

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: P179664

Luminaire Tested: **LDA6A45927D010TE LARH20SP 6LAL1LI 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P179664
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: LDA6A45927D010TE LARH20SP 6LAL1LI 30°
Description: PORTFOLIO 6" Lensed Adjustable, Self-flanged, 20° Spot, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3162.6 lumens
Efficiency: N/A
Efficacy: 59.7 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

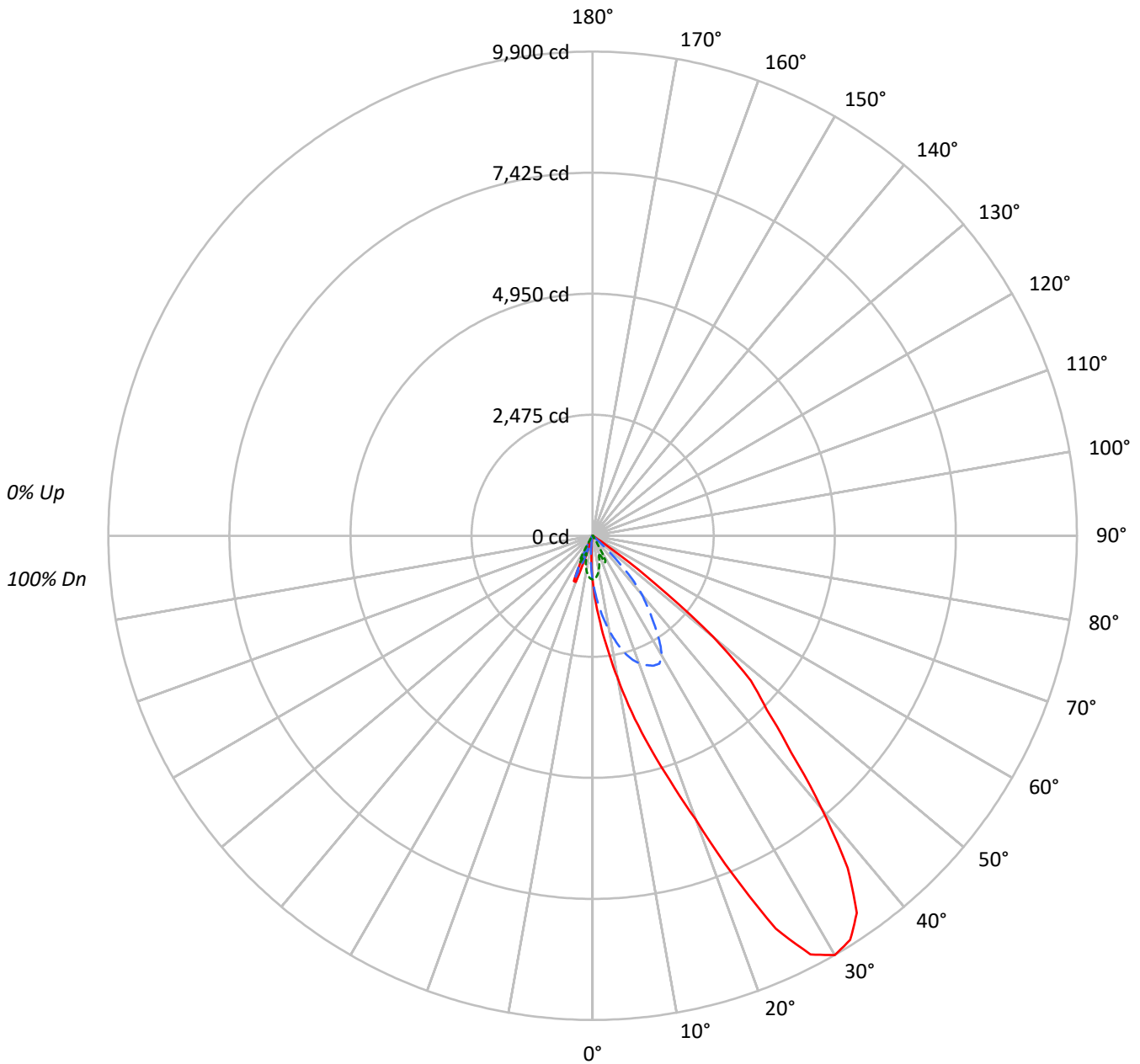
Input Watts (W): 53
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	49080	49080	49080
5°	98283	46687	12519
10°	164827	39912	3423
15°	251704	29921	4972
20°	360636	21877	58554
25°	536154	36305	30032
30°	626666	16053	4672
35°	630128	3346	2469
40°	521749	1868	1431
45°	390544	1194	1132
50°	273705	853	657
55°	43994	659	516
60°	2697	669	417
65°	791	895	402
70°	497	978	609
75°	318	1144	805
80°	253	1705	1200
85°	503	3397	1447



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	92.8	2.9
10°-20°	391.7	12.4
20°-30°	942.5	29.8
30°-40°	1004.2	31.8
40°-50°	626.2	19.8
50°-60°	91.5	2.9
60°-70°	5.8	0.2
70°-80°	4.5	0.1
80°-90°	3.5	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°	1426.9	45.1
0°-40°	2431.1	76.9
0°-60°	3148.8	99.6
0°-90°	3162.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3162.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	895	895	895	895	895	
5°	1786	1432	848	423	228	207
15°	4435	2465	527	82	88	1316
25°	8864	2931	600	622	496	3994
35°	9416	2175	50	46	37	5681
45°	5038	636	15	18	15	3965
55°	460	11	7	8	5	814
65°	6	5	7	6	3	9
75°	2	3	5	5	4	2
85°	1	3	5	5	2	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°	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3
2.5°	1331.8	1286.5	1301.8	1268.0	1255.7	1258.8	1234.2	1214.2	1203.5	1177.3	1150.4
5°	1786.0	1733.7	1749.1	1698.4	1666.9	1660.0	1621.5	1578.5	1540.1	1481.7	1432.5
7.5°	2337.0	2272.5	2283.2	2207.1	2143.3	2121.8	2063.4	1979.7	1902.0	1802.9	1708.4
10°	2961.0	2900.3	2897.2	2781.2	2672.1	2629.8	2544.5	2406.2	2274.0	2124.9	1969.7
12.5°	3696.5	3605.0	3589.7	3440.6	3277.7	3208.5	3089.4	2878.0	2669.0	2451.5	2227.9
15°	4435.0	4336.6	4312.1	4124.5	3897.1	3804.1	3645.0	3363.7	3075.5	2768.1	2464.6
17.5°	5222.0	5064.4	4931.5	4714.7	4451.9	4356.6	4150.7	3790.2	3427.5	3047.9	2642.1
20°	6181.8	6005.8	5819.1	5448.7	4966.8	4779.3	4553.4	4146.8	3694.2	3255.4	2773.5
22.5°	7497.5	7208.5	6812.0	6216.4	5553.9	5286.5	4937.6	4411.2	3899.4	3406.8	2861.1
25°	8863.9	8465.0	8029.3	7114.0	6091.1	5764.5	5305.7	4613.3	4062.3	3518.2	2931.1
27.5°	9650.8	9330.4	8836.2	7877.1	6526.9	6098.0	5569.3	4765.5	4166.0	3572.0	2951.0
30°	9899.8	9640.1	9191.3	8207.6	6672.9	6161.8	5593.9	4767.0	4116.1	3478.2	2835.8
32.5°	9796.1	9549.4	9052.9	8000.9	6405.4	5935.1	5384.1	4573.3	3870.2	3190.0	2539.9
35°	9415.7	9089.8	8486.5	7314.6	5950.5	5483.2	4968.4	4226.8	3492.1	2798.9	2174.9
37.5°	8561.9	8223.7	7537.4	6434.7	5364.1	4957.6	4543.4	3838.7	3111.7	2443.1	1856.7
40°	7290.8	6933.4	6369.3	5595.4	4731.7	4454.2	4104.6	3409.1	2709.0	2094.2	1562.4
42.5°	6008.1	5779.1	5444.8	4831.6	4229.8	3956.2	3616.6	2941.0	2321.6	1734.5	1186.6
45°	5037.5	4856.2	4634.1	4246.7	3678.8	3421.4	3105.5	2470.0	1809.8	1158.9	636.3
47.5°	4389.7	4168.3	3974.7	3542.8	2933.4	2620.6	2285.5	1627.7	1043.6	502.6	176.0
50°	3209.3	2942.6	2762.0	2277.8	1724.5	1464.0	1218.8	755.4	338.1	112.2	29.2
52.5°	1626.9	1425.6	1319.5	996.7	658.6	492.6	362.0	156.0	66.9	22.3	16.9
55°	460.3	370.4	332.0	219.0	119.1	83.8	54.6	27.7	20.0	15.4	10.8
57.5°	47.6	40.7	38.4	31.5	25.4	23.8	21.5	16.9	13.1	10.8	6.9
60°	24.6	22.3	21.5	19.2	16.1	14.6	13.8	11.5	8.5	6.1	5.4
62.5°	13.1	12.3	10.8	10.0	8.5	8.5	7.7	6.1	5.4	5.4	4.6
65°	6.1	6.1	6.1	6.1	5.4	5.4	4.6	4.6	4.6	4.6	4.6
67.5°	4.6	4.6	4.6	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
70°	3.1	3.1	3.1	3.1	2.3	2.3	2.3	2.3	2.3	3.1	3.1
72.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3	2.3	3.1	3.1
75°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3	2.3	3.1	3.1
77.5°	0.8	0.8	1.5	1.5	1.5	1.5	1.5	2.3	2.3	3.1	3.1
80°	0.8	0.8	0.8	0.8	1.5	1.5	1.5	2.3	2.3	3.1	3.1
82.5°	0.8	0.8	0.8	0.8	1.5	1.5	1.5	2.3	2.3	3.1	3.1
85°	0.8	0.8	0.8	0.8	1.5	1.5	1.5	1.5	2.3	3.1	3.1
87.5°	0.0	0.0	0.8	0.8	0.8	1.5	1.5	1.5	2.3	3.1	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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3
2.5°	1118.2	1099.0	1068.2	1037.5	1028.3	1002.9	972.9	937.6	904.5	878.4	853.0
5°	1353.3	1301.8	1244.2	1166.6	1138.9	1095.9	1031.3	962.2	902.2	848.4	798.5
7.5°	1587.7	1490.9	1385.6	1273.4	1225.8	1162.0	1060.5	962.9	873.8	794.6	720.1
10°	1795.2	1646.1	1497.8	1343.3	1276.5	1194.2	1059.0	934.5	820.8	717.0	623.3
12.5°	1986.6	1780.6	1583.9	1385.6	1301.8	1202.7	1035.9	885.3	750.1	628.6	518.7
15°	2154.1	1889.0	1645.4	1405.6	1299.5	1185.8	990.6	817.7	667.1	527.2	408.1
17.5°	2270.9	1950.5	1663.0	1384.8	1268.0	1137.4	921.4	737.0	571.8	425.0	289.0
20°	2340.9	1966.6	1646.1	1339.5	1210.4	1075.1	856.9	670.1	509.5	375.0	261.3
22.5°	2379.3	1974.3	1633.8	1323.4	1191.9	1062.8	860.0	681.7	544.1	453.4	444.2
25°	2417.7	1998.9	1655.3	1341.8	1218.8	1099.0	905.3	723.2	629.4	600.2	610.2
27.5°	2415.4	1983.5	1635.4	1324.9	1206.5	1082.0	866.1	674.7	610.2	564.8	527.2
30°	2278.6	1837.5	1481.7	1152.0	1016.7	850.7	577.1	396.5	303.6	253.6	228.2
32.5°	1962.0	1498.6	1132.0	800.8	668.6	483.4	248.2	130.6	112.2	99.9	89.1
35°	1630.8	1193.5	852.3	504.9	335.8	183.7	85.3	55.3	51.5	50.0	49.2
37.5°	1344.9	943.7	560.2	202.1	120.7	68.4	39.2	35.4	34.6	35.4	34.6
40°	1061.3	622.5	222.1	67.6	36.9	30.0	27.7	25.4	25.4	26.1	25.4
42.5°	635.5	232.1	67.6	25.4	23.8	21.5	20.7	20.0	19.2	20.0	20.0
45°	209.8	59.2	22.3	17.7	16.9	16.1	15.4	15.4	15.4	15.4	16.1
47.5°	47.6	20.7	15.4	13.1	13.1	12.3	12.3	11.5	12.3	12.3	13.1
50°	18.4	13.1	10.8	10.0	10.0	9.2	9.2	9.2	9.2	10.0	10.0
52.5°	11.5	9.2	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	8.5
55°	7.7	6.9	6.1	6.1	6.1	6.1	6.1	6.9	6.9	6.9	6.9
57.5°	5.4	5.4	5.4	5.4	6.1	5.4	6.1	5.4	5.4	6.1	6.9
60°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	6.1	6.1	6.9
62.5°	4.6	5.4	5.4	5.4	5.4	5.4	5.4	6.1	6.1	6.1	6.9
65°	4.6	4.6	5.4	5.4	5.4	5.4	6.1	6.1	6.1	6.9	6.9
67.5°	3.8	4.6	4.6	5.4	5.4	5.4	5.4	6.1	6.1	6.1	6.9
70°	3.8	3.8	4.6	4.6	4.6	4.6	5.4	5.4	5.4	6.1	6.1
72.5°	3.8	3.8	4.6	4.6	4.6	4.6	4.6	5.4	5.4	5.4	6.1
75°	3.8	3.8	4.6	4.6	4.6	4.6	4.6	5.4	5.4	5.4	6.1
77.5°	3.8	3.8	4.6	4.6	4.6	4.6	4.6	5.4	5.4	5.4	6.1
80°	3.8	3.8	4.6	4.6	4.6	4.6	5.4	5.4	5.4	5.4	6.1
82.5°	3.8	3.8	4.6	4.6	4.6	4.6	4.6	5.4	5.4	5.4	5.4
85°	3.8	3.8	4.6	4.6	4.6	4.6	4.6	4.6	5.4	5.4	5.4
87.5°	3.8	3.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.4
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°	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3
2.5°	819.2	787.7	772.3	749.3	750.8	712.4	697.8	670.1	654.8	638.6	620.2
5°	737.8	682.4	643.2	612.5	595.6	545.6	511.8	468.0	422.7	378.9	342.8
7.5°	635.5	562.5	502.6	463.4	439.6	338.9	274.4	222.9	202.9	187.5	172.1
10°	521.8	431.1	325.1	271.3	238.2	190.6	171.4	142.2	121.4	102.2	90.7
12.5°	407.3	269.0	194.4	178.3	166.8	123.7	97.6	90.7	73.8	69.9	68.4
15°	255.9	176.8	137.6	118.3	103.0	86.1	79.2	78.4	81.5	82.2	81.5
17.5°	181.4	141.4	103.7	101.4	101.4	110.7	112.2	119.1	125.3	130.6	131.4
20°	232.9	209.0	243.6	259.0	285.9	318.9	367.3	435.0	494.1	554.1	600.2
22.5°	445.7	498.0	574.8	601.7	647.1	717.8	784.6	846.9	909.9	956.8	966.8
25°	655.5	691.7	737.0	727.0	740.8	737.0	699.3	648.6	621.7	572.5	555.6
27.5°	501.8	464.2	432.7	396.5	378.9	345.1	296.6	265.9	238.2	210.6	199.0
30°	204.4	179.1	160.6	147.6	139.9	121.4	112.2	102.2	97.6	90.7	86.8
32.5°	79.9	75.3	73.0	70.7	69.9	67.6	65.3	62.2	61.5	61.5	58.4
35°	47.6	47.6	47.6	46.9	47.6	46.9	46.1	45.3	46.1	46.1	43.8
37.5°	33.8	34.6	34.6	34.6	34.6	34.6	34.6	34.6	33.8	33.8	31.5
40°	25.4	26.1	26.9	26.1	26.9	26.9	26.1	25.4	25.4	25.4	23.8
42.5°	20.7	20.7	20.7	20.7	21.5	20.7	20.7	20.7	20.7	20.7	20.0
45°	16.9	16.9	16.9	16.9	17.7	17.7	16.9	16.9	17.7	17.7	16.9
47.5°	13.1	13.1	13.1	13.1	13.1	13.1	13.1	12.3	12.3	12.3	11.5
50°	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.8	10.0	10.0
52.5°	8.5	8.5	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	8.5
55°	7.7	7.7	8.5	8.5	8.5	8.5	8.5	7.7	7.7	7.7	6.9
57.5°	6.9	7.7	7.7	7.7	7.7	7.7	7.7	7.7	6.9	6.9	6.1
60°	6.9	6.9	7.7	7.7	7.7	7.7	6.9	6.9	6.1	6.1	5.4
62.5°	6.9	6.9	7.7	7.7	7.7	6.9	6.9	6.1	6.1	5.4	5.4
65°	6.9	7.7	7.7	7.7	7.7	6.9	6.9	6.1	6.1	5.4	5.4
67.5°	6.9	7.7	7.7	7.7	7.7	6.9	6.9	6.1	6.1	5.4	5.4
70°	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.1	6.1	5.4	5.4
72.5°	6.1	6.9	6.9	6.9	6.9	6.9	6.1	6.1	6.1	5.4	5.4
75°	6.1	6.1	6.1	6.1	6.9	6.1	6.1	6.1	5.4	5.4	4.6
77.5°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	5.4	5.4	5.4	4.6
80°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	5.4	5.4	4.6	4.6
82.5°	6.1	6.1	6.1	6.1	6.1	6.1	5.4	5.4	4.6	4.6	4.6
85°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	4.6	4.6	3.8	3.8
87.5°	5.4	5.4	5.4	5.4	5.4	4.6	4.6	3.8	3.1	3.1	2.3
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: P179664

CATALOG NUMBER: LDA6A45927D010TE LARH20SP 6LAL1LI 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	895.3	895.3	895.3	895.3	895.3	895.3	895.3	895.3
2.5°	600.2	587.1	584.1	584.1	577.1	563.3	561.0	556.4
5°	303.6	271.3	265.1	258.2	246.7	232.9	229.0	227.5
7.5°	156.8	142.9	140.6	136.0	129.1	122.2	120.7	119.9
10°	92.2	83.8	79.9	73.0	66.1	62.2	62.2	61.5
12.5°	68.4	68.4	68.4	68.4	68.4	68.4	68.4	68.4
15°	83.0	85.3	85.3	86.1	86.8	87.6	89.1	87.6
17.5°	139.9	151.4	150.6	152.2	157.5	164.5	161.4	165.2
20°	679.4	767.7	793.1	818.5	895.3	967.5	952.9	1003.7
22.5°	976.0	1002.9	992.1	985.2	1001.4	992.9	1029.0	1005.2
25°	523.3	518.0	518.0	494.9	499.5	488.0	503.4	496.5
27.5°	192.9	176.0	174.4	163.7	170.6	154.5	159.1	156.0
30°	83.0	83.8	80.7	78.4	76.1	74.5	74.5	73.8
32.5°	56.9	56.9	55.3	53.8	52.3	50.7	50.0	49.2
35°	42.3	42.3	40.7	40.0	39.2	37.7	36.9	36.9
37.5°	30.7	30.7	30.0	29.2	27.7	26.9	26.1	26.1
40°	23.8	23.1	22.3	22.3	20.7	20.7	20.0	20.0
42.5°	19.2	19.2	19.2	18.4	17.7	16.9	16.9	16.9
45°	16.9	16.9	16.1	15.4	15.4	15.4	14.6	14.6
47.5°	11.5	11.5	10.8	10.8	10.0	10.0	9.2	9.2
50°	9.2	9.2	9.2	9.2	8.5	7.7	7.7	7.7
52.5°	8.5	7.7	7.7	7.7	6.9	6.9	6.1	6.1
55°	6.9	6.9	6.1	6.1	5.4	5.4	5.4	5.4
57.5°	6.1	5.4	5.4	5.4	4.6	4.6	4.6	4.6
60°	5.4	4.6	4.6	4.6	3.8	3.8	3.8	3.8
62.5°	4.6	4.6	4.6	4.6	3.8	3.8	3.8	3.8
65°	4.6	4.6	4.6	3.8	3.8	3.8	3.8	3.1
67.5°	4.6	4.6	4.6	4.6	3.8	3.8	3.8	3.8
70°	4.6	4.6	4.6	4.6	3.8	3.8	3.8	3.8
72.5°	4.6	4.6	4.6	4.6	3.8	3.8	3.8	3.8
75°	4.6	4.6	4.6	4.6	3.8	3.8	3.8	3.8
77.5°	4.6	3.8	3.8	3.8	3.8	3.8	3.8	3.8
80°	4.6	3.8	3.8	3.8	3.8	3.1	3.1	3.8
82.5°	3.8	3.8	3.8	3.8	3.1	3.1	3.1	3.1
85°	3.1	3.1	3.1	3.1	2.3	2.3	2.3	2.3
87.5°	2.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
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)