

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: P182843

Luminaire Tested: **LDSQA4A09930D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182843  
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: LDSQA4A09930D010TE LAR35FL 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 35° FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 889.3 lumens  
Efficiency: N/A  
Efficacy: 64.3 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

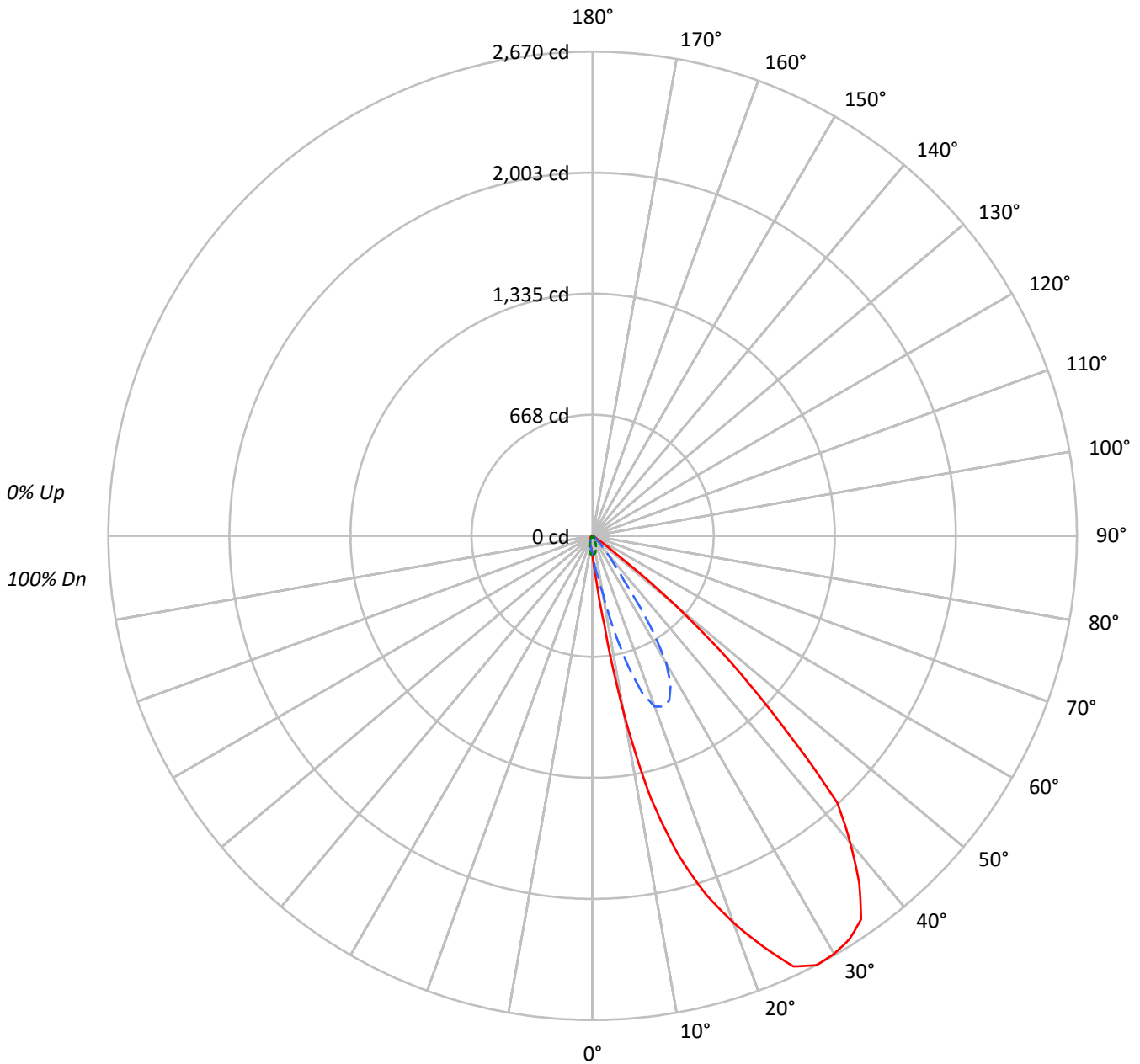
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20									20									20									20									
RC	80									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°	10656	10656	10656
5°	24963	10055	7031
10°	98645	8834	5863
15°	182563	7071	5145
20°	234093	5144	4649
25°	280084	3656	4126
30°	297810	2405	3624
35°	305225	1455	3158
40°	279392	936	2719
45°	201613	658	2219
50°	88015	527	1854
55°	6063	439	1554
60°	1104	426	1279
65°	413	413	894
70°	368	510	623
75°	337	674	674
80°	0	1004	725
85°	0	2001	445



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	16.0	1.8
10°-20°	125.9	14.2
20°-30°	263.5	29.6
30°-40°	293.3	33.0
40°-50°	168.4	18.9
50°-60°	16.8	1.9
60°-70°	2.6	0.3
70°-80°	1.7	0.2
80°-90°	1.0	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°	405.4	45.6
0°-40°	698.8	78.6
0°-60°	884.0	99.4
0°-90°	889.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	889.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	110	110	110	110	110	
5°	257	177	103	75	72	47
15°	1820	727	70	50	51	515
25°	2620	1000	34	30	39	1187
35°	2581	305	12	18	27	1576
45°	1472	37	5	10	16	1124
55°	36	5	3	6	9	107
65°	2	1	2	4	4	2
75°	1	1	2	2	2	1
85°	0	1	2	1	0	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°	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0
2.5°	164.3	160.8	157.3	155.1	152.9	156.0	153.8	152.9	146.8	143.7	141.1
5°	256.7	250.2	240.5	232.6	224.7	226.5	220.4	212.9	197.6	186.6	177.0
7.5°	495.5	479.3	449.5	420.6	391.7	386.4	367.1	333.8	290.9	258.5	230.4
10°	1002.8	953.7	899.0	839.8	770.6	751.3	703.6	613.3	514.8	402.2	320.7
12.5°	1480.3	1458.0	1393.6	1316.9	1242.0	1196.0	1146.5	997.6	841.2	659.8	508.2
15°	1820.3	1806.7	1750.2	1680.6	1599.9	1570.2	1509.7	1361.2	1163.6	946.7	726.8
17.5°	2072.2	2049.0	1989.9	1914.1	1818.6	1793.2	1720.9	1573.2	1368.2	1150.5	906.4
20°	2270.7	2256.2	2179.6	2088.4	1974.1	1943.4	1858.9	1705.1	1482.1	1250.8	1002.4
22.5°	2449.0	2424.5	2330.3	2221.6	2091.1	2058.2	1964.0	1795.3	1555.7	1298.1	1019.5
25°	2620.3	2583.1	2468.7	2326.3	2173.0	2128.3	2024.9	1846.2	1582.9	1302.0	1000.2
27.5°	2670.2	2651.4	2545.8	2380.2	2202.8	2152.4	2044.6	1857.6	1572.8	1266.1	931.0
30°	2662.3	2646.6	2558.5	2385.5	2197.5	2144.5	2035.0	1822.5	1514.1	1172.4	808.7
32.5°	2637.4	2631.2	2524.8	2339.9	2148.5	2090.6	1972.3	1735.3	1404.1	1029.5	591.0
35°	2580.9	2556.8	2424.0	2250.1	2066.1	2002.6	1868.9	1610.5	1259.1	749.6	305.4
37.5°	2415.3	2396.4	2291.7	2139.3	1960.1	1878.6	1737.5	1449.2	974.8	426.3	182.7
40°	2209.3	2200.1	2117.8	1981.5	1790.1	1698.1	1544.7	1185.9	594.9	242.3	120.5
42.5°	1998.2	1995.6	1907.5	1765.1	1557.5	1451.9	1292.8	800.0	316.3	146.3	69.7
45°	1471.6	1487.4	1426.0	1340.6	1182.0	1105.3	899.0	412.3	182.3	81.0	36.8
47.5°	1032.2	1014.6	906.0	756.6	611.6	517.8	391.7	195.0	97.3	42.5	21.0
50°	584.0	587.1	488.9	395.6	259.4	205.5	156.0	98.1	46.9	22.3	12.7
52.5°	152.5	159.5	137.6	118.3	100.8	81.9	66.2	42.5	22.3	13.1	8.3
55°	35.9	37.2	34.6	32.4	30.7	27.2	24.1	18.4	12.3	8.3	5.3
57.5°	12.7	13.1	12.7	12.7	12.3	11.8	11.0	9.6	7.4	5.3	3.5
60°	5.7	6.1	5.7	6.1	6.1	6.1	6.1	6.1	4.4	3.1	2.2
62.5°	2.6	2.6	2.6	2.6	3.1	3.1	3.5	3.5	2.6	2.2	1.8
65°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9
80°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0
2.5°	136.2	135.8	131.0	127.5	125.7	123.1	120.0	115.7	110.8	106.5	104.7
5°	165.6	159.9	149.8	141.5	137.6	133.6	126.6	118.7	111.3	103.4	99.4
7.5°	203.7	187.1	167.4	152.0	145.4	138.9	128.8	117.8	107.8	97.3	91.6
10°	255.9	217.3	183.1	158.6	149.0	140.2	125.7	112.2	101.2	89.8	82.4
12.5°	365.8	270.3	199.8	161.7	149.0	137.6	120.0	104.3	92.0	80.2	73.2
15°	527.0	364.9	236.1	164.7	145.9	131.4	111.3	94.2	81.0	70.5	64.0
17.5°	657.2	452.1	281.3	172.6	141.9	123.1	99.9	81.9	69.7	60.0	54.8
20°	722.9	488.9	301.9	173.9	132.3	110.0	86.3	69.2	58.3	49.9	45.6
22.5°	721.6	477.1	283.5	152.5	116.1	95.1	72.7	57.0	48.2	41.6	38.1
25°	676.0	422.3	236.6	121.8	93.8	78.9	59.1	46.0	39.0	34.2	31.1
27.5°	590.6	343.0	176.6	90.2	73.2	62.2	46.0	36.8	31.1	27.6	25.4
30°	463.5	229.6	111.3	67.0	55.6	46.9	35.5	28.5	24.5	21.5	20.2
32.5°	255.4	119.6	74.9	49.1	40.7	34.2	26.3	20.6	18.0	15.8	15.3
35°	141.1	84.6	53.4	32.9	27.2	23.2	18.0	14.9	13.1	12.3	12.3
37.5°	99.9	54.3	32.0	20.6	17.5	15.3	12.3	10.5	10.1	9.6	9.6
40°	60.0	32.0	19.3	13.6	11.8	10.5	9.2	7.9	7.9	7.4	7.9
42.5°	32.9	19.3	13.1	9.6	8.3	7.9	6.6	6.1	6.1	6.1	6.6
45°	19.7	12.7	9.2	7.0	6.1	5.3	4.8	4.4	4.8	4.8	5.3
47.5°	12.7	9.2	6.1	4.4	3.9	3.5	3.1	3.5	3.5	3.9	4.4
50°	8.8	5.7	3.9	2.6	2.6	2.2	2.6	2.6	3.1	3.5	3.9
52.5°	5.7	3.9	2.6	2.2	1.8	1.8	1.8	2.2	2.6	3.1	3.5
55°	3.5	2.6	2.2	1.8	1.8	1.8	1.8	1.8	2.2	2.6	3.1
57.5°	2.6	2.2	1.8	1.3	1.3	1.3	1.8	1.8	2.2	2.2	2.6
60°	1.8	1.8	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2	2.6
62.5°	1.8	1.8	1.3	1.3	1.3	1.3	1.8	1.8	1.8	2.2	2.2
65°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	2.2
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
77.5°	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
82.5°	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
85°	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
87.5°	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8
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°	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0
2.5°	102.5	99.4	96.8	97.7	95.9	92.9	92.0	89.8	87.2	86.7	86.7
5°	95.1	90.2	86.3	85.9	84.1	80.6	79.7	77.5	75.4	74.9	74.5
7.5°	85.9	80.6	77.1	76.2	74.9	71.8	71.4	69.2	67.9	67.0	67.0
10°	76.7	71.8	68.8	68.3	67.5	64.8	64.4	62.6	61.3	60.9	60.5
12.5°	67.9	64.0	61.3	60.9	60.0	57.8	57.4	56.1	55.2	54.8	54.8
15°	59.6	56.1	53.9	53.4	53.0	50.8	50.8	49.9	49.5	49.5	49.9
17.5°	51.3	48.2	46.4	46.0	46.0	44.2	44.7	44.2	44.2	44.2	45.1
20°	42.9	40.3	39.0	39.4	38.6	38.1	38.6	38.6	38.6	39.4	40.7
22.5°	35.9	33.7	32.4	32.9	32.9	32.4	32.9	33.3	34.2	35.5	36.8
25°	29.4	27.6	27.2	27.6	27.6	27.6	28.5	29.4	30.2	31.5	32.9
27.5°	23.7	22.3	22.3	22.8	23.2	23.2	24.5	25.4	26.7	28.0	29.4
30°	18.8	18.4	18.4	19.3	19.3	19.7	21.5	22.3	23.2	24.5	25.8
32.5°	14.9	14.9	15.3	16.2	16.2	17.1	18.4	19.3	20.2	21.5	22.8
35°	12.3	12.7	13.1	13.6	14.0	14.5	15.8	16.6	17.5	18.8	19.7
37.5°	10.1	10.5	11.0	11.8	11.8	12.3	13.6	14.5	14.9	16.2	17.5
40°	8.3	8.8	9.2	10.1	10.1	10.5	11.8	12.3	12.7	14.0	15.3
42.5°	7.0	7.4	7.9	8.3	8.8	9.2	10.1	10.5	11.4	12.3	13.1
45°	5.7	6.1	6.6	7.0	7.4	7.9	8.3	9.2	9.6	10.5	11.4
47.5°	4.8	5.3	5.7	6.1	6.6	6.6	7.4	7.9	8.3	9.2	10.1
50°	4.4	4.8	5.3	5.3	5.7	6.1	6.6	7.0	7.4	7.9	8.8
52.5°	3.5	3.9	4.4	4.8	4.8	5.3	5.7	6.1	6.6	7.0	7.4
55°	3.5	3.5	3.9	4.4	4.4	4.8	5.3	5.7	5.7	6.1	6.6
57.5°	3.1	3.5	3.5	3.9	3.9	4.4	4.8	4.8	5.3	5.3	5.7
60°	2.6	3.1	3.5	3.5	3.5	3.9	3.9	4.4	4.4	4.8	4.8
62.5°	2.6	3.1	3.1	3.5	3.5	3.5	3.9	3.9	3.9	4.4	4.4
65°	2.6	2.6	3.1	3.1	3.1	3.1	3.5	3.5	3.5	3.9	3.9
67.5°	2.2	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.5	3.5
70°	2.2	2.2	2.6	2.6	2.6	2.6	2.6	3.1	3.1	3.1	3.1
72.5°	2.2	2.2	2.2	2.2	2.6	2.6	2.6	2.6	2.6	2.6	2.6
75°	1.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	1.8	1.8	1.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
82.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3	1.3
85°	1.8	1.8	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9
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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CATALOG NUMBER: LDSQA4A09930D010TE LAR35FL 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0
2.5°	85.0	84.1	83.7	85.0	83.2	84.1	83.7	84.1
5°	73.2	72.3	71.8	73.2	71.4	72.3	71.4	72.3
7.5°	65.7	65.3	64.8	65.7	64.4	65.3	64.8	65.3
10°	59.6	59.1	58.7	60.0	58.7	59.6	59.1	59.6
12.5°	54.3	54.3	53.9	54.8	53.9	54.8	54.3	54.8
15°	49.5	49.9	49.5	50.4	49.9	50.8	50.4	51.3
17.5°	45.6	46.0	46.0	47.3	46.9	48.2	47.8	48.2
20°	41.6	42.1	42.5	43.4	43.4	44.7	44.2	45.1
22.5°	37.7	38.6	38.6	39.9	39.9	41.2	41.2	41.6
25°	33.7	35.0	35.5	36.4	36.8	38.1	38.1	38.6
27.5°	30.7	31.5	32.0	33.3	33.7	35.0	35.0	35.9
30°	27.2	28.5	28.9	29.8	30.2	31.5	31.5	32.4
32.5°	24.1	25.0	25.8	26.7	27.2	28.5	28.5	29.4
35°	21.0	22.3	22.8	23.7	24.5	25.8	25.8	26.7
37.5°	18.4	19.7	20.2	21.0	21.9	23.2	23.2	24.1
40°	16.2	17.5	18.0	18.8	19.3	21.0	21.0	21.5
42.5°	14.5	15.3	15.8	16.6	17.1	18.0	18.0	18.8
45°	12.3	13.1	13.6	14.0	14.9	15.8	15.8	16.2
47.5°	10.5	11.4	11.8	12.3	12.7	13.6	13.6	14.5
50°	9.2	9.6	10.1	10.5	11.0	11.8	11.8	12.3
52.5°	7.9	8.3	8.8	9.2	9.6	10.1	10.5	11.0
55°	7.0	7.4	7.4	7.9	8.3	8.8	8.8	9.2
57.5°	6.1	6.6	6.6	6.6	7.0	7.4	7.4	7.9
60°	5.3	5.7	5.7	5.7	6.1	6.1	6.1	6.6
62.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
65°	3.9	3.9	3.9	3.9	3.9	3.9	3.5	3.9
67.5°	3.5	3.5	3.5	3.1	3.1	3.1	3.1	3.1
70°	3.1	3.1	3.1	2.6	2.6	2.6	2.2	2.2
72.5°	2.6	2.6	2.6	2.2	2.2	2.2	1.8	1.8
75°	2.2	2.2	2.2	2.2	1.8	1.8	1.8	1.8
77.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.3	1.3
80°	1.8	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9
85°	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.4
87.5°	0.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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)