

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: P182749

Luminaire Tested: **LDSQA4A09940D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182749  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26801)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQA4A09940D010TE LAR35FL 4LSQA1H 30°  
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,  
SELF-FLANGED, 35° FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1043.5 lumens  
Efficiency: N/A  
Efficacy: 75.4 lumens/watt  
Spacing Criteria (0/90/45): 2.46 / 0.59 / 1.2  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

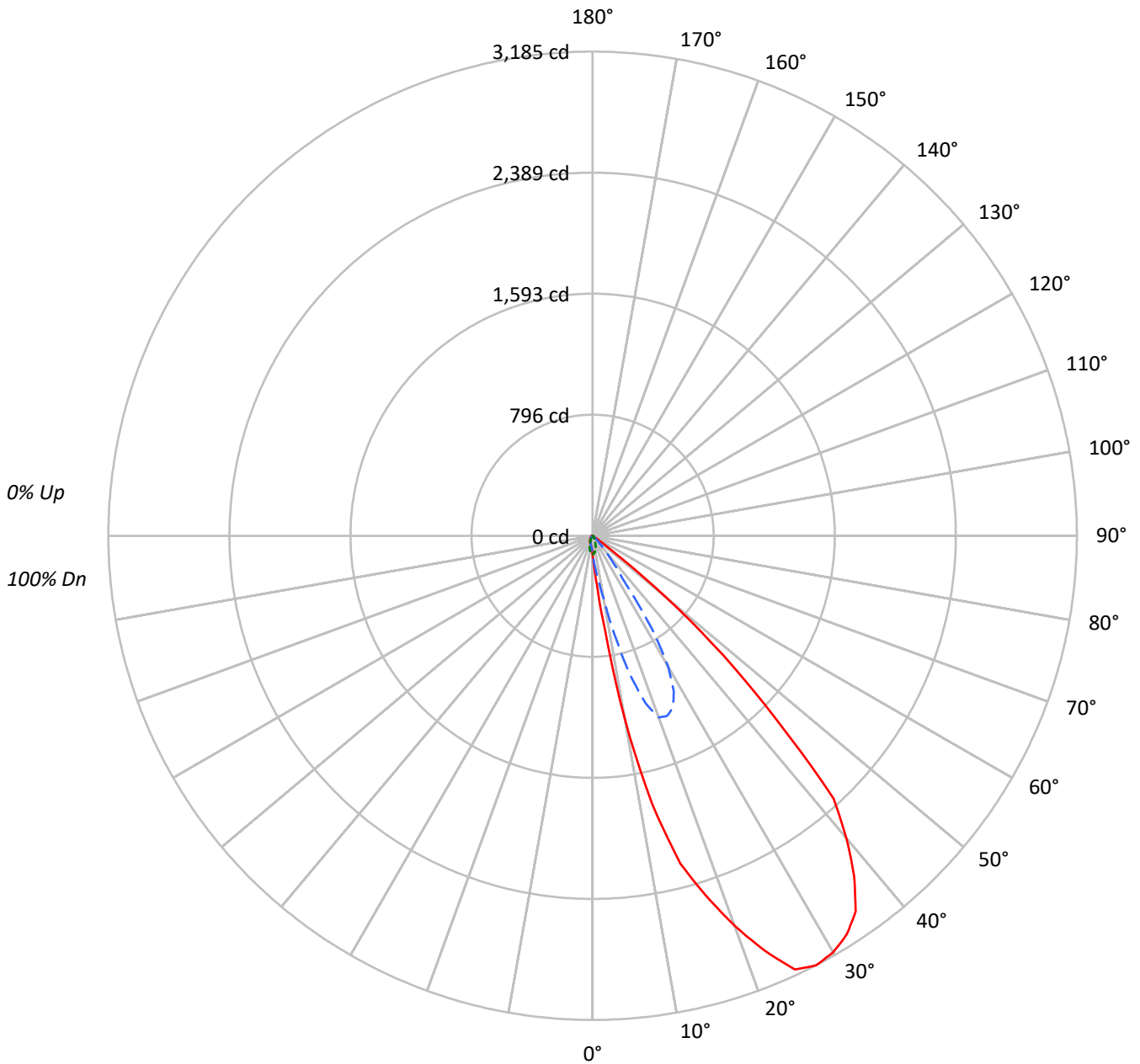
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	105	102	103	101	99	99	98	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83																			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74																			
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67																			
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	60																			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55																			
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49																			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45																			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41																			
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	39	37																			

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

	0°	90°	180°
0°	11799	11799	11799
5°	31021	11242	7332
10°	121605	9719	6109
15°	223874	7662	5416
20°	281319	5412	4918
25°	336490	3570	4393
30°	353853	2248	3848
35°	356717	1360	3335
40°	328244	911	2833
45°	233535	658	2356
50°	96501	497	1944
55°	5557	490	1689
60°	639	465	1395
65°	229	550	986
70°	283	538	680
75°	374	711	711
80°	0	1060	781
85°	0	2112	1112



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	19.1	1.8
10°-20°	152.9	14.7
20°-30°	316.3	30.3
30°-40°	344.3	33.0
40°-50°	188.8	18.1
50°-60°	16.3	1.6
60°-70°	2.7	0.3
70°-80°	1.9	0.2
80°-90°	1.2	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°	488.3	46.8
0°-40°	832.6	79.8
0°-60°	1037.7	99.4
0°-90°	1043.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1043.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	122	122	122	122	122	
5°	319	218	116	80	75	58
15°	2232	938	76	52	54	623
25°	3148	1248	33	32	41	1422
35°	3016	341	12	18	28	1851
45°	1705	35	5	10	17	1301
55°	33	4	3	6	10	113
65°	1	1	2	4	4	1
75°	1	1	2	3	2	1
85°	0	1	2	1	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°	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8
2.5°	191.5	184.8	183.8	184.8	180.0	179.5	180.5	176.7	173.3	170.0	167.1
5°	319.0	305.1	300.8	295.1	280.8	276.0	275.0	259.8	244.9	231.1	218.2
7.5°	619.8	592.1	577.3	548.6	504.7	485.1	474.6	424.5	377.7	335.2	296.5
10°	1236.2	1163.6	1128.3	1074.3	978.4	931.1	896.7	770.7	646.5	527.1	422.1
12.5°	1803.9	1763.8	1711.8	1683.1	1527.5	1467.8	1411.0	1236.2	1047.1	854.2	662.7
15°	2232.2	2173.5	2118.1	2104.7	1982.5	1912.8	1849.8	1668.8	1443.9	1198.5	938.3
17.5°	2483.9	2441.8	2389.3	2364.0	2220.8	2164.4	2092.8	1917.6	1698.9	1454.4	1152.2
20°	2728.8	2666.7	2592.7	2554.5	2396.0	2331.1	2249.9	2065.6	1834.0	1574.3	1272.0
22.5°	2952.8	2872.5	2767.5	2708.3	2530.2	2458.6	2367.8	2168.3	1917.6	1620.6	1282.0
25°	3148.0	3075.5	2935.6	2832.0	2621.9	2537.3	2431.8	2223.2	1947.7	1616.8	1248.1
27.5°	3185.3	3136.6	3011.0	2891.2	2653.9	2559.8	2450.4	2234.6	1926.6	1563.8	1156.9
30°	3163.3	3110.8	3010.1	2887.8	2640.5	2545.5	2431.8	2185.9	1844.5	1440.1	989.8
32.5°	3110.3	3065.0	2944.6	2815.7	2574.6	2475.8	2355.9	2071.8	1703.7	1243.4	728.2
35°	3016.3	2948.0	2802.8	2696.8	2470.0	2368.3	2221.7	1919.5	1493.1	893.8	341.4
37.5°	2824.8	2758.4	2653.9	2556.0	2334.9	2215.0	2060.3	1707.5	1106.8	487.5	211.0
40°	2595.6	2538.3	2447.1	2352.1	2124.3	1986.3	1815.9	1334.6	651.3	274.6	129.9
42.5°	2346.4	2287.1	2184.0	2073.2	1824.9	1679.3	1495.0	863.8	343.3	161.9	70.7
45°	1704.6	1651.6	1576.6	1496.9	1353.2	1248.1	1005.6	453.6	190.0	85.9	34.9
47.5°	1166.5	1103.5	965.0	797.4	646.5	552.9	415.9	196.7	97.4	43.0	20.5
50°	640.3	573.5	502.8	391.5	262.1	215.3	167.6	95.0	43.9	21.5	11.5
52.5°	157.1	138.9	127.0	117.0	92.6	83.6	70.7	39.6	20.1	11.9	8.1
55°	32.9	30.6	29.1	28.6	26.3	25.3	22.0	15.3	11.0	7.6	3.8
57.5°	9.5	9.1	9.5	9.5	9.5	9.1	9.1	6.7	6.2	3.8	2.4
60°	3.3	3.3	3.3	3.8	3.8	3.8	4.3	4.3	3.3	2.4	1.9
62.5°	1.4	1.4	1.4	1.9	1.9	2.4	2.4	2.4	1.9	1.9	1.4
65°	1.0	1.0	1.0	1.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4
67.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4
77.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.4
80°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0
85°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0
87.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0
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°	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8
2.5°	159.0	154.2	148.5	142.3	141.3	138.0	133.2	126.5	124.1	119.4	115.1
5°	199.6	186.7	173.3	161.4	157.6	152.3	143.7	131.8	124.1	115.6	108.4
7.5°	254.0	224.4	197.2	175.7	169.0	160.4	147.1	131.8	120.3	108.4	98.8
10°	326.6	266.4	219.6	184.8	173.8	162.3	144.7	126.1	112.7	98.8	88.8
12.5°	466.5	328.0	240.7	189.6	174.3	159.5	137.0	117.0	101.7	87.9	77.8
15°	663.2	445.0	283.1	192.9	169.5	151.4	125.1	104.6	89.3	76.4	66.8
17.5°	829.4	555.8	340.0	202.5	166.2	140.9	111.3	90.2	75.4	64.0	56.3
20°	910.6	605.4	365.8	203.9	156.6	125.1	95.0	75.0	62.1	52.5	45.8
22.5°	901.0	588.7	341.9	178.6	132.3	105.5	78.8	60.6	49.7	42.0	37.2
25°	837.0	516.2	278.9	136.6	103.1	85.5	61.6	47.3	38.7	33.4	29.6
27.5°	729.6	414.5	203.4	96.5	78.3	64.9	45.8	36.3	29.6	25.8	23.4
30°	562.0	265.0	117.0	69.2	56.8	46.3	34.4	26.3	22.4	20.1	18.1
32.5°	289.8	128.9	77.8	49.7	40.1	33.4	23.9	19.1	16.7	15.3	14.3
35°	159.0	91.7	54.0	32.0	25.8	21.5	16.2	13.4	12.4	11.5	11.5
37.5°	109.3	56.8	30.1	19.1	15.8	13.4	11.0	9.5	9.1	9.1	9.1
40°	63.0	30.1	17.2	11.9	10.0	9.1	7.6	7.2	7.2	7.2	7.6
42.5°	32.5	17.7	11.5	8.1	7.2	6.2	5.3	5.3	5.3	5.7	6.2
45°	19.1	11.9	7.6	5.3	4.8	4.3	3.8	3.8	4.3	4.8	5.3
47.5°	11.9	8.1	4.8	3.3	2.9	2.9	2.9	2.9	3.3	3.8	4.3
50°	8.1	4.3	2.9	1.9	1.9	1.9	1.9	2.4	2.9	3.3	3.8
52.5°	4.3	2.4	1.9	1.4	1.4	1.4	1.9	1.9	2.4	2.9	3.3
55°	2.4	1.9	1.4	1.4	1.4	1.4	1.4	1.9	2.4	2.9	3.3
57.5°	1.9	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	2.4	2.9
60°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	2.4	2.9
62.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	2.4	2.4
65°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	2.4	2.4
67.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	1.9	2.4
70°	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9	2.4
72.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9
75°	1.4	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	2.4
77.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9
82.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9
85°	1.4	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.9
87.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8
2.5°	112.7	108.9	105.0	105.0	103.1	100.3	99.3	96.5	94.5	93.6	92.6
5°	103.1	97.4	92.2	91.7	89.3	85.9	84.5	81.6	79.7	78.8	78.3
7.5°	92.2	86.4	81.2	80.2	78.3	75.9	74.5	72.1	71.1	70.2	69.7
10°	81.6	75.9	72.1	71.1	69.7	67.8	66.4	64.9	64.0	63.5	63.5
12.5°	71.1	66.8	63.5	62.6	61.6	60.2	59.2	58.3	57.8	57.8	57.8
15°	61.6	57.8	54.9	54.9	54.0	53.0	53.0	52.0	51.6	52.0	52.5
17.5°	52.0	49.2	46.8	46.8	46.3	45.8	45.8	45.8	46.3	46.8	47.7
20°	43.0	40.6	39.6	39.6	39.2	39.6	39.6	40.1	40.6	42.0	43.5
22.5°	34.9	33.4	32.5	32.9	32.9	33.4	33.9	34.9	35.8	37.2	38.7
25°	28.2	27.2	26.7	27.2	27.7	28.2	29.1	30.1	31.5	32.9	34.9
27.5°	22.4	22.0	22.0	22.4	22.9	23.9	25.3	26.3	27.7	29.1	31.0
30°	18.1	17.7	18.1	19.1	19.6	20.5	21.5	22.9	24.4	25.8	27.7
32.5°	14.3	14.8	15.3	15.8	16.2	17.7	18.6	19.6	21.0	22.4	24.4
35°	11.9	12.4	12.9	13.4	13.8	14.8	15.8	16.7	18.1	19.6	21.5
37.5°	9.5	10.0	10.5	11.5	11.9	12.4	13.8	14.3	15.8	16.7	18.6
40°	8.1	8.6	9.1	9.5	10.0	11.0	11.9	12.4	13.4	14.8	16.2
42.5°	6.7	7.2	7.6	8.1	8.6	9.5	10.0	11.0	11.9	12.9	13.8
45°	5.7	6.2	6.7	7.2	7.6	8.1	8.6	9.5	10.0	11.0	11.9
47.5°	4.8	5.3	6.2	6.2	6.7	7.2	7.6	8.1	9.1	9.5	10.5
50°	4.3	4.8	5.3	5.7	5.7	6.2	6.7	7.2	7.6	8.1	9.1
52.5°	3.8	4.3	4.8	4.8	5.3	5.7	6.2	6.2	6.7	7.2	7.6
55°	3.3	3.8	4.3	4.3	4.8	5.3	5.3	5.7	6.2	6.2	6.7
57.5°	3.3	3.3	3.8	3.8	4.3	4.3	4.8	5.3	5.3	5.7	6.2
60°	2.9	3.3	3.3	3.8	3.8	4.3	4.3	4.8	4.8	5.3	5.3
62.5°	2.9	2.9	3.3	3.3	3.8	3.8	4.3	4.3	4.3	4.8	4.8
65°	2.9	2.9	3.3	3.3	3.3	3.8	3.8	3.8	3.8	4.3	4.3
67.5°	2.4	2.9	2.9	3.3	3.3	3.3	3.3	3.3	3.8	3.8	3.8
70°	2.4	2.9	2.9	2.9	2.9	3.3	3.3	3.3	3.3	3.3	3.3
72.5°	2.4	2.4	2.4	2.4	2.9	2.9	2.9	2.9	2.9	2.9	2.9
75°	2.4	2.4	2.4	2.4	2.4	2.9	2.9	2.9	2.9	2.9	2.9
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
80°	1.9	1.9	1.9	1.9	1.9	2.4	1.9	1.9	1.9	1.9	1.9
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4
85°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4	1.4
87.5°	1.9	1.9	1.9	1.4	1.4	1.4	1.4	1.4	1.4	1.0	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





TEST NUMBER: P182749

CATALOG NUMBER: LDSQA4A09940D010TE LAR35FL 4LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8
2.5°	91.2	90.2	91.2	90.2	90.2	88.3	89.8	88.8
5°	76.9	75.9	76.9	76.4	75.4	75.0	75.9	75.4
7.5°	68.8	67.8	68.8	68.8	67.8	67.3	68.3	67.8
10°	62.6	62.1	62.6	62.6	62.1	61.6	62.6	62.1
12.5°	57.3	56.8	57.8	57.8	57.3	57.3	58.3	57.3
15°	52.5	52.5	53.5	53.5	53.5	53.5	54.4	54.0
17.5°	47.7	48.7	49.7	50.1	50.1	50.1	51.1	51.1
20°	43.9	44.9	45.8	46.3	46.8	46.8	47.7	47.7
22.5°	39.6	40.6	42.0	42.5	43.0	43.5	44.4	44.4
25°	35.8	36.8	38.2	38.7	39.6	40.1	41.1	41.1
27.5°	32.0	33.4	34.4	35.3	35.8	36.8	37.7	37.7
30°	28.6	30.1	31.0	32.0	32.5	33.4	34.4	34.4
32.5°	25.3	26.7	27.7	28.6	29.6	30.1	31.5	31.5
35°	22.4	23.4	24.8	25.3	26.3	27.2	28.2	28.2
37.5°	19.6	20.5	21.5	22.4	23.4	23.9	24.8	25.3
40°	17.2	18.1	19.1	19.6	20.5	21.5	22.0	22.4
42.5°	14.8	15.8	16.7	17.2	18.1	18.6	19.6	19.6
45°	12.9	13.8	14.3	14.8	15.8	16.2	17.2	17.2
47.5°	11.0	11.9	12.4	12.9	13.4	13.8	14.8	14.8
50°	9.5	10.0	10.5	11.0	11.5	12.4	12.9	12.9
52.5°	8.1	9.1	9.1	9.5	10.0	10.5	11.0	11.5
55°	7.2	7.6	8.1	8.1	8.6	9.1	9.5	10.0
57.5°	6.2	6.7	7.2	7.2	7.6	7.6	8.1	8.6
60°	5.7	5.7	6.2	6.2	6.2	6.7	6.7	7.2
62.5°	4.8	4.8	5.3	5.3	5.3	5.3	5.3	5.3
65°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
67.5°	3.8	3.8	3.8	3.8	3.3	3.3	3.3	3.3
70°	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.4
72.5°	2.9	2.9	2.9	2.9	2.4	2.4	1.9	1.9
75°	2.4	2.4	2.4	2.4	2.4	1.9	1.9	1.9
77.5°	2.4	1.9	1.9	1.9	1.9	1.9	1.9	1.4
80°	1.9	1.9	1.4	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	1.4	1.4	1.4	1.0	1.0	1.0	1.0
85°	1.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0
87.5°	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)