

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: P182850

Luminaire Tested: **LDSQA4A13927D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182850  
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: LDSQA4A13927D010TE LAR35FL 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 35° FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

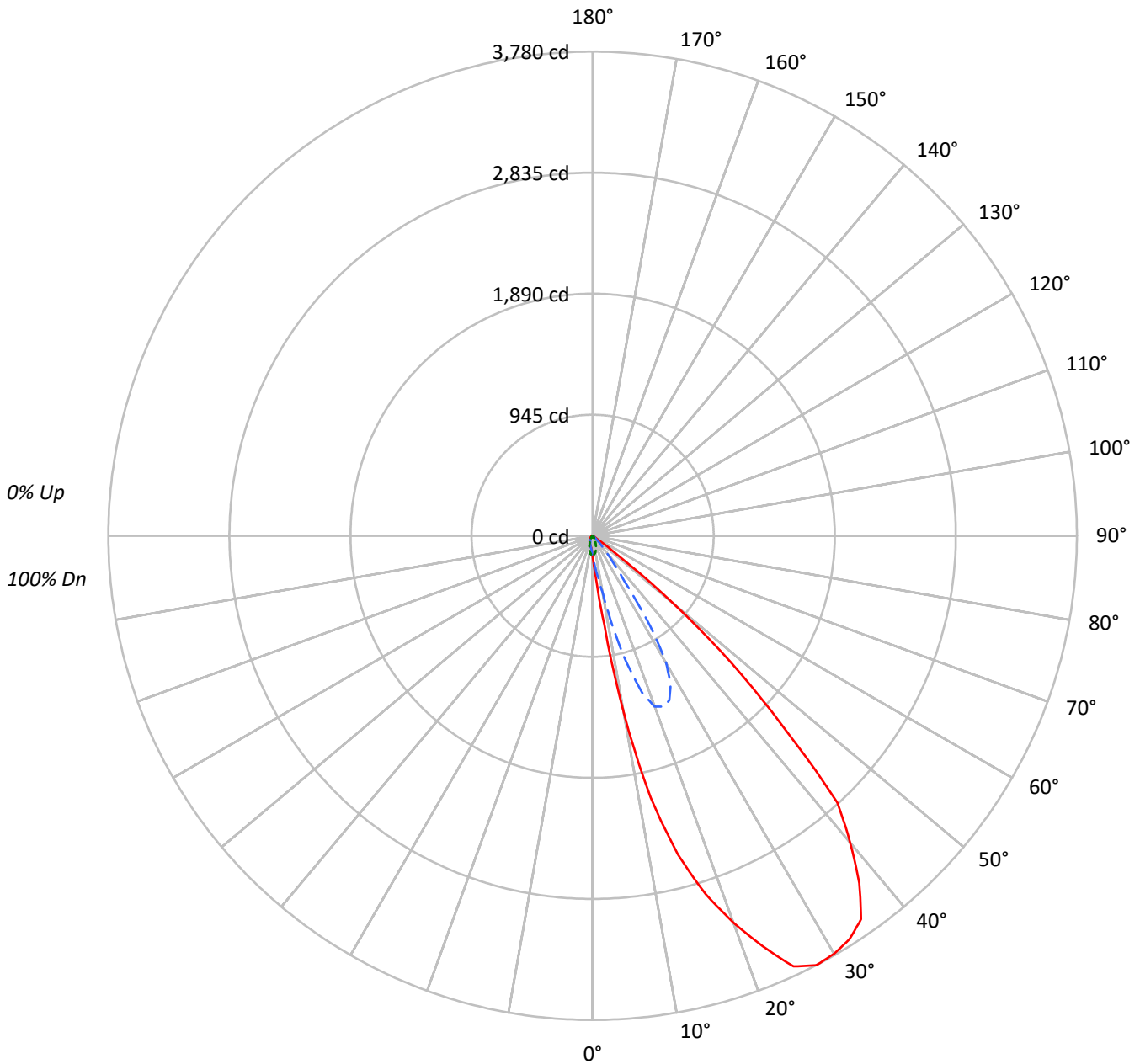
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1258.8 lumens  
Efficiency: N/A  
Efficacy: 56.5 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°	15074	15074	15074
5°	35339	14227	9948
10°	139626	12503	8293
15°	258404	10009	7281
20°	331330	7289	6588
25°	396434	5173	5836
30°	421530	3401	5134
35°	432015	2058	4470
40°	395459	1328	3844
45°	285363	932	3137
50°	124578	754	2622
55°	8580	625	2196
60°	1569	601	1802
65°	573	573	1284
70°	538	708	878
75°	449	936	936
80°	0	1395	1060
85°	0	2779	667



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	22.7	1.8
10°-20°	178.2	14.2
20°-30°	373.0	29.6
30°-40°	415.2	33.0
40°-50°	238.3	18.9
50°-60°	23.8	1.9
60°-70°	3.7	0.3
70°-80°	2.4	0.2
80°-90°	1.5	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°	573.8	45.6
0°-40°	989.1	78.6
0°-60°	1251.2	99.4
0°-90°	1258.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1258.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	156	156	156	156	156	
5°	363	250	146	107	102	67
15°	2576	1029	100	70	73	728
25°	3709	1416	48	43	55	1680
35°	3653	432	17	25	38	2231
45°	2083	52	7	14	23	1590
55°	51	7	4	8	13	152
65°	2	2	2	5	6	3
75°	1	1	2	3	2	1
85°	0	1	2	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°	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6
2.5°	232.5	227.6	222.6	219.5	216.4	220.8	217.7	216.4	207.7	203.4	199.7
5°	363.4	354.1	340.4	329.3	318.1	320.6	311.9	301.4	279.7	264.2	250.5
7.5°	701.3	678.4	636.2	595.3	554.4	546.9	519.6	472.5	411.7	365.9	326.2
10°	1419.4	1349.9	1272.4	1188.7	1090.7	1063.5	995.9	868.1	728.6	569.2	453.9
12.5°	2095.3	2063.7	1972.5	1864.0	1758.0	1692.8	1622.8	1411.9	1190.6	933.9	719.3
15°	2576.5	2557.3	2477.3	2378.7	2264.6	2222.4	2136.8	1926.6	1647.0	1340.0	1028.7
17.5°	2933.0	2900.2	2816.5	2709.2	2574.0	2538.0	2435.7	2226.7	1936.5	1628.4	1283.0
20°	3213.9	3193.5	3084.9	2956.0	2794.1	2750.7	2631.0	2413.4	2097.8	1770.4	1418.8
22.5°	3466.3	3431.6	3298.3	3144.5	2959.7	2913.2	2779.9	2541.1	2201.9	1837.3	1443.0
25°	3708.8	3656.1	3494.2	3292.7	3075.6	3012.4	2866.1	2613.1	2240.4	1842.9	1415.7
27.5°	3779.5	3752.8	3603.3	3369.0	3117.8	3046.5	2894.0	2629.2	2226.1	1792.1	1317.7
30°	3768.3	3746.0	3621.3	3376.4	3110.4	3035.3	2880.3	2579.6	2143.0	1659.4	1144.7
32.5°	3732.9	3724.3	3573.6	3311.9	3040.9	2959.1	2791.6	2456.2	1987.4	1457.2	836.5
35°	3653.0	3618.8	3431.0	3184.8	2924.3	2834.4	2645.3	2279.5	1782.1	1061.0	432.2
37.5°	3418.6	3391.9	3243.7	3027.9	2774.3	2658.9	2459.3	2051.3	1379.7	603.3	258.6
40°	3127.1	3114.1	2997.5	2804.7	2533.7	2403.5	2186.4	1678.6	842.1	342.9	170.5
42.5°	2828.2	2824.5	2699.9	2498.3	2204.4	2055.0	1829.9	1132.3	447.7	207.1	98.6
45°	2082.9	2105.2	2018.4	1897.5	1673.0	1564.5	1272.4	583.5	258.0	114.7	52.1
47.5°	1460.9	1436.1	1282.3	1070.9	865.6	732.9	554.4	275.9	137.7	60.1	29.8
50°	826.6	830.9	692.0	559.9	367.1	290.8	220.8	138.9	66.3	31.6	18.0
52.5°	215.8	225.7	194.7	167.4	142.6	116.0	93.6	60.1	31.6	18.6	11.8
55°	50.8	52.7	49.0	45.9	43.4	38.4	34.1	26.0	17.4	11.8	7.4
57.5°	18.0	18.6	18.0	18.0	17.4	16.7	15.5	13.6	10.5	7.4	5.0
60°	8.1	8.7	8.1	8.7	8.7	8.7	8.7	8.7	6.2	4.3	3.1
62.5°	3.7	3.7	3.7	3.7	4.3	4.3	5.0	5.0	3.7	3.1	2.5
65°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9
67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
70°	1.9	1.9	1.9	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.9
72.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
75°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2	1.2
80°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2
82.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.2	1.2	1.2
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.2	1.2	1.2
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6
2.5°	192.8	192.2	185.4	180.4	178.0	174.2	169.9	163.7	156.9	150.7	148.2
5°	234.4	226.3	212.1	200.3	194.7	189.1	179.2	168.0	157.5	146.3	140.8
7.5°	288.3	264.8	236.9	215.2	205.9	196.6	182.3	166.8	152.5	137.7	129.6
10°	362.1	307.6	259.2	224.5	210.8	198.4	178.0	158.7	143.2	127.1	116.6
12.5°	517.8	382.6	282.8	228.8	210.8	194.7	169.9	147.6	130.2	113.5	103.6
15°	746.0	516.5	334.2	233.2	206.5	186.0	157.5	133.3	114.7	99.8	90.5
17.5°	930.1	639.9	398.1	244.3	200.9	174.2	141.4	116.0	98.6	85.0	77.5
20°	1023.1	692.0	427.2	246.2	187.3	155.6	122.2	98.0	82.5	70.7	64.5
22.5°	1021.3	675.3	401.2	215.8	164.3	134.6	102.9	80.6	68.2	58.9	53.9
25°	956.8	597.8	334.8	172.4	132.7	111.6	83.7	65.1	55.2	48.4	44.0
27.5°	835.9	485.5	249.9	127.7	103.6	88.1	65.1	52.1	44.0	39.1	36.0
30°	656.1	324.9	157.5	94.9	78.8	66.3	50.2	40.3	34.7	30.4	28.5
32.5°	361.5	169.3	106.0	69.5	57.7	48.4	37.2	29.1	25.4	22.3	21.7
35°	199.7	119.7	75.7	46.5	38.4	32.9	25.4	21.1	18.6	17.4	17.4
37.5°	141.4	76.9	45.3	29.1	24.8	21.7	17.4	14.9	14.3	13.6	13.6
40°	85.0	45.3	27.3	19.2	16.7	14.9	13.0	11.2	11.2	10.5	11.2
42.5°	46.5	27.3	18.6	13.6	11.8	11.2	9.3	8.7	8.7	8.7	9.3
45°	27.9	18.0	13.0	9.9	8.7	7.4	6.8	6.2	6.8	6.8	7.4
47.5°	18.0	13.0	8.7	6.2	5.6	5.0	4.3	5.0	5.0	5.6	6.2
50°	12.4	8.1	5.6	3.7	3.7	3.1	3.7	3.7	4.3	5.0	5.6
52.5°	8.1	5.6	3.7	3.1	2.5	2.5	2.5	3.1	3.7	4.3	5.0
55°	5.0	3.7	3.1	2.5	2.5	2.5	2.5	2.5	3.1	3.7	4.3
57.5°	3.7	3.1	2.5	1.9	1.9	1.9	2.5	2.5	3.1	3.1	3.7
60°	2.5	2.5	1.9	1.9	1.9	1.9	1.9	2.5	2.5	3.1	3.7
62.5°	2.5	2.5	1.9	1.9	1.9	1.9	2.5	2.5	2.5	3.1	3.1
65°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	3.1
67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	3.1
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	3.1
72.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5
75°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5
77.5°	1.2	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5
82.5°	1.2	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5
85°	1.2	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5
87.5°	1.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.5	2.5
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6
2.5°	145.1	140.8	137.0	138.3	135.8	131.5	130.2	127.1	123.4	122.8	122.8
5°	134.6	127.7	122.2	121.5	119.1	114.1	112.9	109.8	106.7	106.0	105.4
7.5°	121.5	114.1	109.1	107.9	106.0	101.7	101.1	98.0	96.1	94.9	94.9
10°	108.5	101.7	97.4	96.7	95.5	91.8	91.2	88.7	86.8	86.2	85.6
12.5°	96.1	90.5	86.8	86.2	85.0	81.9	81.2	79.4	78.1	77.5	77.5
15°	84.3	79.4	76.3	75.7	75.0	71.9	71.9	70.7	70.1	70.1	70.7
17.5°	72.6	68.2	65.7	65.1	65.1	62.6	63.2	62.6	62.6	62.6	63.9
20°	60.8	57.0	55.2	55.8	54.6	53.9	54.6	54.6	54.6	55.8	57.7
22.5°	50.8	47.7	45.9	46.5	46.5	45.9	46.5	47.1	48.4	50.2	52.1
25°	41.5	39.1	38.4	39.1	39.1	39.1	40.3	41.5	42.8	44.6	46.5
27.5°	33.5	31.6	31.6	32.2	32.9	32.9	34.7	36.0	37.8	39.7	41.5
30°	26.7	26.0	26.0	27.3	27.3	27.9	30.4	31.6	32.9	34.7	36.6
32.5°	21.1	21.1	21.7	22.9	22.9	24.2	26.0	27.3	28.5	30.4	32.2
35°	17.4	18.0	18.6	19.2	19.8	20.5	22.3	23.6	24.8	26.7	27.9
37.5°	14.3	14.9	15.5	16.7	16.7	17.4	19.2	20.5	21.1	22.9	24.8
40°	11.8	12.4	13.0	14.3	14.3	14.9	16.7	17.4	18.0	19.8	21.7
42.5°	9.9	10.5	11.2	11.8	12.4	13.0	14.3	14.9	16.1	17.4	18.6
45°	8.1	8.7	9.3	9.9	10.5	11.2	11.8	13.0	13.6	14.9	16.1
47.5°	6.8	7.4	8.1	8.7	9.3	9.3	10.5	11.2	11.8	13.0	14.3
50°	6.2	6.8	7.4	7.4	8.1	8.7	9.3	9.9	10.5	11.2	12.4
52.5°	5.0	5.6	6.2	6.8	6.8	7.4	8.1	8.7	9.3	9.9	10.5
55°	5.0	5.0	5.6	6.2	6.2	6.8	7.4	8.1	8.1	8.7	9.3
57.5°	4.3	5.0	5.0	5.6	5.6	6.2	6.8	6.8	7.4	7.4	8.1
60°	3.7	4.3	5.0	5.0	5.0	5.6	5.6	6.2	6.2	6.8	6.8
62.5°	3.7	4.3	4.3	5.0	5.0	5.0	5.6	5.6	5.6	6.2	6.2
65°	3.7	3.7	4.3	4.3	4.3	4.3	5.0	5.0	5.0	5.6	5.6
67.5°	3.1	3.7	3.7	3.7	4.3	4.3	4.3	4.3	4.3	5.0	5.0
70°	3.1	3.1	3.7	3.7	3.7	3.7	3.7	4.3	4.3	4.3	4.3
72.5°	3.1	3.1	3.1	3.1	3.7	3.7	3.7	3.7	3.7	3.7	3.7
75°	2.5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
77.5°	2.5	2.5	2.5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
80°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
82.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9
85°	2.5	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
87.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.2	1.2	1.2
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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CATALOG NUMBER: LDSQA4A13927D010TE LAR35FL 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	155.6	155.6	155.6	155.6	155.6	155.6	155.6	155.6
2.5°	120.3	119.1	118.4	120.3	117.8	119.1	118.4	119.1
5°	103.6	102.3	101.7	103.6	101.1	102.3	101.1	102.3
7.5°	93.0	92.4	91.8	93.0	91.2	92.4	91.8	92.4
10°	84.3	83.7	83.1	85.0	83.1	84.3	83.7	84.3
12.5°	76.9	76.9	76.3	77.5	76.3	77.5	76.9	77.5
15°	70.1	70.7	70.1	71.3	70.7	71.9	71.3	72.6
17.5°	64.5	65.1	65.1	67.0	66.3	68.2	67.6	68.2
20°	58.9	59.5	60.1	61.4	61.4	63.2	62.6	63.9
22.5°	53.3	54.6	54.6	56.4	56.4	58.3	58.3	58.9
25°	47.7	49.6	50.2	51.5	52.1	53.9	53.9	54.6
27.5°	43.4	44.6	45.3	47.1	47.7	49.6	49.6	50.8
30°	38.4	40.3	40.9	42.2	42.8	44.6	44.6	45.9
32.5°	34.1	35.3	36.6	37.8	38.4	40.3	40.3	41.5
35°	29.8	31.6	32.2	33.5	34.7	36.6	36.6	37.8
37.5°	26.0	27.9	28.5	29.8	31.0	32.9	32.9	34.1
40°	22.9	24.8	25.4	26.7	27.3	29.8	29.8	30.4
42.5°	20.5	21.7	22.3	23.6	24.2	25.4	25.4	26.7
45°	17.4	18.6	19.2	19.8	21.1	22.3	22.3	22.9
47.5°	14.9	16.1	16.7	17.4	18.0	19.2	19.2	20.5
50°	13.0	13.6	14.3	14.9	15.5	16.7	16.7	17.4
52.5°	11.2	11.8	12.4	13.0	13.6	14.3	14.9	15.5
55°	9.9	10.5	10.5	11.2	11.8	12.4	12.4	13.0
57.5°	8.7	9.3	9.3	9.3	9.9	10.5	10.5	11.2
60°	7.4	8.1	8.1	8.1	8.7	8.7	8.7	9.3
62.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
65°	5.6	5.6	5.6	5.6	5.6	5.6	5.0	5.6
67.5°	5.0	5.0	5.0	4.3	4.3	4.3	4.3	4.3
70°	4.3	4.3	4.3	3.7	3.7	3.7	3.1	3.1
72.5°	3.7	3.7	3.7	3.1	3.1	3.1	2.5	2.5
75°	3.1	3.1	3.1	3.1	2.5	2.5	2.5	2.5
77.5°	2.5	2.5	2.5	2.5	2.5	2.5	1.9	1.9
80°	2.5	1.9	1.9	1.9	1.9	1.9	1.9	1.9
82.5°	1.9	1.9	1.9	1.9	1.2	1.2	1.2	1.2
85°	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6
87.5°	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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)