

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: P175490

Luminaire Tested: **LDA6A15840D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175490
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: LDA6A15840D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1356.6 lumens
Efficiency: N/A
Efficacy: 60.9 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

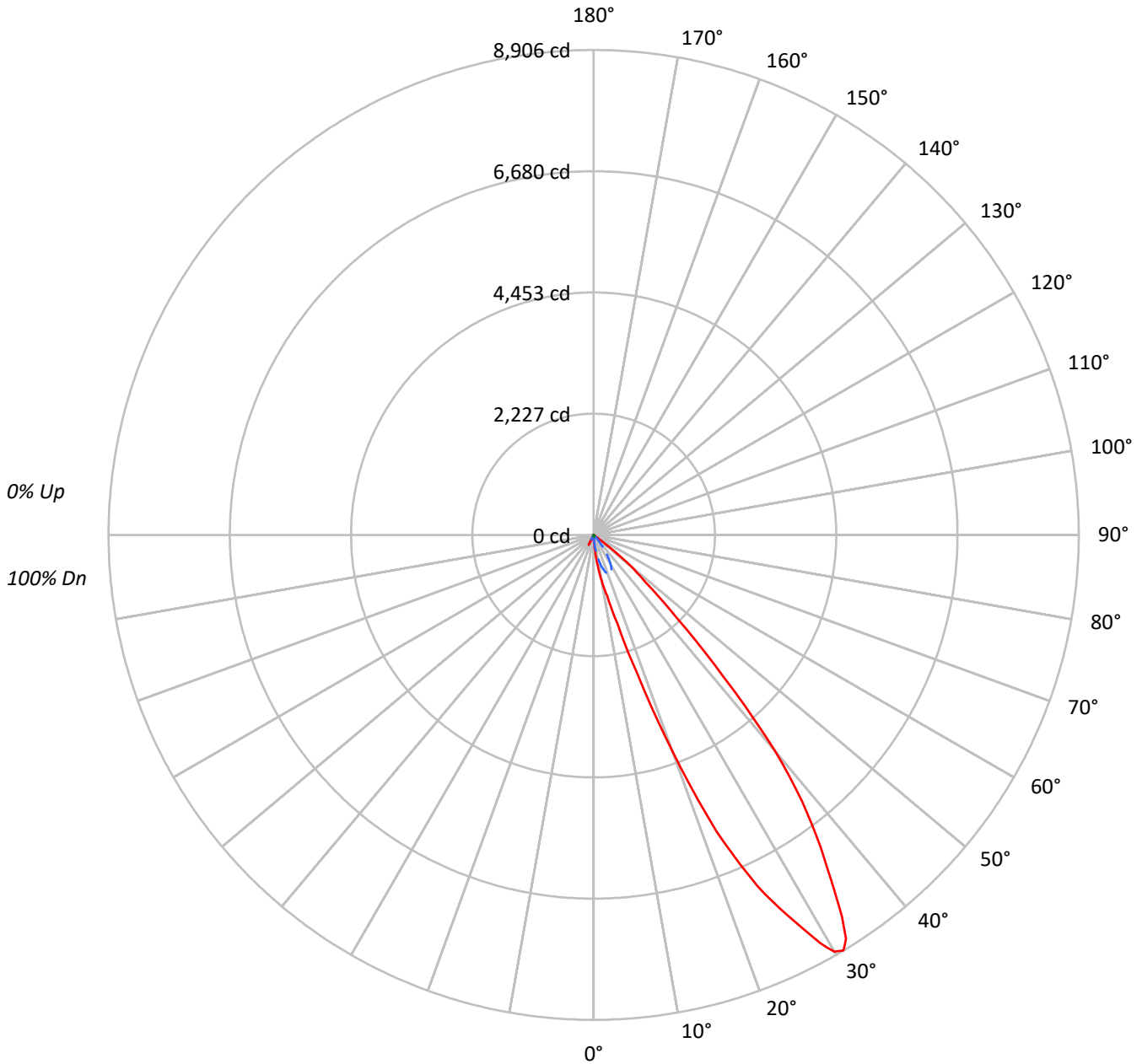
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	1683	1683	1683
5°	16322	1486	611
10°	48262	1058	384
15°	95801	721	329
20°	247127	583	461
25°	430694	702	3327
30°	559453	734	1874
35°	501287	321	174
40°	370601	115	0
45°	166893	124	0
50°	75290	136	0
55°	6719	153	0
60°	811	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°	12.2	0.9
10°-20°	114.2	8.4
20°-30°	451.1	33.2
30°-40°	544.3	40.1
40°-50°	211.2	15.6
50°-60°	18.6	1.4
60°-70°	1.7	0.1
70°-80°	1.7	0.1
80°-90°	1.6	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°	577.5	42.6
0°-40°	1121.8	82.7
0°-60°	1351.6	99.6
0°-90°	1356.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1356.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	31	31	31	31	31	
5°	297	145	27	13	11	47
15°	1688	639	13	8	6	619
25°	7120	755	12	37	55	3256
35°	7490	384	5	5	3	4604
45°	2153	27	2	1	0	1891
55°	70	3	2	1	0	170
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°	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
2.5°	96.2	91.5	86.2	88.3	89.3	92.0	89.9	81.9	86.7	83.0	79.8
5°	296.6	291.3	281.2	282.8	279.7	283.4	274.9	258.0	261.2	255.9	242.1
7.5°	578.3	556.1	539.8	540.8	531.3	535.5	519.7	490.6	487.4	460.5	456.2
10°	867.0	855.9	836.3	833.7	816.8	818.9	794.0	755.4	744.9	713.7	695.7
12.5°	1150.3	1131.8	1104.4	1098.5	1071.0	1071.6	1037.7	994.4	978.5	946.3	921.4
15°	1688.0	1661.5	1598.6	1574.9	1498.7	1487.1	1403.6	1305.2	1257.7	1202.2	1129.2
17.5°	2680.3	2663.3	2540.2	2472.0	2317.6	2164.3	2073.9	1861.4	1737.1	1581.7	1446.9
20°	4236.1	4267.3	4052.1	3899.9	3613.3	3289.8	3061.4	2674.4	2415.9	2147.9	1894.2
22.5°	5890.8	5904.0	5683.5	5493.7	5160.2	4715.6	4189.6	3720.1	3246.4	2786.0	2367.3
25°	7120.4	7082.3	6839.7	6611.8	6260.8	5806.7	5295.5	4668.5	4020.9	3388.7	2775.4
26°	7495.7	7475.1	7231.9	6959.2	6572.7	6111.7	5579.9	4947.1	4263.0	3582.1	2900.2
27°	7843.6	7830.4	7566.6	7263.1	6830.2	6347.5	5790.8	5158.6	4446.0	3731.7	2990.6
28°	8196.2	8181.4	7862.1	7510.0	7039.5	6515.1	5936.7	5299.7	4563.8	3819.5	3028.1
29°	8568.9	8540.4	8132.2	7691.3	7179.1	6612.9	6012.9	5364.2	4604.0	3841.2	3018.6
30°	8838.0	8793.6	8327.3	7806.1	7236.2	6643.6	6021.3	5362.6	4579.2	3796.2	2957.8
31°	8905.6	8860.7	8381.8	7804.5	7194.4	6597.0	5960.5	5287.6	4475.6	3687.3	2855.2
32°	8741.8	8700.5	8243.8	7626.3	7062.2	6485.0	5839.5	5148.5	4314.8	3524.5	2716.2
33°	8375.9	8344.8	7950.9	7392.1	6873.0	6325.8	5666.1	4950.8	4086.5	3317.3	2552.9
34°	7914.4	7891.7	7588.8	7116.7	6633.0	6107.5	5441.4	4690.2	3785.7	3082.6	2374.7
35°	7490.5	7473.5	7228.2	6809.5	6358.6	5837.4	5157.0	4369.3	3475.9	2829.9	2184.4
36°	7082.3	7068.1	6855.0	6465.9	6030.8	5520.7	4799.1	3985.5	3143.4	2567.7	1987.2
37°	6656.2	6643.6	6460.6	6090.6	5662.4	5142.2	4374.1	3576.9	2805.5	2306.0	1784.7
38°	6214.3	6203.7	6036.1	5667.1	5232.6	4679.6	3889.3	3154.5	2476.2	2050.6	1602.9
39°	5721.1	5712.1	5557.7	5170.7	4706.6	4134.6	3390.2	2742.6	2163.8	1802.7	1426.8
40°	5178.7	5166.5	5012.1	4579.7	4110.8	3573.7	2910.8	2364.7	1868.8	1571.1	1271.9
42.5°	3520.8	3507.6	3392.9	3141.2	2689.8	2344.6	1929.0	1582.8	1324.3	1145.1	990.7
45°	2152.7	2154.3	2094.0	1938.6	1666.8	1474.9	1249.2	1083.7	967.4	898.7	791.4
47.5°	1302.1	1302.1	1275.1	1195.8	1073.7	997.0	903.5	826.3	737.5	669.8	553.5
50°	882.8	883.4	842.1	846.4	765.0	717.4	628.0	533.9	446.7	348.4	248.5
51°	653.4	656.6	618.5	636.0	546.6	506.4	421.9	342.0	264.9	188.7	108.9
52°	399.7	405.5	379.6	395.4	343.6	284.9	216.2	159.7	107.3	75.1	52.3
53°	185.6	190.3	177.1	184.5	153.8	120.0	90.9	74.0	59.2	48.1	35.4
54°	98.3	99.4	95.2	93.0	84.6	74.5	61.9	51.3	40.2	32.2	23.8
55°	70.3	70.3	68.2	66.1	59.2	50.8	41.2	34.9	26.4	21.1	15.3
57.5°	21.7	21.7	21.7	20.6	18.0	15.3	12.2	10.6	8.5	7.9	6.3
60°	7.4	7.4	7.4	6.9	6.3	5.8	5.3	4.8	4.2	4.2	3.7
61°	5.3	5.3	5.3	5.3	4.8	4.8	4.2	3.7	3.2	3.7	3.2
62°	4.2	4.8	4.2	4.2	4.2	3.7	3.2	3.2	2.6	3.2	2.6
63°	3.7	3.7	3.7	3.7	3.2	3.2	2.6	2.6	2.1	2.6	2.6
64°	3.2	3.2	3.2	3.2	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	1.1	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°	1.1	1.1	1.1	1.1	0.5	0.5	0.5	0.5	0.5	1.1	1.1
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°	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
2.5°	76.7	71.4	70.3	70.3	59.2	61.3	57.6	55.0	38.6	29.6	22.2
5°	234.2	215.2	207.2	200.4	170.2	167.6	149.1	144.9	51.8	27.0	16.9
7.5°	436.7	407.6	389.1	371.1	322.5	309.3	277.5	269.6	70.3	22.7	13.2
10°	667.2	625.4	593.1	550.3	487.4	459.9	413.4	396.5	85.6	19.0	12.7
12.5°	883.9	836.3	792.4	735.9	650.8	606.9	545.6	523.9	91.5	15.9	11.6
15°	1071.0	1007.6	953.2	892.4	797.2	741.7	666.6	638.6	86.7	12.7	10.0
17.5°	1308.4	1201.1	1106.5	1021.4	917.7	850.1	762.8	717.4	70.3	11.1	9.0
20°	1659.4	1443.2	1276.7	1139.2	995.4	911.4	814.7	759.7	50.8	10.0	9.0
22.5°	1989.8	1681.1	1425.8	1229.1	1035.6	935.2	834.7	773.9	35.9	10.0	10.6
25°	2259.5	1860.3	1528.9	1288.3	1057.8	939.9	827.3	755.4	28.0	11.6	20.6
26°	2335.1	1904.7	1548.9	1293.1	1054.7	933.1	814.7	738.5	24.8	15.9	38.6
27°	2382.1	1924.8	1549.5	1285.7	1043.0	919.3	795.6	715.8	21.7	24.3	65.0
28°	2391.6	1915.3	1531.5	1265.1	1022.9	900.8	774.5	688.3	20.1	30.7	74.0
29°	2365.7	1881.5	1498.7	1234.9	998.6	878.6	749.1	658.2	17.4	23.3	48.1
30°	2307.6	1825.4	1450.6	1196.3	972.7	853.8	717.9	622.2	14.3	11.6	21.7
31°	2220.3	1748.2	1391.4	1150.9	943.6	822.1	680.4	582.0	12.2	7.9	12.7
32°	2109.8	1655.7	1325.3	1104.4	910.9	783.5	636.5	537.1	11.1	6.3	10.6
33°	1983.0	1558.5	1257.1	1057.3	871.7	737.5	589.4	489.0	10.0	6.9	10.6
34°	1844.5	1459.1	1179.9	1008.1	826.3	687.2	539.2	432.4	9.0	6.3	7.9
35°	1694.3	1356.0	1110.7	964.8	775.0	632.8	487.9	384.3	7.9	4.8	5.3
36°	1564.8	1255.5	1043.6	909.8	719.0	576.8	435.1	332.5	6.9	3.2	3.7
37°	1423.7	1161.4	981.2	852.7	658.7	519.1	382.2	281.2	6.3	2.1	3.2
38°	1292.0	1074.7	918.8	787.2	596.8	461.0	328.3	231.0	5.8	2.1	2.6
39°	1172.5	996.0	860.6	717.4	531.8	400.2	273.8	181.3	5.3	1.6	2.6
40°	1070.0	925.7	790.9	643.9	464.7	339.9	219.4	134.3	4.8	1.6	2.6
42.5°	870.2	742.8	596.8	455.2	300.8	192.4	98.3	49.2	3.7	1.6	2.1
45°	665.0	528.7	393.8	273.8	154.9	74.5	36.5	27.0	3.2	1.6	2.1
47.5°	431.9	317.2	211.5	119.5	51.8	30.1	19.0	13.7	2.6	1.6	2.1
50°	159.7	88.3	46.5	29.1	20.1	12.7	8.5	7.9	2.6	1.6	2.1
51°	65.6	42.8	29.1	19.6	12.7	9.0	6.9	6.9	2.6	1.6	2.1
52°	39.1	27.0	19.6	14.3	9.5	6.9	5.3	5.8	2.6	1.6	2.1
53°	25.9	18.5	14.3	11.1	7.4	5.3	3.7	4.2	2.6	1.6	2.1
54°	17.4	13.2	10.6	8.5	5.3	4.2	2.1	3.7	2.1	1.6	2.1
55°	12.2	9.5	7.9	6.3	3.7	2.6	1.6	3.2	2.1	1.6	2.1
57.5°	5.3	4.8	4.2	3.7	1.6	1.1	0.5	2.6	2.1	1.6	2.1
60°	3.7	3.2	2.6	2.6	0.5	0.5	0.0	2.1	2.1	1.6	2.1
61°	3.2	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: LDA6A15840D010TE 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°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	1.6	2.6	2.1	3.2
75°	0.5	1.1	1.1	1.1	0.0	0.0	0.0	2.1	2.6	2.1	3.2
77.5°	0.5	1.1	1.1	1.1	0.0	0.0	0.0	2.1	2.6	2.1	3.2
80°	0.5	1.1	1.1	1.1	0.0	0.0	0.0	2.1	2.6	2.1	3.2
82.5°	0.5	1.1	1.1	1.1	0.0	0.0	0.0	2.1	2.6	2.1	3.2
85°	0.5	1.1	1.1	1.1	0.0	0.0	0.0	2.1	2.6	2.1	3.2
87.5°	0.5	1.1	1.1	1.1	0.0	0.0	0.0	2.1	2.6	2.1	3.2
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: P175490

CATALOG NUMBER: LDA6A15840D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	30.7	30.7	30.7
2.5°	18.5	16.9	15.9
5°	13.2	12.2	11.1
7.5°	11.1	9.5	9.0
10°	10.0	7.4	6.9
12.5°	8.5	6.3	5.8
15°	7.9	6.3	5.8
17.5°	7.9	6.3	5.8
20°	8.5	7.9	7.9
22.5°	12.2	13.2	13.7
25°	37.0	47.6	55.0
26°	86.7	130.0	174.5
27°	131.6	191.9	204.6
28°	118.4	137.4	133.7
29°	57.1	64.5	58.7
30°	25.4	30.1	29.6
31°	16.4	18.5	18.0
32°	13.7	12.7	12.2
33°	11.1	9.0	7.4
34°	7.4	5.8	4.8
35°	4.8	3.2	2.6
36°	3.2	1.6	1.1
37°	2.1	1.1	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°	1.1	0.0	0.0
47.5°	1.1	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°	1.1	0.0	0.0
54°	1.1	0.0	0.0
55°	1.1	0.0	0.0
57.5°	1.1	0.0	0.0
60°	1.1	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: P175490

CATALOG NUMBER: LDA6A15840D010TE 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	1.1	0.5
82.5°	2.1	1.1	0.5
85°	2.1	1.1	0.5
87.5°	2.1	1.1	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	1.1	1.1	1.1	1.6	1.6
70°	1.6	1.6	1.1	1.1	1.1	1.1	1.1	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	3.2





67.5°	2.1	0.5	0.0
70°	2.1	0.5	0.0



(END OF REPORT)