

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: P175473

Luminaire Tested: **LDA6A20835D010TE LARL20NF 6LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P175473
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: LDA6A20835D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1638.8 lumens
Efficiency: N/A
Efficacy: 56.3 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

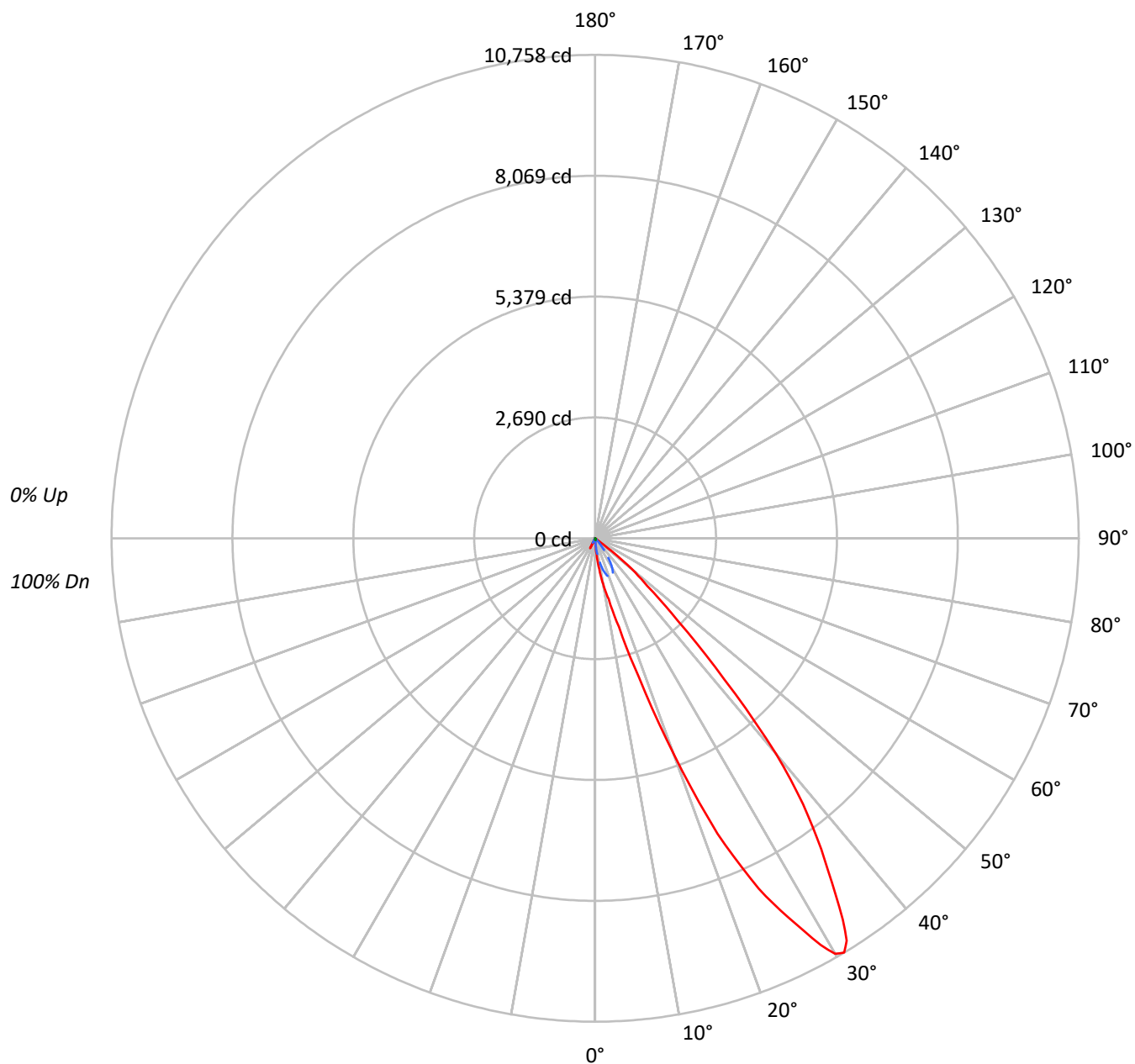
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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				0
RW	70	50	30	10	70	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°	2028	2028	2028
5°	19717	1794	737
10°	58299	1280	462
15°	115727	868	397
20°	298529	706	560
25°	520276	847	4016
30°	675819	886	2266
35°	605553	381	214
40°	447682	136	0
45°	201602	147	0
50°	90956	162	0
55°	8114	182	0
60°	976	208	0
65°	415	337	0
70°	305	417	0
75°	0	551	0
80°	0	821	189
85°	0	1635	377



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	14.7	0.9
10°-20°	138.0	8.4
20°-30°	544.9	33.2
30°-40°	657.5	40.1
40°-50°	255.2	15.6
50°-60°	22.4	1.4
60°-70°	2.1	0.1
70°-80°	2.0	0.1
80°-90°	1.9	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°	697.6	42.6
0°-40°	1355.2	82.7
0°-60°	1632.8	99.6
0°-90°	1638.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1638.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	37	37	37	37	37	
5°	358	175	33	16	13	57
15°	2039	771	15	10	7	747
25°	8601	913	14	45	66	3934
35°	9048	464	6	6	3	5562
45°	2600	33	2	1	0	2285
55°	85	4	2	1	0	205
65°	3	3	3	2	0	4
75°	0	3	3	3	0	1
85°	0	3	3	3	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°	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
2.5°	116.2	110.5	104.1	106.6	107.9	111.1	108.6	99.0	104.7	100.3	96.4
5°	358.3	351.9	339.7	341.7	337.8	342.3	332.1	311.6	315.5	309.1	292.5
7.5°	698.6	671.8	652.0	653.3	641.8	646.9	627.8	592.6	588.8	556.2	551.1
10°	1047.3	1033.9	1010.3	1007.1	986.7	989.2	959.2	912.6	899.8	862.1	840.4
12.5°	1389.6	1367.3	1334.1	1327.0	1293.8	1294.5	1253.6	1201.2	1182.1	1143.1	1113.1
15°	2039.1	2007.2	1931.2	1902.4	1810.5	1796.4	1695.5	1576.7	1519.3	1452.2	1364.1
17.5°	3237.8	3217.3	3068.5	2986.1	2799.7	2614.5	2505.3	2248.5	2098.5	1910.7	1747.9
20°	5117.2	5154.9	4894.9	4711.0	4364.9	3974.1	3698.2	3230.7	2918.4	2594.7	2288.1
22.5°	7116.0	7132.0	6865.7	6636.4	6233.5	5696.4	5061.0	4493.9	3921.7	3365.5	2859.7
25°	8601.4	8555.5	8262.3	7987.1	7563.1	7014.5	6397.0	5639.6	4857.3	4093.5	3352.7
26°	9054.8	9029.9	8736.2	8406.7	7939.8	7383.0	6740.5	5976.1	5149.7	4327.2	3503.4
27°	9475.1	9459.1	9140.4	8773.9	8250.8	7667.8	6995.3	6231.6	5370.7	4507.9	3612.6
28°	9901.0	9883.1	9497.4	9072.1	8503.7	7870.2	7171.6	6402.1	5513.1	4614.0	3658.0
29°	10351.2	10316.7	9823.7	9291.1	8672.3	7988.4	7263.5	6480.0	5561.7	4640.1	3646.5
30°	10676.3	10622.6	10059.4	9429.7	8741.3	8025.4	7273.8	6478.1	5531.6	4585.9	3573.0
31°	10758.0	10703.7	10125.2	9427.8	8690.8	7969.2	7200.3	6387.4	5406.5	4454.3	3449.1
32°	10560.1	10510.2	9958.5	9212.6	8531.2	7833.8	7054.1	6219.4	5212.3	4257.6	3281.2
33°	10118.1	10080.5	9604.7	8929.7	8302.6	7641.6	6844.6	5980.6	4936.5	4007.3	3083.8
34°	9560.6	9533.2	9167.2	8597.0	8012.6	7377.9	6573.2	5665.7	4573.1	3723.7	2868.6
35°	9048.5	9028.0	8731.7	8225.9	7681.2	7051.5	6229.6	5278.1	4198.9	3418.5	2638.7
36°	8555.5	8538.2	8280.9	7810.8	7285.3	6669.0	5797.3	4814.5	3797.2	3101.7	2400.5
37°	8040.7	8025.4	7804.5	7357.4	6840.1	6211.8	5283.9	4320.8	3389.1	2785.6	2155.9
38°	7506.9	7494.1	7291.6	6845.9	6321.0	5653.0	4698.3	3810.6	2991.2	2477.2	1936.3
39°	6911.0	6900.2	6713.7	6246.2	5685.5	4994.6	4095.4	3313.1	2613.8	2177.7	1723.6
40°	6255.8	6241.1	6054.7	5532.3	4965.8	4317.0	3516.2	2856.5	2257.5	1897.9	1536.5
42.5°	4253.1	4237.2	4098.6	3794.6	3249.2	2832.2	2330.3	1912.0	1599.7	1383.2	1196.8
45°	2600.4	2602.3	2529.5	2341.8	2013.5	1781.7	1509.0	1309.2	1168.7	1085.6	956.0
47.5°	1572.9	1572.9	1540.3	1444.5	1297.0	1204.4	1091.4	998.1	890.9	809.1	668.6
50°	1066.5	1067.1	1017.3	1022.4	924.1	866.6	758.7	645.0	539.6	420.8	300.1
51°	789.3	793.2	747.2	768.2	660.3	611.8	509.6	413.2	319.9	228.0	131.6
52°	482.8	489.8	458.5	477.7	415.1	344.2	261.2	192.9	129.6	90.7	63.2
53°	224.2	229.9	213.9	222.9	185.8	145.0	109.8	89.4	71.5	58.1	42.8
54°	118.8	120.1	114.9	112.4	102.2	90.0	74.7	61.9	48.5	39.0	28.7
55°	84.9	84.9	82.4	79.8	71.5	61.3	49.8	42.1	31.9	25.5	18.5
57.5°	26.2	26.2	26.2	24.9	21.7	18.5	14.7	12.8	10.2	9.6	7.7
60°	8.9	8.9	8.9	8.3	7.7	7.0	6.4	5.7	5.1	5.1	4.5
61°	6.4	6.4	6.4	6.4	5.7	5.7	5.1	4.5	3.8	4.5	3.8
62°	5.1	5.7	5.1	5.1	5.1	4.5	3.8	3.8	3.2	3.8	3.2
63°	4.5	4.5	4.5	4.5	3.8	3.8	3.2	3.2	2.6	3.2	3.2
64°	3.8	3.8	3.8	3.8	3.2	3.2	2.6	2.6	1.9	2.6	2.6
65°	3.2	3.2	3.2	3.2	2.6	2.6	2.6	1.9	1.9	2.6	2.6
66°	2.6	2.6	2.6	2.6	2.6	1.9	1.9	1.9	1.3	1.9	1.9



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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°	1.3	1.3	1.3	1.3	0.6	0.6	0.6	0.6	0.6	1.3	1.3
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°	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
2.5°	92.6	86.2	84.9	84.9	71.5	74.1	69.6	66.4	46.6	35.8	26.8
5°	282.9	259.9	250.3	242.0	205.6	202.4	180.1	175.0	62.6	32.6	20.4
7.5°	527.5	492.4	470.0	448.3	389.6	373.6	335.3	325.7	84.9	27.5	16.0
10°	805.9	755.5	716.5	664.8	588.8	555.6	499.4	479.0	103.5	23.0	15.3
12.5°	1067.8	1010.3	957.3	888.9	786.1	733.1	659.0	632.9	110.5	19.2	14.0
15°	1293.8	1217.2	1151.4	1078.0	963.0	896.0	805.3	771.4	104.7	15.3	12.1
17.5°	1580.6	1450.9	1336.6	1233.8	1108.6	1026.9	921.5	866.6	84.9	13.4	10.9
20°	2004.6	1743.4	1542.2	1376.2	1202.5	1101.0	984.1	917.7	61.3	12.1	10.9
22.5°	2403.7	2030.8	1722.3	1484.8	1251.0	1129.7	1008.4	934.9	43.4	12.1	12.8
25°	2729.4	2247.3	1846.9	1556.3	1277.9	1135.4	999.4	912.6	33.8	14.0	24.9
26°	2820.7	2300.9	1871.1	1562.0	1274.0	1127.1	984.1	892.1	30.0	19.2	46.6
27°	2877.6	2325.2	1871.8	1553.1	1260.0	1110.5	961.1	864.7	26.2	29.4	78.5
28°	2889.1	2313.7	1850.1	1528.2	1235.7	1088.2	935.6	831.5	24.3	37.0	89.4
29°	2857.8	2272.8	1810.5	1491.8	1206.3	1061.4	904.9	795.1	21.1	28.1	58.1
30°	2787.5	2205.1	1752.3	1445.2	1175.0	1031.4	867.2	751.6	17.2	14.0	26.2
31°	2682.2	2111.9	1680.8	1390.3	1139.9	993.0	821.9	703.1	14.7	9.6	15.3
32°	2548.7	2000.1	1601.0	1334.1	1100.3	946.4	768.9	648.8	13.4	7.7	12.8
33°	2395.4	1882.6	1518.6	1277.2	1053.1	890.9	712.0	590.7	12.1	8.3	12.8
34°	2228.1	1762.6	1425.4	1217.8	998.1	830.2	651.4	522.4	10.9	7.7	9.6
35°	2046.7	1638.0	1341.7	1165.5	936.2	764.4	589.4	464.3	9.6	5.7	6.4
36°	1890.3	1516.7	1260.6	1099.0	868.5	696.7	525.6	401.7	8.3	3.8	4.5
37°	1719.8	1403.0	1185.3	1030.1	795.7	627.1	461.7	339.7	7.7	2.6	3.8
38°	1560.8	1298.3	1109.9	950.9	721.0	556.9	396.6	279.1	7.0	2.6	3.2
39°	1416.4	1203.1	1039.7	866.6	642.4	483.4	330.8	219.0	6.4	1.9	3.2
40°	1292.5	1118.2	955.4	777.8	561.3	410.6	265.0	162.2	5.7	1.9	3.2
42.5°	1051.2	897.2	721.0	549.8	363.4	232.5	118.8	59.4	4.5	1.9	2.6
45°	803.4	638.6	475.8	330.8	187.1	90.0	44.1	32.6	3.8	1.9	2.6
47.5°	521.7	383.2	255.4	144.3	62.6	36.4	23.0	16.6	3.2	1.9	2.6
50°	192.9	106.6	56.2	35.1	24.3	15.3	10.2	9.6	3.2	1.9	2.6
51°	79.2	51.7	35.1	23.6	15.3	10.9	8.3	8.3	3.2	1.9	2.6
52°	47.3	32.6	23.6	17.2	11.5	8.3	6.4	7.0	3.2	1.9	2.6
53°	31.3	22.4	17.2	13.4	8.9	6.4	4.5	5.1	3.2	1.9	2.6
54°	21.1	16.0	12.8	10.2	6.4	5.1	2.6	4.5	2.6	1.9	2.6
55°	14.7	11.5	9.6	7.7	4.5	3.2	1.9	3.8	2.6	1.9	2.6
57.5°	6.4	5.7	5.1	4.5	1.9	1.3	0.6	3.2	2.6	1.9	2.6
60°	4.5	3.8	3.2	3.2	0.6	0.6	0.0	2.6	2.6	1.9	2.6
61°	3.8	3.2	3.2	2.6	0.6	0.6	0.0	2.6	3.2	1.9	2.6
62°	3.2	3.2	2.6	2.6	0.6	0.0	0.0	2.6	3.2	1.9	3.2
63°	2.6	2.6	2.6	2.6	0.6	0.0	0.0	2.6	3.2	1.9	3.2
64°	2.6	2.6	2.6	2.6	0.0	0.0	0.0	2.6	3.2	1.9	3.2
65°	2.6	1.9	1.9	1.9	0.0	0.0	0.0	2.6	3.2	2.6	3.2
66°	1.9	1.9	1.9	1.9	0.0	0.0	0.0	2.6	3.2	2.6	3.2



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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°	1.3	1.3	1.3	1.3	0.0	0.0	0.0	1.9	3.2	2.6	3.8
75°	0.6	1.3	1.3	1.3	0.0	0.0	0.0	2.6	3.2	2.6	3.8
77.5°	0.6	1.3	1.3	1.3	0.0	0.0	0.0	2.6	3.2	2.6	3.8
80°	0.6	1.3	1.3	1.3	0.0	0.0	0.0	2.6	3.2	2.6	3.8
82.5°	0.6	1.3	1.3	1.3	0.0	0.0	0.0	2.6	3.2	2.6	3.8
85°	0.6	1.3	1.3	1.3	0.0	0.0	0.0	2.6	3.2	2.6	3.8
87.5°	0.6	1.3	1.3	1.3	0.0	0.0	0.0	2.6	3.2	2.6	3.8
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: P175473

CATALOG NUMBER: LDA6A20835D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	37.0	37.0	37.0
2.5°	22.4	20.4	19.2
5°	16.0	14.7	13.4
7.5°	13.4	11.5	10.9
10°	12.1	8.9	8.3
12.5°	10.2	7.7	7.0
15°	9.6	7.7	7.0
17.5°	9.6	7.7	7.0
20°	10.2	9.6	9.6
22.5°	14.7	16.0	16.6
25°	44.7	57.5	66.4
26°	104.7	157.1	210.7
27°	159.0	231.8	247.1
28°	143.0	166.0	161.6
29°	69.0	77.9	70.9
30°	30.7	36.4	35.8
31°	19.8	22.4	21.7
32°	16.6	15.3	14.7
33°	13.4	10.9	8.9
34°	8.9	7.0	5.7
35°	5.7	3.8	3.2
36°	3.8	1.9	1.3
37°	2.6	1.3	0.6
38°	2.6	0.6	0.0
39°	1.9	0.6	0.0
40°	1.9	0.6	0.0
42.5°	1.9	0.0	0.0
45°	1.3	0.0	0.0
47.5°	1.3	0.0	0.0
50°	1.9	0.6	0.0
51°	1.9	0.0	0.0
52°	1.9	0.0	0.0
53°	1.3	0.0	0.0
54°	1.3	0.0	0.0
55°	1.3	0.0	0.0
57.5°	1.3	0.0	0.0
60°	1.3	0.0	0.0
61°	1.9	0.0	0.0
62°	1.9	0.0	0.0
63°	1.9	0.0	0.0
64°	1.9	0.6	0.0
65°	1.9	0.6	0.0
66°	1.9	0.6	0.0



TEST NUMBER: P175473

CATALOG NUMBER: LDA6A20835D010TE LARL20NF 6LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.6	0.6	0.0
75°	2.6	0.6	0.0
77.5°	2.6	0.6	0.0
80°	2.6	1.3	0.6
82.5°	2.6	1.3	0.6
85°	2.6	1.3	0.6
87.5°	2.6	1.3	0.6
90°	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°







67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.3	1.3	1.3	1.9	1.9
70°	1.9	1.9	1.3	1.3	1.3	1.3	1.3	0.6	0.6	1.9	1.9





67.5°	1.9	1.9	1.9	1.9	0.0	0.0	0.0	2.6	3.2	2.6	3.2
70°	1.9	1.9	1.9	1.9	0.0	0.0	0.0	2.6	3.2	2.6	3.8





67.5°	2.6	0.6	0.0
70°	2.6	0.6	0.0



(END OF REPORT)