

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: P182735

Luminaire Tested: **LDSQA4A18830D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182735
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: LDSQA4A18830D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2146.4 lumens
Efficiency: N/A
Efficacy: 73.7 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

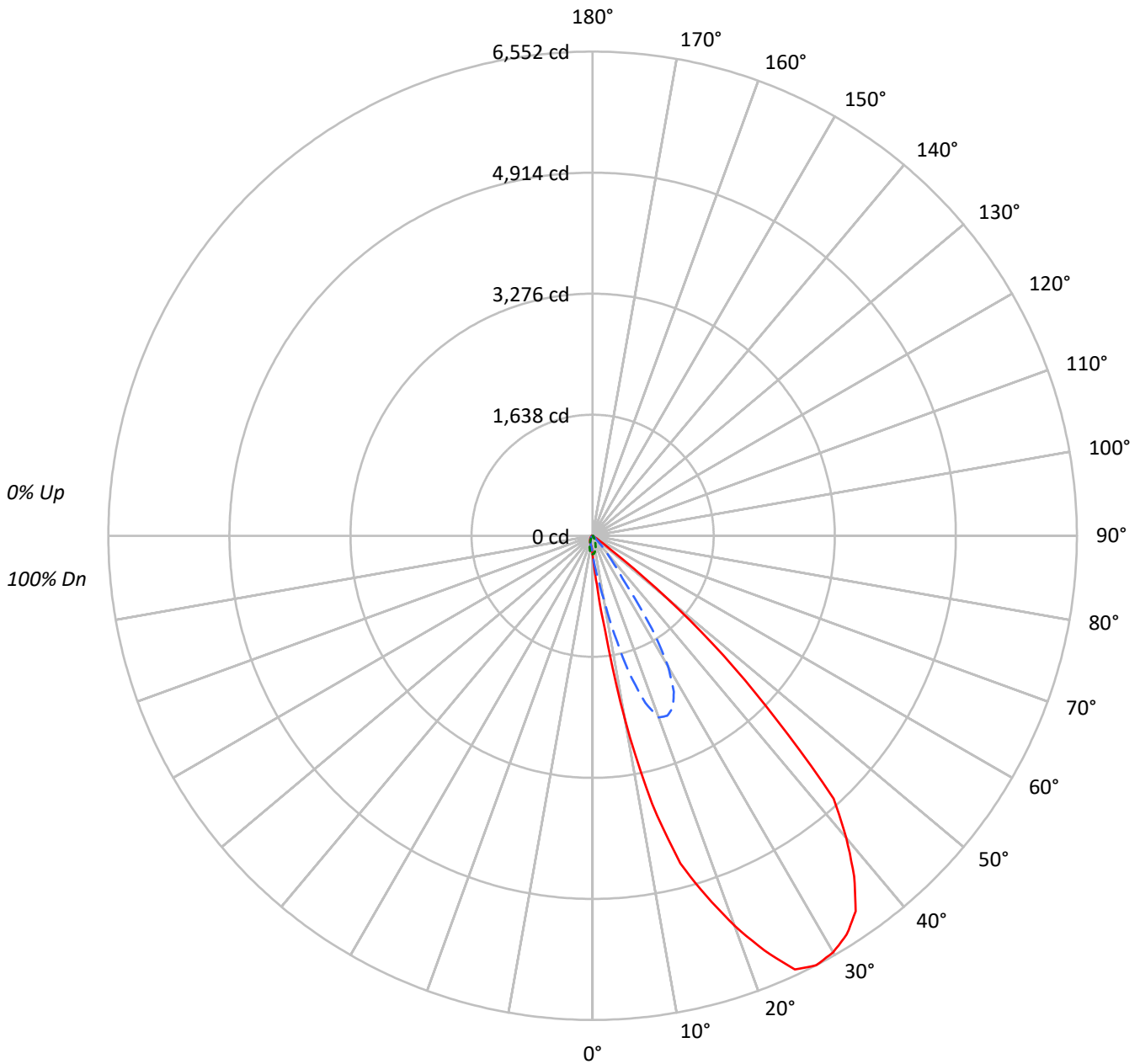
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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	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					100			
1	112	109	106	104	110	107	105	102	103	101	99	99	98	96	96	94	93	91					91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83					83			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74					74			
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67					67			
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	60					60			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55					55			
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49					49			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45					45			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41					41			
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	39	37					37			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	24267	24267	24267
5°	63803	23115	15092
10°	250145	19999	12562
15°	460515	15756	11133
20°	578680	11134	10124
25°	692178	7354	9032
30°	727887	4620	7909
35°	733763	2791	6847
40°	675205	1859	5843
45°	480386	1343	4850
50°	198502	1040	3994
55°	11451	996	3479
60°	1337	949	2848
65°	458	1123	2017
70°	566	1105	1388
75°	749	1460	1460
80°	0	2176	1618
85°	0	4335	2223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	39.4	1.8
10°-20°	314.5	14.7
20°-30°	650.5	30.3
30°-40°	708.2	33.0
40°-50°	388.3	18.1
50°-60°	33.6	1.6
60°-70°	5.5	0.3
70°-80°	3.9	0.2
80°-90°	2.5	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°	1004.4	46.8
0°-40°	1712.6	79.8
0°-60°	2134.5	99.4
0°-90°	2146.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2146.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	250	250	250	250	250	
5°	656	449	238	164	155	120
15°	4592	1930	157	106	111	1282
25°	6476	2567	69	65	84	2924
35°	6204	702	24	37	58	3808
45°	3506	72	10	21	35	2676
55°	68	8	6	13	21	232
65°	2	3	5	8	9	3
75°	2	3	4	6	4	1
85°	0	2	4	3	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°	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5
2.5°	393.9	380.1	378.1	380.1	370.3	369.3	371.3	363.4	356.5	349.7	343.8
5°	656.1	627.6	618.8	607.0	577.5	567.7	565.7	534.3	503.9	475.4	448.9
7.5°	1274.9	1217.9	1187.5	1128.5	1038.2	997.9	976.3	873.2	776.9	689.5	609.9
10°	2542.9	2393.6	2320.9	2209.9	2012.5	1915.3	1844.5	1585.2	1329.9	1084.3	868.3
12.5°	3710.7	3628.2	3521.1	3462.2	3142.0	3019.2	2902.4	2542.9	2153.9	1757.1	1363.3
15°	4591.7	4470.9	4357.0	4329.5	4078.0	3934.6	3805.0	3432.7	2970.1	2465.3	1930.0
17.5°	5109.3	5022.9	4914.9	4862.8	4568.2	4452.3	4304.9	3944.5	3494.6	2991.7	2370.0
20°	5613.2	5485.5	5333.3	5254.7	4928.6	4795.0	4628.1	4248.9	3772.6	3238.3	2616.5
22.5°	6073.8	5908.8	5692.8	5571.0	5204.6	5057.3	4870.7	4460.1	3944.5	3333.5	2637.2
25°	6475.6	6326.3	6038.5	5825.4	5393.2	5219.3	5002.3	4573.1	4006.3	3325.7	2567.4
27.5°	6552.2	6452.0	6193.7	5947.1	5459.0	5265.5	5040.6	4596.6	3963.1	3216.7	2379.8
30°	6507.0	6398.9	6191.7	5940.3	5431.5	5236.0	5002.3	4496.5	3794.2	2962.3	2036.1
32.5°	6398.0	6304.7	6057.1	5792.0	5296.0	5092.6	4846.1	4261.7	3504.4	2557.6	1497.8
35°	6204.5	6064.0	5765.4	5547.4	5080.9	4871.6	4570.1	3948.4	3071.3	1838.7	702.3
37.5°	5810.6	5674.1	5459.0	5257.6	4802.9	4556.4	4238.1	3512.3	2276.7	1002.8	434.1
40°	5339.2	5221.3	5033.7	4838.3	4369.8	4085.9	3735.3	2745.2	1339.7	564.8	267.2
42.5°	4826.5	4704.7	4492.5	4264.7	3753.9	3454.4	3075.2	1776.8	706.2	333.0	145.4
45°	3506.4	3397.4	3243.2	3079.2	2783.5	2567.4	2068.5	933.1	390.9	176.8	71.7
47.5°	2399.5	2269.8	1985.0	1640.3	1329.9	1137.4	855.5	404.7	200.4	88.4	42.2
50°	1317.1	1179.6	1034.2	805.4	539.2	443.0	344.7	195.5	90.4	44.2	23.6
52.5°	323.1	285.8	261.3	240.6	190.5	171.9	145.4	81.5	41.3	24.6	16.7
55°	67.8	62.9	59.9	58.9	54.0	52.1	45.2	31.4	22.6	15.7	7.9
57.5°	19.6	18.7	19.6	19.6	19.6	18.7	18.7	13.8	12.8	7.9	4.9
60°	6.9	6.9	6.9	7.9	7.9	7.9	8.8	8.8	6.9	4.9	3.9
62.5°	2.9	2.9	2.9	3.9	3.9	4.9	4.9	4.9	3.9	3.9	2.9
65°	2.0	2.0	2.0	2.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9
67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9
70°	2.0	2.0	2.0	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	2.9
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.9
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.9
80°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	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	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
87.5°	0.0	0.0	0.0	1.0	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°	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5
2.5°	327.1	317.2	305.5	292.7	290.7	283.9	274.0	260.3	255.4	245.5	236.7
5°	410.6	384.0	356.5	332.0	324.1	313.3	295.6	271.1	255.4	237.7	223.0
7.5°	522.5	461.6	405.6	361.4	347.7	330.0	302.5	271.1	247.5	223.0	203.3
10°	671.8	548.1	451.8	380.1	357.5	333.9	297.6	259.3	231.8	203.3	182.7
12.5°	959.6	674.8	495.0	389.9	358.5	328.1	281.9	240.6	209.2	180.7	160.1
15°	1364.3	915.4	582.4	396.8	348.7	311.4	257.3	215.1	183.7	157.1	137.5
17.5°	1706.1	1143.3	699.3	416.4	341.8	289.7	228.8	185.6	155.2	131.6	115.9
20°	1873.0	1245.4	752.4	419.4	322.2	257.3	195.5	154.2	127.7	108.0	94.3
22.5°	1853.4	1211.0	703.2	367.3	272.1	217.1	162.1	124.7	102.1	86.4	76.6
25°	1721.8	1061.7	573.6	280.9	212.2	175.8	126.7	97.2	79.6	68.8	60.9
27.5°	1500.8	852.5	418.4	198.4	161.1	133.6	94.3	74.6	60.9	53.0	48.1
30°	1156.0	545.1	240.6	142.4	116.9	95.3	70.7	54.0	46.2	41.3	37.3
32.5°	596.2	265.2	160.1	102.1	82.5	68.8	49.1	39.3	34.4	31.4	29.5
35°	327.1	188.6	111.0	65.8	53.0	44.2	33.4	27.5	25.5	23.6	23.6
37.5°	224.9	116.9	61.9	39.3	32.4	27.5	22.6	19.6	18.7	18.7	18.7
40°	129.6	61.9	35.4	24.6	20.6	18.7	15.7	14.7	14.7	14.7	15.7
42.5°	66.8	36.3	23.6	16.7	14.7	12.8	10.8	10.8	10.8	11.8	12.8
45°	39.3	24.6	15.7	10.8	9.8	8.8	7.9	7.9	8.8	9.8	10.8
47.5°	24.6	16.7	9.8	6.9	5.9	5.9	5.9	5.9	6.9	7.9	8.8
50°	16.7	8.8	5.9	3.9	3.9	3.9	3.9	4.9	5.9	6.9	7.9
52.5°	8.8	4.9	3.9	2.9	2.9	2.9	3.9	3.9	4.9	5.9	6.9
55°	4.9	3.9	2.9	2.9	2.9	2.9	2.9	3.9	4.9	5.9	6.9
57.5°	3.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.9	5.9
60°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	4.9	5.9
62.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	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	4.9	4.9
67.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	4.9
70°	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9	4.9
72.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9
75°	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9	4.9
77.5°	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9
80°	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9
82.5°	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9
85°	2.9	2.9	2.9	2.9	2.9	3.9	3.9	3.9	3.9	3.9	3.9
87.5°	2.9	2.9	2.9	2.9	2.9	2.9	3.9	3.9	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°	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5
2.5°	231.8	223.9	216.1	216.1	212.2	206.3	204.3	198.4	194.5	192.5	190.5
5°	212.2	200.4	189.6	188.6	183.7	176.8	173.8	168.0	164.0	162.1	161.1
7.5°	189.6	177.8	167.0	165.0	161.1	156.2	153.2	148.3	146.3	144.4	143.4
10°	168.0	156.2	148.3	146.3	143.4	139.5	136.5	133.6	131.6	130.6	130.6
12.5°	146.3	137.5	130.6	128.7	126.7	123.8	121.8	119.8	118.8	118.8	118.8
15°	126.7	118.8	113.0	113.0	111.0	109.0	109.0	107.1	106.1	107.1	108.0
17.5°	107.1	101.2	96.3	96.3	95.3	94.3	94.3	94.3	95.3	96.3	98.2
20°	88.4	83.5	81.5	81.5	80.5	81.5	81.5	82.5	83.5	86.4	89.4
22.5°	71.7	68.8	66.8	67.8	67.8	68.8	69.7	71.7	73.7	76.6	79.6
25°	57.9	56.0	55.0	56.0	57.0	57.9	59.9	61.9	64.8	67.8	71.7
27.5°	46.2	45.2	45.2	46.2	47.1	49.1	52.1	54.0	57.0	59.9	63.8
30°	37.3	36.3	37.3	39.3	40.3	42.2	44.2	47.1	50.1	53.0	57.0
32.5°	29.5	30.4	31.4	32.4	33.4	36.3	38.3	40.3	43.2	46.2	50.1
35°	24.6	25.5	26.5	27.5	28.5	30.4	32.4	34.4	37.3	40.3	44.2
37.5°	19.6	20.6	21.6	23.6	24.6	25.5	28.5	29.5	32.4	34.4	38.3
40°	16.7	17.7	18.7	19.6	20.6	22.6	24.6	25.5	27.5	30.4	33.4
42.5°	13.8	14.7	15.7	16.7	17.7	19.6	20.6	22.6	24.6	26.5	28.5
45°	11.8	12.8	13.8	14.7	15.7	16.7	17.7	19.6	20.6	22.6	24.6
47.5°	9.8	10.8	12.8	12.8	13.8	14.7	15.7	16.7	18.7	19.6	21.6
50°	8.8	9.8	10.8	11.8	11.8	12.8	13.8	14.7	15.7	16.7	18.7
52.5°	7.9	8.8	9.8	9.8	10.8	11.8	12.8	12.8	13.8	14.7	15.7
55°	6.9	7.9	8.8	8.8	9.8	10.8	10.8	11.8	12.8	12.8	13.8
57.5°	6.9	6.9	7.9	7.9	8.8	8.8	9.8	10.8	10.8	11.8	12.8
60°	5.9	6.9	6.9	7.9	7.9	8.8	8.8	9.8	9.8	10.8	10.8
62.5°	5.9	5.9	6.9	6.9	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	7.9	7.9	7.9	7.9	8.8	8.8
67.5°	4.9	5.9	5.9	6.9	6.9	6.9	6.9	6.9	7.9	7.9	7.9
70°	4.9	5.9	5.9	5.9	5.9	6.9	6.9	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°	4.9	4.9	4.9	4.9	4.9	5.9	5.9	5.9	5.9	5.9	5.9
77.5°	4.9	4.9	4.9	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	4.9	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	3.9	3.9	3.9	3.9	3.9	2.9	2.9	2.9	2.9
87.5°	3.9	3.9	3.9	2.9	2.9	2.9	2.9	2.9	2.9	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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CATALOG NUMBER: LDSQA4A18830D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	250.5	250.5	250.5	250.5	250.5	250.5	250.5	250.5
2.5°	187.6	185.6	187.6	185.6	185.6	181.7	184.7	182.7
5°	158.1	156.2	158.1	157.1	155.2	154.2	156.2	155.2
7.5°	141.4	139.5	141.4	141.4	139.5	138.5	140.5	139.5
10°	128.7	127.7	128.7	128.7	127.7	126.7	128.7	127.7
12.5°	117.9	116.9	118.8	118.8	117.9	117.9	119.8	117.9
15°	108.0	108.0	110.0	110.0	110.0	110.0	112.0	111.0
17.5°	98.2	100.2	102.1	103.1	103.1	103.1	105.1	105.1
20°	90.4	92.3	94.3	95.3	96.3	96.3	98.2	98.2
22.5°	81.5	83.5	86.4	87.4	88.4	89.4	91.3	91.3
25°	73.7	75.6	78.6	79.6	81.5	82.5	84.5	84.5
27.5°	65.8	68.8	70.7	72.7	73.7	75.6	77.6	77.6
30°	58.9	61.9	63.8	65.8	66.8	68.8	70.7	70.7
32.5°	52.1	55.0	57.0	58.9	60.9	61.9	64.8	64.8
35°	46.2	48.1	51.1	52.1	54.0	56.0	57.9	57.9
37.5°	40.3	42.2	44.2	46.2	48.1	49.1	51.1	52.1
40°	35.4	37.3	39.3	40.3	42.2	44.2	45.2	46.2
42.5°	30.4	32.4	34.4	35.4	37.3	38.3	40.3	40.3
45°	26.5	28.5	29.5	30.4	32.4	33.4	35.4	35.4
47.5°	22.6	24.6	25.5	26.5	27.5	28.5	30.4	30.4
50°	19.6	20.6	21.6	22.6	23.6	25.5	26.5	26.5
52.5°	16.7	18.7	18.7	19.6	20.6	21.6	22.6	23.6
55°	14.7	15.7	16.7	16.7	17.7	18.7	19.6	20.6
57.5°	12.8	13.8	14.7	14.7	15.7	15.7	16.7	17.7
60°	11.8	11.8	12.8	12.8	12.8	13.8	13.8	14.7
62.5°	9.8	9.8	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	8.8	8.8
67.5°	7.9	7.9	7.9	7.9	6.9	6.9	6.9	6.9
70°	6.9	6.9	6.9	6.9	5.9	5.9	5.9	4.9
72.5°	5.9	5.9	5.9	5.9	4.9	4.9	3.9	3.9
75°	4.9	4.9	4.9	4.9	4.9	3.9	3.9	3.9
77.5°	4.9	3.9	3.9	3.9	3.9	3.9	3.9	2.9
80°	3.9	3.9	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°	2.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)