

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: P179663

Luminaire Tested: **LDA6A45840D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179663
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26673)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A45840D010TE 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: 4278.9 lumens
Efficiency: N/A
Efficacy: 80.7 lumens/watt
Spacing Criteria (0/90/45): 2.36 / 0.56 / 1.31
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

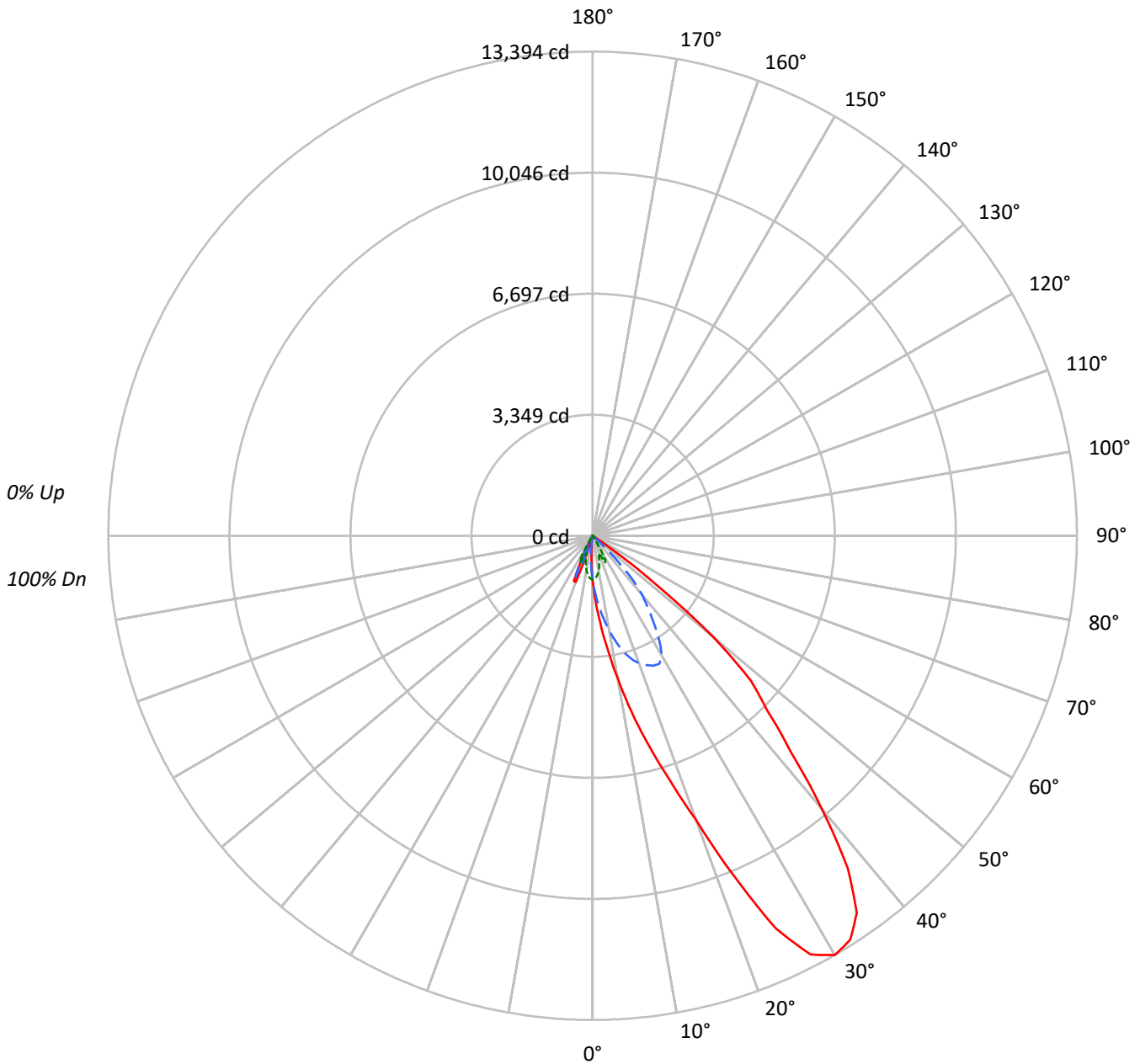
Input Watts (W): 53
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
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	93	90	95	91	88	91	88	86	89	86	84	82																			
3	99	91	85	80	96	89	84	79	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	51	59	54	50	49																			
8	70	59	51	46	69	58	51	46	57	50	46	56	50	46	55	49	46	44																			
9	66	54	47	42	64	53	47	42	52	46	42	51	46	42	50	45	41	40																			
10	62	50	43	38	60	49	43	38	48	42	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	66404	66404	66404
5°	132973	63168	16938
10°	223009	54001	4631
15°	340552	40483	6725
20°	487931	29601	79218
25°	725401	49122	40629
30°	847865	21719	6317
35°	852540	4524	3339
40°	705908	2533	1932
45°	528396	1613	1535
50°	370308	1151	887
55°	59525	898	698
60°	3651	910	570
65°	1077	1219	545
70°	673	1330	833
75°	445	1546	1101
80°	316	2305	1642
85°	629	4592	1950



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	125.5	2.9
10°-20°	530.0	12.4
20°-30°	1275.1	29.8
30°-40°	1358.6	31.8
40°-50°	847.2	19.8
50°-60°	123.8	2.9
60°-70°	7.9	0.2
70°-80°	6.1	0.1
80°-90°	4.7	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°	1930.6	45.1
0°-40°	3289.2	76.9
0°-60°	4260.2	99.6
0°-90°	4278.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4278.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1211	1211	1211	1211	1211	
5°	2416	1938	1148	572	308	280
15°	6000	3334	713	110	118	1780
25°	11993	3966	812	841	672	5404
35°	12739	2942	68	62	50	7686
45°	6816	861	21	24	20	5365
55°	623	15	9	10	7	1101
65°	8	6	9	8	4	12
75°	2	4	7	7	5	2
85°	1	4	7	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°	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3
2.5°	1801.9	1740.6	1761.4	1715.6	1699.0	1703.1	1669.9	1642.8	1628.3	1592.9	1556.5
5°	2416.4	2345.7	2366.5	2297.9	2255.2	2245.9	2193.9	2135.7	2083.7	2004.7	1938.1
7.5°	3161.9	3074.6	3089.1	2986.2	2899.9	2870.8	2791.8	2678.4	2573.4	2439.3	2311.4
10°	4006.2	3924.1	3919.9	3762.9	3615.2	3558.1	3442.6	3255.5	3076.6	2874.9	2664.9
12.5°	5001.2	4877.5	4856.7	4655.0	4434.6	4341.0	4179.8	3893.9	3611.1	3316.8	3014.3
15°	6000.5	5867.4	5834.1	5580.4	5272.6	5146.8	4931.6	4551.0	4161.1	3745.2	3334.5
17.5°	7065.2	6852.0	6672.1	6378.9	6023.3	5894.4	5615.7	5128.1	4637.3	4123.7	3574.7
20°	8363.8	8125.7	7873.1	7371.9	6720.0	6466.3	6160.6	5610.5	4998.1	4404.4	3752.5
22.5°	10143.9	9752.9	9216.4	8410.6	7514.3	7152.5	6680.5	5968.2	5275.7	4609.3	3871.0
25°	11992.6	11453.0	10863.4	9625.1	8241.1	7799.2	7178.5	6241.7	5496.2	4760.0	3965.6
27.5°	13057.3	12623.7	11955.2	10657.5	8830.7	8250.5	7535.1	6447.6	5636.5	4832.8	3992.7
30°	13394.2	13042.7	12435.5	11104.6	9028.2	8336.8	7568.4	6449.6	5569.0	4706.0	3836.7
32.5°	13253.8	12920.1	12248.4	10824.9	8666.4	8030.1	7284.6	6187.6	5236.2	4316.0	3436.4
35°	12739.1	12298.3	11482.1	9896.4	8050.9	7418.7	6722.0	5718.7	4724.7	3786.8	2942.5
37.5°	11584.0	11126.5	10198.0	8705.9	7257.5	6707.5	6147.1	5193.6	4210.0	3305.4	2512.1
40°	9864.2	9380.7	8617.5	7570.5	6401.8	6026.4	5553.4	4612.4	3665.2	2833.3	2113.8
42.5°	8128.8	7819.0	7366.7	6537.0	5722.8	5352.7	4893.1	3979.2	3141.1	2346.7	1605.4
45°	6815.6	6570.2	6269.8	5745.7	4977.3	4629.0	4201.7	3341.8	2448.6	1568.0	860.9
47.5°	5939.1	5639.7	5377.6	4793.3	3968.8	3545.6	3092.2	2202.2	1412.0	680.0	238.1
50°	4342.0	3981.2	3736.9	3081.8	2333.2	1980.7	1649.1	1022.1	457.5	151.8	39.5
52.5°	2201.2	1928.8	1785.3	1348.6	891.1	666.5	489.7	211.1	90.5	30.2	22.9
55°	622.8	501.2	449.2	296.3	161.2	113.3	73.8	37.4	27.0	20.8	14.6
57.5°	64.5	55.1	52.0	42.6	34.3	32.2	29.1	22.9	17.7	14.6	9.4
60°	33.3	30.2	29.1	26.0	21.8	19.8	18.7	15.6	11.4	8.3	7.3
62.5°	17.7	16.6	14.6	13.5	11.4	11.4	10.4	8.3	7.3	7.3	6.2
65°	8.3	8.3	8.3	8.3	7.3	7.3	6.2	6.2	6.2	6.2	6.2
67.5°	6.2	6.2	6.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
70°	4.2	4.2	4.2	4.2	3.1	3.1	3.1	3.1	3.1	4.2	4.2
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1	3.1	4.2	4.2
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1	3.1	4.2	4.2
77.5°	1.0	1.0	2.1	2.1	2.1	2.1	2.1	3.1	3.1	4.2	4.2
80°	1.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	4.2	4.2
82.5°	1.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	4.2	4.2
85°	1.0	1.0	1.0	1.0	2.1	2.1	2.1	2.1	3.1	4.2	4.2
87.5°	0.0	0.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.2	4.2
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°	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3
2.5°	1512.9	1486.9	1445.3	1403.7	1391.2	1356.9	1316.3	1268.5	1223.8	1188.4	1154.1
5°	1831.0	1761.4	1683.4	1578.4	1540.9	1482.7	1395.4	1301.8	1220.7	1147.9	1080.3
7.5°	2148.1	2017.1	1874.7	1722.9	1658.4	1572.1	1434.9	1302.8	1182.2	1075.1	974.3
10°	2428.9	2227.2	2026.5	1817.5	1727.0	1615.8	1432.8	1264.3	1110.5	970.1	843.2
12.5°	2687.8	2409.1	2142.9	1874.7	1761.4	1627.2	1401.6	1197.8	1014.8	850.5	701.8
15°	2914.4	2555.7	2226.1	1901.7	1758.2	1604.3	1340.3	1106.3	902.5	713.3	552.1
17.5°	3072.5	2638.9	2250.0	1873.6	1715.6	1538.8	1246.7	997.1	773.6	575.0	390.9
20°	3167.1	2660.7	2227.2	1812.3	1637.6	1454.6	1159.3	906.7	689.4	507.4	353.5
22.5°	3219.1	2671.1	2210.5	1790.5	1612.7	1438.0	1163.5	922.3	736.2	613.5	601.0
25°	3271.1	2704.4	2239.6	1815.4	1649.1	1486.9	1224.8	978.4	851.6	812.1	825.6
27.5°	3268.0	2683.6	2212.6	1792.5	1632.4	1464.0	1171.8	912.9	825.6	764.2	713.3
30°	3082.9	2486.1	2004.7	1558.6	1375.6	1151.0	780.9	536.5	410.7	343.1	308.8
32.5°	2654.5	2027.5	1531.6	1083.4	904.6	654.0	335.8	176.8	151.8	135.2	120.6
35°	2206.4	1614.7	1153.1	683.1	454.4	248.5	115.4	74.9	69.7	67.6	66.5
37.5°	1819.6	1276.8	758.0	273.5	163.2	92.5	53.0	47.8	46.8	47.8	46.8
40°	1435.9	842.2	300.5	91.5	49.9	40.6	37.4	34.3	34.3	35.4	34.3
42.5°	859.9	314.0	91.5	34.3	32.2	29.1	28.1	27.0	26.0	27.0	27.0
45°	283.9	80.1	30.2	23.9	22.9	21.8	20.8	20.8	20.8	20.8	21.8
47.5°	64.5	28.1	20.8	17.7	17.7	16.6	16.6	15.6	16.6	16.6	17.7
50°	25.0	17.7	14.6	13.5	13.5	12.5	12.5	12.5	12.5	13.5	13.5
52.5°	15.6	12.5	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	11.4
55°	10.4	9.4	8.3	8.3	8.3	8.3	8.3	9.4	9.4	9.4	9.4
57.5°	7.3	7.3	7.3	7.3	8.3	7.3	8.3	7.3	7.3	8.3	9.4
60°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	8.3	8.3	9.4
62.5°	6.2	7.3	7.3	7.3	7.3	7.3	7.3	8.3	8.3	8.3	9.4
65°	6.2	6.2	7.3	7.3	7.3	7.3	8.3	8.3	8.3	9.4	9.4
67.5°	5.2	6.2	6.2	7.3	7.3	7.3	7.3	8.3	8.3	8.3	9.4
70°	5.2	5.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	8.3	8.3
72.5°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	8.3
75°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	8.3
77.5°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	8.3
80°	5.2	5.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	7.3	8.3
82.5°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3	7.3
85°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	7.3	7.3	7.3
87.5°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	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°	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3
2.5°	1108.4	1065.8	1045.0	1013.8	1015.8	963.9	944.1	906.7	885.9	864.0	839.1
5°	998.2	923.3	870.3	828.7	805.8	738.2	692.5	633.2	571.9	512.6	463.7
7.5°	859.9	761.1	680.0	627.0	594.7	458.5	371.2	301.5	274.5	253.7	232.9
10°	706.0	583.3	439.8	367.0	322.3	257.9	231.9	192.4	164.3	138.3	122.7
12.5°	551.1	363.9	263.1	241.2	225.6	167.4	132.0	122.7	99.8	94.6	92.5
15°	346.2	239.1	186.1	160.1	139.3	116.5	107.1	106.1	110.2	111.3	110.2
17.5°	245.4	191.3	140.4	137.2	137.2	149.7	151.8	161.2	169.5	176.8	177.8
20°	315.0	282.8	329.6	350.4	386.8	431.5	497.0	588.5	668.6	749.7	812.1
22.5°	603.1	673.8	777.7	814.1	875.5	971.1	1061.6	1145.8	1231.1	1294.5	1308.0
25°	886.9	935.8	997.1	983.6	1002.3	997.1	946.2	877.6	841.2	774.6	751.7
27.5°	679.0	628.0	585.4	536.5	512.6	466.9	401.3	359.8	322.3	284.9	269.3
30°	276.6	242.3	217.3	199.6	189.2	164.3	151.8	138.3	132.0	122.7	117.5
32.5°	108.1	101.9	98.8	95.7	94.6	91.5	88.4	84.2	83.2	83.2	79.0
35°	64.5	64.5	64.5	63.4	64.5	63.4	62.4	61.3	62.4	62.4	59.3
37.5°	45.7	46.8	46.8	46.8	46.8	46.8	46.8	46.8	45.7	45.7	42.6
40°	34.3	35.4	36.4	35.4	36.4	36.4	35.4	34.3	34.3	34.3	32.2
42.5°	28.1	28.1	28.1	28.1	29.1	28.1	28.1	28.1	28.1	28.1	27.0
45°	22.9	22.9	22.9	22.9	23.9	23.9	22.9	22.9	23.9	23.9	22.9
47.5°	17.7	17.7	17.7	17.7	17.7	17.7	17.7	16.6	16.6	16.6	15.6
50°	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	14.6	13.5	13.5
52.5°	11.4	11.4	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	11.4
55°	10.4	10.4	11.4	11.4	11.4	11.4	11.4	10.4	10.4	10.4	9.4
57.5°	9.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4	9.4	9.4	8.3
60°	9.4	9.4	10.4	10.4	10.4	10.4	9.4	9.4	8.3	8.3	7.3
62.5°	9.4	9.4	10.4	10.4	10.4	9.4	9.4	8.3	8.3	7.3	7.3
65°	9.4	10.4	10.4	10.4	10.4	9.4	9.4	8.3	8.3	7.3	7.3
67.5°	9.4	10.4	10.4	10.4	10.4	9.4	9.4	8.3	8.3	7.3	7.3
70°	9.4	9.4	9.4	9.4	9.4	9.4	9.4	8.3	8.3	7.3	7.3
72.5°	8.3	9.4	9.4	9.4	9.4	9.4	8.3	8.3	8.3	7.3	7.3
75°	8.3	8.3	8.3	8.3	9.4	8.3	8.3	8.3	7.3	7.3	6.2
77.5°	8.3	8.3	8.3	8.3	8.3	8.3	8.3	7.3	7.3	7.3	6.2
80°	8.3	8.3	8.3	8.3	8.3	8.3	8.3	7.3	7.3	6.2	6.2
82.5°	8.3	8.3	8.3	8.3	8.3	8.3	7.3	7.3	6.2	6.2	6.2
85°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	6.2	6.2	5.2	5.2
87.5°	7.3	7.3	7.3	7.3	7.3	6.2	6.2	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: P179663

CATALOG NUMBER: LDA6A45840D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3	1211.3
2.5°	812.1	794.4	790.2	790.2	780.9	762.1	759.0	752.8
5°	410.7	367.0	358.7	349.4	333.8	315.0	309.8	307.8
7.5°	212.1	193.4	190.3	184.0	174.7	165.3	163.2	162.2
10°	124.8	113.3	108.1	98.8	89.4	84.2	84.2	83.2
12.5°	92.5	92.5	92.5	92.5	92.5	92.5	92.5	92.5
15°	112.3	115.4	115.4	116.5	117.5	118.5	120.6	118.5
17.5°	189.2	204.8	203.8	205.9	213.2	222.5	218.3	223.5
20°	919.1	1038.7	1073.0	1107.3	1211.3	1309.1	1289.3	1357.9
22.5°	1320.5	1356.9	1342.3	1333.0	1354.8	1343.4	1392.2	1360.0
25°	708.1	700.8	700.8	669.6	675.8	660.2	681.0	671.7
27.5°	261.0	238.1	236.0	221.5	230.8	209.0	215.2	211.1
30°	112.3	113.3	109.2	106.1	102.9	100.9	100.9	99.8
32.5°	76.9	76.9	74.9	72.8	70.7	68.6	67.6	66.5
35°	57.2	57.2	55.1	54.1	53.0	50.9	49.9	49.9
37.5°	41.6	41.6	40.6	39.5	37.4	36.4	35.4	35.4
40°	32.2	31.2	30.2	30.2	28.1	28.1	27.0	27.0
42.5°	26.0	26.0	26.0	25.0	23.9	22.9	22.9	22.9
45°	22.9	22.9	21.8	20.8	20.8	20.8	19.8	19.8
47.5°	15.6	15.6	14.6	14.6	13.5	13.5	12.5	12.5
50°	12.5	12.5	12.5	12.5	11.4	10.4	10.4	10.4
52.5°	11.4	10.4	10.4	10.4	9.4	9.4	8.3	8.3
55°	9.4	9.4	8.3	8.3	7.3	7.3	7.3	7.3
57.5°	8.3	7.3	7.3	7.3	6.2	6.2	6.2	6.2
60°	7.3	6.2	6.2	6.2	5.2	5.2	5.2	5.2
62.5°	6.2	6.2	6.2	6.2	5.2	5.2	5.2	5.2
65°	6.2	6.2	6.2	5.2	5.2	5.2	5.2	4.2
67.5°	6.2	6.2	6.2	6.2	5.2	5.2	5.2	5.2
70°	6.2	6.2	6.2	6.2	5.2	5.2	5.2	5.2
72.5°	6.2	6.2	6.2	6.2	5.2	5.2	5.2	5.2
75°	6.2	6.2	6.2	6.2	5.2	5.2	5.2	5.2
77.5°	6.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
80°	6.2	5.2	5.2	5.2	5.2	4.2	4.2	5.2
82.5°	5.2	5.2	5.2	5.2	4.2	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	2.1	2.1	2.1	2.1
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)