

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: P182757

Luminaire Tested: **LDSQA4A13940D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182757
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: LDSQA4A13940D010TE 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: 1545.2 lumens
Efficiency: N/A
Efficacy: 69.4 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

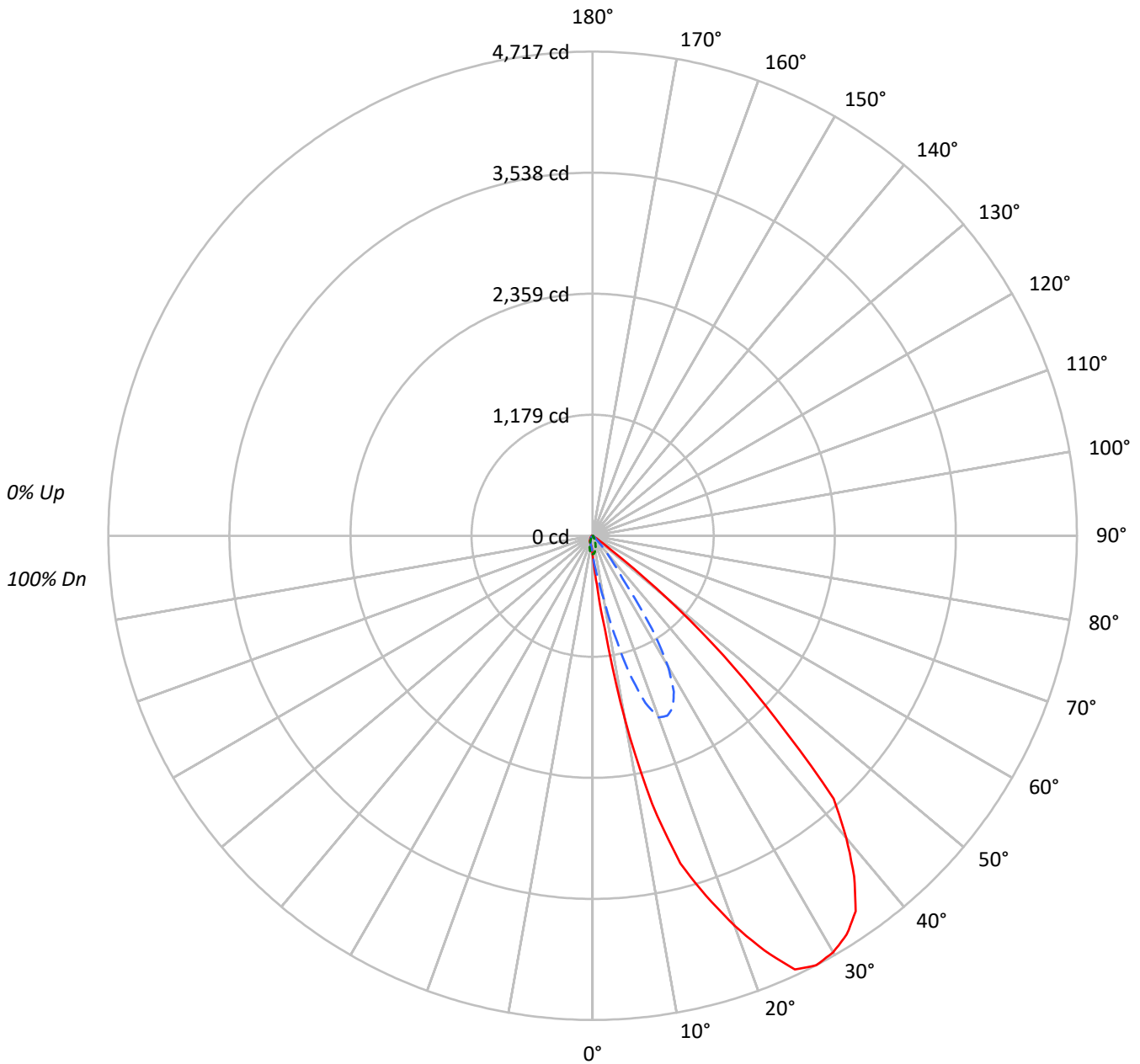
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182757

CATALOG NUMBER: LDSQA4A13940D010TE LAR35FL 4LSQA1H 30°

Luminous Intensity Polar Plot





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CATALOG NUMBER: LDSQA4A13940D010TE LAR35FL 4LSQA1H 30°

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°	17467	17467	17467
5°	45939	16639	10862
10°	180086	14401	9040
15°	331548	11343	8013
20°	416618	8021	7289
25°	498322	5291	6499
30°	524029	3322	5694
35°	528257	2010	4932
40°	486107	1340	4199
45°	345849	973	3494
50°	142905	738	2879
55°	8242	709	2500
60°	949	678	2054
65°	321	802	1467
70°	397	793	991
75°	524	1048	1048
80°	0	1562	1172
85°	0	3112	1556



TEST NUMBER: P182757

CATALOG NUMBER: LDSQA4A13940D010TE LAR35FL 4LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	28.3	1.8
10°-20°	226.4	14.7
20°-30°	468.4	30.3
30°-40°	509.8	33.0
40°-50°	279.6	18.1
50°-60°	24.2	1.6
60°-70°	3.9	0.3
70°-80°	2.8	0.2
80°-90°	1.8	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°	723.1	46.8
0°-40°	1233.0	79.8
0°-60°	1536.7	99.4
0°-90°	1545.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1545.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	180	180	180	180	180	
5°	472	323	171	118	112	86
15°	3306	1390	113	76	80	923
25°	4662	1848	50	47	61	2105
35°	4467	506	17	27	42	2741
45°	2524	52	7	15	26	1927
55°	49	6	4	9	15	167
65°	1	2	4	6	6	2
75°	1	2	3	4	3	1
85°	0	1	3	2	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182757

CATALOG NUMBER: LDSQA4A13940D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3
2.5°	283.6	273.7	272.2	273.7	266.6	265.9	267.3	261.6	256.7	251.7	247.5
5°	472.4	451.8	445.5	437.0	415.8	408.7	407.3	384.7	362.8	342.2	323.2
7.5°	917.8	876.8	854.9	812.5	747.4	718.4	702.9	628.6	559.3	496.4	439.1
10°	1830.7	1723.2	1670.9	1591.0	1448.9	1378.9	1328.0	1141.3	957.4	780.7	625.1
12.5°	2671.5	2612.1	2535.0	2492.6	2262.1	2173.7	2089.5	1830.7	1550.7	1265.0	981.5
15°	3305.8	3218.8	3136.8	3117.0	2935.9	2832.7	2739.4	2471.4	2138.3	1774.9	1389.5
17.5°	3678.4	3616.2	3538.4	3500.9	3288.8	3205.4	3099.3	2839.8	2515.9	2153.9	1706.3
20°	4041.2	3949.2	3839.6	3783.1	3548.3	3452.1	3331.9	3059.0	2716.0	2331.4	1883.8
22.5°	4372.8	4254.0	4098.4	4010.8	3747.0	3640.9	3506.6	3211.0	2839.8	2400.0	1898.6
25°	4662.0	4554.5	4347.3	4193.9	3882.8	3757.6	3601.3	3292.3	2884.3	2394.3	1848.4
27.5°	4717.2	4645.0	4459.1	4281.6	3930.1	3790.8	3628.9	3309.3	2853.2	2315.8	1713.3
30°	4684.6	4606.9	4457.7	4276.6	3910.3	3769.6	3601.3	3237.2	2731.6	2132.7	1465.9
32.5°	4606.2	4539.0	4360.8	4169.9	3812.8	3666.4	3488.9	3068.2	2523.0	1841.3	1078.4
35°	4466.8	4365.7	4150.8	3993.8	3657.9	3507.3	3290.2	2842.6	2211.2	1323.7	505.6
37.5°	4183.3	4085.0	3930.1	3785.2	3457.8	3280.3	3051.2	2528.6	1639.1	722.0	312.5
40°	3843.9	3759.0	3624.0	3483.3	3146.0	2941.6	2689.2	1976.4	964.5	406.6	192.3
42.5°	3474.8	3387.1	3234.3	3070.3	2702.6	2486.9	2214.0	1279.2	508.4	239.7	104.7
45°	2524.4	2445.9	2334.9	2216.8	2004.0	1848.4	1489.2	671.8	281.4	127.3	51.6
47.5°	1727.5	1634.1	1429.1	1180.9	957.4	818.8	615.9	291.3	144.3	63.6	30.4
50°	948.2	849.2	744.6	579.8	388.2	318.9	248.2	140.7	65.1	31.8	17.0
52.5°	232.6	205.8	188.1	173.2	137.2	123.7	104.7	58.7	29.7	17.7	12.0
55°	48.8	45.3	43.1	42.4	38.9	37.5	32.5	22.6	16.3	11.3	5.7
57.5°	14.1	13.4	14.1	14.1	14.1	13.4	13.4	9.9	9.2	5.7	3.5
60°	4.9	4.9	4.9	5.7	5.7	5.7	6.4	6.4	4.9	3.5	2.8
62.5°	2.1	2.1	2.1	2.8	2.8	3.5	3.5	3.5	2.8	2.8	2.1
65°	1.4	1.4	1.4	1.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1
67.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1
70°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1
72.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1
75°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1
77.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	1.4	2.1
80°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	1.4	1.4	1.4
82.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	1.4	1.4
85°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	1.4	1.4
87.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	1.4	1.4
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: P182757

CATALOG NUMBER: LDSQA4A13940D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3
2.5°	235.5	228.4	219.9	210.7	209.3	204.4	197.3	187.4	183.9	176.8	170.4
5°	295.6	276.5	256.7	239.0	233.3	225.6	212.8	195.2	183.9	171.1	160.5
7.5°	376.2	332.3	292.0	260.2	250.3	237.6	217.8	195.2	178.2	160.5	146.4
10°	483.7	394.6	325.3	273.7	257.4	240.4	214.3	186.7	166.9	146.4	131.5
12.5°	690.9	485.8	356.4	280.7	258.1	236.2	202.9	173.2	150.6	130.1	115.3
15°	982.2	659.0	419.3	285.7	251.0	224.2	185.3	154.9	132.2	113.1	99.0
17.5°	1228.3	823.1	503.5	299.8	246.1	208.6	164.8	133.6	111.7	94.8	83.4
20°	1348.5	896.6	541.7	301.9	231.9	185.3	140.7	111.0	91.9	77.8	67.9
22.5°	1334.3	871.9	506.3	264.5	195.9	156.3	116.7	89.8	73.5	62.2	55.2
25°	1239.6	764.4	413.0	202.2	152.7	126.6	91.2	70.0	57.3	49.5	43.8
27.5°	1080.5	613.8	301.2	142.8	116.0	96.2	67.9	53.7	43.8	38.2	34.6
30°	832.3	392.4	173.2	102.5	84.1	68.6	50.9	38.9	33.2	29.7	26.9
32.5°	429.2	190.9	115.3	73.5	59.4	49.5	35.4	28.3	24.7	22.6	21.2
35°	235.5	135.8	79.9	47.4	38.2	31.8	24.0	19.8	18.4	17.0	17.0
37.5°	161.9	84.1	44.5	28.3	23.3	19.8	16.3	14.1	13.4	13.4	13.4
40°	93.3	44.5	25.5	17.7	14.8	13.4	11.3	10.6	10.6	10.6	11.3
42.5°	48.1	26.2	17.0	12.0	10.6	9.2	7.8	7.8	7.8	8.5	9.2
45°	28.3	17.7	11.3	7.8	7.1	6.4	5.7	5.7	6.4	7.1	7.8
47.5°	17.7	12.0	7.1	4.9	4.2	4.2	4.2	4.2	4.9	5.7	6.4
50°	12.0	6.4	4.2	2.8	2.8	2.8	2.8	3.5	4.2	4.9	5.7
52.5°	6.4	3.5	2.8	2.1	2.1	2.1	2.8	2.8	3.5	4.2	4.9
55°	3.5	2.8	2.1	2.1	2.1	2.1	2.1	2.8	3.5	4.2	4.9
57.5°	2.8	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	3.5	4.2
60°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	3.5	4.2
62.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	3.5	3.5
65°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	3.5	3.5
67.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	3.5
70°	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8	3.5
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8
75°	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8	3.5
77.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8
80°	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8
82.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8
85°	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.8
87.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8
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: P182757

CATALOG NUMBER: LDSQA4A13940D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3
2.5°	166.9	161.2	155.6	155.6	152.7	148.5	147.1	142.8	140.0	138.6	137.2
5°	152.7	144.3	136.5	135.8	132.2	127.3	125.2	120.9	118.1	116.7	116.0
7.5°	136.5	128.0	120.2	118.8	116.0	112.4	110.3	106.8	105.4	103.9	103.2
10°	120.9	112.4	106.8	105.4	103.2	100.4	98.3	96.2	94.8	94.0	94.0
12.5°	105.4	99.0	94.0	92.6	91.2	89.1	87.7	86.3	85.6	85.6	85.6
15°	91.2	85.6	81.3	81.3	79.9	78.5	78.5	77.1	76.4	77.1	77.8
17.5°	77.1	72.8	69.3	69.3	68.6	67.9	67.9	67.9	68.6	69.3	70.7
20°	63.6	60.1	58.7	58.7	58.0	58.7	58.7	59.4	60.1	62.2	64.3
22.5°	51.6	49.5	48.1	48.8	48.8	49.5	50.2	51.6	53.0	55.2	57.3
25°	41.7	40.3	39.6	40.3	41.0	41.7	43.1	44.5	46.7	48.8	51.6
27.5°	33.2	32.5	32.5	33.2	33.9	35.4	37.5	38.9	41.0	43.1	46.0
30°	26.9	26.2	26.9	28.3	29.0	30.4	31.8	33.9	36.1	38.2	41.0
32.5°	21.2	21.9	22.6	23.3	24.0	26.2	27.6	29.0	31.1	33.2	36.1
35°	17.7	18.4	19.1	19.8	20.5	21.9	23.3	24.7	26.9	29.0	31.8
37.5°	14.1	14.8	15.6	17.0	17.7	18.4	20.5	21.2	23.3	24.7	27.6
40°	12.0	12.7	13.4	14.1	14.8	16.3	17.7	18.4	19.8	21.9	24.0
42.5°	9.9	10.6	11.3	12.0	12.7	14.1	14.8	16.3	17.7	19.1	20.5
45°	8.5	9.2	9.9	10.6	11.3	12.0	12.7	14.1	14.8	16.3	17.7
47.5°	7.1	7.8	9.2	9.2	9.9	10.6	11.3	12.0	13.4	14.1	15.6
50°	6.4	7.1	7.8	8.5	8.5	9.2	9.9	10.6	11.3	12.0	13.4
52.5°	5.7	6.4	7.1	7.1	7.8	8.5	9.2	9.2	9.9	10.6	11.3
55°	4.9	5.7	6.4	6.4	7.1	7.8	7.8	8.5	9.2	9.2	9.9
57.5°	4.9	4.9	5.7	5.7	6.4	6.4	7.1	7.8	7.8	8.5	9.2
60°	4.2	4.9	4.9	5.7	5.7	6.4	6.4	7.1	7.1	7.8	7.8
62.5°	4.2	4.2	4.9	4.9	5.7	5.7	6.4	6.4	6.4	7.1	7.1
65°	4.2	4.2	4.9	4.9	4.9	5.7	5.7	5.7	5.7	6.4	6.4
67.5°	3.5	4.2	4.2	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7
70°	3.5	4.2	4.2	4.2	4.2	4.9	4.9	4.9	4.9	4.9	4.9
72.5°	3.5	3.5	3.5	3.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2
75°	3.5	3.5	3.5	3.5	3.5	4.2	4.2	4.2	4.2	4.2	4.2
77.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
80°	2.8	2.8	2.8	2.8	2.8	3.5	2.8	2.8	2.8	2.8	2.8
82.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.1	2.1
85°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
87.5°	2.8	2.8	2.8	2.1	2.1	2.1	2.1	2.1	2.1	1.4	1.4
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: P182757

CATALOG NUMBER: LDSQA4A13940D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	180.3	180.3	180.3	180.3	180.3	180.3	180.3	180.3
2.5°	135.1	133.6	135.1	133.6	133.6	130.8	132.9	131.5
5°	113.8	112.4	113.8	113.1	111.7	111.0	112.4	111.7
7.5°	101.8	100.4	101.8	101.8	100.4	99.7	101.1	100.4
10°	92.6	91.9	92.6	92.6	91.9	91.2	92.6	91.9
12.5°	84.9	84.1	85.6	85.6	84.9	84.9	86.3	84.9
15°	77.8	77.8	79.2	79.2	79.2	79.2	80.6	79.9
17.5°	70.7	72.1	73.5	74.2	74.2	74.2	75.7	75.7
20°	65.1	66.5	67.9	68.6	69.3	69.3	70.7	70.7
22.5°	58.7	60.1	62.2	62.9	63.6	64.3	65.8	65.8
25°	53.0	54.4	56.6	57.3	58.7	59.4	60.8	60.8
27.5°	47.4	49.5	50.9	52.3	53.0	54.4	55.9	55.9
30°	42.4	44.5	46.0	47.4	48.1	49.5	50.9	50.9
32.5°	37.5	39.6	41.0	42.4	43.8	44.5	46.7	46.7
35°	33.2	34.6	36.8	37.5	38.9	40.3	41.7	41.7
37.5°	29.0	30.4	31.8	33.2	34.6	35.4	36.8	37.5
40°	25.5	26.9	28.3	29.0	30.4	31.8	32.5	33.2
42.5°	21.9	23.3	24.7	25.5	26.9	27.6	29.0	29.0
45°	19.1	20.5	21.2	21.9	23.3	24.0	25.5	25.5
47.5°	16.3	17.7	18.4	19.1	19.8	20.5	21.9	21.9
50°	14.1	14.8	15.6	16.3	17.0	18.4	19.1	19.1
52.5°	12.0	13.4	13.4	14.1	14.8	15.6	16.3	17.0
55°	10.6	11.3	12.0	12.0	12.7	13.4	14.1	14.8
57.5°	9.2	9.9	10.6	10.6	11.3	11.3	12.0	12.7
60°	8.5	8.5	9.2	9.2	9.2	9.9	9.9	10.6
62.5°	7.1	7.1	7.8	7.8	7.8	7.8	7.8	7.8
65°	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
67.5°	5.7	5.7	5.7	5.7	4.9	4.9	4.9	4.9
70°	4.9	4.9	4.9	4.9	4.2	4.2	4.2	3.5
72.5°	4.2	4.2	4.2	4.2	3.5	3.5	2.8	2.8
75°	3.5	3.5	3.5	3.5	3.5	2.8	2.8	2.8
77.5°	3.5	2.8	2.8	2.8	2.8	2.8	2.8	2.1
80°	2.8	2.8	2.1	2.1	2.1	2.1	2.1	2.1
82.5°	2.1	2.1	2.1	2.1	1.4	1.4	1.4	1.4
85°	2.1	1.4	1.4	1.4	1.4	1.4	1.4	1.4
87.5°	1.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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)