

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: P175502

Luminaire Tested: **LDA6A30940D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175502
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: LDA6A30940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2258.4 lumens
Efficiency: N/A
Efficacy: 50.8 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

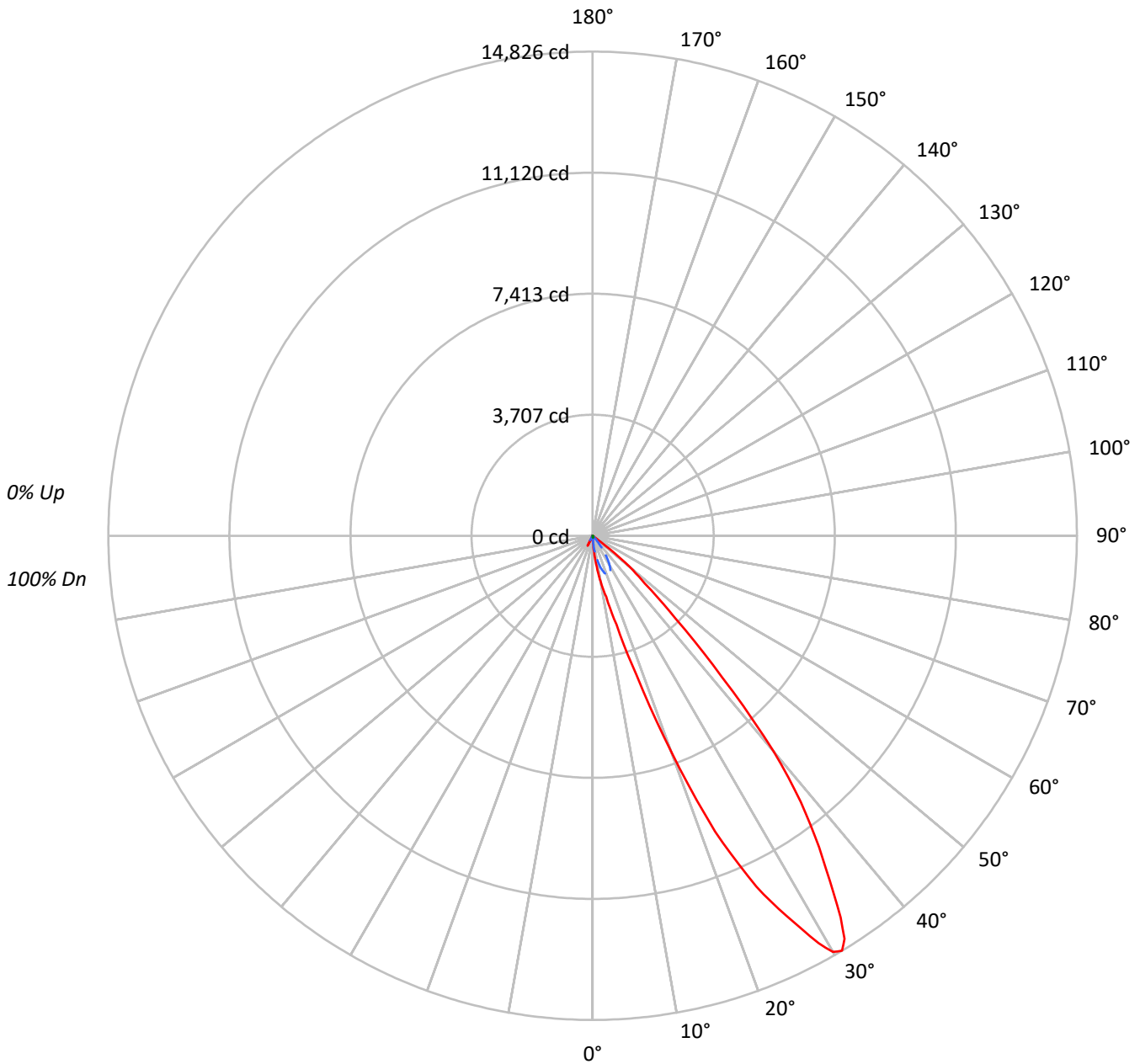
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
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	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°	2796	2796	2796
5°	27168	2471	1018
10°	80343	1765	635
15°	159484	1198	551
20°	411402	974	770
25°	716993	1173	5535
30°	931346	1228	3121
35°	834511	529	294
40°	616949	186	0
45°	277827	202	0
50°	125343	222	0
55°	11182	248	0
60°	1349	285	0
65°	571	454	0
70°	417	561	0
75°	0	741	0
80°	0	1105	284
85°	0	2201	566



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	20.3	0.9
10°-20°	190.2	8.4
20°-30°	750.9	33.2
30°-40°	906.1	40.1
40°-50°	351.6	15.6
50°-60°	30.9	1.4
60°-70°	2.9	0.1
70°-80°	2.8	0.1
80°-90°	2.6	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°	961.4	42.6
0°-40°	1867.5	82.7
0°-60°	2250.1	99.6
0°-90°	2258.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2258.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	51	51	51	51	51	
5°	494	241	45	22	18	78
15°	2810	1063	21	13	10	1030
25°	11854	1258	19	62	92	5421
35°	12470	640	8	8	4	7665
45°	3584	45	3	2	0	3148
55°	117	5	3	2	0	282
65°	4	4	4	3	0	5
75°	0	4	4	4	0	1
85°	0	4	4	4	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°	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0
2.5°	160.2	152.3	143.5	147.0	148.7	153.1	149.6	136.4	144.3	138.2	132.9
5°	493.7	484.9	468.2	470.8	465.6	471.7	457.6	429.5	434.8	426.0	403.1
7.5°	962.8	925.8	898.5	900.3	884.5	891.5	865.1	816.7	811.4	766.5	759.5
10°	1443.3	1424.8	1392.3	1387.9	1359.7	1363.2	1321.9	1257.6	1240.0	1188.1	1158.2
12.5°	1915.0	1884.2	1838.5	1828.8	1783.0	1783.9	1727.6	1655.4	1629.0	1575.3	1534.0
15°	2810.1	2766.1	2661.3	2621.7	2495.0	2475.6	2336.6	2172.9	2093.7	2001.3	1879.8
17.5°	4461.9	4433.8	4228.7	4115.2	3858.2	3603.0	3452.5	3098.7	2891.9	2633.2	2408.7
20°	7052.0	7103.9	6745.7	6492.3	6015.3	5476.7	5096.5	4452.3	4021.9	3575.7	3153.3
22.5°	9806.6	9828.6	9461.6	9145.7	8590.3	7850.2	6974.5	6193.0	5404.5	4638.0	3940.9
25°	11853.6	11790.3	11386.3	11007.0	10422.6	9666.7	8815.6	7771.9	6693.8	5641.2	4620.4
26°	12478.5	12444.1	12039.3	11585.2	10941.9	10174.5	9289.1	8235.7	7096.9	5963.3	4828.0
27°	13057.6	13035.6	12596.4	12091.2	11370.5	10567.0	9640.3	8587.7	7401.4	6212.4	4978.5
28°	13644.6	13619.9	13088.4	12502.2	11719.0	10845.9	9883.2	8822.7	7597.6	6358.5	5041.0
29°	14265.0	14217.5	13538.1	12804.1	11951.3	11008.8	10009.9	8930.0	7664.5	6394.6	5025.2
30°	14713.0	14639.0	13862.8	12995.1	12046.4	11059.8	10024.0	8927.4	7623.1	6319.8	4924.0
31°	14825.6	14750.8	13953.5	12992.4	11976.8	10982.4	9922.8	8802.4	7450.6	6138.5	4753.2
32°	14552.8	14484.1	13723.8	12695.8	11756.8	10795.8	9721.2	8571.0	7183.1	5867.4	4521.8
33°	13943.8	13891.9	13236.2	12306.0	11441.7	10530.9	9432.6	8241.8	6802.9	5522.4	4249.8
34°	13175.5	13137.6	12633.4	11847.5	11042.2	10167.4	9058.5	7808.0	6302.2	5131.7	3953.3
35°	12469.7	12441.5	12033.2	11336.1	10585.4	9717.7	8585.1	7273.8	5786.4	4711.0	3636.4
36°	11790.3	11766.5	11411.8	10764.1	10039.8	9190.5	7989.2	6634.8	5232.9	4274.5	3308.2
37°	11080.9	11059.8	10755.3	10139.3	9426.4	8560.4	7281.7	5954.5	4670.5	3838.9	2971.1
38°	10345.2	10327.6	10048.6	9434.3	8710.9	7790.4	6474.7	5251.4	4122.2	3413.8	2668.4
39°	9524.1	9509.1	9252.1	8607.9	7835.2	6883.0	5643.9	4565.8	3602.1	3001.0	2375.3
40°	8621.1	8600.9	8343.9	7624.0	6843.4	5949.3	4845.6	3936.5	3111.0	2615.6	2117.4
42.5°	5861.2	5839.2	5648.3	5229.4	4477.8	3903.1	3211.4	2634.9	2204.6	1906.2	1649.2
45°	3583.6	3586.3	3485.9	3227.2	2774.9	2455.4	2079.6	1804.1	1610.5	1496.1	1317.5
47.5°	2167.6	2167.6	2122.7	1990.7	1787.4	1659.8	1504.0	1375.5	1227.7	1115.0	921.4
50°	1469.7	1470.6	1401.9	1409.0	1273.5	1194.3	1045.5	888.9	743.7	580.0	413.6
51°	1087.8	1093.0	1029.7	1058.7	910.0	843.1	702.3	569.4	440.9	314.2	181.3
52°	665.3	675.0	631.9	658.3	572.0	474.4	359.9	265.8	178.7	125.0	87.1
53°	308.9	316.8	294.8	307.1	256.1	199.8	151.4	123.2	98.6	80.1	59.0
54°	163.7	165.5	158.4	154.9	140.8	124.1	103.0	85.4	66.9	53.7	39.6
55°	117.0	117.0	113.5	110.0	98.6	84.5	68.6	58.1	44.0	35.2	25.5
57.5°	36.1	36.1	36.1	34.3	29.9	25.5	20.2	17.6	14.1	13.2	10.6
60°	12.3	12.3	12.3	11.4	10.6	9.7	8.8	7.9	7.0	7.0	6.2
61°	8.8	8.8	8.8	8.8	7.9	7.9	7.0	6.2	5.3	6.2	5.3
62°	7.0	7.9	7.0	7.0	7.0	6.2	5.3	5.3	4.4	5.3	4.4
63°	6.2	6.2	6.2	6.2	5.3	5.3	4.4	4.4	3.5	4.4	4.4
64°	5.3	5.3	5.3	5.3	4.4	4.4	3.5	3.5	2.6	3.5	3.5
65°	4.4	4.4	4.4	4.4	3.5	3.5	3.5	2.6	2.6	3.5	3.5
66°	3.5	3.5	3.5	3.5	3.5	2.6	2.6	2.6	1.8	2.6	2.6



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CATALOG NUMBER: LDA6A30940D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
72.5°	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9	0.9	1.8	1.8
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
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: LDA6A30940D010TE 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°	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0
2.5°	127.6	118.8	117.0	117.0	98.6	102.1	95.9	91.5	64.2	49.3	37.0
5°	389.9	358.2	345.0	333.5	283.4	279.0	248.2	241.1	86.2	44.9	28.2
7.5°	726.9	678.5	647.7	617.8	536.8	514.8	462.0	448.8	117.0	37.8	22.0
10°	1110.6	1041.1	987.4	916.1	811.4	765.7	688.2	660.1	142.6	31.7	21.1
12.5°	1471.5	1392.3	1319.2	1225.1	1083.4	1010.3	908.2	872.1	152.3	26.4	19.4
15°	1783.0	1677.4	1586.8	1485.6	1327.1	1234.7	1109.8	1063.1	144.3	21.1	16.7
17.5°	2178.2	1999.5	1842.0	1700.3	1527.8	1415.1	1269.9	1194.3	117.0	18.5	15.0
20°	2762.5	2402.6	2125.4	1896.5	1657.2	1517.2	1356.2	1264.7	84.5	16.7	15.0
22.5°	3312.6	2798.6	2373.5	2046.2	1724.1	1556.8	1389.6	1288.4	59.8	16.7	17.6
25°	3761.4	3097.0	2545.2	2144.7	1761.0	1564.8	1377.3	1257.6	46.6	19.4	34.3
26°	3887.3	3170.9	2578.6	2152.6	1755.7	1553.3	1356.2	1229.5	41.4	26.4	64.2
27°	3965.6	3204.3	2579.5	2140.3	1736.4	1530.4	1324.5	1191.6	36.1	40.5	108.2
28°	3981.4	3188.5	2549.6	2106.0	1702.9	1499.6	1289.3	1145.8	33.4	51.0	123.2
29°	3938.3	3132.2	2495.0	2055.8	1662.4	1462.7	1247.1	1095.7	29.0	38.7	80.1
30°	3841.5	3038.9	2414.9	1991.6	1619.3	1421.3	1195.1	1035.8	23.8	19.4	36.1
31°	3696.3	2910.4	2316.3	1915.9	1570.9	1368.5	1132.6	969.0	20.2	13.2	21.1
32°	3512.3	2756.4	2206.3	1838.5	1516.4	1304.3	1059.6	894.1	18.5	10.6	17.6
33°	3301.1	2594.4	2092.8	1760.1	1451.2	1227.7	981.3	814.1	16.7	11.4	17.6
34°	3070.6	2429.0	1964.3	1678.3	1375.5	1144.1	897.7	719.9	15.0	10.6	13.2
35°	2820.6	2257.4	1849.0	1606.1	1290.2	1053.4	812.3	639.8	13.2	7.9	8.8
36°	2605.0	2090.2	1737.3	1514.6	1196.9	960.2	724.3	553.6	11.4	5.3	6.2
37°	2370.0	1933.5	1633.4	1419.5	1096.6	864.2	636.3	468.2	10.6	3.5	5.3
38°	2150.9	1789.2	1529.6	1310.4	993.6	767.4	546.5	384.6	9.7	3.5	4.4
39°	1952.0	1658.0	1432.7	1194.3	885.3	666.2	455.9	301.9	8.8	2.6	4.4
40°	1781.3	1541.0	1316.6	1071.9	773.6	565.9	365.2	223.5	7.9	2.6	4.4
42.5°	1448.6	1236.5	993.6	757.7	500.8	320.3	163.7	81.8	6.2	2.6	3.5
45°	1107.1	880.1	655.6	455.9	257.9	124.1	60.7	44.9	5.3	2.6	3.5
47.5°	719.0	528.0	352.0	198.9	86.2	50.2	31.7	22.9	4.4	2.6	3.5
50°	265.8	147.0	77.4	48.4	33.4	21.1	14.1	13.2	4.4	2.6	3.5
51°	109.1	71.3	48.4	32.6	21.1	15.0	11.4	11.4	4.4	2.6	3.5
52°	65.1	44.9	32.6	23.8	15.8	11.4	8.8	9.7	4.4	2.6	3.5
53°	43.1	30.8	23.8	18.5	12.3	8.8	6.2	7.0	4.4	2.6	3.5
54°	29.0	22.0	17.6	14.1	8.8	7.0	3.5	6.2	3.5	2.6	3.5
55°	20.2	15.8	13.2	10.6	6.2	4.4	2.6	5.3	3.5	2.6	3.5
57.5°	8.8	7.9	7.0	6.2	2.6	1.8	0.9	4.4	3.5	2.6	3.5
60°	6.2	5.3	4.4	4.4	0.9	0.9	0.0	3.5	3.5	2.6	3.5
61°	5.3	4.4	4.4	3.5	0.9	0.9	0.0	3.5	4.4	2.6	3.5
62°	4.4	4.4	3.5	3.5	0.9	0.0	0.0	3.5	4.4	2.6	4.4
63°	3.5	3.5	3.5	3.5	0.9	0.0	0.0	3.5	4.4	2.6	4.4
64°	3.5	3.5	3.5	3.5	0.0	0.0	0.0	3.5	4.4	2.6	4.4
65°	3.5	2.6	2.6	2.6	0.0	0.0	0.0	3.5	4.4	3.5	4.4
66°	2.6	2.6	2.6	2.6	0.0	0.0	0.0	3.5	4.4	3.5	4.4



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CATALOG NUMBER: LDA6A30940D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
72.5°	1.8	1.8	1.8	1.8	0.0	0.0	0.0	2.6	4.4	3.5	5.3
75°	0.9	1.8	1.8	1.8	0.0	0.0	0.0	3.5	4.4	3.5	5.3
77.5°	0.9	1.8	1.8	1.8	0.0	0.0	0.0	3.5	4.4	3.5	5.3
80°	0.9	1.8	1.8	1.8	0.0	0.0	0.0	3.5	4.4	3.5	5.3
82.5°	0.9	1.8	1.8	1.8	0.0	0.0	0.0	3.5	4.4	3.5	5.3
85°	0.9	1.8	1.8	1.8	0.0	0.0	0.0	3.5	4.4	3.5	5.3
87.5°	0.9	1.8	1.8	1.8	0.0	0.0	0.0	3.5	4.4	3.5	5.3
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: P175502

CATALOG NUMBER: LDA6A30940D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	51.0	51.0	51.0
2.5°	30.8	28.2	26.4
5°	22.0	20.2	18.5
7.5°	18.5	15.8	15.0
10°	16.7	12.3	11.4
12.5°	14.1	10.6	9.7
15°	13.2	10.6	9.7
17.5°	13.2	10.6	9.7
20°	14.1	13.2	13.2
22.5°	20.2	22.0	22.9
25°	61.6	79.2	91.5
26°	144.3	216.5	290.4
27°	219.1	319.5	340.6
28°	197.1	228.8	222.7
29°	95.0	107.4	97.7
30°	42.2	50.2	49.3
31°	27.3	30.8	29.9
32°	22.9	21.1	20.2
33°	18.5	15.0	12.3
34°	12.3	9.7	7.9
35°	7.9	5.3	4.4
36°	5.3	2.6	1.8
37°	3.5	1.8	0.9
38°	3.5	0.9	0.0
39°	2.6	0.9	0.0
40°	2.6	0.9	0.0
42.5°	2.6	0.0	0.0
45°	1.8	0.0	0.0
47.5°	1.8	0.0	0.0
50°	2.6	0.9	0.0
51°	2.6	0.0	0.0
52°	2.6	0.0	0.0
53°	1.8	0.0	0.0
54°	1.8	0.0	0.0
55°	1.8	0.0	0.0
57.5°	1.8	0.0	0.0
60°	1.8	0.0	0.0
61°	2.6	0.0	0.0
62°	2.6	0.0	0.0
63°	2.6	0.0	0.0
64°	2.6	0.9	0.0
65°	2.6	0.9	0.0
66°	2.6	0.9	0.0



TEST NUMBER: P175502

CATALOG NUMBER: LDA6A30940D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	3.5	0.9	0.0
75°	3.5	0.9	0.0
77.5°	3.5	0.9	0.0
80°	3.5	1.8	0.9
82.5°	3.5	1.8	0.9
85°	3.5	1.8	0.9
87.5°	3.5	1.8	0.9
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - - 90°-270°







67.5°	2.6	2.6	2.6	2.6	2.6	2.6	1.8	1.8	1.8	2.6	2.6
70°	2.6	2.6	1.8	1.8	1.8	1.8	1.8	0.9	0.9	2.6	2.6





67.5°	2.6	2.6	2.6	2.6	0.0	0.0	0.0	3.5	4.4	3.5	4.4
70°	2.6	2.6	2.6	2.6	0.0	0.0	0.0	3.5	4.4	3.5	5.3





67.5°	3.5	0.9	0.0
70°	3.5	0.9	0.0



(END OF REPORT)