

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: P175477

Luminaire Tested: **LDA6A20935D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175477
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: LDA6A20935D010TE 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: 1343.3 lumens
Efficiency: N/A
Efficacy: 46.1 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

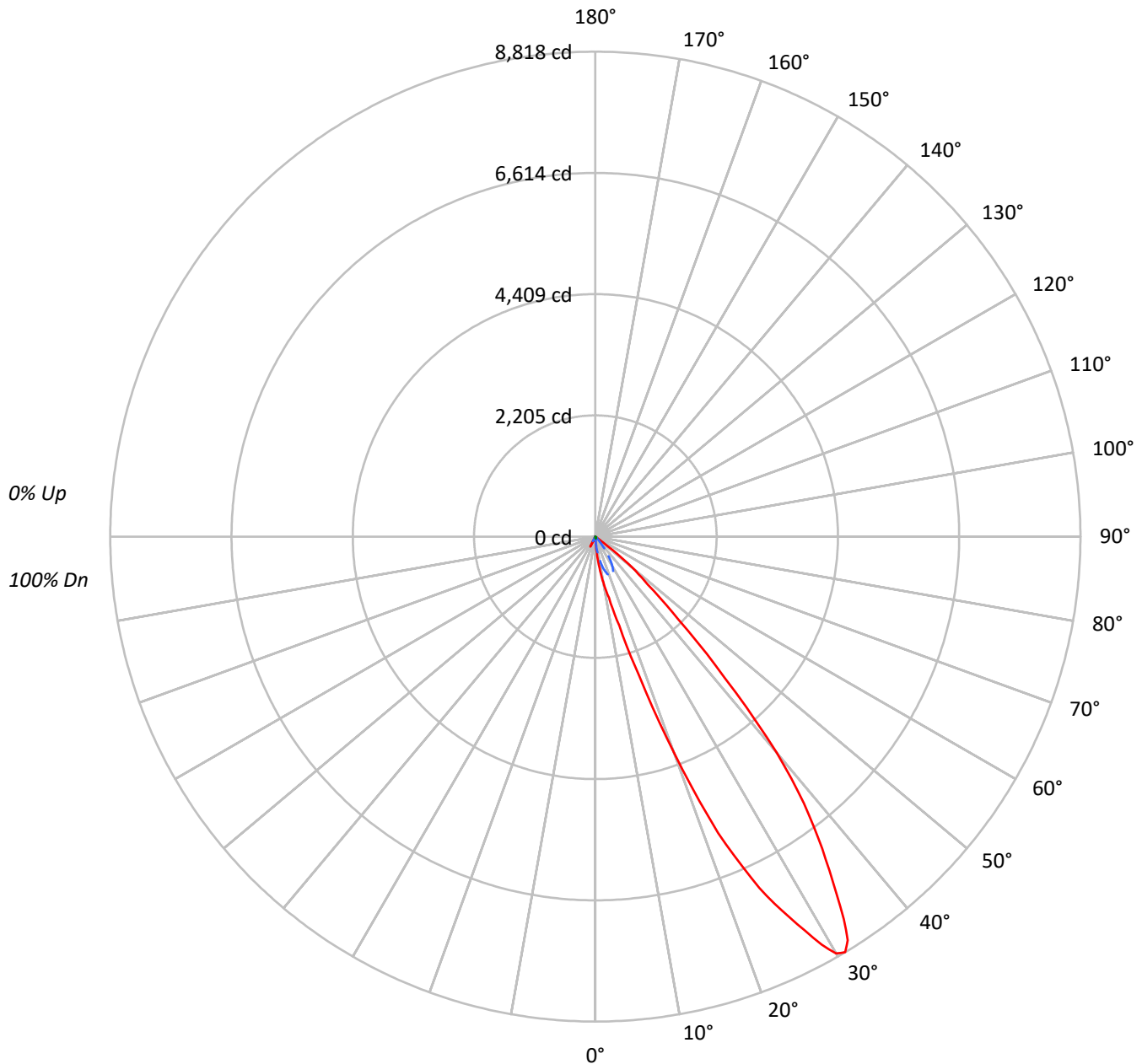
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	1667	1667	1667
5°	16162	1469	605
10°	47789	1047	379
15°	94859	715	329
20°	244700	578	461
25°	426472	696	3291
30°	553965	728	1855
35°	496368	315	174
40°	366966	115	0
45°	165257	124	0
50°	74556	136	0
55°	6652	153	0
60°	800	175	0
65°	337	272	0
70°	256	337	0
75°	0	445	0
80°	0	663	158
85°	0	1321	314



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	12.1	0.9
10°-20°	113.1	8.4
20°-30°	446.6	33.3
30°-40°	539.0	40.1
40°-50°	209.2	15.6
50°-60°	18.4	1.4
60°-70°	1.7	0.1
70°-80°	1.7	0.1
80°-90°	1.5	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°	571.8	42.6
0°-40°	1110.8	82.7
0°-60°	1338.4	99.6
0°-90°	1343.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1343.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	30	30	30	30	30	
5°	294	143	27	13	11	47
15°	1671	632	13	8	6	613
25°	7051	748	12	37	54	3224
35°	7417	381	5	5	3	4559
45°	2132	27	2	1	0	1873
55°	70	3	2	1	0	168
65°	3	2	2	2	0	3
75°	0	2	2	2	0	0
85°	0	2	2	2	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°	30.4	30.4	30.4	30.4	30.4	30.4	30.4	30.4	30.4	30.4	30.4
2.5°	95.3	90.6	85.3	87.4	88.5	91.1	89.0	81.1	85.8	82.2	79.0
5°	293.7	288.4	278.5	280.1	276.9	280.6	272.2	255.5	258.6	253.4	239.7
7.5°	572.7	550.7	534.5	535.5	526.1	530.3	514.6	485.8	482.6	455.9	451.8
10°	858.5	847.5	828.1	825.5	808.8	810.9	786.2	748.0	737.6	706.7	688.9
12.5°	1139.1	1120.7	1093.5	1087.8	1060.5	1061.1	1027.6	984.6	968.9	937.0	912.4
15°	1671.4	1645.3	1583.0	1559.4	1484.0	1472.5	1389.8	1292.4	1245.3	1190.4	1118.1
17.5°	2654.0	2637.2	2515.3	2447.7	2294.9	2143.1	2053.6	1843.1	1720.1	1566.2	1432.7
20°	4194.5	4225.4	4012.4	3861.6	3577.9	3257.5	3031.4	2648.2	2392.2	2126.8	1875.6
22.5°	5833.0	5846.1	5627.8	5439.9	5109.6	4669.3	4148.5	3683.6	3214.6	2758.7	2344.1
25°	7050.6	7012.9	6772.6	6547.0	6199.4	5749.8	5243.6	4622.7	3981.5	3355.4	2748.2
26°	7422.2	7401.8	7161.0	6890.9	6508.3	6051.8	5525.2	4898.6	4221.2	3547.0	2871.7
27°	7766.7	7753.6	7492.4	7191.9	6763.2	6285.3	5734.1	5108.0	4402.4	3695.2	2961.3
28°	8115.8	8101.2	7785.0	7436.4	6970.5	6451.2	5878.5	5247.8	4519.1	3782.1	2998.4
29°	8484.9	8456.6	8052.5	7615.9	7108.7	6548.1	5953.9	5311.6	4558.9	3803.5	2989.0
30°	8751.3	8707.4	8245.7	7729.5	7165.2	6578.4	5962.3	5310.1	4534.3	3759.0	2928.8
31°	8818.3	8773.8	8299.6	7728.0	7123.9	6532.4	5902.1	5235.7	4431.7	3651.2	2827.2
32°	8656.1	8615.2	8163.0	7551.5	6993.0	6421.4	5782.2	5098.1	4272.5	3490.0	2689.6
33°	8293.8	8262.9	7873.0	7319.6	6805.6	6263.8	5610.5	4902.3	4046.4	3284.8	2527.8
34°	7836.8	7814.3	7514.4	7046.9	6567.9	6047.6	5388.1	4644.2	3748.6	3052.3	2351.4
35°	7417.0	7400.3	7157.4	6742.8	6296.3	5780.1	5106.4	4326.5	3441.8	2802.1	2163.0
36°	7012.9	6998.8	6787.8	6402.5	5971.7	5466.6	4752.0	3946.4	3112.5	2542.5	1967.7
37°	6591.0	6578.4	6397.3	6030.9	5606.9	5091.8	4331.2	3541.8	2778.0	2283.4	1767.2
38°	6153.4	6142.9	5977.0	5611.6	5181.3	4633.7	3851.2	3123.5	2451.9	2030.5	1587.2
39°	5665.0	5656.1	5503.2	5120.0	4660.4	4094.0	3357.0	2715.8	2142.6	1785.0	1412.8
40°	5127.9	5115.8	4963.0	4534.8	4070.5	3538.6	2882.2	2341.5	1850.5	1555.7	1259.5
42.5°	3486.3	3473.2	3359.6	3110.4	2663.4	2321.6	1910.1	1567.3	1311.3	1133.8	981.0
45°	2131.6	2133.1	2073.5	1919.6	1650.5	1460.5	1237.0	1073.1	957.9	889.9	783.6
47.5°	1289.3	1289.3	1262.6	1184.1	1063.2	987.3	894.6	818.2	730.2	663.2	548.1
50°	874.2	874.7	833.9	838.1	757.5	710.3	621.9	528.7	442.3	345.0	246.0
51°	647.0	650.1	612.5	629.7	541.3	501.5	417.7	338.7	262.3	186.9	107.8
52°	395.7	401.5	375.8	391.6	340.3	282.1	214.1	158.1	106.3	74.3	51.8
53°	183.7	188.4	175.4	182.7	152.3	118.8	90.0	73.3	58.6	47.6	35.1
54°	97.4	98.4	94.2	92.1	83.8	73.8	61.2	50.8	39.8	31.9	23.6
55°	69.6	69.6	67.5	65.4	58.6	50.3	40.8	34.5	26.2	20.9	15.2
57.5°	21.5	21.5	21.5	20.4	17.8	15.2	12.0	10.5	8.4	7.9	6.3
60°	7.3	7.3	7.3	6.8	6.3	5.8	5.2	4.7	4.2	4.2	3.7
61°	5.2	5.2	5.2	5.2	4.7	4.7	4.2	3.7	3.1	3.7	3.1
62°	4.2	4.7	4.2	4.2	4.2	3.7	3.1	3.1	2.6	3.1	2.6
63°	3.7	3.7	3.7	3.7	3.1	3.1	2.6	2.6	2.1	2.6	2.6
64°	3.1	3.1	3.1	3.1	2.6	2.6	2.1	2.1	1.6	2.1	2.1
65°	2.6	2.6	2.6	2.6	2.1	2.1	2.1	1.6	1.6	2.1	2.1
66°	2.1	2.1	2.1	2.1	2.1	1.6	1.6	1.6	1.0	1.6	1.6



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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°	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
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°	30.4	30.4	30.4	30.4	30.4	30.4	30.4	30.4	30.4	30.4	30.4
2.5°	75.9	70.7	69.6	69.6	58.6	60.7	57.1	54.4	38.2	29.3	22.0
5°	231.9	213.1	205.2	198.4	168.6	165.9	147.6	143.4	51.3	26.7	16.8
7.5°	432.4	403.6	385.3	367.5	319.3	306.2	274.8	267.0	69.6	22.5	13.1
10°	660.6	619.3	587.3	544.9	482.6	455.4	409.4	392.6	84.8	18.8	12.6
12.5°	875.2	828.1	784.7	728.7	644.4	600.9	540.2	518.8	90.6	15.7	11.5
15°	1060.5	997.7	943.8	883.6	789.4	734.4	660.1	632.3	85.8	12.6	9.9
17.5°	1295.6	1189.3	1095.6	1011.3	908.7	841.7	755.4	710.3	69.6	11.0	8.9
20°	1643.2	1429.1	1264.2	1128.1	985.7	902.5	806.7	752.2	50.3	9.9	8.9
22.5°	1970.3	1664.6	1411.8	1217.1	1025.5	926.0	826.6	766.4	35.6	9.9	10.5
25°	2237.3	1842.1	1513.9	1275.7	1047.5	930.7	819.2	748.0	27.7	11.5	20.4
26°	2312.2	1886.1	1533.8	1280.4	1044.3	923.9	806.7	731.3	24.6	15.7	38.2
27°	2358.7	1905.9	1534.3	1273.1	1032.8	910.3	787.8	708.8	21.5	24.1	64.4
28°	2368.2	1896.5	1516.5	1252.7	1012.9	892.0	766.9	681.6	19.9	30.4	73.3
29°	2342.5	1863.0	1484.0	1222.8	988.8	870.0	741.8	651.7	17.3	23.0	47.6
30°	2284.9	1807.5	1436.4	1184.6	963.2	845.4	710.9	616.1	14.1	11.5	21.5
31°	2198.6	1731.1	1377.8	1139.6	934.4	814.0	673.7	576.3	12.0	7.9	12.6
32°	2089.2	1639.5	1312.3	1093.5	901.9	775.8	630.3	531.8	11.0	6.3	10.5
33°	1963.5	1543.2	1244.8	1046.9	863.2	730.2	583.7	484.2	9.9	6.8	10.5
34°	1826.4	1444.8	1168.4	998.3	818.2	680.5	533.9	428.2	8.9	6.3	7.9
35°	1677.7	1342.7	1099.8	955.3	767.4	626.6	483.2	380.6	7.9	4.7	5.2
36°	1549.5	1243.2	1033.3	900.9	711.9	571.1	430.8	329.3	6.8	3.1	3.7
37°	1409.7	1150.1	971.6	844.4	652.2	514.0	378.5	278.5	6.3	2.1	3.1
38°	1279.4	1064.2	909.8	779.4	591.0	456.5	325.1	228.8	5.8	2.1	2.6
39°	1161.1	986.2	852.2	710.3	526.6	396.3	271.2	179.5	5.2	1.6	2.6
40°	1059.5	916.6	783.1	637.6	460.1	336.6	217.2	133.0	4.7	1.6	2.6
42.5°	861.6	735.5	591.0	450.7	297.9	190.5	97.4	48.7	3.7	1.6	2.1
45°	658.5	523.5	390.0	271.2	153.4	73.8	36.1	26.7	3.1	1.6	2.1
47.5°	427.7	314.1	209.4	118.3	51.3	29.8	18.8	13.6	2.6	1.6	2.1
50°	158.1	87.4	46.1	28.8	19.9	12.6	8.4	7.9	2.6	1.6	2.1
51°	64.9	42.4	28.8	19.4	12.6	8.9	6.8	6.8	2.6	1.6	2.1
52°	38.7	26.7	19.4	14.1	9.4	6.8	5.2	5.8	2.6	1.6	2.1
53°	25.6	18.3	14.1	11.0	7.3	5.2	3.7	4.2	2.6	1.6	2.1
54°	17.3	13.1	10.5	8.4	5.2	4.2	2.1	3.7	2.1	1.6	2.1
55°	12.0	9.4	7.9	6.3	3.7	2.6	1.6	3.1	2.1	1.6	2.1
57.5°	5.2	4.7	4.2	3.7	1.6	1.0	0.5	2.6	2.1	1.6	2.1
60°	3.7	3.1	2.6	2.6	0.5	0.5	0.0	2.1	2.1	1.6	2.1
61°	3.1	2.6	2.6	2.1	0.5	0.5	0.0	2.1	2.6	1.6	2.1
62°	2.6	2.6	2.1	2.1	0.5	0.0	0.0	2.1	2.6	1.6	2.6
63°	2.1	2.1	2.1	2.1	0.5	0.0	0.0	2.1	2.6	1.6	2.6
64°	2.1	2.1	2.1	2.1	0.0	0.0	0.0	2.1	2.6	1.6	2.6
65°	2.1	1.6	1.6	1.6	0.0	0.0	0.0	2.1	2.6	2.1	2.6
66°	1.6	1.6	1.6	1.6	0.0	0.0	0.0	2.1	2.6	2.1	2.6



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CATALOG NUMBER: LDA6A20935D010TE 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°	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.6	2.6	2.1	3.1
75°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	3.1
77.5°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	3.1
80°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	3.1
82.5°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	3.1
85°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	3.1
87.5°	0.5	1.0	1.0	1.0	0.0	0.0	0.0	2.1	2.6	2.1	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



TEST NUMBER: P175477

CATALOG NUMBER: LDA6A20935D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	30.4	30.4	30.4
2.5°	18.3	16.8	15.7
5°	13.1	12.0	11.0
7.5°	11.0	9.4	8.9
10°	9.9	7.3	6.8
12.5°	8.4	6.3	5.8
15°	7.9	6.3	5.8
17.5°	7.9	6.3	5.8
20°	8.4	7.9	7.9
22.5°	12.0	13.1	13.6
25°	36.6	47.1	54.4
26°	85.8	128.8	172.7
27°	130.3	190.0	202.6
28°	117.3	136.1	132.4
29°	56.5	63.9	58.1
30°	25.1	29.8	29.3
31°	16.2	18.3	17.8
32°	13.6	12.6	12.0
33°	11.0	8.9	7.3
34°	7.3	5.8	4.7
35°	4.7	3.1	2.6
36°	3.1	1.6	1.0
37°	2.1	1.0	0.5
38°	2.1	0.5	0.0
39°	1.6	0.5	0.0
40°	1.6	0.5	0.0
42.5°	1.6	0.0	0.0
45°	1.0	0.0	0.0
47.5°	1.0	0.0	0.0
50°	1.6	0.5	0.0
51°	1.6	0.0	0.0
52°	1.6	0.0	0.0
53°	1.0	0.0	0.0
54°	1.0	0.0	0.0
55°	1.0	0.0	0.0
57.5°	1.0	0.0	0.0
60°	1.0	0.0	0.0
61°	1.6	0.0	0.0
62°	1.6	0.0	0.0
63°	1.6	0.0	0.0
64°	1.6	0.5	0.0
65°	1.6	0.5	0.0
66°	1.6	0.5	0.0



TEST NUMBER: P175477

CATALOG NUMBER: LDA6A20935D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.1	0.5	0.0
75°	2.1	0.5	0.0
77.5°	2.1	0.5	0.0
80°	2.1	1.0	0.5
82.5°	2.1	1.0	0.5
85°	2.1	1.0	0.5
87.5°	2.1	1.0	0.5
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.6	1.6
70°	1.6	1.6	1.0	1.0	1.0	1.0	1.0	0.5	0.5	1.6	1.6





67.5°	1.6	1.6	1.6	1.6	0.0	0.0	0.0	2.1	2.6	2.1	2.6
70°	1.6	1.6	1.6	1.6	0.0	0.0	0.0	2.1	2.6	2.1	3.1





67.5°	2.1	0.5	0.0
70°	2.1	0.5	0.0



(END OF REPORT)