

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: P182737

Luminaire Tested: **LDSQA4A18840D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182737
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: LDSQA4A18840D010TE LAR35FL 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2291.3 lumens
Efficiency: N/A
Efficacy: 78.7 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

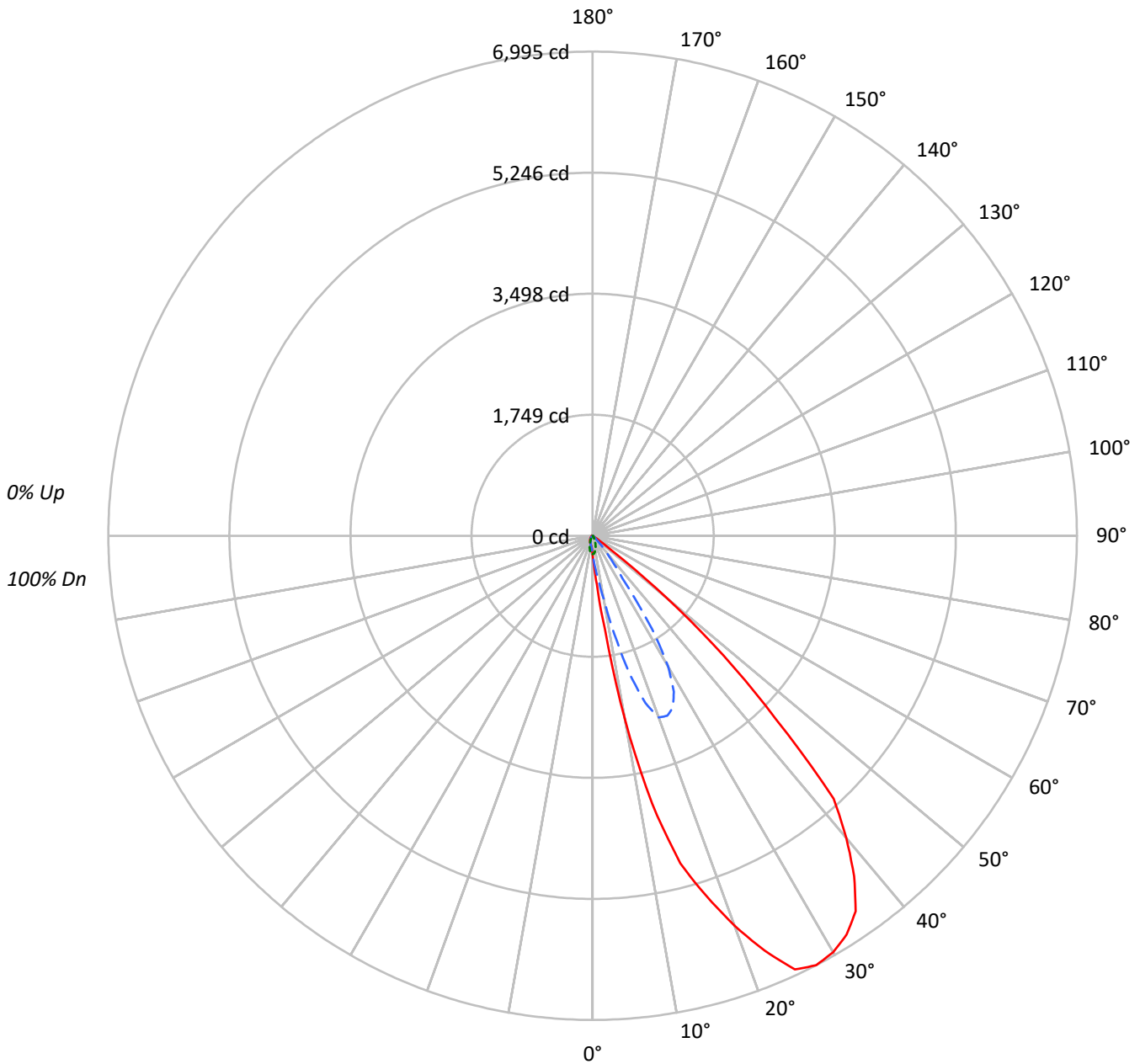
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182737

CATALOG NUMBER: LDSQA4A18840D010TE LAR35FL 4LSQA1H 30°

Luminous Intensity Polar Plot





TEST NUMBER: P182737

CATALOG NUMBER: LDSQA4A18840D010TE 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°	25904	25904	25904
5°	68111	24671	16114
10°	267035	21346	13408
15°	491625	16829	11885
20°	617762	11887	10814
25°	738921	7846	9641
30°	777050	4922	8446
35°	783315	2980	7320
40°	720807	1985	6235
45°	512828	1439	5165
50°	211915	1100	4265
55°	12211	1064	3716
60°	1414	1008	3042
65°	481	1192	2155
70°	595	1190	1473
75°	786	1572	1572
80°	0	2343	1729
85°	0	4668	2334



TEST NUMBER: P182737

CATALOG NUMBER: LDSQA4A18840D010TE LAR35FL 4LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.0	1.8
10°-20°	335.8	14.7
20°-30°	694.5	30.3
30°-40°	756.0	33.0
40°-50°	414.5	18.1
50°-60°	35.9	1.6
60°-70°	5.8	0.3
70°-80°	4.2	0.2
80°-90°	2.6	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°	1072.3	46.8
0°-40°	1828.3	79.8
0°-60°	2278.7	99.4
0°-90°	2291.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2291.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	267	267	267	267	267	
5°	700	479	254	175	166	128
15°	4902	2060	168	113	118	1369
25°	6913	2741	73	69	90	3122
35°	6624	750	25	40	62	4065
45°	3743	76	10	22	38	2857
55°	72	8	6	14	22	247
65°	2	3	5	8	9	3
75°	2	3	4	6	4	1
85°	0	2	4	3	2	0
90°	0	0	0	0	0	



TEST NUMBER: P182737

CATALOG NUMBER: LDSQA4A18840D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4
2.5°	420.5	405.8	403.7	405.8	395.3	394.2	396.3	388.0	380.6	373.3	367.0
5°	700.4	670.0	660.6	648.0	616.5	606.0	604.0	570.4	537.9	507.5	479.2
7.5°	1361.0	1300.2	1267.7	1204.8	1108.3	1065.3	1042.2	932.1	829.4	736.1	651.1
10°	2714.6	2555.3	2477.7	2359.2	2148.4	2044.6	1969.1	1692.3	1419.7	1157.6	926.9
12.5°	3961.3	3873.3	3759.0	3696.1	3354.2	3223.2	3098.4	2714.6	2299.4	1875.8	1455.4
15°	4901.9	4772.9	4651.3	4621.9	4353.5	4200.4	4062.0	3664.6	3170.7	2631.8	2060.4
17.5°	5454.4	5362.2	5246.8	5191.3	4876.7	4753.0	4595.7	4210.9	3730.7	3193.8	2530.1
20°	5992.3	5856.0	5693.5	5609.6	5261.5	5118.9	4940.7	4535.9	4027.4	3457.0	2793.3
22.5°	6484.1	6307.9	6077.3	5947.2	5556.1	5398.9	5199.6	4761.4	4210.9	3558.7	2815.3
25°	6912.9	6753.6	6446.3	6218.8	5757.5	5571.9	5340.2	4881.9	4276.9	3550.3	2740.9
27.5°	6994.7	6887.8	6612.0	6348.8	5827.7	5621.2	5381.0	4907.1	4230.8	3433.9	2540.6
30°	6946.5	6831.2	6609.9	6341.5	5798.4	5589.7	5340.2	4800.2	4050.5	3162.4	2173.6
32.5°	6830.1	6730.5	6466.3	6183.2	5653.7	5436.6	5173.4	4549.6	3741.1	2730.4	1599.0
35°	6623.5	6473.6	6154.9	5922.1	5424.0	5200.7	4878.8	4215.1	3278.7	1962.8	749.7
37.5°	6203.1	6057.3	5827.7	5612.8	5127.3	4864.1	4524.4	3749.5	2430.5	1070.5	463.4
40°	5699.8	5574.0	5373.7	5165.0	4664.9	4361.9	3987.6	2930.6	1430.2	602.9	285.2
42.5°	5152.5	5022.4	4796.0	4552.7	4007.5	3687.7	3282.9	1896.8	753.9	355.5	155.2
45°	3743.2	3626.9	3462.2	3287.1	2971.5	2740.9	2208.2	996.1	417.3	188.7	76.5
47.5°	2561.6	2423.1	2119.1	1751.0	1419.7	1214.2	913.3	432.0	213.9	94.4	45.1
50°	1406.1	1259.3	1104.1	859.8	575.6	472.9	368.0	208.7	96.5	47.2	25.2
52.5°	345.0	305.1	278.9	256.9	203.4	183.5	155.2	87.0	44.0	26.2	17.8
55°	72.3	67.1	64.0	62.9	57.7	55.6	48.2	33.6	24.1	16.8	8.4
57.5°	21.0	19.9	21.0	21.0	21.0	19.9	19.9	14.7	13.6	8.4	5.2
60°	7.3	7.3	7.3	8.4	8.4	8.4	9.4	9.4	7.3	5.2	4.2
62.5°	3.1	3.1	3.1	4.2	4.2	5.2	5.2	5.2	4.2	4.2	3.1
65°	2.1	2.1	2.1	2.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
67.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1
70°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1
80°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1	2.1
82.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1
85°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1
87.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1
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: P182737

CATALOG NUMBER: LDSQA4A18840D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4
2.5°	349.2	338.7	326.1	312.5	310.4	303.0	292.5	277.9	272.6	262.1	252.7
5°	438.3	410.0	380.6	354.4	346.0	334.5	315.6	289.4	272.6	253.7	238.0
7.5°	557.8	492.8	433.0	385.9	371.2	352.3	322.9	289.4	264.2	238.0	217.0
10°	717.2	585.1	482.3	405.8	381.7	356.5	317.7	276.8	247.5	217.0	195.0
12.5°	1024.4	720.3	528.5	416.3	382.7	350.2	300.9	256.9	223.3	192.9	170.9
15°	1456.4	977.2	621.8	423.6	372.2	332.4	274.7	229.6	196.1	167.8	146.8
17.5°	1821.3	1220.5	746.6	444.6	364.9	309.3	244.3	198.2	165.7	140.5	123.7
20°	1999.5	1329.5	803.2	447.7	343.9	274.7	208.7	164.6	136.3	115.3	100.7
22.5°	1978.6	1292.8	750.7	392.1	290.4	231.7	173.0	133.2	109.0	92.3	81.8
25°	1838.1	1133.5	612.3	299.9	226.5	187.7	135.3	103.8	84.9	73.4	65.0
27.5°	1602.2	910.1	446.7	211.8	172.0	142.6	100.7	79.7	65.0	56.6	51.4
30°	1234.1	581.9	256.9	152.0	124.8	101.7	75.5	57.7	49.3	44.0	39.8
32.5°	636.5	283.1	170.9	109.0	88.1	73.4	52.4	41.9	36.7	33.6	31.5
35°	349.2	201.3	118.5	70.3	56.6	47.2	35.6	29.4	27.3	25.2	25.2
37.5°	240.1	124.8	66.1	41.9	34.6	29.4	24.1	21.0	19.9	19.9	19.9
40°	138.4	66.1	37.7	26.2	22.0	19.9	16.8	15.7	15.7	15.7	16.8
42.5°	71.3	38.8	25.2	17.8	15.7	13.6	11.5	11.5	11.5	12.6	13.6
45°	41.9	26.2	16.8	11.5	10.5	9.4	8.4	8.4	9.4	10.5	11.5
47.5°	26.2	17.8	10.5	7.3	6.3	6.3	6.3	6.3	7.3	8.4	9.4
50°	17.8	9.4	6.3	4.2	4.2	4.2	4.2	5.2	6.3	7.3	8.4
52.5°	9.4	5.2	4.2	3.1	3.1	3.1	4.2	4.2	5.2	6.3	7.3
55°	5.2	4.2	3.1	3.1	3.1	3.1	3.1	4.2	5.2	6.3	7.3
57.5°	4.2	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	5.2	6.3
60°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	5.2	6.3
62.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	5.2	5.2
65°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	5.2	5.2
67.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	5.2
70°	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2	5.2
72.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2
75°	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2	5.2
77.5°	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2
80°	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2
82.5°	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2
85°	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2	4.2
87.5°	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2
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: P182737

CATALOG NUMBER: LDSQA4A18840D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4
2.5°	247.5	239.1	230.7	230.7	226.5	220.2	218.1	211.8	207.6	205.5	203.4
5°	226.5	213.9	202.4	201.3	196.1	188.7	185.6	179.3	175.1	173.0	172.0
7.5°	202.4	189.8	178.2	176.2	172.0	166.7	163.6	158.3	156.2	154.1	153.1
10°	179.3	166.7	158.3	156.2	153.1	148.9	145.7	142.6	140.5	139.5	139.5
12.5°	156.2	146.8	139.5	137.4	135.3	132.1	130.0	127.9	126.9	126.9	126.9
15°	135.3	126.9	120.6	120.6	118.5	116.4	116.4	114.3	113.2	114.3	115.3
17.5°	114.3	108.0	102.8	102.8	101.7	100.7	100.7	100.7	101.7	102.8	104.9
20°	94.4	89.1	87.0	87.0	86.0	87.0	87.0	88.1	89.1	92.3	95.4
22.5°	76.5	73.4	71.3	72.3	72.3	73.4	74.4	76.5	78.6	81.8	84.9
25°	61.9	59.8	58.7	59.8	60.8	61.9	64.0	66.1	69.2	72.3	76.5
27.5°	49.3	48.2	48.2	49.3	50.3	52.4	55.6	57.7	60.8	64.0	68.2
30°	39.8	38.8	39.8	41.9	43.0	45.1	47.2	50.3	53.5	56.6	60.8
32.5°	31.5	32.5	33.6	34.6	35.6	38.8	40.9	43.0	46.1	49.3	53.5
35°	26.2	27.3	28.3	29.4	30.4	32.5	34.6	36.7	39.8	43.0	47.2
37.5°	21.0	22.0	23.1	25.2	26.2	27.3	30.4	31.5	34.6	36.7	40.9
40°	17.8	18.9	19.9	21.0	22.0	24.1	26.2	27.3	29.4	32.5	35.6
42.5°	14.7	15.7	16.8	17.8	18.9	21.0	22.0	24.1	26.2	28.3	30.4
45°	12.6	13.6	14.7	15.7	16.8	17.8	18.9	21.0	22.0	24.1	26.2
47.5°	10.5	11.5	13.6	13.6	14.7	15.7	16.8	17.8	19.9	21.0	23.1
50°	9.4	10.5	11.5	12.6	12.6	13.6	14.7	15.7	16.8	17.8	19.9
52.5°	8.4	9.4	10.5	10.5	11.5	12.6	13.6	13.6	14.7	15.7	16.8
55°	7.3	8.4	9.4	9.4	10.5	11.5	11.5	12.6	13.6	13.6	14.7
57.5°	7.3	7.3	8.4	8.4	9.4	9.4	10.5	11.5	11.5	12.6	13.6
60°	6.3	7.3	7.3	8.4	8.4	9.4	9.4	10.5	10.5	11.5	11.5
62.5°	6.3	6.3	7.3	7.3	8.4	8.4	9.4	9.4	9.4	10.5	10.5
65°	6.3	6.3	7.3	7.3	7.3	8.4	8.4	8.4	8.4	9.4	9.4
67.5°	5.2	6.3	6.3	7.3	7.3	7.3	7.3	7.3	8.4	8.4	8.4
70°	5.2	6.3	6.3	6.3	6.3	7.3	7.3	7.3	7.3	7.3	7.3
72.5°	5.2	5.2	5.2	5.2	6.3	6.3	6.3	6.3	6.3	6.3	6.3
75°	5.2	5.2	5.2	5.2	5.2	6.3	6.3	6.3	6.3	6.3	6.3
77.5°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
80°	4.2	4.2	4.2	4.2	4.2	5.2	4.2	4.2	4.2	4.2	4.2
82.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.1	3.1
85°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.1	3.1	3.1	3.1
87.5°	4.2	4.2	4.2	3.1	3.1	3.1	3.1	3.1	3.1	2.1	2.1
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: P182737

CATALOG NUMBER: LDSQA4A18840D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	267.4	267.4	267.4	267.4	267.4	267.4	267.4	267.4
2.5°	200.3	198.2	200.3	198.2	198.2	194.0	197.1	195.0
5°	168.8	166.7	168.8	167.8	165.7	164.6	166.7	165.7
7.5°	151.0	148.9	151.0	151.0	148.9	147.8	149.9	148.9
10°	137.4	136.3	137.4	137.4	136.3	135.3	137.4	136.3
12.5°	125.8	124.8	126.9	126.9	125.8	125.8	127.9	125.8
15°	115.3	115.3	117.4	117.4	117.4	117.4	119.5	118.5
17.5°	104.9	106.9	109.0	110.1	110.1	110.1	112.2	112.2
20°	96.5	98.6	100.7	101.7	102.8	102.8	104.9	104.9
22.5°	87.0	89.1	92.3	93.3	94.4	95.4	97.5	97.5
25°	78.6	80.7	83.9	84.9	87.0	88.1	90.2	90.2
27.5°	70.3	73.4	75.5	77.6	78.6	80.7	82.8	82.8
30°	62.9	66.1	68.2	70.3	71.3	73.4	75.5	75.5
32.5°	55.6	58.7	60.8	62.9	65.0	66.1	69.2	69.2
35°	49.3	51.4	54.5	55.6	57.7	59.8	61.9	61.9
37.5°	43.0	45.1	47.2	49.3	51.4	52.4	54.5	55.6
40°	37.7	39.8	41.9	43.0	45.1	47.2	48.2	49.3
42.5°	32.5	34.6	36.7	37.7	39.8	40.9	43.0	43.0
45°	28.3	30.4	31.5	32.5	34.6	35.6	37.7	37.7
47.5°	24.1	26.2	27.3	28.3	29.4	30.4	32.5	32.5
50°	21.0	22.0	23.1	24.1	25.2	27.3	28.3	28.3
52.5°	17.8	19.9	19.9	21.0	22.0	23.1	24.1	25.2
55°	15.7	16.8	17.8	17.8	18.9	19.9	21.0	22.0
57.5°	13.6	14.7	15.7	15.7	16.8	16.8	17.8	18.9
60°	12.6	12.6	13.6	13.6	13.6	14.7	14.7	15.7
62.5°	10.5	10.5	11.5	11.5	11.5	11.5	11.5	11.5
65°	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
67.5°	8.4	8.4	8.4	8.4	7.3	7.3	7.3	7.3
70°	7.3	7.3	7.3	7.3	6.3	6.3	6.3	5.2
72.5°	6.3	6.3	6.3	6.3	5.2	5.2	4.2	4.2
75°	5.2	5.2	5.2	5.2	5.2	4.2	4.2	4.2
77.5°	5.2	4.2	4.2	4.2	4.2	4.2	4.2	3.1
80°	4.2	4.2	3.1	3.1	3.1	3.1	3.1	3.1
82.5°	3.1	3.1	3.1	3.1	2.1	2.1	2.1	2.1
85°	3.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
87.5°	2.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - - 90°-270°













(END OF REPORT)