

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: P175501

Luminaire Tested: **LDA6A30935D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175501
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26268)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA6A30935D010TE LARL20NF 6LAL1 30° Tilt
Description: PORTFOLIO 6" Lensed Adjustable, Self-flange Trim Ring, 20° Narrow Flood Optic, at 30° tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2103.4 lumens
Efficiency: N/A
Efficacy: 47.3 lumens/watt
Spacing Criteria (0/90/45): 2.7 / 0.43 / 1.35
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

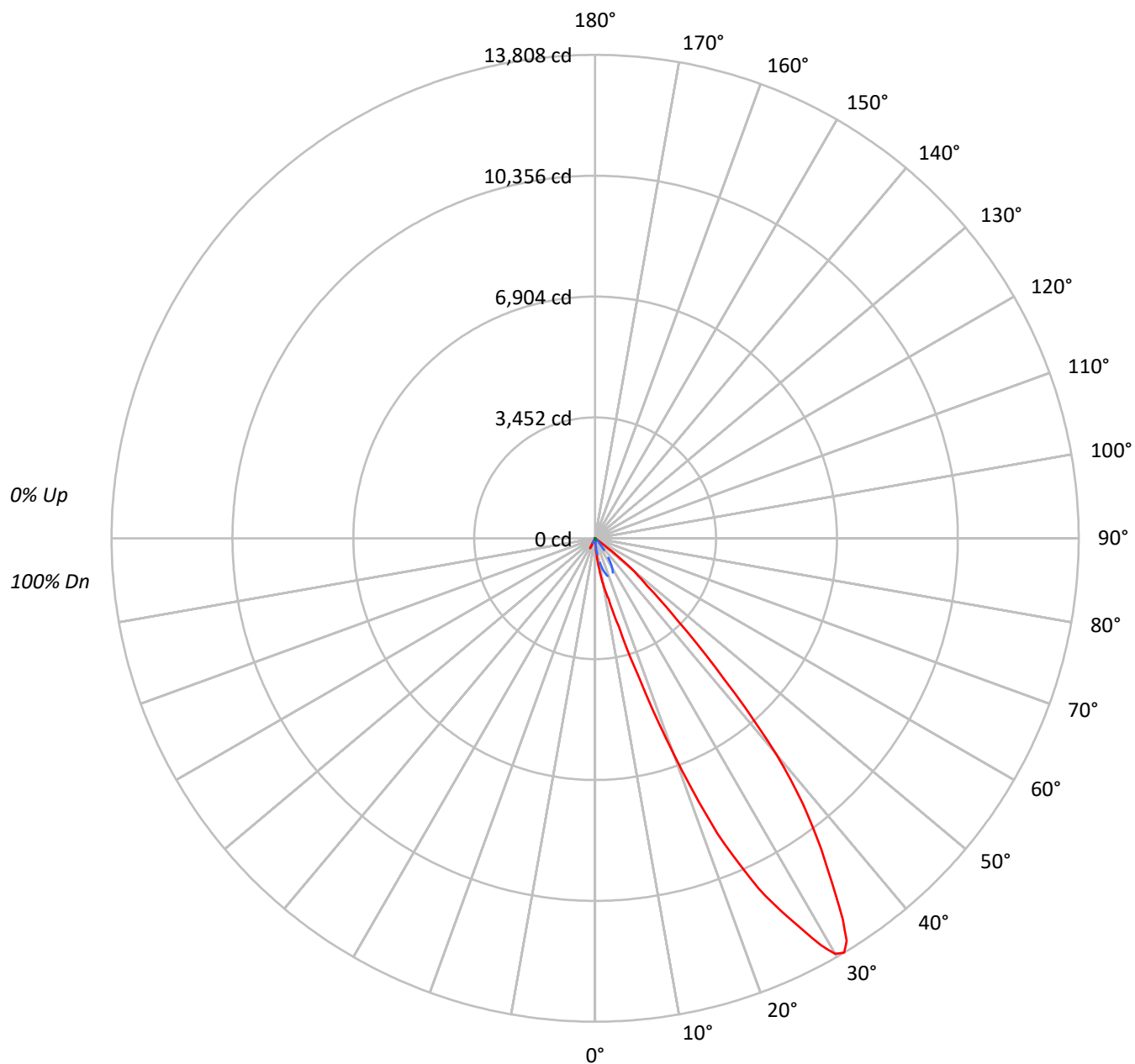
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
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	94	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	78	76	74		
4	92	83	76	71	90	82	75	70	79	74	70	77	72	69	75	71	68	66		
5	86	75	68	63	84	74	68	63	73	67	62	71	66	62	69	65	61	59		
6	80	69	62	56	78	68	61	56	66	60	56	65	59	55	63	59	55	53		
7	74	63	56	50	73	62	55	50	61	55	50	59	54	50	58	53	49	48		
8	69	58	50	45	68	57	50	45	56	49	45	55	49	45	54	48	44	43		
9	65	53	46	41	63	52	45	41	51	45	40	50	44	40	49	44	40	39		
10	60	49	41	37	59	48	41	37	47	41	37	46	41	36	45	40	36	35		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	2604	2604	2604
5°	25303	2300	947
10°	74826	1642	596
15°	148537	1118	511
20°	383161	910	718
25°	667774	1089	5154
30°	867412	1139	2906
35°	777224	495	274
40°	574605	179	0
45°	258756	194	0
50°	116738	213	0
55°	10418	239	0
60°	1261	274	0
65°	532	428	0
70°	401	529	0
75°	0	699	0
80°	0	1042	253
85°	0	2076	503



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	18.9	0.9
10°-20°	177.1	8.4
20°-30°	699.4	33.2
30°-40°	843.9	40.1
40°-50°	327.5	15.6
50°-60°	28.8	1.4
60°-70°	2.7	0.1
70°-80°	2.6	0.1
80°-90°	2.4	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°	895.4	42.6
0°-40°	1739.3	82.7
0°-60°	2095.7	99.6
0°-90°	2103.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2103.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	48	48	48	48	48	
5°	460	225	42	20	17	73
15°	2617	990	20	12	9	959
25°	11040	1171	18	57	85	5049
35°	11614	596	7	7	4	7139
45°	3338	42	2	2	0	2932
55°	109	5	2	2	0	263
65°	4	3	3	2	0	5
75°	0	3	3	3	0	1
85°	0	3	3	3	1	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5
2.5°	149.2	141.8	133.6	136.9	138.5	142.6	139.3	127.0	134.4	128.7	123.8
5°	459.8	451.6	436.1	438.5	433.6	439.3	426.2	400.0	404.9	396.7	375.4
7.5°	896.7	862.3	836.9	838.5	823.8	830.3	805.7	760.6	755.7	713.9	707.4
10°	1344.2	1327.0	1296.7	1292.6	1266.4	1269.6	1231.1	1171.3	1154.9	1106.5	1078.7
12.5°	1783.6	1754.9	1712.3	1703.2	1660.6	1661.4	1609.0	1541.8	1517.2	1467.2	1428.7
15°	2617.2	2576.2	2478.6	2441.8	2323.7	2305.7	2176.2	2023.7	1950.0	1863.9	1750.8
17.5°	4155.7	4129.4	3938.4	3832.7	3593.4	3355.7	3215.5	2886.0	2693.4	2452.4	2243.4
20°	6567.9	6616.3	6282.7	6046.6	5602.3	5100.7	4746.6	4146.6	3745.8	3330.3	2936.8
22.5°	9133.4	9153.9	8812.1	8517.9	8000.7	7311.3	6495.8	5767.9	5033.5	4319.6	3670.4
25°	11039.9	10980.9	10604.7	10251.4	9707.2	9003.1	8210.5	7238.4	6234.3	5254.0	4303.2
26°	11621.9	11589.9	11212.9	10790.0	10190.8	9476.0	8651.5	7670.3	6609.7	5554.0	4496.6
27°	12161.2	12140.7	11731.7	11261.3	10590.0	9841.6	8978.5	7998.2	6893.3	5786.0	4636.8
28°	12707.9	12685.0	12189.9	11644.0	10914.5	10101.4	9204.7	8217.1	7076.1	5922.0	4695.0
29°	13285.8	13241.5	12608.8	11925.2	11130.9	10253.1	9322.8	8317.1	7138.4	5955.6	4680.2
30°	13703.0	13634.2	12911.2	12103.0	11219.5	10300.6	9335.9	8314.6	7099.9	5886.0	4586.0
31°	13807.9	13738.3	12995.6	12100.6	11154.7	10228.5	9241.6	8198.2	6939.2	5717.1	4427.0
32°	13553.8	13489.9	12781.7	11824.4	10949.8	10054.7	9053.9	7982.6	6690.0	5464.6	4211.4
33°	12986.6	12938.3	12327.6	11461.3	10656.3	9808.0	8785.1	7676.1	6335.9	5143.3	3958.1
34°	12271.1	12235.8	11766.2	11034.2	10284.2	9469.5	8436.7	7272.0	5869.6	4779.4	3681.9
35°	11613.7	11587.5	11207.2	10558.0	9858.8	9050.6	7995.7	6774.5	5389.2	4387.6	3386.8
36°	10980.9	10958.8	10628.5	10025.2	9350.6	8559.7	7440.8	6179.4	4873.7	3981.1	3081.1
37°	10320.3	10300.6	10017.0	9443.3	8779.3	7972.8	6781.8	5545.8	4349.9	3575.3	2767.2
38°	9635.1	9618.7	9358.8	8786.7	8113.0	7255.6	6030.2	4890.9	3839.3	3179.4	2485.2
39°	8870.3	8856.4	8617.0	8017.1	7297.4	6410.5	5256.5	4252.4	3354.9	2795.0	2212.3
40°	8029.4	8010.5	7771.2	7100.7	6373.6	5540.9	4513.0	3666.3	2897.5	2436.0	1972.1
42.5°	5458.9	5438.4	5260.6	4870.4	4170.4	3635.2	2990.9	2454.1	2053.2	1775.4	1536.0
45°	3337.6	3340.1	3246.7	3005.7	2584.4	2286.8	1936.8	1680.3	1500.0	1393.4	1227.0
47.5°	2018.8	2018.8	1977.0	1854.1	1664.7	1545.9	1400.8	1281.1	1143.4	1038.5	858.2
50°	1368.8	1369.6	1305.7	1312.3	1186.0	1112.3	973.8	827.9	692.6	540.2	385.2
51°	1013.1	1018.0	959.0	986.0	847.5	785.2	654.1	530.3	410.6	292.6	168.8
52°	619.7	628.7	588.5	613.1	532.8	441.8	335.2	247.5	166.4	116.4	81.1
53°	287.7	295.1	274.6	286.1	238.5	186.1	141.0	114.8	91.8	74.6	54.9
54°	152.5	154.1	147.5	144.3	131.1	115.6	95.9	79.5	62.3	50.0	36.9
55°	109.0	109.0	105.7	102.5	91.8	78.7	63.9	54.1	41.0	32.8	23.8
57.5°	33.6	33.6	33.6	32.0	27.9	23.8	18.9	16.4	13.1	12.3	9.8
60°	11.5	11.5	11.5	10.7	9.8	9.0	8.2	7.4	6.6	6.6	5.7
61°	8.2	8.2	8.2	8.2	7.4	7.4	6.6	5.7	4.9	5.7	4.9
62°	6.6	7.4	6.6	6.6	6.6	5.7	4.9	4.9	4.1	4.9	4.1
63°	5.7	5.7	5.7	5.7	4.9	4.9	4.1	4.1	3.3	4.1	4.1
64°	4.9	4.9	4.9	4.9	4.1	4.1	3.3	3.3	2.5	3.3	3.3
65°	4.1	4.1	4.1	4.1	3.3	3.3	3.3	2.5	2.5	3.3	3.3
66°	3.3	3.3	3.3	3.3	3.3	2.5	2.5	2.5	1.6	2.5	2.5



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CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
72.5°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8	0.8	1.6	1.6
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
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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CATALOG NUMBER: LDA6A30935D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5
2.5°	118.9	110.7	109.0	109.0	91.8	95.1	89.3	85.2	59.8	45.9	34.4
5°	363.1	333.6	321.3	310.6	263.9	259.8	231.1	224.6	80.3	41.8	26.2
7.5°	677.0	632.0	603.3	575.4	500.0	479.5	430.3	418.0	109.0	35.2	20.5
10°	1034.4	969.7	919.7	853.3	755.7	713.1	641.0	614.7	132.8	29.5	19.7
12.5°	1370.5	1296.7	1228.7	1141.0	1009.0	941.0	845.9	812.3	141.8	24.6	18.0
15°	1660.6	1562.3	1477.8	1383.6	1236.0	1150.0	1033.6	990.1	134.4	19.7	15.6
17.5°	2028.6	1862.3	1715.5	1583.6	1422.9	1318.0	1182.8	1112.3	109.0	17.2	13.9
20°	2572.9	2237.7	1979.5	1766.4	1543.4	1413.1	1263.1	1177.8	78.7	15.6	13.9
22.5°	3085.2	2606.5	2210.6	1905.7	1605.7	1450.0	1294.2	1200.0	55.7	15.6	16.4
25°	3503.2	2884.4	2370.4	1997.5	1640.1	1457.3	1282.8	1171.3	43.4	18.0	32.0
26°	3620.4	2953.2	2401.6	2004.9	1635.2	1446.7	1263.1	1145.1	38.5	24.6	59.8
27°	3693.4	2984.4	2402.4	1993.4	1617.2	1425.4	1233.6	1109.8	33.6	37.7	100.8
28°	3708.1	2969.6	2374.5	1961.4	1586.0	1396.7	1200.8	1067.2	31.1	47.5	114.8
29°	3668.0	2917.2	2323.7	1914.7	1548.3	1362.3	1161.5	1020.5	27.0	36.1	74.6
30°	3577.8	2830.3	2249.1	1854.9	1508.2	1323.7	1113.1	964.7	22.1	18.0	33.6
31°	3442.6	2710.6	2157.3	1784.4	1463.1	1274.6	1054.9	902.4	18.9	12.3	19.7
32°	3271.2	2567.2	2054.9	1712.3	1412.3	1214.7	986.9	832.8	17.2	9.8	16.4
33°	3074.5	2416.3	1949.1	1639.3	1351.6	1143.4	913.9	758.2	15.6	10.7	16.4
34°	2859.8	2262.3	1829.5	1563.1	1281.1	1065.6	836.0	670.5	13.9	9.8	12.3
35°	2627.0	2102.4	1722.1	1495.9	1201.6	981.1	756.5	595.9	12.3	7.4	8.2
36°	2426.2	1946.7	1618.0	1410.6	1114.7	894.2	674.6	515.6	10.7	4.9	5.7
37°	2207.3	1800.8	1521.3	1322.1	1021.3	804.9	592.6	436.1	9.8	3.3	4.9
38°	2003.2	1666.4	1424.6	1220.5	925.4	714.7	509.0	358.2	9.0	3.3	4.1
39°	1818.0	1544.2	1334.4	1112.3	824.6	620.5	424.6	281.1	8.2	2.5	4.1
40°	1659.0	1435.2	1226.2	998.3	720.5	527.0	340.2	208.2	7.4	2.5	4.1
42.5°	1349.2	1151.6	925.4	705.7	466.4	298.4	152.5	76.2	5.7	2.5	3.3
45°	1031.1	819.7	610.6	424.6	240.2	115.6	56.6	41.8	4.9	2.5	3.3
47.5°	669.7	491.8	327.9	185.2	80.3	46.7	29.5	21.3	4.1	2.5	3.3
50°	247.5	136.9	72.1	45.1	31.1	19.7	13.1	12.3	4.1	2.5	3.3
51°	101.6	66.4	45.1	30.3	19.7	13.9	10.7	10.7	4.1	2.5	3.3
52°	60.7	41.8	30.3	22.1	14.8	10.7	8.2	9.0	4.1	2.5	3.3
53°	40.2	28.7	22.1	17.2	11.5	8.2	5.7	6.6	4.1	2.5	3.3
54°	27.0	20.5	16.4	13.1	8.2	6.6	3.3	5.7	3.3	2.5	3.3
55°	18.9	14.8	12.3	9.8	5.7	4.1	2.5	4.9	3.3	2.5	3.3
57.5°	8.2	7.4	6.6	5.7	2.5	1.6	0.8	4.1	3.3	2.5	3.3
60°	5.7	4.9	4.1	4.1	0.8	0.8	0.0	3.3	3.3	2.5	3.3
61°	4.9	4.1	4.1	3.3	0.8	0.8	0.0	3.3	4.1	2.5	3.3
62°	4.1	4.1	3.3	3.3	0.8	0.0	0.0	3.3	4.1	2.5	4.1
63°	3.3	3.3	3.3	3.3	0.8	0.0	0.0	3.3	4.1	2.5	4.1
64°	3.3	3.3	3.3	3.3	0.0	0.0	0.0	3.3	4.1	2.5	4.1
65°	3.3	2.5	2.5	2.5	0.0	0.0	0.0	3.3	4.1	3.3	4.1
66°	2.5	2.5	2.5	2.5	0.0	0.0	0.0	3.3	4.1	3.3	4.1



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CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
72.5°	1.6	1.6	1.6	1.6	0.0	0.0	0.0	2.5	4.1	3.3	4.9
75°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
77.5°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
80°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
82.5°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
85°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
87.5°	0.8	1.6	1.6	1.6	0.0	0.0	0.0	3.3	4.1	3.3	4.9
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: P175501

CATALOG NUMBER: LDA6A30935D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	47.5	47.5	47.5
2.5°	28.7	26.2	24.6
5°	20.5	18.9	17.2
7.5°	17.2	14.8	13.9
10°	15.6	11.5	10.7
12.5°	13.1	9.8	9.0
15°	12.3	9.8	9.0
17.5°	12.3	9.8	9.0
20°	13.1	12.3	12.3
22.5°	18.9	20.5	21.3
25°	57.4	73.8	85.2
26°	134.4	201.6	270.5
27°	204.1	297.5	317.2
28°	183.6	213.1	207.4
29°	88.5	100.0	91.0
30°	39.3	46.7	45.9
31°	25.4	28.7	27.9
32°	21.3	19.7	18.9
33°	17.2	13.9	11.5
34°	11.5	9.0	7.4
35°	7.4	4.9	4.1
36°	4.9	2.5	1.6
37°	3.3	1.6	0.8
38°	3.3	0.8	0.0
39°	2.5	0.8	0.0
40°	2.5	0.8	0.0
42.5°	2.5	0.0	0.0
45°	1.6	0.0	0.0
47.5°	1.6	0.0	0.0
50°	2.5	0.8	0.0
51°	2.5	0.0	0.0
52°	2.5	0.0	0.0
53°	1.6	0.0	0.0
54°	1.6	0.0	0.0
55°	1.6	0.0	0.0
57.5°	1.6	0.0	0.0
60°	1.6	0.0	0.0
61°	2.5	0.0	0.0
62°	2.5	0.0	0.0
63°	2.5	0.0	0.0
64°	2.5	0.8	0.0
65°	2.5	0.8	0.0
66°	2.5	0.8	0.0



TEST NUMBER: P175501

CATALOG NUMBER: LDA6A30935D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	3.3	0.8	0.0
75°	3.3	0.8	0.0
77.5°	3.3	0.8	0.0
80°	3.3	1.6	0.8
82.5°	3.3	1.6	0.8
85°	3.3	1.6	0.8
87.5°	3.3	1.6	0.8
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	2.5	2.5	2.5	2.5	2.5	2.5	1.6	1.6	1.6	2.5	2.5
70°	2.5	2.5	1.6	1.6	1.6	1.6	1.6	0.8	0.8	2.5	2.5





67.5°	2.5	2.5	2.5	2.5	0.0	0.0	0.0	3.3	4.1	3.3	4.1
70°	2.5	2.5	2.5	2.5	0.0	0.0	0.0	3.3	4.1	3.3	4.9





67.5°	3.3	0.8	0.0
70°	3.3	0.8	0.0



(END OF REPORT)