

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: P175486

Luminaire Tested: **LDA6A10940D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175486
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: LDA6A10940D010TE 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: 784.4 lumens
Efficiency: N/A
Efficacy: 56.7 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

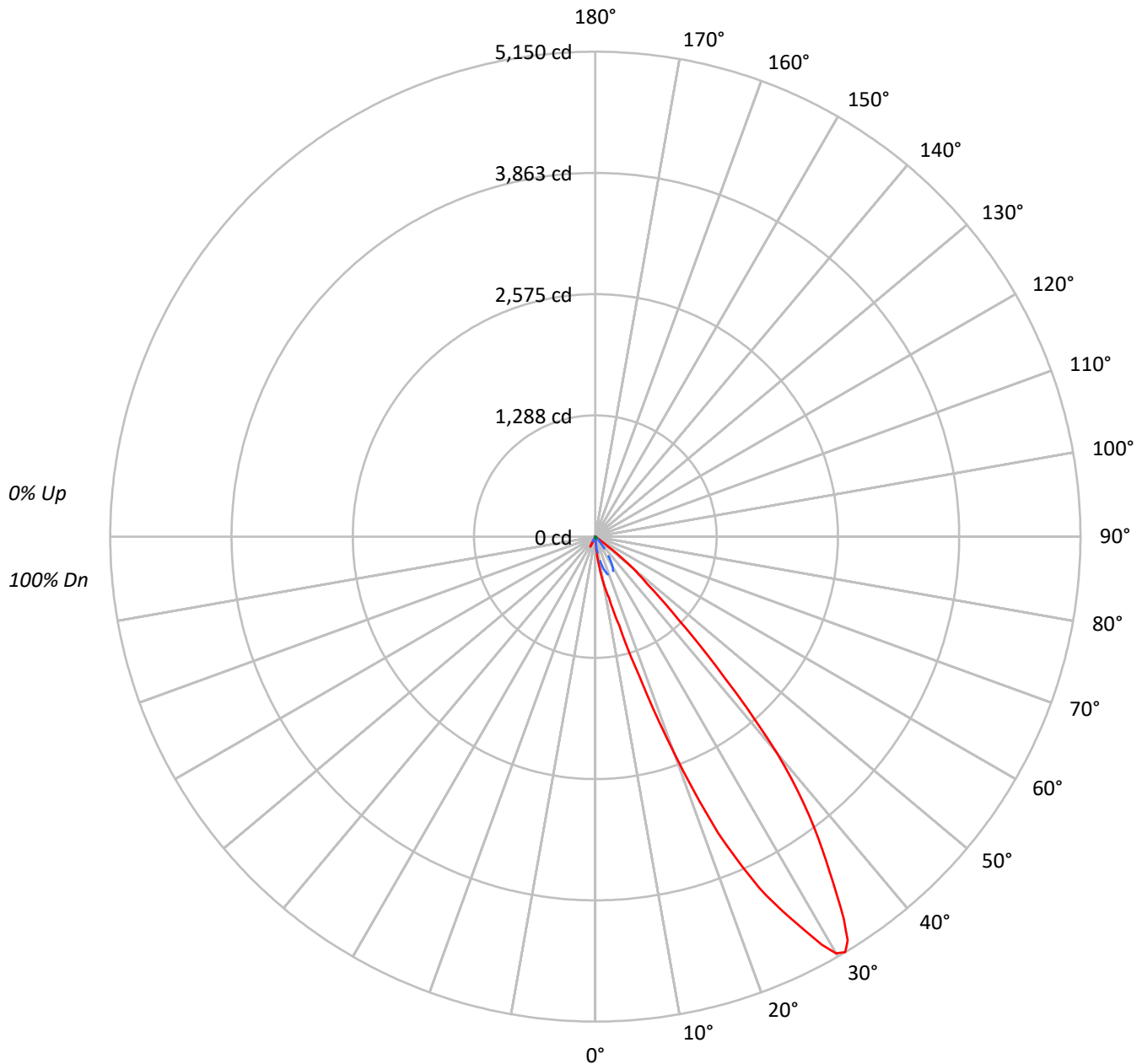
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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
RCR																				
0	119	119	119	119	116	116	116	116		111	111	111		106	106	106		102	102	102
1	112	109	106	104	110	107	104	102		103	101	99		99	97	96		96	94	93
2	105	100	95	91	103	98	93	90		94	91	88		91	88	86		89	86	84
3	99	91	85	80	96	89	84	79		87	82	78		84	80	77		82	78	76
4	92	83	76	71	90	82	75	70		79	74	70		77	72	69		75	71	68
5	86	75	68	63	84	74	68	63		73	67	62		71	66	62		69	65	61
6	80	69	62	56	78	68	61	56		66	60	56		65	59	55		63	59	55
7	74	63	56	50	73	62	55	50		61	55	50		59	54	50		58	53	49
8	69	58	50	45	68	57	50	45		56	49	45		55	49	45		54	48	44
9	65	53	46	41	63	52	45	41		51	45	40		50	44	40		49	44	40
10	60	49	41	37	59	48	41	37		47	41	37		46	41	36		45	40	36

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	970	970	970
5°	9438	858	352
10°	27905	612	223
15°	55398	414	193
20°	142900	338	268
25°	249045	405	1923
30°	323499	424	1082
35°	289864	187	100
40°	214294	64	0
45°	96506	70	0
50°	43538	77	0
55°	3890	86	0
60°	471	99	0
65°	195	156	0
70°	144	192	0
75°	0	254	0
80°	0	379	95
85°	0	755	189



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	7.1	0.9
10°-20°	66.1	8.4
20°-30°	260.8	33.3
30°-40°	314.7	40.1
40°-50°	122.1	15.6
50°-60°	10.7	1.4
60°-70°	1.0	0.1
70°-80°	1.0	0.1
80°-90°	0.9	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°	333.9	42.6
0°-40°	648.7	82.7
0°-60°	781.5	99.6
0°-90°	784.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	784.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	18	18	18	18	18	
5°	172	84	16	8	6	27
15°	976	369	7	5	3	358
25°	4117	437	7	21	32	1883
35°	4331	222	3	3	2	2662
45°	1245	16	1	1	0	1094
55°	41	2	1	1	0	98
65°	2	1	1	1	0	2
75°	0	1	1	1	0	0
85°	0	1	1	1	0	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°	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
2.5°	55.6	52.9	49.8	51.0	51.7	53.2	52.0	47.4	50.1	48.0	46.2
5°	171.5	168.4	162.6	163.5	161.7	163.8	159.0	149.2	151.0	148.0	140.0
7.5°	334.4	321.6	312.1	312.7	307.2	309.7	300.5	283.7	281.8	266.3	263.8
10°	501.3	494.9	483.6	482.1	472.3	473.5	459.1	436.8	430.7	412.7	402.3
12.5°	665.2	654.5	638.6	635.2	619.3	619.6	600.1	575.0	565.8	547.2	532.8
15°	976.1	960.8	924.4	910.6	866.6	859.9	811.6	754.7	727.2	695.1	652.9
17.5°	1549.8	1540.1	1468.8	1429.4	1340.1	1251.5	1199.2	1076.3	1004.5	914.6	836.7
20°	2449.5	2467.5	2343.1	2255.1	2089.4	1902.3	1770.2	1546.5	1397.0	1242.0	1095.3
22.5°	3406.3	3413.9	3286.4	3176.7	2983.8	2726.7	2422.6	2151.1	1877.2	1611.0	1368.9
25°	4117.3	4095.3	3955.0	3823.2	3620.3	3357.7	3062.1	2699.5	2325.1	1959.5	1604.9
26°	4334.3	4322.4	4181.8	4024.1	3800.6	3534.0	3226.5	2860.6	2465.1	2071.3	1677.0
27°	4535.5	4527.8	4375.3	4199.8	3949.5	3670.4	3348.5	2982.9	2570.8	2157.8	1729.3
28°	4739.4	4730.8	4546.2	4342.6	4070.5	3767.3	3432.9	3064.5	2639.0	2208.6	1751.0
29°	4954.9	4938.4	4702.4	4447.4	4151.2	3823.8	3476.9	3101.8	2662.2	2221.1	1745.5
30°	5110.5	5084.8	4815.2	4513.8	4184.2	3841.6	3481.8	3100.9	2647.9	2195.1	1710.3
31°	5149.6	5123.6	4846.7	4512.9	4160.1	3814.7	3446.6	3057.5	2587.9	2132.2	1651.0
32°	5054.8	5031.0	4766.9	4409.8	4083.7	3749.9	3376.6	2977.1	2495.0	2038.0	1570.6
33°	4843.3	4825.3	4597.5	4274.4	3974.2	3657.9	3276.4	2862.8	2363.0	1918.2	1476.2
34°	4576.4	4563.3	4388.1	4115.2	3835.5	3531.6	3146.4	2712.1	2189.0	1782.5	1373.1
35°	4331.3	4321.5	4179.7	3937.6	3676.8	3375.4	2982.0	2526.5	2009.9	1636.3	1263.1
36°	4095.3	4087.0	3963.8	3738.9	3487.3	3192.3	2775.0	2304.6	1817.6	1484.7	1149.1
37°	3848.9	3841.6	3735.8	3521.8	3274.2	2973.4	2529.3	2068.3	1622.3	1333.4	1032.0
38°	3593.4	3587.2	3490.3	3277.0	3025.7	2705.9	2248.9	1824.0	1431.8	1185.8	926.8
39°	3308.1	3302.9	3213.7	2989.9	2721.5	2390.8	1960.4	1585.9	1251.2	1042.4	825.0
40°	2994.5	2987.5	2898.2	2648.2	2377.0	2066.4	1683.1	1367.3	1080.6	908.5	735.5
42.5°	2035.9	2028.2	1961.9	1816.4	1555.3	1355.7	1115.5	915.2	765.7	662.1	572.9
45°	1244.8	1245.7	1210.8	1121.0	963.8	852.9	722.3	626.7	559.4	519.7	457.6
47.5°	752.9	752.9	737.3	691.5	620.9	576.5	522.4	477.8	426.4	387.3	320.1
50°	510.5	510.8	487.0	489.4	442.3	414.8	363.2	308.7	258.3	201.4	143.7
51°	377.8	379.7	357.7	367.7	316.1	292.8	243.9	197.8	153.1	109.1	63.0
52°	231.1	234.5	219.5	228.7	198.7	164.8	125.0	92.3	62.1	43.4	30.3
53°	107.3	110.0	102.4	106.7	89.0	69.4	52.6	42.8	34.2	27.8	20.5
54°	56.9	57.5	55.0	53.8	48.9	43.1	35.8	29.7	23.2	18.6	13.8
55°	40.7	40.7	39.4	38.2	34.2	29.3	23.8	20.2	15.3	12.2	8.9
57.5°	12.5	12.5	12.5	11.9	10.4	8.9	7.0	6.1	4.9	4.6	3.7
60°	4.3	4.3	4.3	4.0	3.7	3.4	3.1	2.8	2.4	2.4	2.1
61°	3.1	3.1	3.1	3.1	2.8	2.8	2.4	2.1	1.8	2.1	1.8
62°	2.4	2.8	2.4	2.4	2.4	2.1	1.8	1.8	1.5	1.8	1.5
63°	2.1	2.1	2.1	2.1	1.8	1.8	1.5	1.5	1.2	1.5	1.5
64°	1.8	1.8	1.8	1.8	1.5	1.5	1.2	1.2	0.9	1.2	1.2
65°	1.5	1.5	1.5	1.5	1.2	1.2	1.2	0.9	0.9	1.2	1.2
66°	1.2	1.2	1.2	1.2	1.2	0.9	0.9	0.9	0.6	0.9	0.9



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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°	0.6	0.6	0.6	0.6	0.3	0.3	0.3	0.3	0.3	0.6	0.6
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
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):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
2.5°	44.3	41.3	40.7	40.7	34.2	35.5	33.3	31.8	22.3	17.1	12.8
5°	135.4	124.4	119.8	115.9	98.4	96.9	86.2	83.8	30.0	15.6	9.8
7.5°	252.5	235.7	225.0	214.6	186.5	178.8	160.5	155.9	40.7	13.1	7.6
10°	385.8	361.6	343.0	318.2	281.8	265.9	239.0	229.3	49.5	11.0	7.3
12.5°	511.1	483.6	458.2	425.5	376.3	350.9	315.5	302.9	52.9	9.2	6.7
15°	619.3	582.6	551.2	516.0	461.0	428.9	385.5	369.3	50.1	7.3	5.8
17.5°	756.6	694.5	639.8	590.6	530.7	491.5	441.1	414.8	40.7	6.4	5.2
20°	959.6	834.5	738.2	658.8	575.6	527.0	471.1	439.3	29.3	5.8	5.2
22.5°	1150.6	972.1	824.4	710.7	598.8	540.8	482.7	447.5	20.8	5.8	6.1
25°	1306.5	1075.7	884.0	745.0	611.7	543.5	478.4	436.8	16.2	6.7	11.9
26°	1350.2	1101.4	895.7	747.7	609.8	539.5	471.1	427.0	14.4	9.2	22.3
27°	1377.4	1113.0	896.0	743.4	603.1	531.6	460.1	413.9	12.5	14.1	37.6
28°	1382.9	1107.5	885.6	731.5	591.5	520.9	447.8	398.0	11.6	17.7	42.8
29°	1367.9	1087.9	866.6	714.1	577.4	508.1	433.2	380.6	10.1	13.5	27.8
30°	1334.3	1055.5	838.8	691.8	562.5	493.7	415.1	359.8	8.3	6.7	12.5
31°	1283.9	1010.9	804.6	665.5	545.7	475.3	393.4	336.6	7.0	4.6	7.3
32°	1220.0	957.4	766.4	638.6	526.7	453.0	368.0	310.6	6.4	3.7	6.1
33°	1146.6	901.2	726.9	611.4	504.1	426.4	340.8	282.8	5.8	4.0	6.1
34°	1066.5	843.7	682.3	582.9	477.8	397.4	311.8	250.1	5.2	3.7	4.6
35°	979.7	784.1	642.2	557.9	448.1	365.9	282.1	222.2	4.6	2.8	3.1
36°	904.8	726.0	603.4	526.1	415.7	333.5	251.6	192.3	4.0	1.8	2.1
37°	823.2	671.6	567.4	493.1	380.9	300.2	221.0	162.6	3.7	1.2	1.8
38°	747.1	621.5	531.3	455.2	345.1	266.6	189.8	133.6	3.4	1.2	1.5
39°	678.0	575.9	497.7	414.8	307.5	231.4	158.3	104.9	3.1	0.9	1.5
40°	618.7	535.3	457.3	372.3	268.7	196.6	126.9	77.6	2.8	0.9	1.5
42.5°	503.2	429.5	345.1	263.2	173.9	111.3	56.9	28.4	2.1	0.9	1.2
45°	384.6	305.7	227.7	158.3	89.6	43.1	21.1	15.6	1.8	0.9	1.2
47.5°	249.7	183.4	122.3	69.1	30.0	17.4	11.0	7.9	1.5	0.9	1.2
50°	92.3	51.0	26.9	16.8	11.6	7.3	4.9	4.6	1.5	0.9	1.2
51°	37.9	24.8	16.8	11.3	7.3	5.2	4.0	4.0	1.5	0.9	1.2
52°	22.6	15.6	11.3	8.3	5.5	4.0	3.1	3.4	1.5	0.9	1.2
53°	15.0	10.7	8.3	6.4	4.3	3.1	2.1	2.4	1.5	0.9	1.2
54°	10.1	7.6	6.1	4.9	3.1	2.4	1.2	2.1	1.2	0.9	1.2
55°	7.0	5.5	4.6	3.7	2.1	1.5	0.9	1.8	1.2	0.9	1.2
57.5°	3.1	2.8	2.4	2.1	0.9	0.6	0.3	1.5	1.2	0.9	1.2
60°	2.1	1.8	1.5	1.5	0.3	0.3	0.0	1.2	1.2	0.9	1.2
61°	1.8	1.5	1.5	1.2	0.3	0.3	0.0	1.2	1.5	0.9	1.2
62°	1.5	1.5	1.2	1.2	0.3	0.0	0.0	1.2	1.5	0.9	1.5
63°	1.2	1.2	1.2	1.2	0.3	0.0	0.0	1.2	1.5	0.9	1.5
64°	1.2	1.2	1.2	1.2	0.0	0.0	0.0	1.2	1.5	0.9	1.5
65°	1.2	0.9	0.9	0.9	0.0	0.0	0.0	1.2	1.5	1.2	1.5
66°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	1.2	1.5	1.2	1.5



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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°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.9	1.5	1.2	1.8
75°	0.3	0.6	0.6	0.6	0.0	0.0	0.0	1.2	1.5	1.2	1.8
77.5°	0.3	0.6	0.6	0.6	0.0	0.0	0.0	1.2	1.5	1.2	1.8
80°	0.3	0.6	0.6	0.6	0.0	0.0	0.0	1.2	1.5	1.2	1.8
82.5°	0.3	0.6	0.6	0.6	0.0	0.0	0.0	1.2	1.5	1.2	1.8
85°	0.3	0.6	0.6	0.6	0.0	0.0	0.0	1.2	1.5	1.2	1.8
87.5°	0.3	0.6	0.6	0.6	0.0	0.0	0.0	1.2	1.5	1.2	1.8
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: LDA6A10940D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	17.7	17.7	17.7
2.5°	10.7	9.8	9.2
5°	7.6	7.0	6.4
7.5°	6.4	5.5	5.2
10°	5.8	4.3	4.0
12.5°	4.9	3.7	3.4
15°	4.6	3.7	3.4
17.5°	4.6	3.7	3.4
20°	4.9	4.6	4.6
22.5°	7.0	7.6	7.9
25°	21.4	27.5	31.8
26°	50.1	75.2	100.9
27°	76.1	111.0	118.3
28°	68.5	79.5	77.3
29°	33.0	37.3	33.9
30°	14.7	17.4	17.1
31°	9.5	10.7	10.4
32°	7.9	7.3	7.0
33°	6.4	5.2	4.3
34°	4.3	3.4	2.8
35°	2.8	1.8	1.5
36°	1.8	0.9	0.6
37°	1.2	0.6	0.3
38°	1.2	0.3	0.0
39°	0.9	0.3	0.0
40°	0.9	0.3	0.0
42.5°	0.9	0.0	0.0
45°	0.6	0.0	0.0
47.5°	0.6	0.0	0.0
50°	0.9	0.3	0.0
51°	0.9	0.0	0.0
52°	0.9	0.0	0.0
53°	0.6	0.0	0.0
54°	0.6	0.0	0.0
55°	0.6	0.0	0.0
57.5°	0.6	0.0	0.0
60°	0.6	0.0	0.0
61°	0.9	0.0	0.0
62°	0.9	0.0	0.0
63°	0.9	0.0	0.0
64°	0.9	0.3	0.0
65°	0.9	0.3	0.0
66°	0.9	0.3	0.0



TEST NUMBER: P175486

CATALOG NUMBER: LDA6A10940D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	1.2	0.3	0.0
75°	1.2	0.3	0.0
77.5°	1.2	0.3	0.0
80°	1.2	0.6	0.3
82.5°	1.2	0.6	0.3
85°	1.2	0.6	0.3
87.5°	1.2	0.6	0.3
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.6	0.6	0.6	0.9	0.9
70°	0.9	0.9	0.6	0.6	0.6	0.6	0.6	0.3	0.3	0.9	0.9





67.5°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	1.2	1.5	1.2	1.5
70°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	1.2	1.5	1.2	1.8





67.5°	1.2	0.3	0.0
70°	1.2	0.3	0.0



(END OF REPORT)