

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: P175472

Luminaire Tested: **LDA6A20830D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175472
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: LDA6A20830D010TE 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 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1558.7 lumens
Efficiency: N/A
Efficacy: 53.5 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

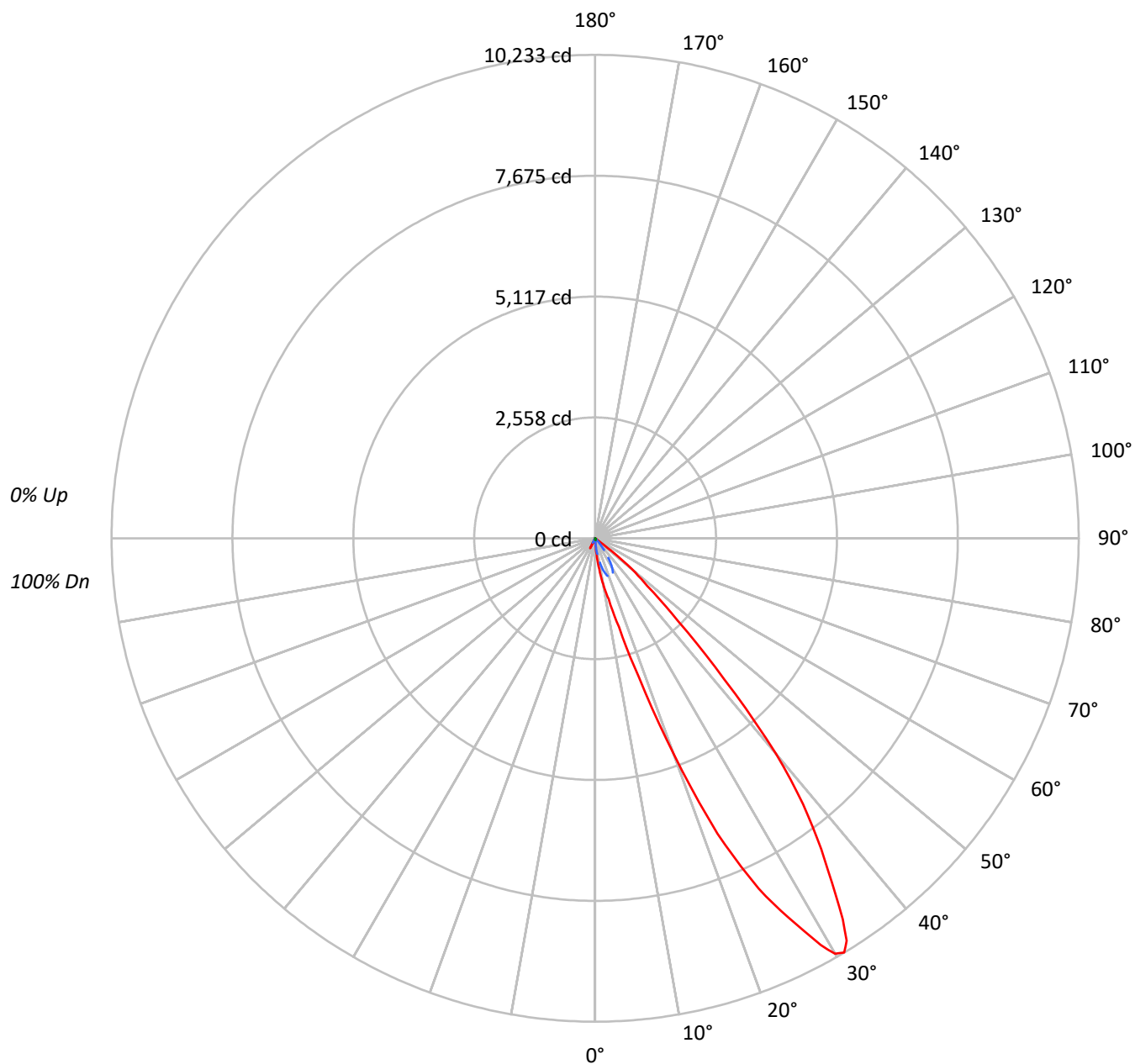
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					10
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°	1930	1930	1930
5°	18754	1706	704
10°	55454	1219	440
15°	110074	829	380
20°	283951	671	531
25°	494865	811	3823
30°	642808	848	2152
35°	575973	368	201
40°	425819	129	0
45°	191756	140	0
50°	86513	154	0
55°	7723	172	0
60°	932	197	0
65°	389	311	0
70°	289	385	0
75°	0	508	0
80°	0	758	189
85°	0	1510	377



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	14.0	0.9
10°-20°	131.2	8.4
20°-30°	518.3	33.3
30°-40°	625.4	40.1
40°-50°	242.7	15.6
50°-60°	21.3	1.4
60°-70°	2.0	0.1
70°-80°	1.9	0.1
80°-90°	1.8	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°	663.6	42.6
0°-40°	1289.0	82.7
0°-60°	1553.0	99.6
0°-90°	1558.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1558.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	35	35	35	35	35	
5°	341	166	31	15	13	54
15°	1940	734	15	9	7	711
25°	8181	868	13	42	63	3742
35°	8606	442	6	6	3	5290
45°	2473	31	2	1	0	2173
55°	81	4	2	1	0	195
65°	3	2	2	2	0	3
75°	0	2	2	2	0	1
85°	0	2	2	2	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°	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2
2.5°	110.6	105.1	99.0	101.4	102.7	105.7	103.3	94.2	99.6	95.4	91.7
5°	340.8	334.7	323.1	325.0	321.3	325.6	315.9	296.4	300.1	294.0	278.2
7.5°	664.5	639.0	620.2	621.4	610.5	615.3	597.1	563.7	560.0	529.1	524.2
10°	996.2	983.4	960.9	957.9	938.5	940.9	912.3	868.0	855.9	820.0	799.4
12.5°	1321.7	1300.5	1268.9	1262.2	1230.6	1231.2	1192.4	1142.6	1124.3	1087.3	1058.7
15°	1939.5	1909.1	1836.8	1809.5	1722.0	1708.7	1612.7	1499.7	1445.1	1381.3	1297.4
17.5°	3079.6	3060.2	2918.7	2840.3	2662.9	2486.8	2382.9	2138.7	1996.0	1817.4	1662.5
20°	4867.3	4903.1	4655.9	4480.9	4151.7	3780.0	3517.6	3072.9	2775.9	2467.9	2176.4
22.5°	6768.5	6783.7	6530.4	6312.3	5929.0	5418.2	4813.8	4274.4	3730.2	3201.1	2720.0
25°	8181.3	8137.6	7858.8	7597.0	7193.7	6671.9	6084.5	5364.1	4620.0	3893.6	3189.0
26°	8612.6	8588.9	8309.5	7996.1	7552.1	7022.4	6411.3	5684.2	4898.2	4115.9	3332.3
27°	9012.3	8997.1	8694.0	8345.3	7847.9	7293.3	6653.7	5927.2	5108.4	4287.8	3436.2
28°	9417.4	9400.4	9033.6	8629.0	8088.4	7485.8	6821.3	6089.4	5243.9	4388.6	3479.3
29°	9845.7	9812.9	9343.9	8837.4	8248.8	7598.2	6908.8	6163.5	5290.0	4413.5	3468.4
30°	10154.8	10103.8	9568.1	8969.2	8314.4	7633.4	6918.5	6161.7	5261.5	4361.9	3398.5
31°	10232.6	10181.0	9630.6	8967.3	8266.4	7580.0	6848.7	6075.4	5142.4	4236.8	3280.7
32°	10044.3	9996.9	9472.1	8762.6	8114.5	7451.2	6709.6	5915.7	4957.8	4049.7	3120.9
33°	9624.0	9588.1	9135.6	8493.6	7897.1	7268.4	6510.3	5688.5	4695.4	3811.6	2933.2
34°	9093.7	9067.6	8719.5	8177.1	7621.3	7017.5	6252.2	5389.0	4349.7	3541.9	2728.5
35°	8606.5	8587.1	8305.3	7824.2	7306.0	6707.1	5925.4	5020.3	3993.8	3251.5	2509.9
36°	8137.6	8121.2	7876.4	7429.4	6929.4	6343.3	5514.2	4579.3	3611.7	2950.2	2283.3
37°	7648.0	7633.4	7423.3	6998.1	6506.1	5908.4	5025.8	4109.8	3223.6	2649.6	2050.6
38°	7140.2	7128.1	6935.5	6511.5	6012.2	5376.9	4468.8	3624.5	2845.2	2356.2	1841.7
39°	6573.5	6563.2	6385.8	5941.2	5407.9	4750.6	3895.4	3151.3	2486.2	2071.3	1639.4
40°	5950.3	5936.3	5758.9	5262.1	4723.3	4106.2	3344.5	2717.0	2147.2	1805.3	1461.5
42.5°	4045.4	4030.2	3898.4	3609.3	3090.6	2693.9	2216.5	1818.6	1521.6	1315.7	1138.3
45°	2473.4	2475.2	2406.0	2227.4	1915.2	1694.7	1435.3	1245.2	1111.6	1032.6	909.3
47.5°	1496.1	1496.1	1465.1	1374.0	1233.7	1145.6	1038.1	949.4	847.4	769.6	636.0
50°	1014.4	1015.0	967.6	972.5	878.9	824.3	721.6	613.5	513.3	400.3	285.5
51°	750.8	754.4	710.7	730.7	628.1	581.9	484.7	393.0	304.3	216.8	125.1
52°	459.2	465.9	436.1	454.4	394.8	327.4	248.4	183.4	123.3	86.3	60.1
53°	213.2	218.7	203.5	212.0	176.8	137.9	104.5	85.0	68.0	55.3	40.7
54°	113.0	114.2	109.3	106.9	97.2	85.6	71.1	58.9	46.2	37.1	27.3
55°	80.8	80.8	78.4	75.9	68.0	58.3	47.4	40.1	30.4	24.3	17.6
57.5°	24.9	24.9	24.9	23.7	20.7	17.6	14.0	12.1	9.7	9.1	7.3
60°	8.5	8.5	8.5	7.9	7.3	6.7	6.1	5.5	4.9	4.9	4.3
61°	6.1	6.1	6.1	6.1	5.5	5.5	4.9	4.3	3.6	4.3	3.6
62°	4.9	5.5	4.9	4.9	4.9	4.3	3.6	3.6	3.0	3.6	3.0
63°	4.3	4.3	4.3	4.3	3.6	3.6	3.0	3.0	2.4	3.0	3.0
64°	3.6	3.6	3.6	3.6	3.0	3.0	2.4	2.4	1.8	2.4	2.4
65°	3.0	3.0	3.0	3.0	2.4	2.4	2.4	1.8	1.8	2.4	2.4
66°	2.4	2.4	2.4	2.4	2.4	1.8	1.8	1.8	1.2	1.8	1.8



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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°	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	1.2	1.2
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
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°	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2
2.5°	88.1	82.0	80.8	80.8	68.0	70.5	66.2	63.2	44.3	34.0	25.5
5°	269.1	247.2	238.1	230.2	195.6	192.6	171.3	166.4	59.5	31.0	19.4
7.5°	501.7	468.3	447.1	426.4	370.5	355.3	318.9	309.8	80.8	26.1	15.2
10°	766.6	718.6	681.5	632.3	560.0	528.5	475.0	455.6	98.4	21.9	14.6
12.5°	1015.6	960.9	910.5	845.5	747.7	697.3	626.9	602.0	105.1	18.2	13.4
15°	1230.6	1157.7	1095.2	1025.3	916.0	852.2	766.0	733.8	99.6	14.6	11.5
17.5°	1503.4	1380.1	1271.3	1173.5	1054.5	976.7	876.5	824.3	80.8	12.8	10.3
20°	1906.7	1658.3	1466.9	1309.0	1143.8	1047.2	936.0	872.9	58.3	11.5	10.3
22.5°	2286.3	1931.6	1638.2	1412.3	1189.9	1074.5	959.1	889.3	41.3	11.5	12.1
25°	2596.1	2137.5	1756.7	1480.3	1215.4	1080.0	950.6	868.0	32.2	13.4	23.7
26°	2683.0	2188.5	1779.7	1485.7	1211.8	1072.1	936.0	848.6	28.5	18.2	44.3
27°	2737.0	2211.6	1780.3	1477.2	1198.4	1056.3	914.2	822.4	24.9	27.9	74.7
28°	2748.0	2200.7	1759.7	1453.6	1175.4	1035.0	889.9	790.9	23.1	35.2	85.0
29°	2718.2	2161.8	1722.0	1418.9	1147.4	1009.5	860.7	756.2	20.0	26.7	55.3
30°	2651.4	2097.4	1666.8	1374.6	1117.7	981.0	824.9	714.9	16.4	13.4	24.9
31°	2551.2	2008.7	1598.7	1322.4	1084.2	944.5	781.7	668.8	14.0	9.1	14.6
32°	2424.2	1902.4	1522.8	1268.9	1046.6	900.2	731.3	617.1	12.8	7.3	12.1
33°	2278.4	1790.7	1444.4	1214.8	1001.6	847.4	677.3	561.9	11.5	7.9	12.1
34°	2119.3	1676.5	1355.8	1158.3	949.4	789.6	619.6	496.9	10.3	7.3	9.1
35°	1946.8	1558.0	1276.2	1108.5	890.5	727.1	560.6	441.6	9.1	5.5	6.1
36°	1798.0	1442.6	1199.0	1045.4	826.1	662.7	499.9	382.1	7.9	3.6	4.3
37°	1635.8	1334.5	1127.4	979.8	756.8	596.5	439.2	323.1	7.3	2.4	3.6
38°	1484.5	1234.9	1055.7	904.4	685.8	529.7	377.2	265.4	6.7	2.4	3.0
39°	1347.3	1144.4	988.9	824.3	611.1	459.8	314.6	208.3	6.1	1.8	3.0
40°	1229.4	1063.6	908.7	739.8	533.9	390.6	252.1	154.3	5.5	1.8	3.0
42.5°	999.8	853.4	685.8	523.0	345.6	221.1	113.0	56.5	4.3	1.8	2.4
45°	764.1	607.4	452.5	314.6	178.0	85.6	41.9	31.0	3.6	1.8	2.4
47.5°	496.3	364.5	243.0	137.3	59.5	34.6	21.9	15.8	3.0	1.8	2.4
50°	183.4	101.4	53.5	33.4	23.1	14.6	9.7	9.1	3.0	1.8	2.4
51°	75.3	49.2	33.4	22.5	14.6	10.3	7.9	7.9	3.0	1.8	2.4
52°	44.9	31.0	22.5	16.4	10.9	7.9	6.1	6.7	3.0	1.8	2.4
53°	29.8	21.3	16.4	12.8	8.5	6.1	4.3	4.9	3.0	1.8	2.4
54°	20.0	15.2	12.1	9.7	6.1	4.9	2.4	4.3	2.4	1.8	2.4
55°	14.0	10.9	9.1	7.3	4.3	3.0	1.8	3.6	2.4	1.8	2.4
57.5°	6.1	5.5	4.9	4.3	1.8	1.2	0.6	3.0	2.4	1.8	2.4
60°	4.3	3.6	3.0	3.0	0.6	0.6	0.0	2.4	2.4	1.8	2.4
61°	3.6	3.0	3.0	2.4	0.6	0.6	0.0	2.4	3.0	1.8	2.4
62°	3.0	3.0	2.4	2.4	0.6	0.0	0.0	2.4	3.0	1.8	3.0
63°	2.4	2.4	2.4	2.4	0.6	0.0	0.0	2.4	3.0	1.8	3.0
64°	2.4	2.4	2.4	2.4	0.0	0.0	0.0	2.4	3.0	1.8	3.0
65°	2.4	1.8	1.8	1.8	0.0	0.0	0.0	2.4	3.0	2.4	3.0
66°	1.8	1.8	1.8	1.8	0.0	0.0	0.0	2.4	3.0	2.4	3.0



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CATALOG NUMBER: LDA6A20830D010TE 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°	1.2	1.2	1.2	1.2	0.0	0.0	0.0	1.8	3.0	2.4	3.6
75°	0.6	1.2	1.2	1.2	0.0	0.0	0.0	2.4	3.0	2.4	3.6
77.5°	0.6	1.2	1.2	1.2	0.0	0.0	0.0	2.4	3.0	2.4	3.6
80°	0.6	1.2	1.2	1.2	0.0	0.0	0.0	2.4	3.0	2.4	3.6
82.5°	0.6	1.2	1.2	1.2	0.0	0.0	0.0	2.4	3.0	2.4	3.6
85°	0.6	1.2	1.2	1.2	0.0	0.0	0.0	2.4	3.0	2.4	3.6
87.5°	0.6	1.2	1.2	1.2	0.0	0.0	0.0	2.4	3.0	2.4	3.6
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: P175472

CATALOG NUMBER: LDA6A20830D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	35.2	35.2	35.2
2.5°	21.3	19.4	18.2
5°	15.2	14.0	12.8
7.5°	12.8	10.9	10.3
10°	11.5	8.5	7.9
12.5°	9.7	7.3	6.7
15°	9.1	7.3	6.7
17.5°	9.1	7.3	6.7
20°	9.7	9.1	9.1
22.5°	14.0	15.2	15.8
25°	42.5	54.7	63.2
26°	99.6	149.4	200.4
27°	151.2	220.5	235.1
28°	136.1	157.9	153.7
29°	65.6	74.1	67.4
30°	29.2	34.6	34.0
31°	18.8	21.3	20.7
32°	15.8	14.6	14.0
33°	12.8	10.3	8.5
34°	8.5	6.7	5.5
35°	5.5	3.6	3.0
36°	3.6	1.8	1.2
37°	2.4	1.2	0.6
38°	2.4	0.6	0.0
39°	1.8	0.6	0.0
40°	1.8	0.6	0.0
42.5°	1.8	0.0	0.0
45°	1.2	0.0	0.0
47.5°	1.2	0.0	0.0
50°	1.8	0.6	0.0
51°	1.8	0.0	0.0
52°	1.8	0.0	0.0
53°	1.2	0.0	0.0
54°	1.2	0.0	0.0
55°	1.2	0.0	0.0
57.5°	1.2	0.0	0.0
60°	1.2	0.0	0.0
61°	1.8	0.0	0.0
62°	1.8	0.0	0.0
63°	1.8	0.0	0.0
64°	1.8	0.6	0.0
65°	1.8	0.6	0.0
66°	1.8	0.6	0.0



TEST NUMBER: P175472

CATALOG NUMBER: LDA6A20830D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.4	0.6	0.0
75°	2.4	0.6	0.0
77.5°	2.4	0.6	0.0
80°	2.4	1.2	0.6
82.5°	2.4	1.2	0.6
85°	2.4	1.2	0.6
87.5°	2.4	1.2	0.6
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.8	1.8
70°	1.8	1.8	1.2	1.2	1.2	1.2	1.2	0.6	0.6	1.8	1.8





67.5°	1.8	1.8	1.8	1.8	0.0	0.0	0.0	2.4	3.0	2.4	3.0
70°	1.8	1.8	1.8	1.8	0.0	0.0	0.0	2.4	3.0	2.4	3.6





67.5°	2.4	0.6	0.0
70°	2.4	0.6	0.0



(END OF REPORT)