

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: P182846

Luminaire Tested: **LDSQA4A13827D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182846  
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: LDSQA4A13827D010TE LAR35FL 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, 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: 1568.3 lumens  
Efficiency: N/A  
Efficacy: 70.4 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

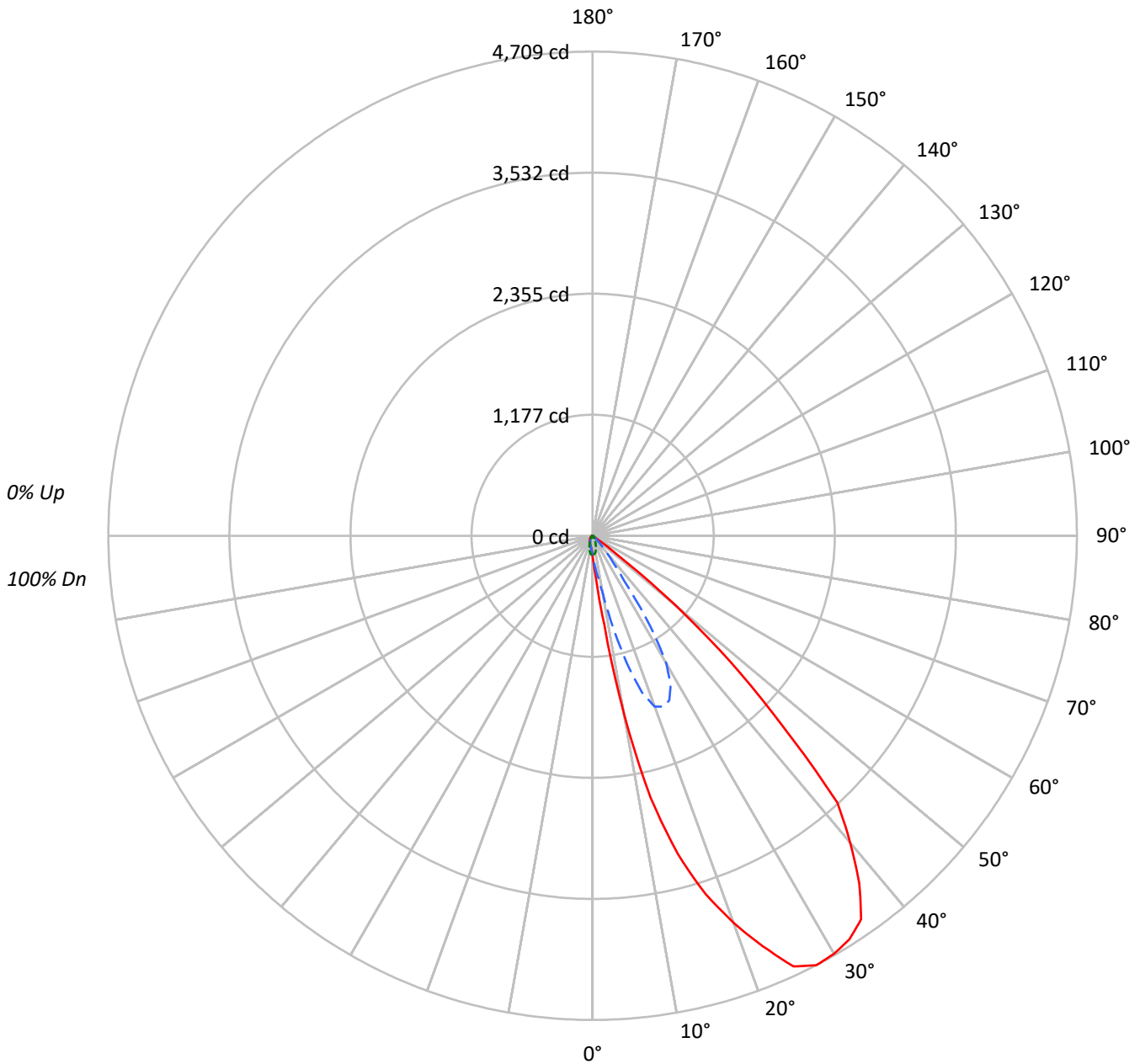
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82					82			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74					74			
4	92	83	77	71	90	82	76	71	80	74	70	78	73	69	76	72	68	67					67			
5	86	76	69	64	84	75	68	64	73	67	63	71	66	62	70	65	62	60					60			
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54					54			
7	75	64	57	52	74	63	56	51	62	56	51	60	55	51	59	54	50	49					49			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44					44			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40					40			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36					36			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	18784	18784	18784
5°	44023	17728	12399
10°	173967	15582	10339
15°	321960	12476	9066
20°	412824	9082	8206
25°	493940	6445	7269
30°	525204	4240	6399
35°	538263	2554	5570
40°	492733	1657	4793
45°	355549	1165	3918
50°	155218	934	3255
55°	10708	777	2736
60°	1938	756	2248
65°	711	711	1605
70°	651	878	1105
75°	561	1160	1160
80°	0	1729	1283
85°	0	3446	889



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	28.3	1.8
10°-20°	222.0	14.2
20°-30°	464.7	29.6
30°-40°	517.3	33.0
40°-50°	297.0	18.9
50°-60°	29.7	1.9
60°-70°	4.7	0.3
70°-80°	2.9	0.2
80°-90°	1.8	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°	715.0	45.6
0°-40°	1232.3	78.6
0°-60°	1558.9	99.4
0°-90°	1568.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1568.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	194	194	194	194	194	
5°	453	312	182	133	128	83
15°	3210	1282	124	87	90	907
25°	4621	1764	60	53	68	2093
35°	4551	538	22	31	47	2779
45°	2595	65	8	17	29	1981
55°	63	9	5	10	16	189
65°	3	2	3	6	7	4
75°	2	2	3	4	3	1
85°	0	2	3	2	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°	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9
2.5°	289.7	283.5	277.4	273.5	269.6	275.0	271.2	269.6	258.8	253.4	248.8
5°	452.7	441.2	424.2	410.3	396.3	399.4	388.6	375.5	348.4	329.1	312.1
7.5°	873.8	845.2	792.7	741.7	690.7	681.4	647.4	588.7	513.0	455.8	406.4
10°	1768.5	1682.0	1585.4	1481.1	1359.0	1325.0	1240.8	1081.6	907.8	709.3	565.5
12.5°	2610.6	2571.2	2457.7	2322.5	2190.3	2109.2	2021.9	1759.2	1483.4	1163.5	896.2
15°	3210.2	3186.2	3086.6	2963.7	2821.6	2769.0	2662.4	2400.5	2052.0	1669.6	1281.8
17.5°	3654.4	3613.5	3509.2	3375.5	3207.1	3162.3	3034.8	2774.4	2412.8	2028.9	1598.5
20°	4004.4	3978.9	3843.7	3683.0	3481.4	3427.3	3278.2	3007.0	2613.7	2205.8	1767.7
22.5°	4318.9	4275.6	4109.5	3917.9	3687.6	3629.7	3463.6	3166.1	2743.5	2289.2	1797.9
25°	4621.0	4555.3	4353.6	4102.5	3832.1	3753.3	3571.0	3255.8	2791.4	2296.2	1763.9
27.5°	4709.0	4675.8	4489.6	4197.6	3884.7	3795.8	3605.8	3275.8	2773.7	2232.8	1641.8
30°	4695.1	4667.3	4512.0	4206.8	3875.4	3781.9	3588.8	3214.0	2670.1	2067.5	1426.2
32.5°	4651.1	4640.3	4452.5	4126.5	3788.9	3686.9	3478.3	3060.3	2476.2	1815.6	1042.2
35°	4551.4	4508.9	4274.8	3968.1	3643.6	3531.6	3295.9	2840.1	2220.5	1321.9	538.5
37.5°	4259.4	4226.2	4041.5	3772.6	3456.6	3312.9	3064.2	2555.8	1719.0	751.7	322.2
40°	3896.3	3880.0	3734.8	3494.5	3156.9	2994.6	2724.2	2091.4	1049.2	427.3	212.5
42.5°	3523.9	3519.2	3363.9	3112.8	2746.6	2560.4	2280.0	1410.8	557.8	258.1	122.8
45°	2595.2	2623.0	2514.8	2364.2	2084.5	1949.3	1585.4	727.0	321.4	142.9	64.9
47.5°	1820.3	1789.4	1597.7	1334.3	1078.6	913.2	690.7	343.8	171.5	74.9	37.1
50°	1029.9	1035.3	862.2	697.7	457.4	362.4	275.0	173.1	82.7	39.4	22.4
52.5°	268.9	281.2	242.6	208.6	177.7	144.5	116.7	74.9	39.4	23.2	14.7
55°	63.4	65.7	61.0	57.2	54.1	47.9	42.5	32.4	21.6	14.7	9.3
57.5°	22.4	23.2	22.4	22.4	21.6	20.9	19.3	17.0	13.1	9.3	6.2
60°	10.0	10.8	10.0	10.8	10.8	10.8	10.8	10.8	7.7	5.4	3.9
62.5°	4.6	4.6	4.6	4.6	5.4	5.4	6.2	6.2	4.6	3.9	3.1
65°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3
67.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
70°	2.3	2.3	2.3	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	1.5
75°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5	1.5
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	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	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5
87.5°	0.0	0.0	0.0	0.0	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°	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9
2.5°	240.3	239.5	231.0	224.8	221.7	217.1	211.7	204.0	195.5	187.7	184.7
5°	292.0	282.0	264.2	249.6	242.6	235.6	223.3	209.4	196.2	182.3	175.4
7.5°	359.3	329.9	295.1	268.1	256.5	244.9	227.1	207.8	190.1	171.5	161.5
10°	451.2	383.2	322.9	279.7	262.7	247.2	221.7	197.8	178.5	158.4	145.2
12.5°	645.1	476.7	352.3	285.1	262.7	242.6	211.7	183.9	162.2	141.4	129.0
15°	929.4	643.6	416.4	290.5	257.3	231.8	196.2	166.1	142.9	124.4	112.8
17.5°	1158.9	797.3	496.0	304.4	250.3	217.1	176.2	144.5	122.8	105.8	96.6
20°	1274.8	862.2	532.3	306.7	233.3	193.9	152.2	122.1	102.8	88.1	80.4
22.5°	1272.5	841.4	499.9	268.9	204.7	167.7	128.3	100.4	85.0	73.4	67.2
25°	1192.1	744.8	417.2	214.8	165.3	139.1	104.3	81.1	68.8	60.3	54.9
27.5°	1041.5	605.0	311.4	159.2	129.0	109.7	81.1	64.9	54.9	48.7	44.8
30°	817.4	404.8	196.2	118.2	98.1	82.7	62.6	50.2	43.3	37.9	35.5
32.5°	450.4	210.9	132.1	86.5	71.9	60.3	46.4	36.3	31.7	27.8	27.0
35°	248.8	149.1	94.3	57.9	47.9	40.9	31.7	26.3	23.2	21.6	21.6
37.5°	176.2	95.8	56.4	36.3	30.9	27.0	21.6	18.5	17.8	17.0	17.0
40°	105.8	56.4	34.0	24.0	20.9	18.5	16.2	13.9	13.9	13.1	13.9
42.5°	57.9	34.0	23.2	17.0	14.7	13.9	11.6	10.8	10.8	10.8	11.6
45°	34.8	22.4	16.2	12.4	10.8	9.3	8.5	7.7	8.5	8.5	9.3
47.5°	22.4	16.2	10.8	7.7	7.0	6.2	5.4	6.2	6.2	7.0	7.7
50°	15.5	10.0	7.0	4.6	4.6	3.9	4.6	4.6	5.4	6.2	7.0
52.5°	10.0	7.0	4.6	3.9	3.1	3.1	3.1	3.9	4.6	5.4	6.2
55°	6.2	4.6	3.9	3.1	3.1	3.1	3.1	3.1	3.9	4.6	5.4
57.5°	4.6	3.9	3.1	2.3	2.3	2.3	3.1	3.1	3.9	3.9	4.6
60°	3.1	3.1	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.9	4.6
62.5°	3.1	3.1	2.3	2.3	2.3	2.3	3.1	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	3.1	3.9
67.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.9
70°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.9
72.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1
75°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1
77.5°	1.5	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1
80°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1
82.5°	1.5	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1
85°	1.5	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1
87.5°	1.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	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°	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9
2.5°	180.8	175.4	170.7	172.3	169.2	163.8	162.2	158.4	153.7	153.0	153.0
5°	167.7	159.2	152.2	151.4	148.3	142.2	140.6	136.8	132.9	132.1	131.3
7.5°	151.4	142.2	136.0	134.4	132.1	126.7	125.9	122.1	119.8	118.2	118.2
10°	135.2	126.7	121.3	120.5	119.0	114.3	113.6	110.5	108.2	107.4	106.6
12.5°	119.8	112.8	108.2	107.4	105.8	102.0	101.2	98.9	97.3	96.6	96.6
15°	105.1	98.9	95.0	94.3	93.5	89.6	89.6	88.1	87.3	87.3	88.1
17.5°	90.4	85.0	81.9	81.1	81.1	78.0	78.8	78.0	78.0	78.0	79.6
20°	75.7	71.1	68.8	69.5	68.0	67.2	68.0	68.0	68.0	69.5	71.9
22.5°	63.4	59.5	57.2	57.9	57.9	57.2	57.9	58.7	60.3	62.6	64.9
25°	51.8	48.7	47.9	48.7	48.7	48.7	50.2	51.8	53.3	55.6	57.9
27.5°	41.7	39.4	39.4	40.2	40.9	40.9	43.3	44.8	47.1	49.4	51.8
30°	33.2	32.4	32.4	34.0	34.0	34.8	37.9	39.4	40.9	43.3	45.6
32.5°	26.3	26.3	27.0	28.6	28.6	30.1	32.4	34.0	35.5	37.9	40.2
35°	21.6	22.4	23.2	24.0	24.7	25.5	27.8	29.4	30.9	33.2	34.8
37.5°	17.8	18.5	19.3	20.9	20.9	21.6	24.0	25.5	26.3	28.6	30.9
40°	14.7	15.5	16.2	17.8	17.8	18.5	20.9	21.6	22.4	24.7	27.0
42.5°	12.4	13.1	13.9	14.7	15.5	16.2	17.8	18.5	20.1	21.6	23.2
45°	10.0	10.8	11.6	12.4	13.1	13.9	14.7	16.2	17.0	18.5	20.1
47.5°	8.5	9.3	10.0	10.8	11.6	11.6	13.1	13.9	14.7	16.2	17.8
50°	7.7	8.5	9.3	9.3	10.0	10.8	11.6	12.4	13.1	13.9	15.5
52.5°	6.2	7.0	7.7	8.5	8.5	9.3	10.0	10.8	11.6	12.4	13.1
55°	6.2	6.2	7.0	7.7	7.7	8.5	9.3	10.0	10.0	10.8	11.6
57.5°	5.4	6.2	6.2	7.0	7.0	7.7	8.5	8.5	9.3	9.3	10.0
60°	4.6	5.4	6.2	6.2	6.2	7.0	7.0	7.7	7.7	8.5	8.5
62.5°	4.6	5.4	5.4	6.2	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	5.4	6.2	6.2	6.2	7.0	7.0
67.5°	3.9	4.6	4.6	4.6	5.4	5.4	5.4	5.4	5.4	6.2	6.2
70°	3.9	3.9	4.6	4.6	4.6	4.6	4.6	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°	3.1	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
77.5°	3.1	3.1	3.1	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	3.1	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	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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CATALOG NUMBER: LDSQA4A13827D010TE LAR35FL 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	193.9	193.9	193.9	193.9	193.9	193.9	193.9	193.9
2.5°	149.9	148.3	147.6	149.9	146.8	148.3	147.6	148.3
5°	129.0	127.5	126.7	129.0	125.9	127.5	125.9	127.5
7.5°	115.9	115.1	114.3	115.9	113.6	115.1	114.3	115.1
10°	105.1	104.3	103.5	105.8	103.5	105.1	104.3	105.1
12.5°	95.8	95.8	95.0	96.6	95.0	96.6	95.8	96.6
15°	87.3	88.1	87.3	88.8	88.1	89.6	88.8	90.4
17.5°	80.4	81.1	81.1	83.4	82.7	85.0	84.2	85.0
20°	73.4	74.2	74.9	76.5	76.5	78.8	78.0	79.6
22.5°	66.4	68.0	68.0	70.3	70.3	72.6	72.6	73.4
25°	59.5	61.8	62.6	64.1	64.9	67.2	67.2	68.0
27.5°	54.1	55.6	56.4	58.7	59.5	61.8	61.8	63.4
30°	47.9	50.2	51.0	52.5	53.3	55.6	55.6	57.2
32.5°	42.5	44.0	45.6	47.1	47.9	50.2	50.2	51.8
35°	37.1	39.4	40.2	41.7	43.3	45.6	45.6	47.1
37.5°	32.4	34.8	35.5	37.1	38.6	40.9	40.9	42.5
40°	28.6	30.9	31.7	33.2	34.0	37.1	37.1	37.9
42.5°	25.5	27.0	27.8	29.4	30.1	31.7	31.7	33.2
45°	21.6	23.2	24.0	24.7	26.3	27.8	27.8	28.6
47.5°	18.5	20.1	20.9	21.6	22.4	24.0	24.0	25.5
50°	16.2	17.0	17.8	18.5	19.3	20.9	20.9	21.6
52.5°	13.9	14.7	15.5	16.2	17.0	17.8	18.5	19.3
55°	12.4	13.1	13.1	13.9	14.7	15.5	15.5	16.2
57.5°	10.8	11.6	11.6	11.6	12.4	13.1	13.1	13.9
60°	9.3	10.0	10.0	10.0	10.8	10.8	10.8	11.6
62.5°	8.5	8.5	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	6.2	7.0
67.5°	6.2	6.2	6.2	5.4	5.4	5.4	5.4	5.4
70°	5.4	5.4	5.4	4.6	4.6	4.6	3.9	3.9
72.5°	4.6	4.6	4.6	3.9	3.9	3.9	3.1	3.1
75°	3.9	3.9	3.9	3.9	3.1	3.1	3.1	3.1
77.5°	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3
80°	3.1	2.3	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°	1.5	1.5	1.5	1.5	1.5	1.5	0.8	0.8
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)