

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: P182847

Luminaire Tested: **LDSQA4A13830D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182847  
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: LDSQA4A13830D010TE LAR35FL 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, 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: 1600.7 lumens  
Efficiency: N/A  
Efficacy: 71.9 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

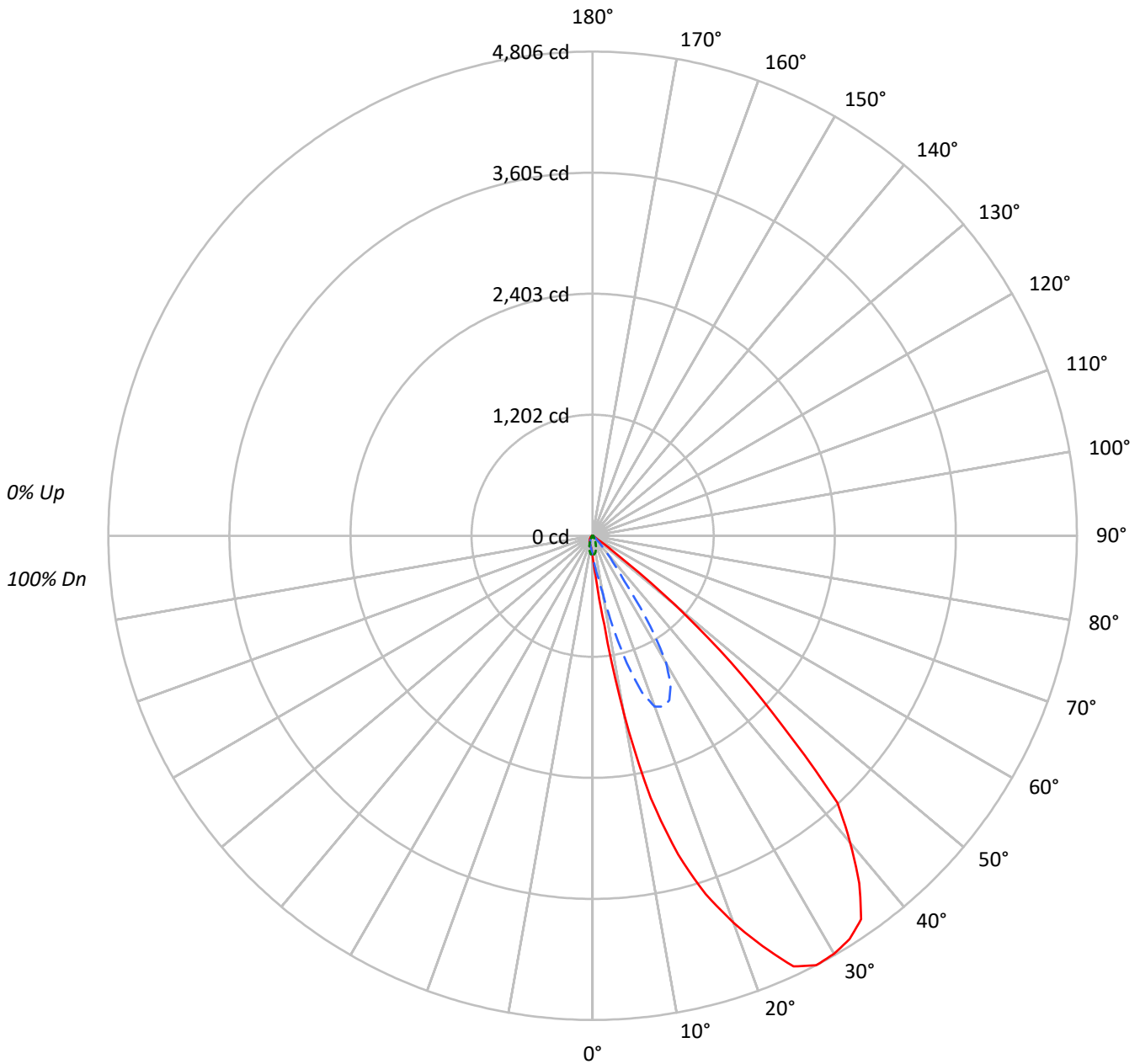
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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

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

	0°	90°	180°
0°	19172	19172	19172
5°	44937	18097	12652
10°	177548	15897	10545
15°	328589	12737	9257
20°	421329	9268	8371
25°	504105	6574	7418
30°	536021	4318	6533
35°	549344	2614	5688
40°	502876	1695	4881
45°	362865	1192	4000
50°	158413	949	3331
55°	10928	794	2804
60°	1996	756	2286
65°	734	734	1628
70°	680	906	1105
75°	599	1198	1198
80°	0	1785	1339
85°	0	3557	889



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	28.8	1.8
10°-20°	226.6	14.2
20°-30°	474.3	29.6
30°-40°	528.0	33.0
40°-50°	303.1	18.9
50°-60°	30.3	1.9
60°-70°	4.8	0.3
70°-80°	3.0	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°	729.7	45.6
0°-40°	1257.7	78.6
0°-60°	1591.0	99.4
0°-90°	1600.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1600.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	198	198	198	198	198	
5°	462	319	186	136	130	85
15°	3276	1308	127	89	92	926
25°	4716	1800	62	54	69	2136
35°	4645	550	22	32	48	2836
45°	2649	66	9	17	29	2022
55°	65	10	5	10	17	193
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°	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9
2.5°	295.7	289.4	283.1	279.1	275.2	280.7	276.8	275.2	264.2	258.6	253.9
5°	462.1	450.2	432.9	418.7	404.5	407.7	396.6	383.2	355.6	335.9	318.6
7.5°	891.8	862.6	809.0	757.0	704.9	695.5	660.8	600.8	523.6	465.2	414.8
10°	1804.9	1716.6	1618.0	1511.6	1387.0	1352.3	1266.4	1103.9	926.5	723.9	577.2
12.5°	2664.4	2624.2	2508.3	2370.3	2235.4	2152.6	2063.5	1795.4	1513.9	1187.5	914.7
15°	3276.3	3251.8	3150.1	3024.7	2879.7	2826.0	2717.2	2449.9	2094.3	1704.0	1308.1
17.5°	3729.7	3687.9	3581.4	3445.0	3273.1	3227.4	3097.3	2831.6	2462.5	2070.6	1631.4
20°	4086.9	4060.8	3922.9	3758.8	3553.0	3497.8	3345.7	3068.9	2667.5	2251.2	1804.1
22.5°	4407.8	4363.6	4194.1	3998.6	3763.6	3704.4	3534.9	3231.3	2800.0	2336.4	1834.9
25°	4716.1	4649.1	4443.3	4187.0	3911.0	3830.6	3644.5	3322.8	2848.9	2343.5	1800.2
27.5°	4806.0	4772.1	4582.1	4284.0	3964.7	3874.0	3680.0	3343.3	2830.8	2278.8	1675.6
30°	4791.8	4763.4	4604.9	4293.5	3955.2	3859.8	3662.6	3280.2	2725.1	2110.1	1455.6
32.5°	4746.9	4735.8	4544.2	4211.5	3866.9	3762.8	3549.9	3123.3	2527.2	1853.0	1063.7
35°	4645.1	4601.8	4362.8	4049.8	3718.6	3604.3	3363.8	2898.6	2266.2	1349.1	549.6
37.5°	4347.1	4313.2	4124.7	3850.3	3527.8	3381.1	3127.2	2608.4	1754.4	767.2	328.8
40°	3976.5	3959.9	3811.7	3566.5	3221.9	3056.3	2780.3	2134.5	1070.8	436.0	216.8
42.5°	3596.4	3591.7	3433.2	3176.9	2803.2	2613.1	2326.9	1439.8	569.3	263.4	125.4
45°	2648.6	2677.0	2566.6	2412.9	2127.4	1989.4	1618.0	742.0	328.0	145.9	66.2
47.5°	1857.7	1826.2	1630.6	1361.8	1100.8	932.0	704.9	350.9	175.1	76.5	37.8
50°	1051.1	1056.6	880.0	712.0	466.8	369.8	280.7	176.6	84.4	40.2	22.9
52.5°	274.4	287.0	247.6	212.9	181.4	147.5	119.1	76.5	40.2	23.7	15.0
55°	64.7	67.0	62.3	58.4	55.2	48.9	43.4	33.1	22.1	15.0	9.5
57.5°	22.9	23.7	22.9	22.9	22.1	21.3	19.7	17.3	13.4	9.5	6.3
60°	10.3	11.0	10.3	11.0	11.0	11.0	11.0	11.0	7.9	5.5	3.9
62.5°	4.7	4.7	4.7	4.7	5.5	5.5	6.3	6.3	4.7	3.9	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°	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9
2.5°	245.2	244.4	235.8	229.5	226.3	221.6	216.1	208.2	199.5	191.6	188.5
5°	298.1	287.8	269.7	254.7	247.6	240.5	227.9	213.7	200.3	186.1	179.0
7.5°	366.7	336.7	301.2	273.6	261.8	250.0	231.8	212.1	194.0	175.1	164.8
10°	460.5	391.1	329.6	285.4	268.1	252.3	226.3	201.9	182.1	161.6	148.2
12.5°	658.4	486.5	359.6	291.0	268.1	247.6	216.1	187.7	165.6	144.3	131.7
15°	948.6	656.8	425.0	296.5	262.6	236.6	200.3	169.5	145.9	127.0	115.1
17.5°	1182.8	813.7	506.2	310.7	255.5	221.6	179.8	147.5	125.4	108.0	98.6
20°	1301.0	880.0	543.3	313.0	238.1	197.9	155.3	124.6	104.9	89.9	82.0
22.5°	1298.7	858.7	510.2	274.4	209.0	171.1	130.9	102.5	86.7	74.9	68.6
25°	1216.7	760.1	425.8	219.2	168.7	141.9	106.4	82.8	70.2	61.5	56.0
27.5°	1062.9	617.4	317.8	162.4	131.7	112.0	82.8	66.2	56.0	49.7	45.7
30°	834.2	413.2	200.3	120.6	100.1	84.4	63.9	51.3	44.2	38.6	36.3
32.5°	459.7	215.3	134.8	88.3	73.3	61.5	47.3	37.1	32.3	28.4	27.6
35°	253.9	152.2	96.2	59.1	48.9	41.8	32.3	26.8	23.7	22.1	22.1
37.5°	179.8	97.8	57.6	37.1	31.5	27.6	22.1	18.9	18.1	17.3	17.3
40°	108.0	57.6	34.7	24.4	21.3	18.9	16.6	14.2	14.2	13.4	14.2
42.5°	59.1	34.7	23.7	17.3	15.0	14.2	11.8	11.0	11.0	11.0	11.8
45°	35.5	22.9	16.6	12.6	11.0	9.5	8.7	7.9	8.7	8.7	9.5
47.5°	22.9	16.6	11.0	7.9	7.1	6.3	5.5	6.3	6.3	7.1	7.9
50°	15.8	10.3	7.1	4.7	4.7	3.9	4.7	4.7	5.5	6.3	7.1
52.5°	10.3	7.1	4.7	3.9	3.2	3.2	3.2	3.9	4.7	5.5	6.3
55°	6.3	4.7	3.9	3.2	3.2	3.2	3.2	3.2	3.9	4.7	5.5
57.5°	4.7	3.9	3.2	2.4	2.4	2.4	3.2	3.2	3.9	3.9	4.7
60°	3.2	3.2	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.9	4.7
62.5°	3.2	3.2	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.9	3.9
65°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.9
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.9
70°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.9
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°	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9
2.5°	184.5	179.0	174.3	175.8	172.7	167.2	165.6	161.6	156.9	156.1	156.1
5°	171.1	162.4	155.3	154.5	151.4	145.1	143.5	139.6	135.6	134.8	134.0
7.5°	154.5	145.1	138.8	137.2	134.8	129.3	128.5	124.6	122.2	120.6	120.6
10°	138.0	129.3	123.8	123.0	121.4	116.7	115.9	112.8	110.4	109.6	108.8
12.5°	122.2	115.1	110.4	109.6	108.0	104.1	103.3	100.9	99.4	98.6	98.6
15°	107.2	100.9	97.0	96.2	95.4	91.5	91.5	89.9	89.1	89.1	89.9
17.5°	92.3	86.7	83.6	82.8	82.8	79.6	80.4	79.6	79.6	79.6	81.2
20°	77.3	72.5	70.2	71.0	69.4	68.6	69.4	69.4	69.4	71.0	73.3
22.5°	64.7	60.7	58.4	59.1	59.1	58.4	59.1	59.9	61.5	63.9	66.2
25°	52.8	49.7	48.9	49.7	49.7	49.7	51.3	52.8	54.4	56.8	59.1
27.5°	42.6	40.2	40.2	41.0	41.8	41.8	44.2	45.7	48.1	50.5	52.8
30°	33.9	33.1	33.1	34.7	34.7	35.5	38.6	40.2	41.8	44.2	46.5
32.5°	26.8	26.8	27.6	29.2	29.2	30.8	33.1	34.7	36.3	38.6	41.0
35°	22.1	22.9	23.7	24.4	25.2	26.0	28.4	30.0	31.5	33.9	35.5
37.5°	18.1	18.9	19.7	21.3	21.3	22.1	24.4	26.0	26.8	29.2	31.5
40°	15.0	15.8	16.6	18.1	18.1	18.9	21.3	22.1	22.9	25.2	27.6
42.5°	12.6	13.4	14.2	15.0	15.8	16.6	18.1	18.9	20.5	22.1	23.7
45°	10.3	11.0	11.8	12.6	13.4	14.2	15.0	16.6	17.3	18.9	20.5
47.5°	8.7	9.5	10.3	11.0	11.8	11.8	13.4	14.2	15.0	16.6	18.1
50°	7.9	8.7	9.5	9.5	10.3	11.0	11.8	12.6	13.4	14.2	15.8
52.5°	6.3	7.1	7.9	8.7	8.7	9.5	10.3	11.0	11.8	12.6	13.4
55°	6.3	6.3	7.1	7.9	7.9	8.7	9.5	10.3	10.3	11.0	11.8
57.5°	5.5	6.3	6.3	7.1	7.1	7.9	8.7	8.7	9.5	9.5	10.3
60°	4.7	5.5	6.3	6.3	6.3	7.1	7.1	7.9	7.9	8.7	8.7
62.5°	4.7	5.5	5.5	6.3	6.3	6.3	7.1	7.1	7.1	7.9	7.9
65°	4.7	4.7	5.5	5.5	5.5	5.5	6.3	6.3	6.3	7.1	7.1
67.5°	3.9	4.7	4.7	4.7	5.5	5.5	5.5	5.5	5.5	6.3	6.3
70°	3.9	3.9	4.7	4.7	4.7	4.7	4.7	5.5	5.5	5.5	5.5
72.5°	3.9	3.9	3.9	3.9	4.7	4.7	4.7	4.7	4.7	4.7	4.7
75°	3.2	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
77.5°	3.2	3.2	3.2	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
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: LDSQA4A13830D010TE LAR35FL 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	197.9	197.9	197.9	197.9	197.9	197.9	197.9	197.9
2.5°	153.0	151.4	150.6	153.0	149.8	151.4	150.6	151.4
5°	131.7	130.1	129.3	131.7	128.5	130.1	128.5	130.1
7.5°	118.3	117.5	116.7	118.3	115.9	117.5	116.7	117.5
10°	107.2	106.4	105.7	108.0	105.7	107.2	106.4	107.2
12.5°	97.8	97.8	97.0	98.6	97.0	98.6	97.8	98.6
15°	89.1	89.9	89.1	90.7	89.9	91.5	90.7	92.3
17.5°	82.0	82.8	82.8	85.2	84.4	86.7	85.9	86.7
20°	74.9	75.7	76.5	78.1	78.1	80.4	79.6	81.2
22.5°	67.8	69.4	69.4	71.8	71.8	74.1	74.1	74.9
25°	60.7	63.1	63.9	65.4	66.2	68.6	68.6	69.4
27.5°	55.2	56.8	57.6	59.9	60.7	63.1	63.1	64.7
30°	48.9	51.3	52.0	53.6	54.4	56.8	56.8	58.4
32.5°	43.4	44.9	46.5	48.1	48.9	51.3	51.3	52.8
35°	37.8	40.2	41.0	42.6	44.2	46.5	46.5	48.1
37.5°	33.1	35.5	36.3	37.8	39.4	41.8	41.8	43.4
40°	29.2	31.5	32.3	33.9	34.7	37.8	37.8	38.6
42.5°	26.0	27.6	28.4	30.0	30.8	32.3	32.3	33.9
45°	22.1	23.7	24.4	25.2	26.8	28.4	28.4	29.2
47.5°	18.9	20.5	21.3	22.1	22.9	24.4	24.4	26.0
50°	16.6	17.3	18.1	18.9	19.7	21.3	21.3	22.1
52.5°	14.2	15.0	15.8	16.6	17.3	18.1	18.9	19.7
55°	12.6	13.4	13.4	14.2	15.0	15.8	15.8	16.6
57.5°	11.0	11.8	11.8	11.8	12.6	13.4	13.4	14.2
60°	9.5	10.3	10.3	10.3	11.0	11.0	11.0	11.8
62.5°	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
65°	7.1	7.1	7.1	7.1	7.1	7.1	6.3	7.1
67.5°	6.3	6.3	6.3	5.5	5.5	5.5	5.5	5.5
70°	5.5	5.5	5.5	4.7	4.7	4.7	3.9	3.9
72.5°	4.7	4.7	4.7	3.9	3.9	3.9	3.2	3.2
75°	3.9	3.9	3.9	3.9	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)