

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: P182831

Luminaire Tested: **LDSQA4A18830D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182831
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26804)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A18830D010TE LAR35FL 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1994.1 lumens
Efficiency: N/A
Efficacy: 68.5 lumens/watt
Spacing Criteria (0/90/45): 2.46 / 0.61 / 1.2
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

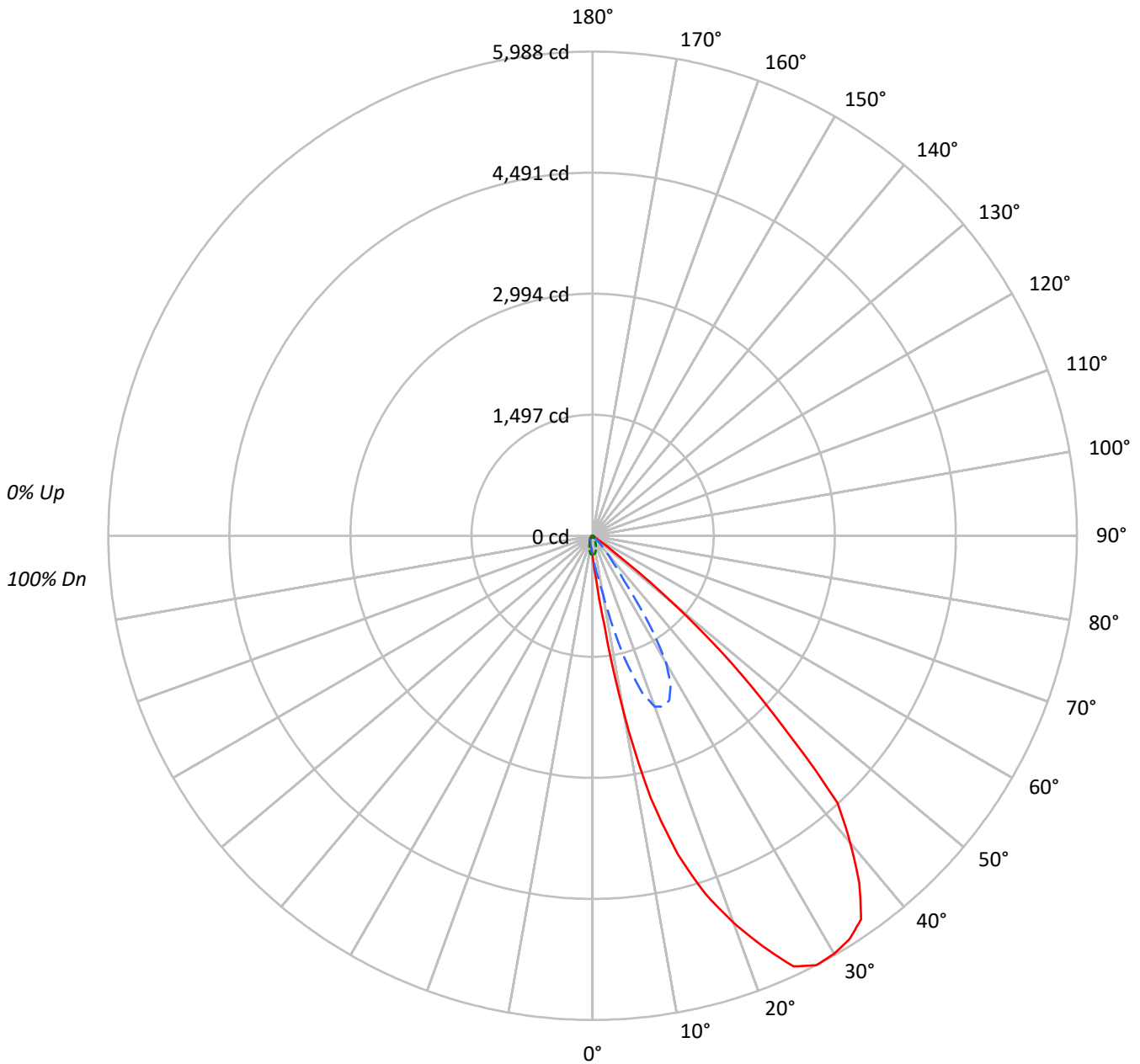
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
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	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82																			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74																			
4	92	83	77	71	90	82	76	71	80	74	70	78	73	69	76	72	68	67																			
5	86	76	69	64	84	75	68	64	73	67	63	71	66	62	70	65	62	60																			
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54																			
7	75	64	57	52	74	63	56	51	62	56	51	60	55	51	59	54	50	49																			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	23889	23889	23889
5°	55984	22542	15763
10°	221195	19812	13142
15°	409365	15866	11524
20°	524907	11546	10433
25°	628033	8188	9235
30°	667794	5381	8132
35°	684400	3252	7084
40°	626505	2112	6083
45°	452081	1480	4973
50°	197357	1191	4145
55°	13613	996	3479
60°	2480	949	2848
65°	894	894	2017
70°	821	1105	1388
75°	749	1460	1460
80°	0	2176	1618
85°	0	4335	1112



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.9	1.8
10°-20°	282.3	14.2
20°-30°	590.9	29.6
30°-40°	657.8	33.0
40°-50°	377.6	18.9
50°-60°	37.7	1.9
60°-70°	5.9	0.3
70°-80°	3.7	0.2
80°-90°	2.3	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°	909.1	45.6
0°-40°	1566.9	78.6
0°-60°	1982.2	99.4
0°-90°	1994.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1994.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	247	247	247	247	247	
5°	576	397	232	169	162	106
15°	4082	1630	158	111	115	1154
25°	5876	2243	77	68	86	2661
35°	5787	685	28	39	60	3534
45°	3300	82	11	22	36	2519
55°	81	12	6	13	21	241
65°	4	3	4	8	9	5
75°	2	2	4	5	4	1
85°	0	2	4	3	1	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6
2.5°	368.4	360.5	352.7	347.8	342.8	349.7	344.8	342.8	329.1	322.2	316.3
5°	575.7	560.9	539.3	521.6	504.0	507.9	494.1	477.4	443.0	418.5	396.9
7.5°	1111.1	1074.7	1007.9	943.1	878.2	866.4	823.2	748.6	652.3	579.6	516.7
10°	2248.6	2138.6	2015.8	1883.2	1728.0	1684.8	1577.7	1375.3	1154.3	901.8	719.1
12.5°	3319.4	3269.3	3124.9	2953.0	2785.0	2681.9	2570.8	2236.8	1886.1	1479.4	1139.5
15°	4081.7	4051.3	3924.5	3768.3	3587.6	3520.8	3385.2	3052.2	2609.2	2122.9	1629.7
17.5°	4646.6	4594.5	4461.9	4291.9	4077.8	4020.8	3858.7	3527.7	3067.9	2579.7	2032.5
20°	5091.6	5059.2	4887.3	4682.9	4426.5	4357.8	4168.2	3823.4	3323.3	2804.6	2247.6
22.5°	5491.4	5436.4	5225.2	4981.6	4688.8	4615.1	4403.9	4025.7	3488.4	2910.7	2286.0
25°	5875.5	5792.0	5535.6	5216.3	4872.5	4772.3	4540.5	4139.7	3549.3	2919.6	2242.7
27.5°	5987.5	5945.3	5708.5	5337.2	4939.3	4826.3	4584.7	4165.2	3526.7	2839.0	2087.5
30°	5969.8	5934.5	5737.0	5349.0	4927.5	4808.7	4563.1	4086.6	3395.0	2628.8	1813.4
32.5°	5913.8	5900.1	5661.4	5246.8	4817.5	4687.8	4422.6	3891.1	3148.5	2308.6	1325.2
35°	5787.1	5733.1	5435.4	5045.4	4632.8	4490.4	4190.8	3611.2	2823.3	1680.8	684.7
37.5°	5415.8	5373.5	5138.7	4796.9	4395.1	4212.4	3896.1	3249.7	2185.8	955.8	409.6
40°	4954.1	4933.4	4748.7	4443.2	4013.9	3807.6	3463.8	2659.3	1334.0	543.2	270.1
42.5°	4480.6	4474.7	4277.2	3957.9	3492.3	3255.6	2899.0	1793.8	709.3	328.1	156.2
45°	3299.8	3335.1	3197.6	3006.0	2650.4	2478.5	2015.8	924.4	408.7	181.7	82.5
47.5°	2314.4	2275.2	2031.5	1696.5	1371.4	1161.2	878.2	437.2	218.1	95.3	47.2
50°	1309.5	1316.4	1096.3	887.1	581.6	460.7	349.7	220.0	105.1	50.1	28.5
52.5°	341.9	357.6	308.5	265.2	225.9	183.7	148.3	95.3	50.1	29.5	18.7
55°	80.6	83.5	77.6	72.7	68.8	60.9	54.0	41.3	27.5	18.7	11.8
57.5°	28.5	29.5	28.5	28.5	27.5	26.5	24.6	21.6	16.7	11.8	7.9
60°	12.8	13.8	12.8	13.8	13.8	13.8	13.8	13.8	9.8	6.9	4.9
62.5°	5.9	5.9	5.9	5.9	6.9	6.9	7.9	7.9	5.9	4.9	3.9
65°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	2.9
67.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
70°	2.9	2.9	2.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9
72.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0
80°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
82.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
87.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6
2.5°	305.5	304.5	293.7	285.9	281.9	276.0	269.2	259.3	248.5	238.7	234.8
5°	371.3	358.6	336.0	317.3	308.5	299.6	283.9	266.2	249.5	231.8	223.0
7.5°	456.8	419.5	375.3	340.9	326.1	311.4	288.8	264.3	241.7	218.1	205.3
10°	573.7	487.3	410.6	355.6	334.0	314.4	281.9	251.5	226.9	201.4	184.7
12.5°	820.3	606.1	448.0	362.5	334.0	308.5	269.2	233.8	206.3	179.8	164.1
15°	1181.8	818.3	529.5	369.4	327.1	294.7	249.5	211.2	181.7	158.2	143.4
17.5°	1473.5	1013.8	630.7	387.1	318.3	276.0	224.0	183.7	156.2	134.6	122.8
20°	1620.9	1096.3	676.8	390.0	296.7	246.6	193.5	155.2	130.7	112.0	102.2
22.5°	1618.0	1069.8	635.6	341.9	260.3	213.2	163.1	127.7	108.1	93.3	85.5
25°	1515.8	947.0	530.5	273.1	210.2	176.8	132.6	103.1	87.4	76.6	69.7
27.5°	1324.2	769.2	395.9	202.4	164.1	139.5	103.1	82.5	69.7	61.9	57.0
30°	1039.3	514.8	249.5	150.3	124.8	105.1	79.6	63.9	55.0	48.1	45.2
32.5°	572.7	268.2	168.0	110.0	91.4	76.6	58.9	46.2	40.3	35.4	34.4
35°	316.3	189.6	119.8	73.7	60.9	52.1	40.3	33.4	29.5	27.5	27.5
37.5°	224.0	121.8	71.7	46.2	39.3	34.4	27.5	23.6	22.6	21.6	21.6
40°	134.6	71.7	43.2	30.5	26.5	23.6	20.6	17.7	17.7	16.7	17.7
42.5°	73.7	43.2	29.5	21.6	18.7	17.7	14.7	13.8	13.8	13.8	14.7
45°	44.2	28.5	20.6	15.7	13.8	11.8	10.8	9.8	10.8	10.8	11.8
47.5°	28.5	20.6	13.8	9.8	8.8	7.9	6.9	7.9	7.9	8.8	9.8
50°	19.6	12.8	8.8	5.9	5.9	4.9	5.9	5.9	6.9	7.9	8.8
52.5°	12.8	8.8	5.9	4.9	3.9	3.9	3.9	4.9	5.9	6.9	7.9
55°	7.9	5.9	4.9	3.9	3.9	3.9	3.9	3.9	4.9	5.9	6.9
57.5°	5.9	4.9	3.9	2.9	2.9	2.9	3.9	3.9	4.9	4.9	5.9
60°	3.9	3.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.9	5.9
62.5°	3.9	3.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	4.9	4.9
65°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	4.9
67.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.9
70°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.9
72.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9
75°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9
77.5°	2.0	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9
80°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9
82.5°	2.0	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9
85°	2.0	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9
87.5°	2.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6
2.5°	229.9	223.0	217.1	219.1	215.1	208.3	206.3	201.4	195.5	194.5	194.5
5°	213.2	202.4	193.5	192.5	188.6	180.8	178.8	173.9	169.0	168.0	167.0
7.5°	192.5	180.8	172.9	170.9	168.0	161.1	160.1	155.2	152.3	150.3	150.3
10°	171.9	161.1	154.2	153.2	151.3	145.4	144.4	140.5	137.5	136.5	135.6
12.5°	152.3	143.4	137.5	136.5	134.6	129.7	128.7	125.7	123.8	122.8	122.8
15°	133.6	125.7	120.8	119.8	118.9	114.0	114.0	112.0	111.0	111.0	112.0
17.5°	114.9	108.1	104.1	103.1	103.1	99.2	100.2	99.2	99.2	99.2	101.2
20°	96.3	90.4	87.4	88.4	86.4	85.5	86.4	86.4	86.4	88.4	91.4
22.5°	80.6	75.6	72.7	73.7	73.7	72.7	73.7	74.7	76.6	79.6	82.5
25°	65.8	61.9	60.9	61.9	61.9	61.9	63.9	65.8	67.8	70.7	73.7
27.5°	53.0	50.1	50.1	51.1	52.1	52.1	55.0	57.0	59.9	62.9	65.8
30°	42.2	41.3	41.3	43.2	43.2	44.2	48.1	50.1	52.1	55.0	58.0
32.5°	33.4	33.4	34.4	36.3	36.3	38.3	41.3	43.2	45.2	48.1	51.1
35°	27.5	28.5	29.5	30.5	31.4	32.4	35.4	37.3	39.3	42.2	44.2
37.5°	22.6	23.6	24.6	26.5	26.5	27.5	30.5	32.4	33.4	36.3	39.3
40°	18.7	19.6	20.6	22.6	22.6	23.6	26.5	27.5	28.5	31.4	34.4
42.5°	15.7	16.7	17.7	18.7	19.6	20.6	22.6	23.6	25.5	27.5	29.5
45°	12.8	13.8	14.7	15.7	16.7	17.7	18.7	20.6	21.6	23.6	25.5
47.5°	10.8	11.8	12.8	13.8	14.7	14.7	16.7	17.7	18.7	20.6	22.6
50°	9.8	10.8	11.8	11.8	12.8	13.8	14.7	15.7	16.7	17.7	19.6
52.5°	7.9	8.8	9.8	10.8	10.8	11.8	12.8	13.8	14.7	15.7	16.7
55°	7.9	7.9	8.8	9.8	9.8	10.8	11.8	12.8	12.8	13.8	14.7
57.5°	6.9	7.9	7.9	8.8	8.8	9.8	10.8	10.8	11.8	11.8	12.8
60°	5.9	6.9	7.9	7.9	7.9	8.8	8.8	9.8	9.8	10.8	10.8
62.5°	5.9	6.9	6.9	7.9	7.9	7.9	8.8	8.8	8.8	9.8	9.8
65°	5.9	5.9	6.9	6.9	6.9	6.9	7.9	7.9	7.9	8.8	8.8
67.5°	4.9	5.9	5.9	5.9	6.9	6.9	6.9	6.9	6.9	7.9	7.9
70°	4.9	4.9	5.9	5.9	5.9	5.9	5.9	6.9	6.9	6.9	6.9
72.5°	4.9	4.9	4.9	4.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
75°	3.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
77.5°	3.9	3.9	3.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
80°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
82.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	2.9	2.9
85°	3.9	3.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
87.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.0	2.0	2.0
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: P182831

CATALOG NUMBER: LDSQA4A18830D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	246.6	246.6	246.6	246.6	246.6	246.6	246.6	246.6
2.5°	190.6	188.6	187.6	190.6	186.6	188.6	187.6	188.6
5°	164.1	162.1	161.1	164.1	160.1	162.1	160.1	162.1
7.5°	147.4	146.4	145.4	147.4	144.4	146.4	145.4	146.4
10°	133.6	132.6	131.6	134.6	131.6	133.6	132.6	133.6
12.5°	121.8	121.8	120.8	122.8	120.8	122.8	121.8	122.8
15°	111.0	112.0	111.0	113.0	112.0	114.0	113.0	114.9
17.5°	102.2	103.1	103.1	106.1	105.1	108.1	107.1	108.1
20°	93.3	94.3	95.3	97.3	97.3	100.2	99.2	101.2
22.5°	84.5	86.4	86.4	89.4	89.4	92.3	92.3	93.3
25°	75.6	78.6	79.6	81.5	82.5	85.5	85.5	86.4
27.5°	68.8	70.7	71.7	74.7	75.6	78.6	78.6	80.6
30°	60.9	63.9	64.8	66.8	67.8	70.7	70.7	72.7
32.5°	54.0	56.0	58.0	59.9	60.9	63.9	63.9	65.8
35°	47.2	50.1	51.1	53.0	55.0	58.0	58.0	59.9
37.5°	41.3	44.2	45.2	47.2	49.1	52.1	52.1	54.0
40°	36.3	39.3	40.3	42.2	43.2	47.2	47.2	48.1
42.5°	32.4	34.4	35.4	37.3	38.3	40.3	40.3	42.2
45°	27.5	29.5	30.5	31.4	33.4	35.4	35.4	36.3
47.5°	23.6	25.5	26.5	27.5	28.5	30.5	30.5	32.4
50°	20.6	21.6	22.6	23.6	24.6	26.5	26.5	27.5
52.5°	17.7	18.7	19.6	20.6	21.6	22.6	23.6	24.6
55°	15.7	16.7	16.7	17.7	18.7	19.6	19.6	20.6
57.5°	13.8	14.7	14.7	14.7	15.7	16.7	16.7	17.7
60°	11.8	12.8	12.8	12.8	13.8	13.8	13.8	14.7
62.5°	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
65°	8.8	8.8	8.8	8.8	8.8	8.8	7.9	8.8
67.5°	7.9	7.9	7.9	6.9	6.9	6.9	6.9	6.9
70°	6.9	6.9	6.9	5.9	5.9	5.9	4.9	4.9
72.5°	5.9	5.9	5.9	4.9	4.9	4.9	3.9	3.9
75°	4.9	4.9	4.9	4.9	3.9	3.9	3.9	3.9
77.5°	3.9	3.9	3.9	3.9	3.9	3.9	2.9	2.9
80°	3.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
82.5°	2.9	2.9	2.9	2.9	2.0	2.0	2.0	2.0
85°	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0
87.5°	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - - 90°-270°













(END OF REPORT)