

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: P182739

Luminaire Tested: **LDSQA4A18930D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182739
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: LDSQA4A18930D010TE LAR35FL 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1766.0 lumens
Efficiency: N/A
Efficacy: 60.6 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

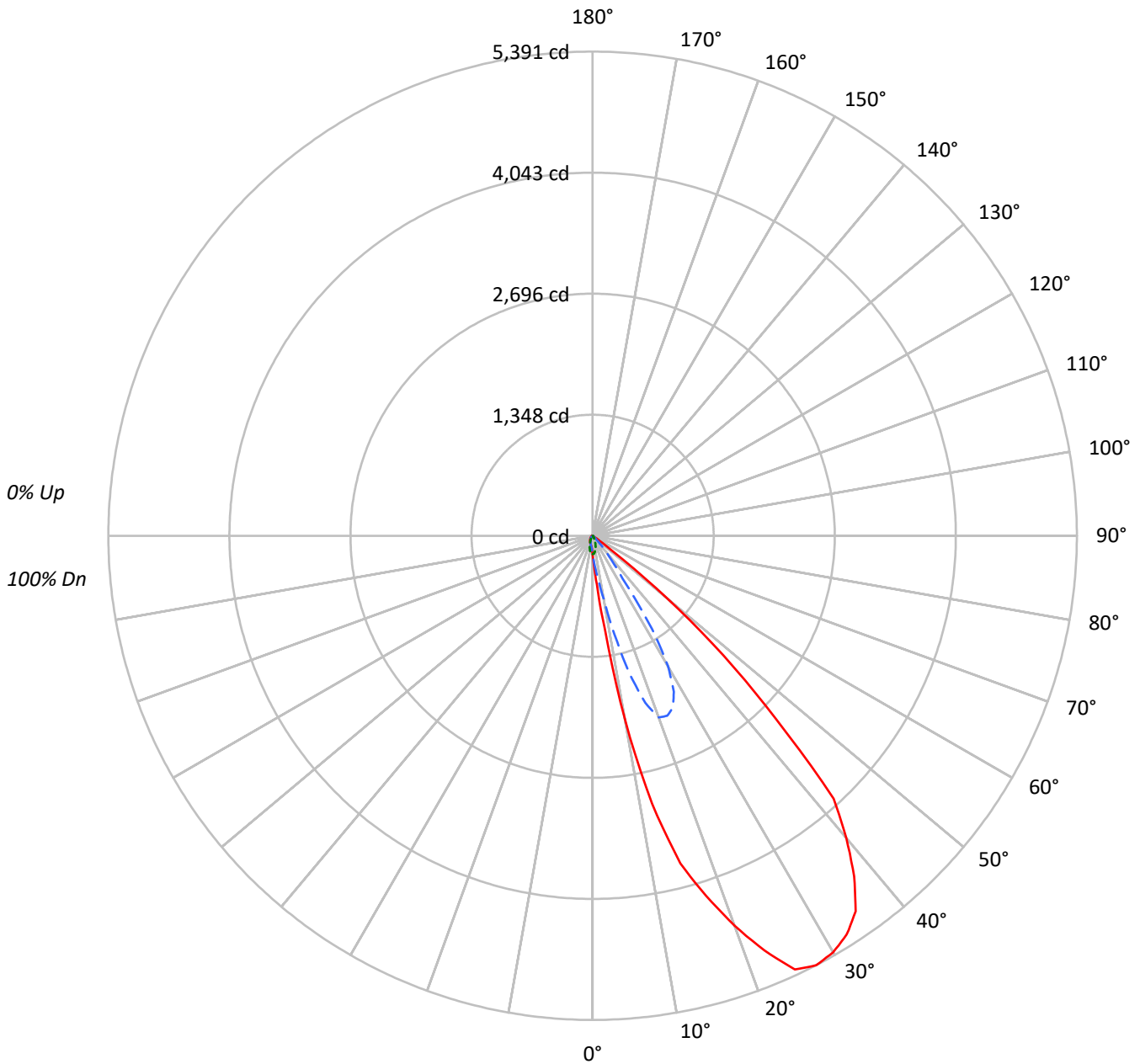
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	19966	19966	19966
5°	52493	19021	12418
10°	205819	16457	10339
15°	378916	12968	9157
20°	476144	9165	8330
25°	569522	6050	7429
30°	598910	3792	6510
35°	603745	2294	5641
40°	555560	1530	4806
45°	395266	1110	3987
50°	163326	859	3286
55°	9424	811	2871
60°	1104	775	2344
65°	367	917	1673
70°	453	906	1133
75°	599	1198	1198
80°	0	1785	1339
85°	0	3557	1778



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	32.4	1.8
10°-20°	258.8	14.7
20°-30°	535.3	30.3
30°-40°	582.7	33.0
40°-50°	319.5	18.1
50°-60°	27.7	1.6
60°-70°	4.5	0.3
70°-80°	3.2	0.2
80°-90°	2.0	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°	826.4	46.8
0°-40°	1409.1	79.8
0°-60°	1756.3	99.4
0°-90°	1766.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1766.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	206	206	206	206	206	
5°	540	369	196	135	128	99
15°	3778	1588	129	87	91	1055
25°	5328	2112	57	53	70	2406
35°	5105	578	19	31	48	3133
45°	2885	59	8	17	29	2202
55°	56	6	5	10	17	191
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°	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1
2.5°	324.1	312.8	311.1	312.8	304.7	303.9	305.5	299.0	293.4	287.7	282.9
5°	539.8	516.4	509.1	499.4	475.2	467.1	465.5	439.6	414.6	391.1	369.3
7.5°	1049.0	1002.1	977.1	928.6	854.2	821.1	803.3	718.4	639.2	567.3	501.9
10°	2092.3	1969.5	1909.7	1818.3	1655.9	1575.9	1517.7	1304.4	1094.2	892.2	714.4
12.5°	3053.2	2985.3	2897.2	2848.7	2585.3	2484.3	2388.1	2092.3	1772.3	1445.8	1121.7
15°	3778.1	3678.7	3585.0	3562.3	3355.4	3237.5	3130.8	2824.5	2443.8	2028.5	1588.0
17.5°	4204.0	4132.9	4044.0	4001.2	3758.7	3663.3	3542.1	3245.5	2875.4	2461.6	1950.1
20°	4618.6	4513.5	4388.3	4323.6	4055.3	3945.4	3808.0	3496.1	3104.1	2664.5	2152.9
22.5°	4997.6	4861.8	4684.0	4583.8	4282.4	4161.2	4007.6	3669.8	3245.5	2742.9	2169.9
25°	5328.1	5205.3	4968.5	4793.1	4437.6	4294.5	4115.9	3762.7	3296.4	2736.4	2112.5
27.5°	5391.2	5308.7	5096.2	4893.4	4491.7	4332.5	4147.4	3782.1	3260.9	2646.7	1958.1
30°	5354.0	5265.1	5094.6	4887.7	4469.1	4308.2	4115.9	3699.7	3121.9	2437.4	1675.3
32.5°	5264.3	5187.5	4983.9	4765.7	4357.5	4190.3	3987.4	3506.6	2883.5	2104.4	1232.4
35°	5105.1	4989.5	4743.8	4564.4	4180.6	4008.4	3760.3	3248.8	2527.1	1512.9	577.8
37.5°	4781.0	4668.7	4491.7	4326.0	3951.9	3749.0	3487.2	2889.9	1873.3	825.1	357.2
40°	4393.1	4296.1	4141.8	3980.9	3595.5	3361.9	3073.4	2258.8	1102.3	464.7	219.8
42.5°	3971.3	3871.0	3696.5	3509.0	3088.8	2842.3	2530.3	1461.9	581.1	274.0	119.6
45°	2885.1	2795.4	2668.5	2533.6	2290.3	2112.5	1702.0	767.7	321.6	145.5	59.0
47.5°	1974.3	1867.6	1633.3	1349.6	1094.2	935.8	703.9	333.0	164.9	72.7	34.8
50°	1083.7	970.6	851.0	662.7	443.7	364.5	283.7	160.8	74.3	36.4	19.4
52.5°	265.9	235.2	215.0	198.0	156.8	141.4	119.6	67.1	33.9	20.2	13.7
55°	55.8	51.7	49.3	48.5	44.4	42.8	37.2	25.9	18.6	12.9	6.5
57.5°	16.2	15.4	16.2	16.2	16.2	15.4	15.4	11.3	10.5	6.5	4.0
60°	5.7	5.7	5.7	6.5	6.5	6.5	7.3	7.3	5.7	4.0	3.2
62.5°	2.4	2.4	2.4	3.2	3.2	4.0	4.0	4.0	3.2	3.2	2.4
65°	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
85°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
87.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1
2.5°	269.1	261.0	251.3	240.8	239.2	233.6	225.5	214.2	210.1	202.0	194.8
5°	337.8	316.0	293.4	273.2	266.7	257.8	243.3	223.0	210.1	195.6	183.5
7.5°	429.9	379.8	333.8	297.4	286.1	271.5	248.9	223.0	203.7	183.5	167.3
10°	552.8	450.9	371.7	312.8	294.2	274.8	244.9	213.4	190.7	167.3	150.3
12.5°	789.6	555.2	407.3	320.8	295.0	269.9	231.9	198.0	172.1	148.7	131.7
15°	1122.5	753.2	479.2	326.5	286.9	256.2	211.7	177.0	151.1	129.3	113.1
17.5°	1403.8	940.7	575.4	342.7	281.2	238.4	188.3	152.7	127.7	108.3	95.4
20°	1541.1	1024.7	619.0	345.1	265.1	211.7	160.8	126.9	105.1	88.9	77.6
22.5°	1525.0	996.4	578.6	302.2	223.9	178.6	133.3	102.6	84.0	71.1	63.0
25°	1416.7	873.6	472.0	231.1	174.6	144.7	104.3	80.0	65.5	56.6	50.1
27.5°	1234.9	701.5	344.3	163.2	132.5	109.9	77.6	61.4	50.1	43.6	39.6
30°	951.2	448.5	198.0	117.2	96.2	78.4	58.2	44.4	38.0	33.9	30.7
32.5°	490.5	218.2	131.7	84.0	67.9	56.6	40.4	32.3	28.3	25.9	24.2
35°	269.1	155.2	91.3	54.1	43.6	36.4	27.5	22.6	21.0	19.4	19.4
37.5°	185.1	96.2	50.9	32.3	26.7	22.6	18.6	16.2	15.4	15.4	15.4
40°	106.7	50.9	29.1	20.2	17.0	15.4	12.9	12.1	12.1	12.1	12.9
42.5°	55.0	29.9	19.4	13.7	12.1	10.5	8.9	8.9	8.9	9.7	10.5
45°	32.3	20.2	12.9	8.9	8.1	7.3	6.5	6.5	7.3	8.1	8.9
47.5°	20.2	13.7	8.1	5.7	4.8	4.8	4.8	4.8	5.7	6.5	7.3
50°	13.7	7.3	4.8	3.2	3.2	3.2	3.2	4.0	4.8	5.7	6.5
52.5°	7.3	4.0	3.2	2.4	2.4	2.4	3.2	3.2	4.0	4.8	5.7
55°	4.0	3.2	2.4	2.4	2.4	2.4	2.4	3.2	4.0	4.8	5.7
57.5°	3.2	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.8
60°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.8
62.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.0
65°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.0
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	4.0
70°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	4.0
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2
75°	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	4.0
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
80°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2
85°	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1
2.5°	190.7	184.3	177.8	177.8	174.6	169.7	168.1	163.2	160.0	158.4	156.8
5°	174.6	164.9	156.0	155.2	151.1	145.5	143.0	138.2	135.0	133.3	132.5
7.5°	156.0	146.3	137.4	135.8	132.5	128.5	126.1	122.0	120.4	118.8	118.0
10°	138.2	128.5	122.0	120.4	118.0	114.8	112.3	109.9	108.3	107.5	107.5
12.5°	120.4	113.1	107.5	105.9	104.3	101.8	100.2	98.6	97.8	97.8	97.8
15°	104.3	97.8	92.9	92.9	91.3	89.7	89.7	88.1	87.3	88.1	88.9
17.5°	88.1	83.2	79.2	79.2	78.4	77.6	77.6	77.6	78.4	79.2	80.8
20°	72.7	68.7	67.1	67.1	66.3	67.1	67.1	67.9	68.7	71.1	73.5
22.5°	59.0	56.6	55.0	55.8	55.8	56.6	57.4	59.0	60.6	63.0	65.5
25°	47.7	46.1	45.3	46.1	46.9	47.7	49.3	50.9	53.3	55.8	59.0
27.5°	38.0	37.2	37.2	38.0	38.8	40.4	42.8	44.4	46.9	49.3	52.5
30°	30.7	29.9	30.7	32.3	33.1	34.8	36.4	38.8	41.2	43.6	46.9
32.5°	24.2	25.1	25.9	26.7	27.5	29.9	31.5	33.1	35.6	38.0	41.2
35°	20.2	21.0	21.8	22.6	23.4	25.1	26.7	28.3	30.7	33.1	36.4
37.5°	16.2	17.0	17.8	19.4	20.2	21.0	23.4	24.2	26.7	28.3	31.5
40°	13.7	14.5	15.4	16.2	17.0	18.6	20.2	21.0	22.6	25.1	27.5
42.5°	11.3	12.1	12.9	13.7	14.5	16.2	17.0	18.6	20.2	21.8	23.4
45°	9.7	10.5	11.3	12.1	12.9	13.7	14.5	16.2	17.0	18.6	20.2
47.5°	8.1	8.9	10.5	10.5	11.3	12.1	12.9	13.7	15.4	16.2	17.8
50°	7.3	8.1	8.9	9.7	9.7	10.5	11.3	12.1	12.9	13.7	15.4
52.5°	6.5	7.3	8.1	8.1	8.9	9.7	10.5	10.5	11.3	12.1	12.9
55°	5.7	6.5	7.3	7.3	8.1	8.9	8.9	9.7	10.5	10.5	11.3
57.5°	5.7	5.7	6.5	6.5	7.3	7.3	8.1	8.9	8.9	9.7	10.5
60°	4.8	5.7	5.7	6.5	6.5	7.3	7.3	8.1	8.1	8.9	8.9
62.5°	4.8	4.8	5.7	5.7	6.5	6.5	7.3	7.3	7.3	8.1	8.1
65°	4.8	4.8	5.7	5.7	5.7	6.5	6.5	6.5	6.5	7.3	7.3
67.5°	4.0	4.8	4.8	5.7	5.7	5.7	5.7	5.7	6.5	6.5	6.5
70°	4.0	4.8	4.8	4.8	4.8	5.7	5.7	5.7	5.7	5.7	5.7
72.5°	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.8	4.8	4.8
75°	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.8	4.8
77.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
80°	3.2	3.2	3.2	3.2	3.2	4.0	3.2	3.2	3.2	3.2	3.2
82.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4
85°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4	2.4
87.5°	3.2	3.2	3.2	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
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: P182739

CATALOG NUMBER: LDSQA4A18930D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	206.1	206.1	206.1	206.1	206.1	206.1	206.1	206.1
2.5°	154.4	152.7	154.4	152.7	152.7	149.5	151.9	150.3
5°	130.1	128.5	130.1	129.3	127.7	126.9	128.5	127.7
7.5°	116.4	114.8	116.4	116.4	114.8	113.9	115.6	114.8
10°	105.9	105.1	105.9	105.9	105.1	104.3	105.9	105.1
12.5°	97.0	96.2	97.8	97.8	97.0	97.0	98.6	97.0
15°	88.9	88.9	90.5	90.5	90.5	90.5	92.1	91.3
17.5°	80.8	82.4	84.0	84.9	84.9	84.9	86.5	86.5
20°	74.3	76.0	77.6	78.4	79.2	79.2	80.8	80.8
22.5°	67.1	68.7	71.1	71.9	72.7	73.5	75.2	75.2
25°	60.6	62.2	64.7	65.5	67.1	67.9	69.5	69.5
27.5°	54.1	56.6	58.2	59.8	60.6	62.2	63.8	63.8
30°	48.5	50.9	52.5	54.1	55.0	56.6	58.2	58.2
32.5°	42.8	45.3	46.9	48.5	50.1	50.9	53.3	53.3
35°	38.0	39.6	42.0	42.8	44.4	46.1	47.7	47.7
37.5°	33.1	34.8	36.4	38.0	39.6	40.4	42.0	42.8
40°	29.1	30.7	32.3	33.1	34.8	36.4	37.2	38.0
42.5°	25.1	26.7	28.3	29.1	30.7	31.5	33.1	33.1
45°	21.8	23.4	24.2	25.1	26.7	27.5	29.1	29.1
47.5°	18.6	20.2	21.0	21.8	22.6	23.4	25.1	25.1
50°	16.2	17.0	17.8	18.6	19.4	21.0	21.8	21.8
52.5°	13.7	15.4	15.4	16.2	17.0	17.8	18.6	19.4
55°	12.1	12.9	13.7	13.7	14.5	15.4	16.2	17.0
57.5°	10.5	11.3	12.1	12.1	12.9	12.9	13.7	14.5
60°	9.7	9.7	10.5	10.5	10.5	11.3	11.3	12.1
62.5°	8.1	8.1	8.9	8.9	8.9	8.9	8.9	8.9
65°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
67.5°	6.5	6.5	6.5	6.5	5.7	5.7	5.7	5.7
70°	5.7	5.7	5.7	5.7	4.8	4.8	4.8	4.0
72.5°	4.8	4.8	4.8	4.8	4.0	4.0	3.2	3.2
75°	4.0	4.0	4.0	4.0	4.0	3.2	3.2	3.2
77.5°	4.0	3.2	3.2	3.2	3.2	3.2	3.2	2.4
80°	3.2	3.2	2.4	2.4	2.4	2.4	2.4	2.4
82.5°	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6
85°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6
87.5°	1.6	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)