

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: P182848

Luminaire Tested: **LDSQA4A13835D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182848  
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: LDSQA4A13835D010TE LAR35FL 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 35° FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1629.4 lumens  
Efficiency: N/A  
Efficacy: 73.2 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

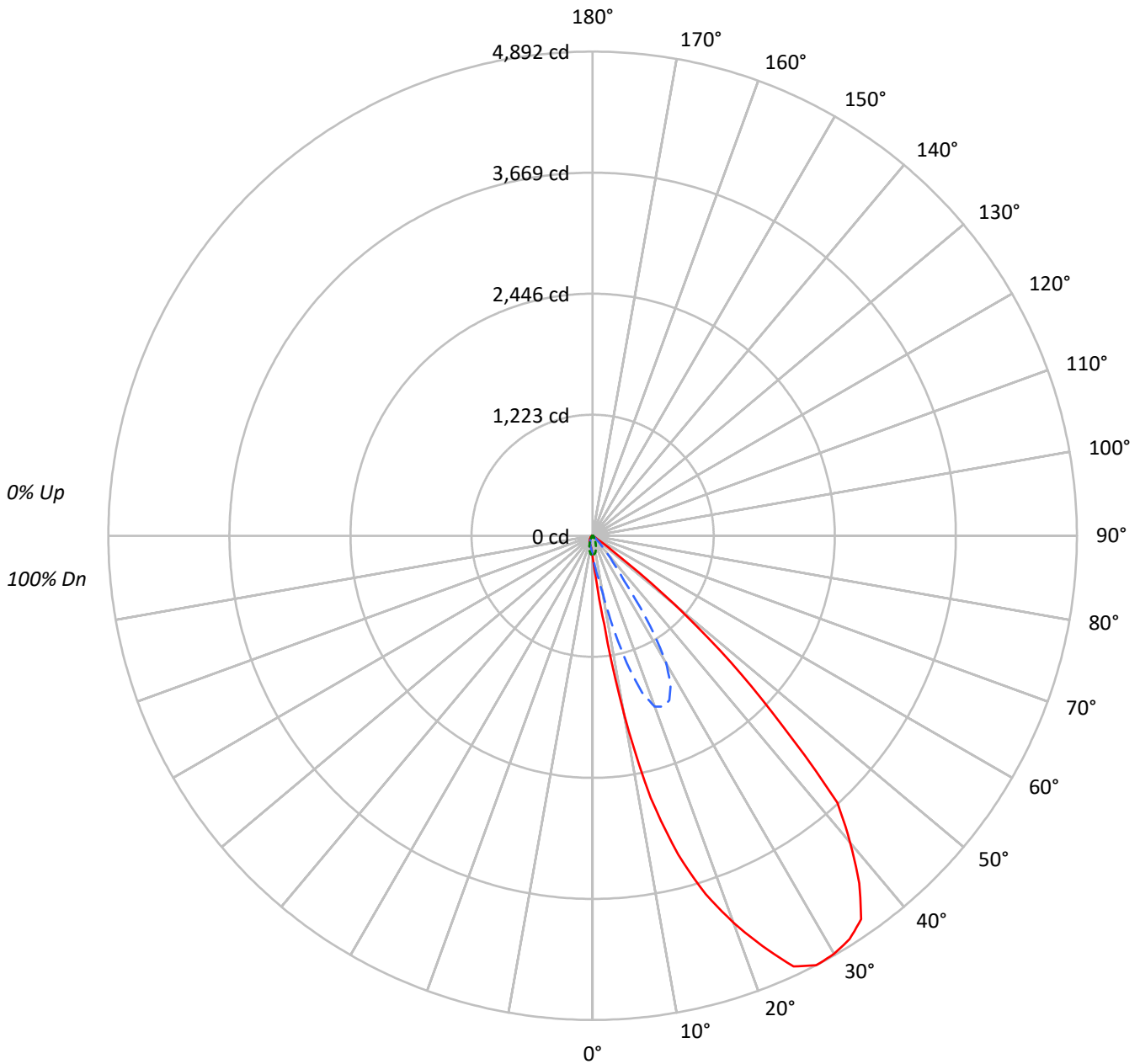
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20				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	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°	19520	19520	19520
5°	45744	18418	12875
10°	180745	16192	10742
15°	334497	12958	9417
20°	428907	9433	8526
25°	513169	6691	7546
30°	545663	4396	6645
35°	559231	2661	5795
40°	511918	1720	4970
45°	369386	1206	4069
50°	161261	965	3391
55°	11113	811	2854
60°	2015	775	2325
65°	734	734	1650
70°	680	906	1133
75°	599	1198	1198
80°	0	1785	1339
85°	0	3557	889



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	29.4	1.8
10°-20°	230.6	14.2
20°-30°	482.8	29.6
30°-40°	537.5	33.0
40°-50°	308.5	18.9
50°-60°	30.8	1.9
60°-70°	4.8	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°	742.8	45.6
0°-40°	1280.3	78.6
0°-60°	1619.6	99.4
0°-90°	1629.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1629.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	202	202	202	202	202	
5°	470	324	189	138	132	86
15°	3335	1332	129	91	94	943
25°	4801	1832	63	55	71	2174
35°	4729	560	22	32	49	2887
45°	2696	67	9	18	30	2059
55°	66	10	5	10	17	196
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°	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5
2.5°	301.0	294.6	288.2	284.2	280.1	285.8	281.7	280.1	268.9	263.3	258.5
5°	470.4	458.3	440.7	426.2	411.8	415.0	403.8	390.1	362.0	341.9	324.3
7.5°	907.8	878.1	823.6	770.6	717.6	708.0	672.7	611.7	533.0	473.6	422.2
10°	1837.4	1747.5	1647.1	1538.8	1411.9	1376.6	1289.1	1123.8	943.2	736.9	587.6
12.5°	2712.3	2671.4	2553.4	2412.9	2275.6	2191.4	2100.6	1827.7	1541.2	1208.9	931.1
15°	3335.2	3310.3	3206.8	3079.1	2931.4	2876.9	2766.1	2494.0	2132.0	1734.6	1331.7
17.5°	3796.7	3754.2	3645.8	3507.0	3332.0	3285.4	3153.0	2882.5	2506.8	2107.9	1660.8
20°	4160.4	4133.9	3993.4	3826.4	3616.9	3560.7	3405.8	3124.1	2715.5	2291.7	1836.6
22.5°	4487.1	4442.1	4269.5	4070.5	3831.3	3771.1	3598.5	3289.4	2850.4	2378.4	1867.9
25°	4800.9	4732.7	4523.2	4262.3	3981.4	3899.5	3710.1	3382.6	2900.1	2385.6	1832.5
27.5°	4892.4	4857.9	4664.5	4361.0	4035.9	3943.6	3746.2	3403.4	2881.7	2319.8	1705.7
30°	4878.0	4849.1	4687.7	4370.7	4026.3	3929.2	3728.5	3339.2	2774.1	2148.0	1481.8
32.5°	4832.2	4821.0	4625.9	4287.2	3936.4	3830.5	3613.7	3179.5	2572.6	1886.3	1082.8
35°	4728.7	4684.5	4441.3	4122.6	3785.5	3669.1	3424.3	2950.7	2306.9	1373.4	559.5
37.5°	4425.3	4390.7	4198.9	3919.6	3591.3	3442.0	3183.5	2655.3	1786.0	781.0	334.7
40°	4048.0	4031.1	3880.2	3630.6	3279.8	3111.2	2830.3	2172.9	1090.1	443.9	220.7
42.5°	3661.1	3656.3	3494.9	3234.1	2853.6	2660.1	2368.7	1465.7	579.5	268.1	127.6
45°	2696.2	2725.1	2612.8	2456.2	2165.7	2025.2	1647.1	755.3	333.9	148.5	67.4
47.5°	1891.1	1859.0	1660.0	1386.3	1120.6	948.8	717.6	357.2	178.2	77.9	38.5
50°	1070.0	1075.6	895.8	724.8	475.2	376.5	285.8	179.8	85.9	40.9	23.3
52.5°	279.3	292.2	252.0	216.7	184.6	150.1	121.2	77.9	40.9	24.1	15.3
55°	65.8	68.2	63.4	59.4	56.2	49.8	44.1	33.7	22.5	15.3	9.6
57.5°	23.3	24.1	23.3	23.3	22.5	21.7	20.1	17.7	13.6	9.6	6.4
60°	10.4	11.2	10.4	11.2	11.2	11.2	11.2	11.2	8.0	5.6	4.0
62.5°	4.8	4.8	4.8	4.8	5.6	5.6	6.4	6.4	4.8	4.0	3.2
65°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
70°	2.4	2.4	2.4	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	1.6
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	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	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
87.5°	0.0	0.0	0.0	0.0	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°	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5
2.5°	249.6	248.8	240.0	233.6	230.4	225.6	219.9	211.9	203.1	195.1	191.8
5°	303.4	293.0	274.5	259.3	252.0	244.8	232.0	217.5	203.9	189.4	182.2
7.5°	373.3	342.8	306.6	278.5	266.5	254.5	236.0	215.9	197.5	178.2	167.8
10°	468.8	398.1	335.5	290.6	272.9	256.9	230.4	205.5	185.4	164.6	150.9
12.5°	670.2	495.3	366.0	296.2	272.9	252.0	219.9	191.0	168.6	146.9	134.0
15°	965.6	668.6	432.7	301.8	267.3	240.8	203.9	172.6	148.5	129.2	117.2
17.5°	1204.0	828.4	515.3	316.3	260.1	225.6	183.0	150.1	127.6	110.0	100.3
20°	1324.4	895.8	553.1	318.7	242.4	201.5	158.1	126.8	106.8	91.5	83.5
22.5°	1322.0	874.1	519.3	279.3	212.7	174.2	133.2	104.4	88.3	76.3	69.8
25°	1238.6	773.8	433.5	223.1	171.8	144.5	108.4	84.3	71.4	62.6	57.0
27.5°	1082.0	628.5	323.5	165.4	134.0	114.0	84.3	67.4	57.0	50.6	46.6
30°	849.2	420.6	203.9	122.8	101.9	85.9	65.0	52.2	45.0	39.3	36.9
32.5°	468.0	219.1	137.3	89.9	74.7	62.6	48.2	37.7	32.9	28.9	28.1
35°	258.5	154.9	97.9	60.2	49.8	42.5	32.9	27.3	24.1	22.5	22.5
37.5°	183.0	99.5	58.6	37.7	32.1	28.1	22.5	19.3	18.5	17.7	17.7
40°	110.0	58.6	35.3	24.9	21.7	19.3	16.9	14.4	14.4	13.6	14.4
42.5°	60.2	35.3	24.1	17.7	15.3	14.4	12.0	11.2	11.2	11.2	12.0
45°	36.1	23.3	16.9	12.8	11.2	9.6	8.8	8.0	8.8	8.8	9.6
47.5°	23.3	16.9	11.2	8.0	7.2	6.4	5.6	6.4	6.4	7.2	8.0
50°	16.1	10.4	7.2	4.8	4.8	4.0	4.8	4.8	5.6	6.4	7.2
52.5°	10.4	7.2	4.8	4.0	3.2	3.2	3.2	4.0	4.8	5.6	6.4
55°	6.4	4.8	4.0	3.2	3.2	3.2	3.2	3.2	4.0	4.8	5.6
57.5°	4.8	4.0	3.2	2.4	2.4	2.4	3.2	3.2	4.0	4.0	4.8
60°	3.2	3.2	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.8
62.5°	3.2	3.2	2.4	2.4	2.4	2.4	3.2	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	3.2	4.0
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0
70°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2
75°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2
77.5°	1.6	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2
80°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2
82.5°	1.6	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2
85°	1.6	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2
87.5°	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	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°	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5
2.5°	187.8	182.2	177.4	179.0	175.8	170.2	168.6	164.6	159.7	158.9	158.9
5°	174.2	165.4	158.1	157.3	154.1	147.7	146.1	142.1	138.1	137.3	136.5
7.5°	157.3	147.7	141.3	139.7	137.3	131.6	130.8	126.8	124.4	122.8	122.8
10°	140.5	131.6	126.0	125.2	123.6	118.8	118.0	114.8	112.4	111.6	110.8
12.5°	124.4	117.2	112.4	111.6	110.0	106.0	105.2	102.7	101.1	100.3	100.3
15°	109.2	102.7	98.7	97.9	97.1	93.1	93.1	91.5	90.7	90.7	91.5
17.5°	93.9	88.3	85.1	84.3	84.3	81.1	81.9	81.1	81.1	81.1	82.7
20°	78.7	73.8	71.4	72.2	70.6	69.8	70.6	70.6	70.6	72.2	74.7
22.5°	65.8	61.8	59.4	60.2	60.2	59.4	60.2	61.0	62.6	65.0	67.4
25°	53.8	50.6	49.8	50.6	50.6	50.6	52.2	53.8	55.4	57.8	60.2
27.5°	43.3	40.9	40.9	41.7	42.5	42.5	45.0	46.6	49.0	51.4	53.8
30°	34.5	33.7	33.7	35.3	35.3	36.1	39.3	40.9	42.5	45.0	47.4
32.5°	27.3	27.3	28.1	29.7	29.7	31.3	33.7	35.3	36.9	39.3	41.7
35°	22.5	23.3	24.1	24.9	25.7	26.5	28.9	30.5	32.1	34.5	36.1
37.5°	18.5	19.3	20.1	21.7	21.7	22.5	24.9	26.5	27.3	29.7	32.1
40°	15.3	16.1	16.9	18.5	18.5	19.3	21.7	22.5	23.3	25.7	28.1
42.5°	12.8	13.6	14.4	15.3	16.1	16.9	18.5	19.3	20.9	22.5	24.1
45°	10.4	11.2	12.0	12.8	13.6	14.4	15.3	16.9	17.7	19.3	20.9
47.5°	8.8	9.6	10.4	11.2	12.0	12.0	13.6	14.4	15.3	16.9	18.5
50°	8.0	8.8	9.6	9.6	10.4	11.2	12.0	12.8	13.6	14.4	16.1
52.5°	6.4	7.2	8.0	8.8	8.8	9.6	10.4	11.2	12.0	12.8	13.6
55°	6.4	6.4	7.2	8.0	8.0	8.8	9.6	10.4	10.4	11.2	12.0
57.5°	5.6	6.4	6.4	7.2	7.2	8.0	8.8	8.8	9.6	9.6	10.4
60°	4.8	5.6	6.4	6.4	6.4	7.2	7.2	8.0	8.0	8.8	8.8
62.5°	4.8	5.6	5.6	6.4	6.4	6.4	7.2	7.2	7.2	8.0	8.0
65°	4.8	4.8	5.6	5.6	5.6	5.6	6.4	6.4	6.4	7.2	7.2
67.5°	4.0	4.8	4.8	4.8	5.6	5.6	5.6	5.6	5.6	6.4	6.4
70°	4.0	4.0	4.8	4.8	4.8	4.8	4.8	5.6	5.6	5.6	5.6
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°	3.2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
77.5°	3.2	3.2	3.2	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	3.2	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	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	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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CATALOG NUMBER: LDSQA4A13835D010TE LAR35FL 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	201.5	201.5	201.5	201.5	201.5	201.5	201.5	201.5
2.5°	155.7	154.1	153.3	155.7	152.5	154.1	153.3	154.1
5°	134.0	132.4	131.6	134.0	130.8	132.4	130.8	132.4
7.5°	120.4	119.6	118.8	120.4	118.0	119.6	118.8	119.6
10°	109.2	108.4	107.6	110.0	107.6	109.2	108.4	109.2
12.5°	99.5	99.5	98.7	100.3	98.7	100.3	99.5	100.3
15°	90.7	91.5	90.7	92.3	91.5	93.1	92.3	93.9
17.5°	83.5	84.3	84.3	86.7	85.9	88.3	87.5	88.3
20°	76.3	77.1	77.9	79.5	79.5	81.9	81.1	82.7
22.5°	69.0	70.6	70.6	73.0	73.0	75.5	75.5	76.3
25°	61.8	64.2	65.0	66.6	67.4	69.8	69.8	70.6
27.5°	56.2	57.8	58.6	61.0	61.8	64.2	64.2	65.8
30°	49.8	52.2	53.0	54.6	55.4	57.8	57.8	59.4
32.5°	44.1	45.8	47.4	49.0	49.8	52.2	52.2	53.8
35°	38.5	40.9	41.7	43.3	45.0	47.4	47.4	49.0
37.5°	33.7	36.1	36.9	38.5	40.1	42.5	42.5	44.1
40°	29.7	32.1	32.9	34.5	35.3	38.5	38.5	39.3
42.5°	26.5	28.1	28.9	30.5	31.3	32.9	32.9	34.5
45°	22.5	24.1	24.9	25.7	27.3	28.9	28.9	29.7
47.5°	19.3	20.9	21.7	22.5	23.3	24.9	24.9	26.5
50°	16.9	17.7	18.5	19.3	20.1	21.7	21.7	22.5
52.5°	14.4	15.3	16.1	16.9	17.7	18.5	19.3	20.1
55°	12.8	13.6	13.6	14.4	15.3	16.1	16.1	16.9
57.5°	11.2	12.0	12.0	12.0	12.8	13.6	13.6	14.4
60°	9.6	10.4	10.4	10.4	11.2	11.2	11.2	12.0
62.5°	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
65°	7.2	7.2	7.2	7.2	7.2	7.2	6.4	7.2
67.5°	6.4	6.4	6.4	5.6	5.6	5.6	5.6	5.6
70°	5.6	5.6	5.6	4.8	4.8	4.8	4.0	4.0
72.5°	4.8	4.8	4.8	4.0	4.0	4.0	3.2	3.2
75°	4.0	4.0	4.0	4.0	3.2	3.2	3.2	3.2
77.5°	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4
80°	3.2	2.4	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°	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8
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)