

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: P179918

Luminaire Tested: **LDA6A65835D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179918
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: LDA6A65835D010TE LARH20SP 6LAL1LI 30°
Description: PORTFOLIO 6" Lensed Adjustable, 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: 5532.5 lumens
Efficiency: N/A
Efficacy: 70.9 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

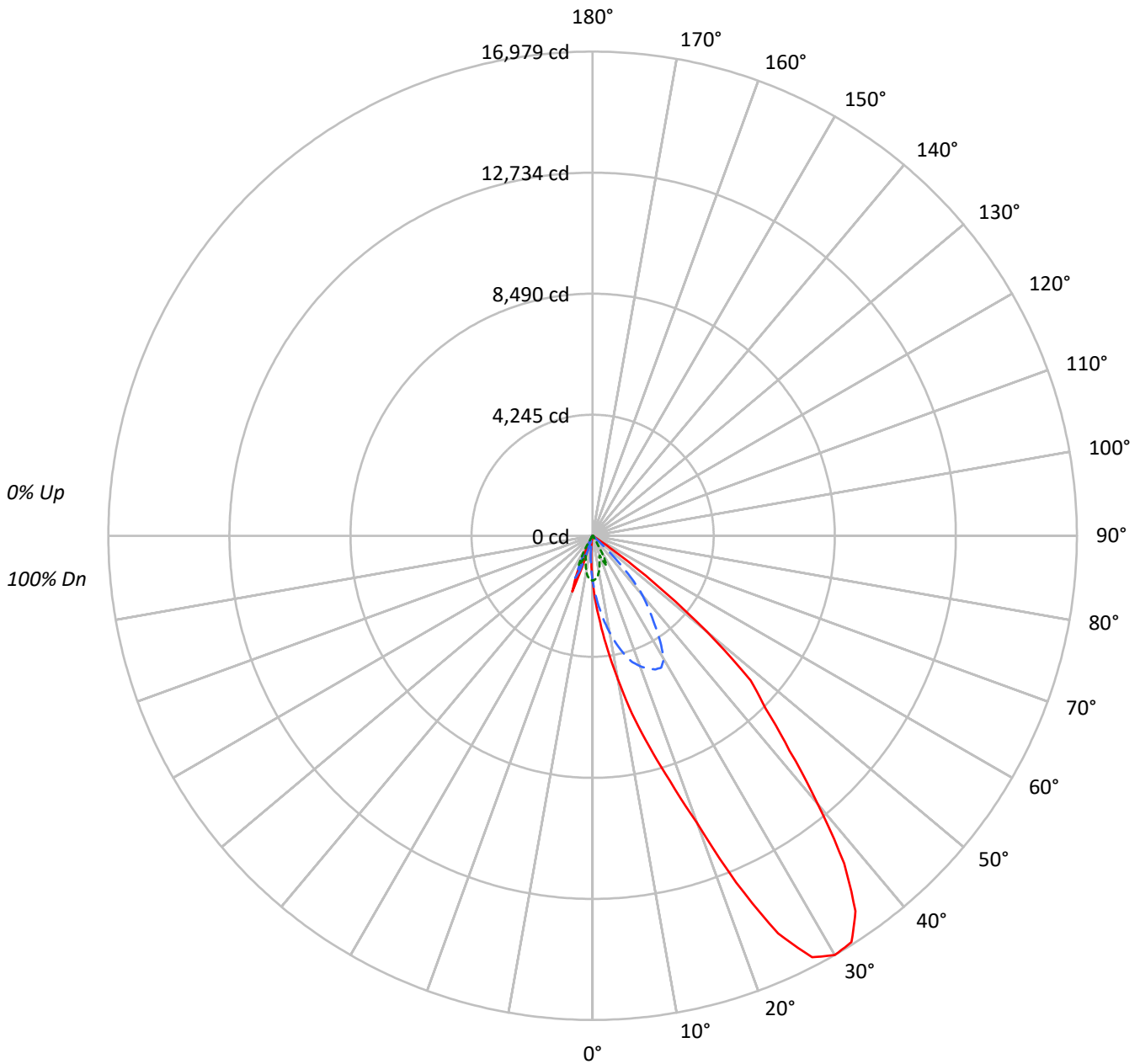
Input Watts (W): 78
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	86336	86336	86336
5°	168798	82071	29936
10°	284119	70467	6641
15°	432681	53360	10902
20°	625242	43223	121595
25°	930519	69929	35143
30°	1074773	23940	6950
35°	1075112	5347	3754
40°	878739	2991	2304
45°	665426	1946	1481
50°	441913	1322	1015
55°	71042	1137	803
60°	4451	1173	658
65°	1388	1544	778
70°	769	1715	962
75°	508	2012	1271
80°	379	2999	1894
85°	755	5975	2264



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	164.4	3.0
10°-20°	702.9	12.7
20°-30°	1654.7	29.9
30°-40°	1743.5	31.5
40°-50°	1087.1	19.6
50°-60°	156.2	2.8
60°-70°	10.0	0.2
70°-80°	7.8	0.1
80°-90°	5.9	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°	2522.0	45.6
0°-40°	4265.5	77.1
0°-60°	5508.8	99.6
0°-90°	5532.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5532.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1575	1575	1575	1575	1575	
5°	3067	2483	1491	774	544	356
15°	7624	4315	940	164	192	2270
25°	15384	5173	1156	836	581	6922
35°	16065	3789	80	74	56	9690
45°	8583	1049	25	27	19	6718
55°	743	19	12	13	8	1336
65°	11	8	12	10	6	16
75°	2	6	10	10	6	3
85°	1	6	10	7	4	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°	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9
2.5°	2299.1	2283.6	2288.3	2252.6	2204.8	2226.3	2172.6	2173.8	2140.4	2055.7	2018.7
5°	3067.4	3065.0	3061.5	2995.8	2911.1	2920.7	2841.9	2812.1	2726.2	2577.1	2482.8
7.5°	4021.9	4023.1	4005.2	3845.3	3751.1	3745.1	3621.0	3531.5	3371.7	3136.6	2964.8
10°	5104.0	5137.4	5105.2	4859.4	4684.1	4686.4	4463.3	4291.5	4035.0	3692.6	3448.0
12.5°	6374.7	6379.4	6329.3	6006.0	5738.8	5718.5	5419.0	5090.9	4700.8	4253.4	3897.8
15°	7623.8	7657.2	7592.8	7194.3	6822.1	6766.0	6384.2	5951.1	5466.7	4804.6	4315.4
17.5°	9009.0	8956.5	8785.9	8215.6	7768.2	7685.9	7275.5	6708.7	6090.7	5290.2	4648.3
20°	10717.5	10735.4	10373.9	9522.0	8765.6	8444.7	7968.6	7348.2	6577.5	5646.9	4870.2
22.5°	13158.6	13061.9	12286.4	10908.4	9771.4	9343.1	8664.2	7808.8	6941.4	5917.7	5036.0
25°	15383.7	15129.5	14414.9	12519.1	10739.0	10209.3	9506.5	8201.3	7243.2	6118.2	5173.2
27.5°	16661.5	16548.1	15738.0	13825.5	11520.5	10774.8	9785.7	8490.0	7422.2	6217.2	5212.6
30°	16978.8	16999.1	16278.5	14258.6	11705.4	10853.5	9831.0	8481.7	7301.7	6040.6	4985.9
32.5°	16897.7	16787.9	15887.2	13780.2	11212.6	10437.1	9387.2	8102.3	6822.1	5514.5	4421.6
35°	16064.9	15903.9	14795.5	12535.8	10376.3	9622.3	8670.2	7480.7	6152.8	4843.9	3789.2
37.5°	14480.5	14294.4	13015.4	11042.0	9372.9	8734.6	7911.4	6788.7	5476.3	4218.8	3233.3
40°	12279.3	12047.8	10978.8	9610.3	8294.3	7848.1	7152.6	5998.8	4774.7	3627.0	2720.2
42.5°	10221.2	10110.2	9468.3	8294.3	7407.9	6977.2	6275.6	5201.9	4075.6	3022.1	2013.9
45°	8583.1	8509.1	8083.2	7337.5	6437.9	6034.6	5373.7	4326.1	3100.8	2035.4	1048.7
47.5°	7512.9	7324.4	6908.0	6125.3	5125.5	4623.2	3993.3	2850.3	1749.1	902.0	322.1
50°	5181.6	5199.5	4729.4	3866.8	3016.1	2591.4	2140.4	1311.2	578.6	196.9	56.1
52.5°	2728.6	2527.0	2196.5	1640.5	1141.8	871.0	635.9	262.5	105.0	39.4	29.8
55°	743.3	652.6	521.4	368.7	199.2	139.6	91.9	48.9	34.6	27.4	19.1
57.5°	72.8	69.2	63.2	51.3	44.1	40.6	37.0	29.8	23.9	16.7	11.9
60°	40.6	39.4	37.0	32.2	28.6	26.2	23.9	20.3	14.3	10.7	9.5
62.5°	22.7	21.5	20.3	17.9	15.5	14.3	14.3	11.9	9.5	8.4	8.4
65°	10.7	10.7	10.7	10.7	10.7	9.5	8.4	8.4	8.4	8.4	8.4
67.5°	8.4	8.4	8.4	7.2	7.2	7.2	7.2	7.2	7.2	6.0	7.2
70°	4.8	4.8	6.0	4.8	4.8	4.8	4.8	4.8	4.8	4.8	6.0
72.5°	2.4	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	6.0
75°	2.4	2.4	2.4	2.4	3.6	3.6	3.6	3.6	4.8	4.8	6.0
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.6	3.6	4.8	4.8	6.0
80°	1.2	1.2	1.2	2.4	2.4	2.4	2.4	3.6	4.8	4.8	6.0
82.5°	1.2	1.2	1.2	1.2	2.4	2.4	2.4	3.6	4.8	4.8	6.0
85°	1.2	1.2	1.2	1.2	2.4	2.4	2.4	3.6	3.6	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°	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9
2.5°	1980.5	1922.1	1863.6	1805.1	1802.8	1768.2	1716.9	1648.8	1592.8	1545.0	1498.5
5°	2388.6	2268.1	2147.6	2027.1	1991.3	1929.2	1818.3	1693.0	1585.6	1491.4	1400.7
7.5°	2797.8	2595.0	2404.1	2215.6	2140.4	2046.1	1873.1	1691.8	1536.7	1398.3	1263.5
10°	3162.9	2868.2	2599.7	2334.9	2226.3	2103.4	1870.8	1640.5	1443.6	1265.9	1094.1
12.5°	3499.3	3088.9	2748.9	2414.8	2266.9	2117.7	1833.8	1559.4	1324.3	1112.0	913.9
15°	3795.2	3291.7	2853.9	2450.6	2269.3	2090.3	1756.2	1447.2	1183.5	940.2	725.4
17.5°	4006.4	3393.1	2888.5	2418.4	2207.2	2006.8	1641.7	1311.2	1027.2	773.1	565.5
20°	4135.2	3434.9	2870.6	2358.7	2134.4	1926.8	1557.0	1236.0	960.4	740.9	600.1
22.5°	4220.0	3475.5	2877.7	2357.5	2133.2	1937.6	1592.8	1292.1	1067.8	949.7	933.0
25°	4310.6	3532.7	2930.2	2411.2	2202.4	2021.1	1687.0	1393.5	1206.2	1156.1	1163.3
27.5°	4305.9	3507.7	2880.1	2364.7	2145.2	1961.4	1570.1	1199.1	1023.7	882.9	831.6
30°	4049.3	3217.8	2538.9	1961.4	1702.5	1477.0	961.6	625.2	431.9	378.2	324.5
32.5°	3449.2	2606.9	1898.2	1356.5	1065.4	795.8	378.2	200.4	170.6	143.2	130.0
35°	2868.2	2078.4	1419.8	819.7	517.8	320.9	136.0	89.5	84.7	79.9	79.9
37.5°	2370.7	1632.1	917.5	346.0	189.7	115.7	65.6	59.7	57.3	56.1	56.1
40°	1854.1	1064.2	397.3	114.5	60.8	52.5	46.5	44.1	43.0	41.8	43.0
42.5°	1094.1	428.3	115.7	43.0	40.6	38.2	34.6	33.4	33.4	32.2	33.4
45°	372.2	111.0	38.2	31.0	28.6	28.6	26.2	26.2	26.2	25.1	27.4
47.5°	96.6	34.6	25.1	22.7	21.5	21.5	20.3	20.3	20.3	20.3	21.5
50°	33.4	22.7	17.9	16.7	15.5	16.7	15.5	15.5	15.5	15.5	16.7
52.5°	20.3	15.5	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
55°	13.1	11.9	10.7	10.7	10.7	10.7	10.7	11.9	11.9	11.9	11.9
57.5°	10.7	9.5	9.5	9.5	9.5	9.5	10.7	9.5	9.5	10.7	11.9
60°	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.7	10.7	11.9
62.5°	8.4	9.5	9.5	9.5	9.5	9.5	9.5	10.7	10.7	10.7	11.9
65°	8.4	8.4	8.4	9.5	9.5	9.5	10.7	10.7	10.7	11.9	11.9
67.5°	7.2	7.2	8.4	8.4	9.5	9.5	9.5	10.7	10.7	10.7	11.9
70°	7.2	7.2	7.2	8.4	8.4	8.4	8.4	9.5	9.5	10.7	10.7
72.5°	6.0	7.2	7.2	8.4	8.4	8.4	8.4	9.5	9.5	9.5	10.7
75°	6.0	7.2	7.2	8.4	8.4	8.4	8.4	8.4	9.5	9.5	10.7
77.5°	6.0	7.2	7.2	8.4	8.4	8.4	8.4	9.5	9.5	9.5	10.7
80°	6.0	7.2	7.2	8.4	8.4	8.4	8.4	9.5	9.5	9.5	9.5
82.5°	6.0	7.2	7.2	8.4	8.4	8.4	8.4	9.5	9.5	9.5	9.5
85°	6.0	7.2	7.2	8.4	8.4	8.4	8.4	8.4	9.5	9.5	9.5
87.5°	6.0	7.2	7.2	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9
2.5°	1434.1	1413.8	1342.2	1332.7	1320.7	1262.3	1238.4	1197.9	1140.6	1123.9	1103.6
5°	1294.5	1227.7	1122.7	1094.1	1063.0	971.2	915.1	848.3	774.3	733.7	695.6
7.5°	1116.7	1023.7	884.1	828.0	793.4	693.2	603.7	514.2	405.6	343.6	304.2
10°	918.7	791.0	645.5	581.0	534.5	388.9	304.2	264.9	227.9	198.1	171.8
12.5°	719.4	575.1	410.4	336.5	299.5	248.2	201.6	152.7	136.0	134.8	130.0
15°	527.3	366.3	276.8	249.4	223.1	159.9	158.7	158.7	163.5	167.0	168.2
17.5°	388.9	322.1	252.9	236.2	248.2	257.7	274.4	299.5	319.7	377.0	365.1
20°	570.3	565.5	616.8	682.4	729.0	828.0	953.3	1095.3	1243.2	1407.8	1533.1
22.5°	978.3	1097.6	1190.7	1269.4	1311.2	1423.4	1522.4	1571.3	1599.9	1585.6	1565.3
25°	1195.5	1238.4	1209.8	1182.4	1185.9	1084.5	1010.5	916.3	836.4	763.6	720.6
27.5°	714.7	653.8	567.9	508.3	496.3	428.3	378.2	325.7	310.2	262.5	242.2
30°	257.7	239.8	212.4	190.9	188.5	170.6	159.9	147.9	146.7	136.0	130.0
32.5°	116.9	116.9	107.4	109.8	107.4	103.8	102.6	99.0	99.0	95.4	93.1
35°	76.4	77.6	76.4	76.4	75.2	75.2	75.2	72.8	74.0	71.6	68.0
37.5°	56.1	57.3	54.9	56.1	56.1	56.1	56.1	54.9	53.7	51.3	50.1
40°	43.0	43.0	43.0	43.0	43.0	43.0	43.0	41.8	41.8	40.6	38.2
42.5°	33.4	34.6	34.6	34.6	34.6	34.6	34.6	34.6	34.6	33.4	33.4
45°	27.4	28.6	27.4	28.6	28.6	28.6	27.4	27.4	27.4	26.2	25.1
47.5°	21.5	21.5	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	19.1
50°	16.7	16.7	16.7	16.7	16.7	16.7	17.9	16.7	16.7	16.7	16.7
52.5°	13.1	14.3	14.3	15.5	15.5	15.5	15.5	15.5	14.3	14.3	13.1
55°	11.9	13.1	13.1	14.3	14.3	14.3	14.3	13.1	13.1	13.1	11.9
57.5°	11.9	13.1	13.1	13.1	13.1	13.1	13.1	11.9	11.9	10.7	10.7
60°	11.9	11.9	11.9	13.1	13.1	11.9	11.9	10.7	10.7	9.5	9.5
62.5°	11.9	11.9	11.9	13.1	13.1	11.9	11.9	10.7	9.5	9.5	8.4
65°	11.9	13.1	11.9	13.1	13.1	11.9	11.9	10.7	9.5	9.5	8.4
67.5°	11.9	13.1	13.1	13.1	11.9	11.9	11.9	10.7	9.5	9.5	8.4
70°	10.7	11.9	11.9	11.9	11.9	11.9	10.7	10.7	9.5	9.5	8.4
72.5°	10.7	11.9	10.7	11.9	11.9	10.7	10.7	10.7	9.5	9.5	8.4
75°	10.7	10.7	10.7	10.7	10.7	10.7	10.7	9.5	9.5	8.4	8.4
77.5°	10.7	10.7	10.7	10.7	10.7	10.7	9.5	9.5	9.5	8.4	8.4
80°	10.7	10.7	10.7	10.7	10.7	10.7	9.5	9.5	8.4	8.4	7.2
82.5°	9.5	10.7	10.7	10.7	10.7	10.7	9.5	9.5	8.4	8.4	7.2
85°	9.5	9.5	9.5	9.5	9.5	9.5	8.4	8.4	7.2	6.0	6.0
87.5°	8.4	9.5	8.4	8.4	8.4	8.4	7.2	6.0	4.8	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: P179918

CATALOG NUMBER: LDA6A65835D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9	1574.9
2.5°	1071.4	1041.6	1042.8	1047.5	1017.7	1002.2	998.6	983.1
5°	644.3	609.7	603.7	598.9	557.2	540.5	527.3	544.0
7.5°	276.8	263.7	261.3	257.7	238.6	229.1	224.3	229.1
10°	137.2	128.9	130.0	131.2	125.3	121.7	120.5	119.3
12.5°	136.0	134.8	136.0	136.0	137.2	134.8	136.0	136.0
15°	176.6	176.6	180.2	182.5	188.5	187.3	189.7	192.1
17.5°	440.2	417.6	429.5	429.5	483.2	435.5	476.0	439.1
20°	1730.0	1811.1	1893.4	1962.6	2033.0	2054.5	2096.3	2084.3
22.5°	1534.3	1543.9	1531.9	1518.8	1515.2	1518.8	1454.4	1463.9
25°	658.6	653.8	634.7	614.4	620.4	625.2	602.5	581.0
27.5°	225.5	219.5	213.6	208.8	206.4	202.8	195.7	190.9
30°	127.7	124.1	121.7	120.5	118.1	115.7	112.2	109.8
32.5°	91.9	89.5	88.3	87.1	84.7	82.3	78.7	77.6
35°	68.0	65.6	64.4	63.2	60.8	58.5	57.3	56.1
37.5°	50.1	47.7	47.7	47.7	44.1	41.8	40.6	39.4
40°	38.2	37.0	37.0	37.0	34.6	33.4	32.2	32.2
42.5°	33.4	32.2	32.2	32.2	29.8	28.6	28.6	27.4
45°	25.1	23.9	23.9	22.7	21.5	21.5	20.3	19.1
47.5°	19.1	17.9	17.9	17.9	16.7	15.5	15.5	14.3
50°	15.5	15.5	14.3	15.5	13.1	13.1	13.1	11.9
52.5°	13.1	13.1	11.9	11.9	10.7	10.7	10.7	9.5
55°	11.9	10.7	10.7	10.7	9.5	9.5	9.5	8.4
57.5°	9.5	9.5	8.4	8.4	7.2	7.2	7.2	7.2
60°	8.4	8.4	7.2	7.2	6.0	6.0	6.0	6.0
62.5°	8.4	7.2	7.2	7.2	6.0	6.0	6.0	6.0
65°	8.4	7.2	7.2	7.2	6.0	6.0	6.0	6.0
67.5°	8.4	7.2	7.2	7.2	6.0	6.0	6.0	6.0
70°	8.4	8.4	7.2	7.2	7.2	6.0	6.0	6.0
72.5°	8.4	8.4	7.2	7.2	7.2	7.2	6.0	6.0
75°	7.2	7.2	7.2	7.2	6.0	6.0	6.0	6.0
77.5°	7.2	7.2	7.2	7.2	6.0	6.0	6.0	6.0
80°	7.2	7.2	6.0	6.0	6.0	6.0	6.0	6.0
82.5°	7.2	6.0	6.0	6.0	6.0	4.8	4.8	4.8
85°	4.8	4.8	4.8	4.8	3.6	3.6	3.6	3.6
87.5°	3.6	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)