

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: P182750

Luminaire Tested: **LDSQA4A13827D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182750
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26801)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A13827D010TE LAR35FL 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1688.1 lumens
Efficiency: N/A
Efficacy: 75.8 lumens/watt
Spacing Criteria (0/90/45): 2.46 / 0.59 / 1.2
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

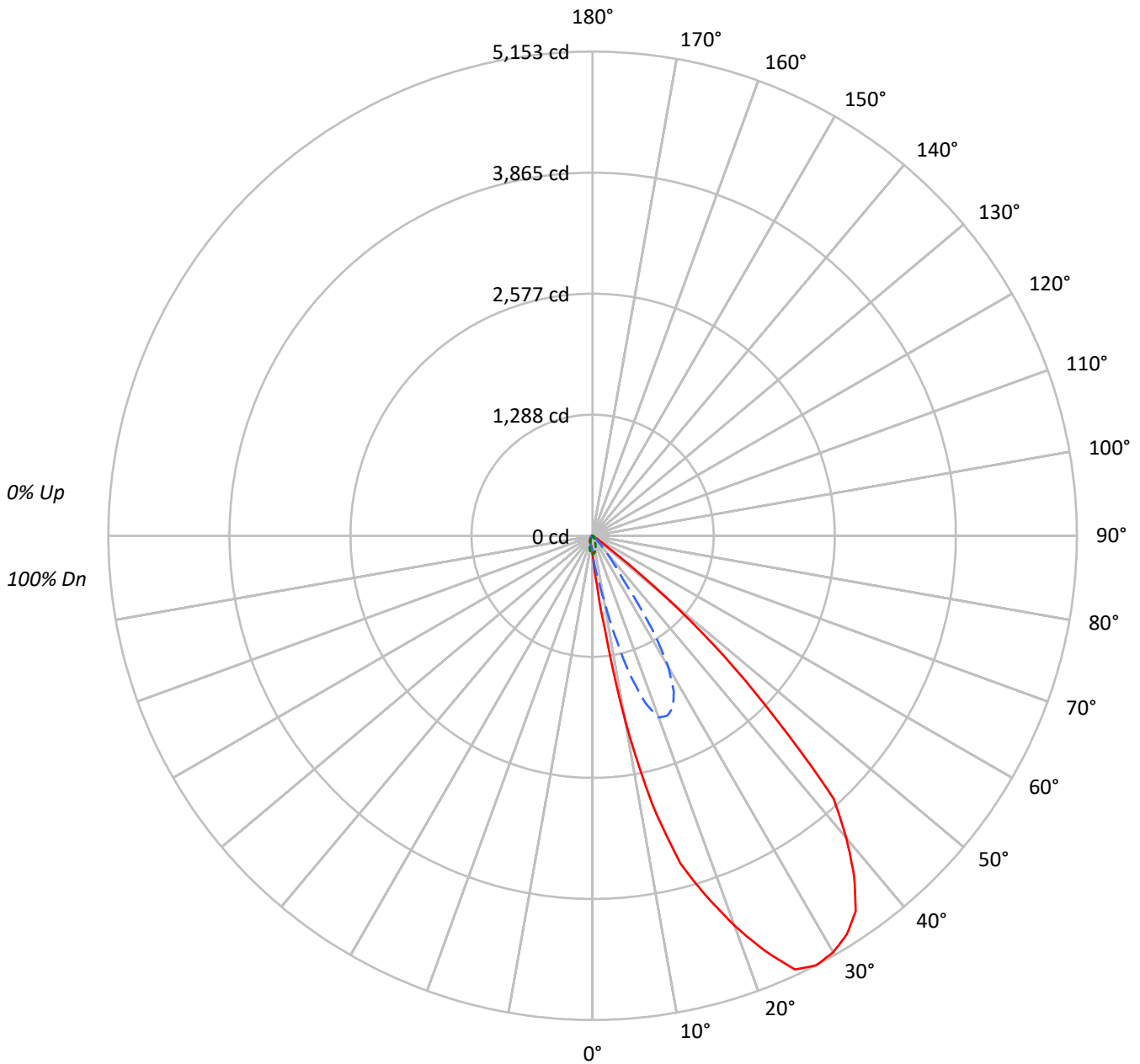
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	105	102	103	101	99	99	98	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83																			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74																			
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67																			
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	60																			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55																			
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49																			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45																			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41																			
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	39	37																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	19084	19084	19084
5°	50179	18175	11864
10°	196730	15729	9876
15°	362187	12396	8756
20°	455123	8763	7959
25°	544381	5783	7098
30°	572466	3624	6220
35°	577088	2188	5393
40°	531026	1467	4591
45°	377812	1055	3809
50°	156122	814	3150
55°	9002	777	2736
60°	1046	756	2248
65°	344	894	1605
70°	425	878	1105
75°	561	1160	1160
80°	0	1729	1283
85°	0	3446	1667



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	31.0	1.8
10°-20°	247.4	14.7
20°-30°	511.6	30.3
30°-40°	557.0	33.0
40°-50°	305.4	18.1
50°-60°	26.4	1.6
60°-70°	4.3	0.3
70°-80°	3.1	0.2
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°	790.0	46.8
0°-40°	1346.9	79.8
0°-60°	1678.7	99.4
0°-90°	1688.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1688.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	197	197	197	197	197	
5°	516	353	187	129	122	94
15°	3611	1518	124	83	87	1008
25°	5093	2019	54	51	66	2300
35°	4880	552	18	29	46	2995
45°	2758	56	8	16	28	2105
55°	53	6	5	10	16	182
65°	2	2	4	6	7	2
75°	2	2	3	5	3	1
85°	0	2	3	2	2	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°	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0
2.5°	309.8	298.9	297.4	298.9	291.2	290.4	292.0	285.8	280.4	275.0	270.4
5°	516.0	493.6	486.7	477.4	454.2	446.5	444.9	420.2	396.3	373.9	353.0
7.5°	1002.7	957.9	933.9	887.6	816.5	784.8	767.8	686.7	611.0	542.3	479.7
10°	1999.9	1882.5	1825.3	1738.1	1582.8	1506.3	1450.7	1246.8	1045.9	852.8	682.9
12.5°	2918.4	2853.5	2769.3	2722.9	2471.1	2374.6	2282.6	1999.9	1694.0	1381.9	1072.2
15°	3611.3	3516.3	3426.7	3405.0	3207.3	3094.5	2992.5	2699.8	2335.9	1938.9	1517.9
17.5°	4018.4	3950.4	3865.4	3824.5	3592.7	3501.6	3385.7	3102.2	2748.4	2352.9	1864.0
20°	4414.7	4314.2	4194.5	4132.7	3876.2	3771.2	3639.9	3341.7	2967.0	2546.8	2057.9
22.5°	4776.9	4647.2	4477.2	4381.4	4093.3	3977.4	3830.7	3507.8	3102.2	2621.8	2074.1
25°	5092.9	4975.5	4749.1	4581.5	4241.6	4104.9	3934.2	3596.6	3150.9	2615.6	2019.2
27.5°	5153.1	5074.3	4871.2	4677.3	4293.4	4141.2	3964.3	3615.1	3116.9	2529.8	1871.7
30°	5117.6	5032.6	4869.6	4671.9	4271.7	4118.0	3934.2	3536.4	2984.0	2329.8	1601.3
32.5°	5031.9	4958.5	4763.8	4555.2	4165.1	4005.2	3811.4	3351.7	2756.2	2011.5	1178.0
35°	4879.7	4769.2	4534.4	4362.9	3996.0	3831.4	3594.3	3105.3	2415.5	1446.1	552.3
37.5°	4569.9	4462.5	4293.4	4135.0	3777.4	3583.5	3333.2	2762.3	1790.6	788.7	341.4
40°	4199.1	4106.4	3958.9	3805.2	3436.7	3213.5	2937.7	2159.0	1053.6	444.2	210.1
42.5°	3795.9	3700.1	3533.3	3354.1	2952.4	2716.8	2418.6	1397.4	555.4	261.9	114.3
45°	2757.7	2672.0	2550.7	2421.7	2189.2	2019.2	1626.8	733.8	307.4	139.0	56.4
47.5°	1887.1	1785.2	1561.2	1290.0	1045.9	894.5	672.8	318.3	157.6	69.5	33.2
50°	1035.9	927.7	813.4	633.4	424.1	348.4	271.1	153.7	71.1	34.8	18.5
52.5°	254.1	224.8	205.5	189.3	149.9	135.2	114.3	64.1	32.4	19.3	13.1
55°	53.3	49.4	47.1	46.3	42.5	40.9	35.5	24.7	17.8	12.4	6.2
57.5°	15.4	14.7	15.4	15.4	15.4	14.7	14.7	10.8	10.0	6.2	3.9
60°	5.4	5.4	5.4	6.2	6.2	6.2	7.0	7.0	5.4	3.9	3.1
62.5°	2.3	2.3	2.3	3.1	3.1	3.9	3.9	3.9	3.1	3.1	2.3
65°	1.5	1.5	1.5	1.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3
67.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3
70°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3
72.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3
75°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5	2.3
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5	1.5
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.5	1.5	1.5
85°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.5	1.5	1.5
87.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.5	1.5	1.5
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0
2.5°	257.2	249.5	240.2	230.2	228.7	223.2	215.5	204.7	200.8	193.1	186.2
5°	322.9	302.0	280.4	261.1	254.9	246.4	232.5	213.2	200.8	186.9	175.4
7.5°	411.0	363.1	319.0	284.3	273.5	259.5	237.9	213.2	194.7	175.4	159.9
10°	528.4	431.0	355.3	298.9	281.2	262.6	234.1	203.9	182.3	159.9	143.7
12.5°	754.7	530.7	389.3	306.7	282.0	258.0	221.7	189.3	164.5	142.1	125.9
15°	1073.0	719.9	458.1	312.1	274.2	244.9	202.4	169.2	144.5	123.6	108.1
17.5°	1341.8	899.2	550.0	327.5	268.8	227.9	180.0	146.0	122.0	103.5	91.2
20°	1473.1	979.5	591.7	329.8	253.4	202.4	153.7	121.3	100.4	85.0	74.2
22.5°	1457.6	952.5	553.1	288.9	214.0	170.7	127.5	98.1	80.3	68.0	60.3
25°	1354.1	835.0	451.1	220.9	166.9	138.3	99.6	76.5	62.6	54.1	47.9
27.5°	1180.3	670.5	329.1	156.0	126.7	105.1	74.2	58.7	47.9	41.7	37.9
30°	909.2	428.7	189.3	112.0	91.9	74.9	55.6	42.5	36.3	32.4	29.4
32.5°	468.9	208.6	125.9	80.3	64.9	54.1	38.6	30.9	27.0	24.7	23.2
35°	257.2	148.3	87.3	51.8	41.7	34.8	26.3	21.6	20.1	18.5	18.5
37.5°	176.9	91.9	48.7	30.9	25.5	21.6	17.8	15.4	14.7	14.7	14.7
40°	102.0	48.7	27.8	19.3	16.2	14.7	12.4	11.6	11.6	11.6	12.4
42.5°	52.5	28.6	18.5	13.1	11.6	10.0	8.5	8.5	8.5	9.3	10.0
45°	30.9	19.3	12.4	8.5	7.7	7.0	6.2	6.2	7.0	7.7	8.5
47.5°	19.3	13.1	7.7	5.4	4.6	4.6	4.6	4.6	5.4	6.2	7.0
50°	13.1	7.0	4.6	3.1	3.1	3.1	3.1	3.9	4.6	5.4	6.2
52.5°	7.0	3.9	3.1	2.3	2.3	2.3	3.1	3.1	3.9	4.6	5.4
55°	3.9	3.1	2.3	2.3	2.3	2.3	2.3	3.1	3.9	4.6	5.4
57.5°	3.1	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.9	4.6
60°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.9	4.6
62.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.9	3.9
65°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.9	3.9
67.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.9
70°	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.9
72.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1
75°	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.9
77.5°	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1
80°	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1
82.5°	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1
85°	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.1
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0
2.5°	182.3	176.1	169.9	169.9	166.9	162.2	160.7	156.0	152.9	151.4	149.9
5°	166.9	157.6	149.1	148.3	144.5	139.0	136.7	132.1	129.0	127.5	126.7
7.5°	149.1	139.8	131.3	129.8	126.7	122.8	120.5	116.6	115.1	113.6	112.8
10°	132.1	122.8	116.6	115.1	112.8	109.7	107.4	105.1	103.5	102.7	102.7
12.5°	115.1	108.1	102.7	101.2	99.6	97.3	95.8	94.2	93.5	93.5	93.5
15°	99.6	93.5	88.8	88.8	87.3	85.7	85.7	84.2	83.4	84.2	85.0
17.5°	84.2	79.6	75.7	75.7	74.9	74.2	74.2	74.2	74.9	75.7	77.2
20°	69.5	65.7	64.1	64.1	63.3	64.1	64.1	64.9	65.7	68.0	70.3
22.5°	56.4	54.1	52.5	53.3	53.3	54.1	54.8	56.4	57.9	60.3	62.6
25°	45.6	44.0	43.3	44.0	44.8	45.6	47.1	48.7	51.0	53.3	56.4
27.5°	36.3	35.5	35.5	36.3	37.1	38.6	40.9	42.5	44.8	47.1	50.2
30°	29.4	28.6	29.4	30.9	31.7	33.2	34.8	37.1	39.4	41.7	44.8
32.5°	23.2	23.9	24.7	25.5	26.3	28.6	30.1	31.7	34.0	36.3	39.4
35°	19.3	20.1	20.9	21.6	22.4	23.9	25.5	27.0	29.4	31.7	34.8
37.5°	15.4	16.2	17.0	18.5	19.3	20.1	22.4	23.2	25.5	27.0	30.1
40°	13.1	13.9	14.7	15.4	16.2	17.8	19.3	20.1	21.6	23.9	26.3
42.5°	10.8	11.6	12.4	13.1	13.9	15.4	16.2	17.8	19.3	20.9	22.4
45°	9.3	10.0	10.8	11.6	12.4	13.1	13.9	15.4	16.2	17.8	19.3
47.5°	7.7	8.5	10.0	10.0	10.8	11.6	12.4	13.1	14.7	15.4	17.0
50°	7.0	7.7	8.5	9.3	9.3	10.0	10.8	11.6	12.4	13.1	14.7
52.5°	6.2	7.0	7.7	7.7	8.5	9.3	10.0	10.0	10.8	11.6	12.4
55°	5.4	6.2	7.0	7.0	7.7	8.5	8.5	9.3	10.0	10.0	10.8
57.5°	5.4	5.4	6.2	6.2	7.0	7.0	7.7	8.5	8.5	9.3	10.0
60°	4.6	5.4	5.4	6.2	6.2	7.0	7.0	7.7	7.7	8.5	8.5
62.5°	4.6	4.6	5.4	5.4	6.2	6.2	7.0	7.0	7.0	7.7	7.7
65°	4.6	4.6	5.4	5.4	5.4	6.2	6.2	6.2	6.2	7.0	7.0
67.5°	3.9	4.6	4.6	5.4	5.4	5.4	5.4	5.4	6.2	6.2	6.2
70°	3.9	4.6	4.6	4.6	4.6	5.4	5.4	5.4	5.4	5.4	5.4
72.5°	3.9	3.9	3.9	3.9	4.6	4.6	4.6	4.6	4.6	4.6	4.6
75°	3.9	3.9	3.9	3.9	3.9	4.6	4.6	4.6	4.6	4.6	4.6
77.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
80°	3.1	3.1	3.1	3.1	3.1	3.9	3.1	3.1	3.1	3.1	3.1
82.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3
85°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3	2.3
87.5°	3.1	3.1	3.1	2.3	2.3	2.3	2.3	2.3	2.3	1.5	1.5
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: P182750

CATALOG NUMBER: LDSQA4A13827D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0
2.5°	147.5	146.0	147.5	146.0	146.0	142.9	145.2	143.7
5°	124.4	122.8	124.4	123.6	122.0	121.3	122.8	122.0
7.5°	111.2	109.7	111.2	111.2	109.7	108.9	110.5	109.7
10°	101.2	100.4	101.2	101.2	100.4	99.6	101.2	100.4
12.5°	92.7	91.9	93.5	93.5	92.7	92.7	94.2	92.7
15°	85.0	85.0	86.5	86.5	86.5	86.5	88.1	87.3
17.5°	77.2	78.8	80.3	81.1	81.1	81.1	82.7	82.7
20°	71.1	72.6	74.2	74.9	75.7	75.7	77.2	77.2
22.5°	64.1	65.7	68.0	68.7	69.5	70.3	71.8	71.8
25°	57.9	59.5	61.8	62.6	64.1	64.9	66.4	66.4
27.5°	51.8	54.1	55.6	57.2	57.9	59.5	61.0	61.0
30°	46.3	48.7	50.2	51.8	52.5	54.1	55.6	55.6
32.5°	40.9	43.3	44.8	46.3	47.9	48.7	51.0	51.0
35°	36.3	37.9	40.2	40.9	42.5	44.0	45.6	45.6
37.5°	31.7	33.2	34.8	36.3	37.9	38.6	40.2	40.9
40°	27.8	29.4	30.9	31.7	33.2	34.8	35.5	36.3
42.5°	23.9	25.5	27.0	27.8	29.4	30.1	31.7	31.7
45°	20.9	22.4	23.2	23.9	25.5	26.3	27.8	27.8
47.5°	17.8	19.3	20.1	20.9	21.6	22.4	23.9	23.9
50°	15.4	16.2	17.0	17.8	18.5	20.1	20.9	20.9
52.5°	13.1	14.7	14.7	15.4	16.2	17.0	17.8	18.5
55°	11.6	12.4	13.1	13.1	13.9	14.7	15.4	16.2
57.5°	10.0	10.8	11.6	11.6	12.4	12.4	13.1	13.9
60°	9.3	9.3	10.0	10.0	10.0	10.8	10.8	11.6
62.5°	7.7	7.7	8.5	8.5	8.5	8.5	8.5	8.5
65°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
67.5°	6.2	6.2	6.2	6.2	5.4	5.4	5.4	5.4
70°	5.4	5.4	5.4	5.4	4.6	4.6	4.6	3.9
72.5°	4.6	4.6	4.6	4.6	3.9	3.9	3.1	3.1
75°	3.9	3.9	3.9	3.9	3.9	3.1	3.1	3.1
77.5°	3.9	3.1	3.1	3.1	3.1	3.1	3.1	2.3
80°	3.1	3.1	2.3	2.3	2.3	2.3	2.3	2.3
82.5°	2.3	2.3	2.3	2.3	1.5	1.5	1.5	1.5
85°	2.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
87.5°	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)