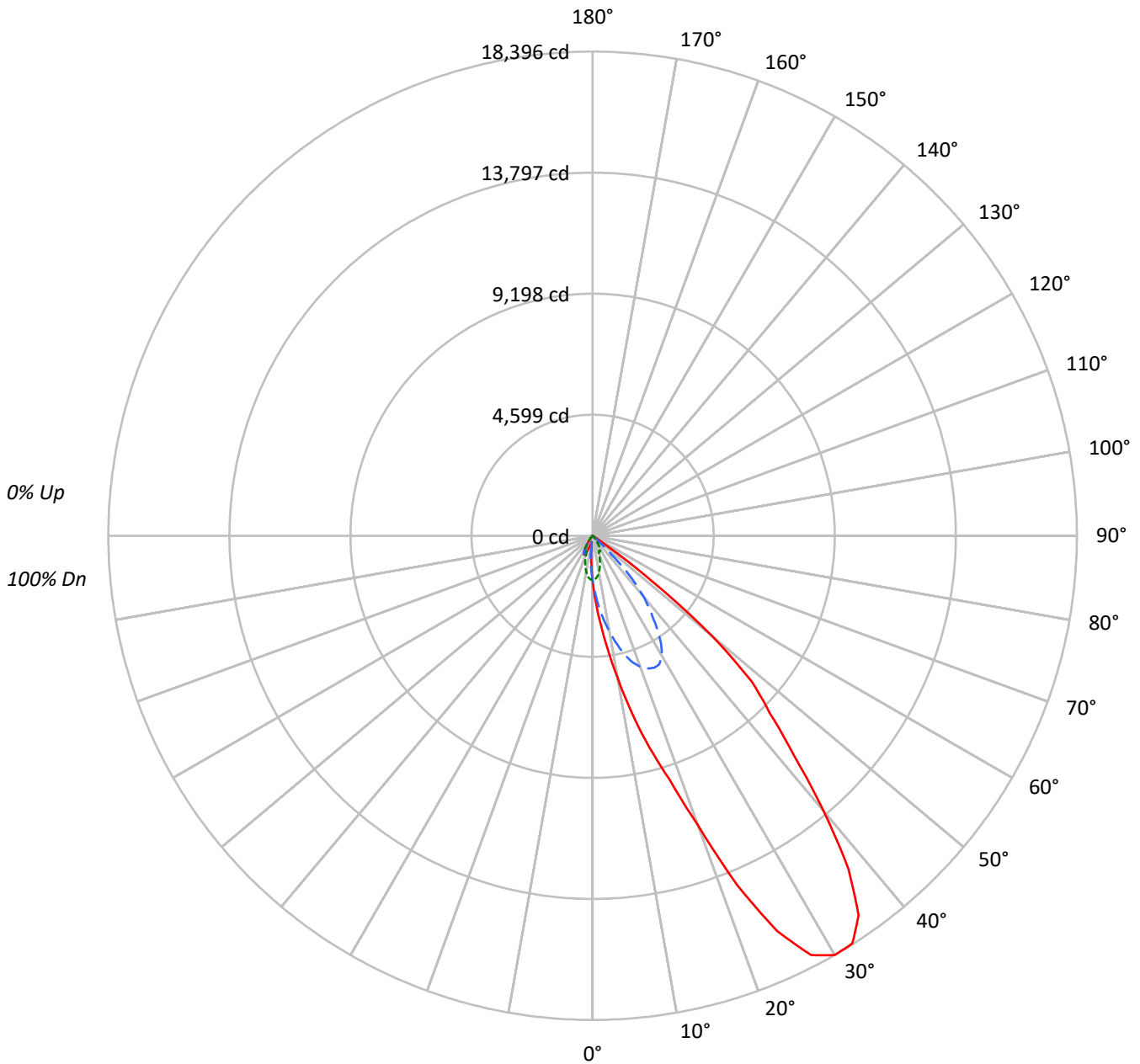
Input Watts (W): 78
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	45	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°	92953	92953	92953
5°	180112	88581	29876
10°	306006	77515	13415
15°	471535	61828	21334
20°	682600	40236	37103
25°	1001495	38833	47706
30°	1164477	36784	36556
35°	1178649	19481	19327
40°	975835	7342	8115
45°	737007	2496	2962
50°	504239	913	913
55°	70134	803	115
60°	1831	789	0
65°	467	1090	0
70°	192	1346	0
75°	0	1779	0
80°	0	2999	379
85°	0	5975	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	177.9	3.0
10°-20°	751.9	12.5
20°-30°	1715.3	28.6
30°-40°	1985.0	33.0
40°-50°	1197.1	19.9
50°-60°	162.7	2.7
60°-70°	5.3	0.1
70°-80°	5.7	0.1
80°-90°	5.3	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°	2645.1	44.0
0°-40°	4630.1	77.1
0°-60°	5989.9	99.7
0°-90°	6006.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6006.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1696	1696	1696	1696	1696	
5°	3273	2680	1610	881	543	381
15°	8308	4670	1089	335	376	2460
25°	16557	5534	642	772	789	7493
35°	17612	4219	291	297	289	10614
45°	9506	1149	32	39	38	7433
55°	734	8	8	6	1	1439
65°	4	5	8	5	0	5
75°	0	6	8	6	0	0
85°	0	6	10	6	0	0
90°	0	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°	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6
2.5°	2452.1	2429.4	2438.9	2413.9	2350.6	2337.5	2336.3	2319.6	2265.9	2224.2	2174.0
5°	3273.0	3271.8	3277.8	3224.1	3113.1	3078.5	3061.8	3021.2	2891.2	2790.9	2680.0
7.5°	4298.0	4290.8	4283.7	4185.8	4011.6	3944.8	3901.8	3755.1	3576.1	3398.3	3200.2
10°	5497.2	5493.6	5466.1	5294.3	5015.1	4892.2	4808.7	4576.0	4288.4	4035.5	3699.0
12.5°	6889.7	6857.4	6808.5	6556.8	6173.7	6040.1	5856.3	5487.6	5046.1	4658.3	4188.2
15°	8308.4	8261.9	8174.8	7851.4	7376.5	7148.6	6920.7	6435.0	5836.0	5272.8	4670.3
17.5°	9696.1	9644.8	9440.8	8891.9	8427.7	8149.7	7896.7	7229.7	6525.7	5801.4	5037.8
20°	11700.7	11514.6	11159.0	10293.9	9431.2	8930.1	8634.2	7929.0	7057.9	6214.3	5299.1
22.5°	14378.3	13965.5	13207.8	11802.2	10569.6	9846.5	9362.0	8424.1	7440.9	6484.0	5460.2
25°	16557.1	16369.8	15508.3	13508.5	11585.0	10733.0	10058.9	8817.9	7720.1	6664.1	5534.2
27.5°	17961.6	17915.0	16930.6	14921.2	12414.3	11296.2	10543.3	9078.0	7855.0	6702.3	5498.4
30°	18395.9	18468.7	17523.7	15400.9	12654.1	11409.6	10586.3	9081.6	7751.2	6529.3	5269.3
32.5°	18363.7	18367.3	17208.6	14986.9	12263.9	11080.3	10228.3	8779.7	7368.1	6096.2	4833.7
35°	17612.0	17427.0	16116.8	13714.9	11355.9	10311.8	9519.5	8195.0	6736.9	5444.7	4219.2
37.5°	15961.7	15719.5	14192.2	12086.1	10280.8	9315.5	8675.9	7427.8	5985.2	4749.0	3584.4
40°	13636.1	13292.5	12032.4	10571.9	9104.3	8378.8	7841.9	6569.9	5181.0	4066.5	2989.0
42.5°	11308.2	11139.9	10307.0	9119.8	8115.1	7432.6	6871.8	5671.4	4407.8	3393.5	2236.1
45°	9506.4	9362.0	8802.4	8019.6	7034.0	6411.2	5870.7	4734.7	3424.5	2276.7	1149.1
47.5°	8193.9	8076.9	7541.2	6719.0	5638.0	4956.6	4399.4	3104.8	1940.2	983.2	287.6
50°	5912.4	5793.1	5268.1	4315.9	3339.8	2769.5	2368.5	1386.5	550.1	199.3	29.8
52.5°	2898.3	2800.5	2443.7	1829.2	1227.8	883.0	645.5	260.1	63.2	21.5	14.3
55°	733.8	674.2	562.0	353.2	173.0	103.8	66.8	23.9	15.5	11.9	8.4
57.5°	41.8	40.6	37.0	27.4	20.3	17.9	15.5	11.9	8.4	7.2	6.0
60°	16.7	15.5	14.3	11.9	9.5	8.4	8.4	6.0	4.8	4.8	4.8
62.5°	7.2	7.2	7.2	6.0	4.8	4.8	4.8	3.6	4.8	4.8	4.8
65°	3.6	3.6	3.6	2.4	2.4	2.4	3.6	3.6	3.6	4.8	4.8
67.5°	2.4	1.2	1.2	1.2	2.4	2.4	2.4	3.6	3.6	4.8	4.8
70°	1.2	1.2	1.2	1.2	2.4	2.4	2.4	3.6	3.6	4.8	6.0
72.5°	0.0	1.2	1.2	1.2	2.4	2.4	2.4	3.6	3.6	4.8	6.0
75°	0.0	1.2	1.2	1.2	2.4	2.4	2.4	3.6	4.8	4.8	6.0
77.5°	0.0	1.2	1.2	1.2	2.4	2.4	2.4	3.6	4.8	4.8	6.0
80°	0.0	1.2	1.2	1.2	2.4	2.4	2.4	3.6	4.8	4.8	6.0
82.5°	0.0	0.0	1.2	1.2	2.4	2.4	2.4	3.6	4.8	4.8	6.0
85°	0.0	0.0	1.2	1.2	2.4	2.4	2.4	3.6	4.8	4.8	6.0
87.5°	0.0	0.0	1.2	1.2	2.4	2.4	2.4	3.6	3.6	4.8	6.0
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°	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6
2.5°	2109.6	2066.7	2003.4	1961.7	1921.1	1882.9	1819.7	1783.9	1719.4	1659.8	1608.5
5°	2546.3	2438.9	2308.9	2197.9	2126.3	2055.9	1928.2	1834.0	1715.9	1609.7	1511.8
7.5°	2987.8	2798.1	2584.5	2402.0	2291.0	2182.4	1991.5	1838.8	1671.7	1520.2	1375.8
10°	3388.7	3103.6	2801.7	2540.4	2390.0	2249.2	1997.5	1794.6	1579.8	1392.5	1211.1
12.5°	3761.0	3370.9	2977.1	2635.8	2449.7	2280.2	1972.4	1724.2	1468.9	1246.9	1035.7
15°	4092.7	3591.6	3104.8	2690.7	2472.4	2271.9	1913.9	1625.2	1337.6	1089.4	822.1
17.5°	4344.5	3728.8	3160.8	2682.4	2431.8	2208.7	1813.7	1501.1	1198.0	897.3	595.4
20°	4497.3	3787.3	3148.9	2617.9	2344.7	2108.4	1694.4	1366.2	1029.8	689.7	525.0
22.5°	4561.7	3782.5	3092.8	2521.3	2237.3	1998.6	1579.8	1235.0	853.2	624.1	547.7
25°	4572.4	3733.6	3014.1	2415.1	2131.1	1893.6	1464.1	1085.8	741.0	642.0	613.3
27.5°	4490.1	3619.0	2866.1	2262.3	1981.9	1736.1	1291.1	862.7	695.6	639.6	658.7
30°	4246.7	3357.7	2604.8	1993.9	1723.0	1477.2	922.4	676.6	577.5	581.1	585.9
32.5°	3818.3	2923.4	2184.8	1601.3	1305.4	973.7	573.9	452.2	439.1	439.1	436.7
35°	3246.8	2392.4	1714.7	1013.0	649.1	467.7	297.1	298.3	292.3	291.1	290.0
37.5°	2656.1	1887.7	1085.8	418.8	281.6	195.7	175.4	177.8	175.4	179.0	176.6
40°	2094.1	1165.8	396.1	133.6	99.0	95.5	97.8	100.2	100.2	102.6	102.6
42.5°	1217.1	386.6	103.8	53.7	53.7	51.3	52.5	54.9	56.1	57.3	56.1
45°	361.5	79.9	33.4	29.8	29.8	28.6	28.6	29.8	31.0	32.2	32.2
47.5°	57.3	22.7	19.1	16.7	16.7	16.7	16.7	16.7	17.9	17.9	19.1
50°	17.9	14.3	11.9	10.7	10.7	9.5	9.5	10.7	10.7	10.7	11.9
52.5°	10.7	8.4	8.4	7.2	8.4	8.4	7.2	8.4	8.4	8.4	9.5
55°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	8.4	8.4	8.4
57.5°	6.0	6.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
60°	6.0	6.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	8.4
62.5°	6.0	6.0	7.2	7.2	7.2	7.2	7.2	7.2	8.4	8.4	8.4
65°	6.0	6.0	7.2	7.2	7.2	7.2	7.2	8.4	8.4	8.4	8.4
67.5°	6.0	7.2	7.2	7.2	7.2	8.4	8.4	8.4	8.4	8.4	8.4
70°	6.0	7.2	7.2	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
72.5°	6.0	7.2	7.2	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
75°	7.2	7.2	7.2	8.4	8.4	8.4	8.4	8.4	8.4	8.4	9.5
77.5°	7.2	7.2	8.4	8.4	8.4	8.4	8.4	8.4	9.5	9.5	9.5
80°	7.2	7.2	8.4	8.4	8.4	8.4	8.4	9.5	9.5	9.5	9.5
82.5°	7.2	7.2	8.4	8.4	8.4	8.4	8.4	9.5	9.5	9.5	9.5
85°	7.2	7.2	8.4	8.4	8.4	8.4	8.4	9.5	9.5	9.5	9.5
87.5°	7.2	7.2	8.4	8.4	8.4	8.4	8.4	9.5	9.5	9.5	9.5
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°	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6
2.5°	1564.3	1509.4	1483.2	1446.2	1419.9	1361.5	1337.6	1297.0	1263.6	1208.7	1212.3
5°	1428.3	1324.5	1254.1	1199.2	1161.0	1067.9	1005.9	940.3	880.6	806.6	779.2
7.5°	1239.8	1112.1	1004.7	939.1	890.1	766.0	628.8	521.4	440.3	381.8	359.2
10°	1051.2	885.4	714.7	613.3	542.9	423.6	362.7	334.1	307.9	275.6	254.2
12.5°	831.7	595.4	440.3	399.7	371.1	331.7	292.3	261.3	267.3	268.5	276.8
15°	568.0	428.4	379.4	352.0	321.0	298.3	311.4	319.8	335.3	336.5	347.2
17.5°	461.8	402.1	362.7	361.5	363.9	377.1	397.3	408.1	428.4	433.1	448.7
20°	461.8	427.2	460.6	460.6	466.5	484.4	510.7	526.2	548.9	557.2	576.3
22.5°	526.2	550.1	591.8	596.6	599.0	618.1	651.5	667.0	693.3	698.0	718.3
25°	642.0	663.4	701.6	705.2	706.4	720.7	745.8	754.1	772.0	762.5	774.4
27.5°	678.9	688.5	712.4	714.7	708.8	714.7	724.3	724.3	730.3	711.2	714.7
30°	596.6	599.0	610.9	612.1	599.0	601.4	602.6	601.4	600.2	579.9	579.9
32.5°	442.7	442.7	458.2	454.6	440.3	443.9	443.9	443.9	442.7	426.0	423.6
35°	293.5	294.7	307.9	305.5	294.7	297.1	297.1	300.7	297.1	287.6	285.2
37.5°	179.0	180.2	186.1	187.3	183.8	184.9	186.1	184.9	187.3	182.6	180.2
40°	103.8	106.2	111.0	112.2	111.0	111.0	112.2	113.4	118.1	112.2	109.8
42.5°	60.9	62.0	64.4	64.4	64.4	64.4	65.6	66.8	68.0	66.8	65.6
45°	34.6	35.8	37.0	37.0	38.2	37.0	38.2	38.2	39.4	38.2	38.2
47.5°	20.3	20.3	21.5	21.5	22.7	21.5	22.7	22.7	22.7	21.5	21.5
50°	11.9	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	11.9	11.9
52.5°	9.5	9.5	9.5	9.5	9.5	8.4	8.4	8.4	8.4	7.2	7.2
55°	8.4	8.4	8.4	8.4	8.4	8.4	7.2	6.0	6.0	4.8	4.8
57.5°	7.2	8.4	8.4	8.4	8.4	7.2	7.2	6.0	4.8	3.6	3.6
60°	8.4	8.4	8.4	8.4	7.2	7.2	7.2	6.0	4.8	3.6	3.6
62.5°	8.4	8.4	8.4	8.4	8.4	7.2	7.2	6.0	4.8	3.6	3.6
65°	8.4	8.4	8.4	8.4	8.4	7.2	7.2	6.0	4.8	3.6	3.6
67.5°	8.4	8.4	8.4	8.4	8.4	7.2	7.2	6.0	4.8	4.8	3.6
70°	8.4	9.5	9.5	8.4	8.4	8.4	7.2	6.0	6.0	4.8	3.6
72.5°	8.4	9.5	9.5	8.4	8.4	8.4	7.2	6.0	6.0	4.8	3.6
75°	9.5	9.5	9.5	9.5	8.4	8.4	7.2	7.2	6.0	4.8	3.6
77.5°	9.5	9.5	9.5	9.5	8.4	8.4	7.2	7.2	6.0	4.8	3.6
80°	9.5	9.5	9.5	9.5	9.5	8.4	8.4	7.2	6.0	4.8	4.8
82.5°	9.5	9.5	9.5	9.5	9.5	8.4	8.4	7.2	6.0	4.8	4.8
85°	9.5	9.5	9.5	9.5	9.5	8.4	8.4	7.2	6.0	4.8	3.6
87.5°	9.5	9.5	9.5	9.5	8.4	8.4	7.2	7.2	6.0	4.8	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



TEST NUMBER: P179870

CATALOG NUMBER: LDA6A65835D010TE LARH20SP 6LA1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6	1695.6
2.5°	1168.2	1140.7	1128.8	1147.9	1138.3	1109.7	1115.7	1097.8
5°	696.8	655.1	628.8	640.8	602.6	568.0	568.0	542.9
7.5°	336.5	323.4	316.2	318.6	310.2	299.5	293.5	293.5
10°	236.3	231.5	232.7	232.7	239.8	238.6	242.2	241.0
12.5°	280.4	282.8	284.0	288.8	294.7	294.7	298.3	295.9
15°	359.2	356.8	363.9	365.1	374.7	375.9	380.6	375.9
17.5°	457.0	461.8	468.9	467.7	486.8	488.0	488.0	486.8
20°	588.3	591.8	599.0	601.4	624.1	626.4	634.8	636.0
22.5°	731.4	731.4	735.0	739.8	761.3	762.5	766.0	766.0
25°	780.4	773.2	774.4	780.4	792.3	787.5	791.1	788.7
27.5°	717.1	706.4	704.0	712.4	720.7	707.6	712.4	712.4
30°	582.3	572.7	570.4	578.7	584.7	570.4	575.1	577.5
32.5°	426.0	420.0	418.8	424.8	429.6	417.6	422.4	426.0
35°	287.6	285.2	282.8	284.0	291.1	281.6	286.4	288.8
37.5°	182.6	177.8	179.0	181.4	186.1	180.2	184.9	184.9
40°	112.2	109.8	109.8	112.2	114.5	109.8	112.2	113.4
42.5°	65.6	65.6	65.6	66.8	68.0	65.6	65.6	66.8
45°	38.2	37.0	37.0	38.2	39.4	37.0	38.2	38.2
47.5°	21.5	20.3	20.3	21.5	21.5	20.3	21.5	21.5
50°	11.9	10.7	10.7	11.9	11.9	10.7	10.7	10.7
52.5°	6.0	6.0	6.0	6.0	6.0	6.0	4.8	4.8
55°	3.6	3.6	2.4	2.4	2.4	2.4	2.4	1.2
57.5°	2.4	2.4	1.2	1.2	1.2	1.2	0.0	0.0
60°	2.4	2.4	1.2	1.2	1.2	0.0	0.0	0.0
62.5°	2.4	2.4	1.2	1.2	1.2	0.0	0.0	0.0
65°	2.4	2.4	1.2	1.2	1.2	0.0	0.0	0.0
67.5°	2.4	2.4	1.2	1.2	1.2	0.0	0.0	0.0
70°	3.6	2.4	2.4	1.2	1.2	1.2	0.0	0.0
72.5°	3.6	2.4	2.4	2.4	1.2	1.2	0.0	0.0
75°	3.6	2.4	2.4	2.4	1.2	1.2	0.0	0.0
77.5°	3.6	2.4	2.4	2.4	1.2	1.2	1.2	0.0
80°	3.6	2.4	2.4	2.4	1.2	1.2	1.2	1.2
82.5°	3.6	2.4	2.4	2.4	1.2	1.2	1.2	1.2
85°	3.6	2.4	2.4	2.4	1.2	1.2	1.2	0.0
87.5°	3.6	2.4	2.4	2.4	1.2	1.2	1.2	0.0
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)