

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: P182825

Luminaire Tested: **LDSQA4A28840D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182825
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26803)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A28840D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2861.2 lumens
Efficiency: N/A
Efficacy: 64.3 lumens/watt
Spacing Criteria (0/90/45): 2.36 / 0.61 / 1.19
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

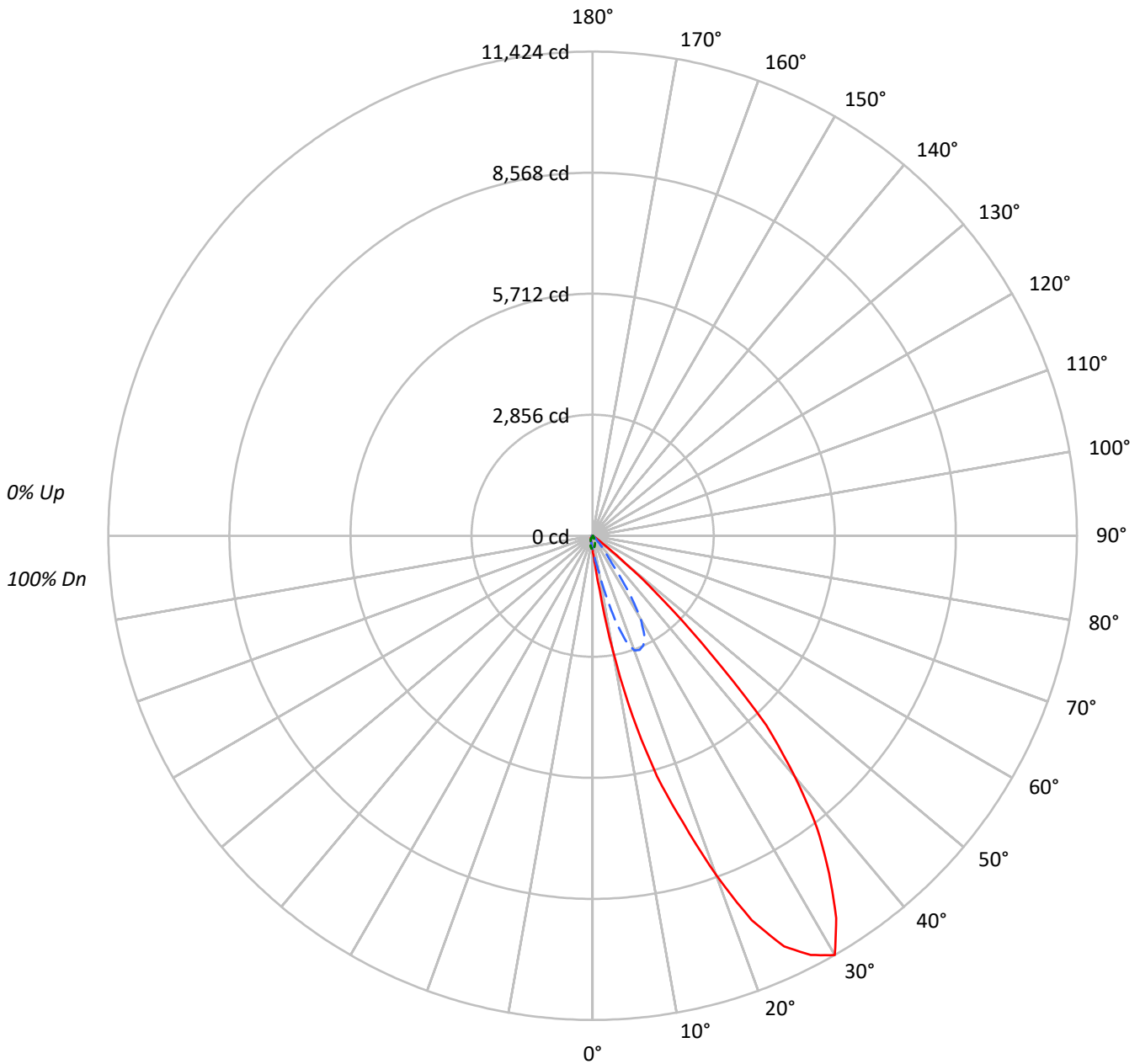
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182825

CATALOG NUMBER: LDSQA4A28840D010TE LAR25NF 4LSQAL1H 30°

Luminous Intensity Polar Plot





TEST NUMBER: P182825

CATALOG NUMBER: LDSQA4A28840D010TE LAR25NF 4LSQAL1H 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	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83																			
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75																			
4	93	84	77	72	91	83	76	72	80	75	71	78	74	70	76	72	69	67																			
5	87	77	70	65	85	76	69	64	74	68	64	72	67	63	70	66	63	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	57	55																			
7	76	65	57	52	74	64	57	52	62	56	52	61	56	52	60	55	51	50																			
8	71	59	52	47	69	59	52	47	58	51	47	57	51	47	55	50	47	45																			
9	66	55	48	43	65	54	48	43	53	47	43	52	47	43	51	46	42	41																			
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	37																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	30894	30894	30894
5°	69151	29057	20811
10°	271186	25438	16388
15°	588699	20600	14262
20°	878236	15258	12887
25°	1142293	10753	11213
30°	1277868	7226	9799
35°	1150002	4246	8326
40°	938512	2909	7272
45°	538872	1973	5905
50°	157614	1522	4973
55°	18190	1216	4121
60°	3894	1395	3333
65°	1307	1307	2315
70°	1218	1614	1614
75°	1085	2133	1609
80°	0	3180	1618
85°	0	6336	1556



TEST NUMBER: P182825

CATALOG NUMBER: LDSQA4A28840D010TE LAR25NF 4LSQAL1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.7	1.6
10°-20°	391.7	13.7
20°-30°	934.4	32.7
30°-40°	986.1	34.5
40°-50°	447.2	15.6
50°-60°	39.2	1.4
60°-70°	8.2	0.3
70°-80°	5.4	0.2
80°-90°	3.3	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°	1371.8	47.9
0°-40°	2357.9	82.4
0°-60°	2844.3	99.4
0°-90°	2861.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2861.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	319	319	319	319	319	
5°	711	522	299	230	214	128
15°	5870	2064	205	141	142	1708
25°	10687	2842	101	86	105	4855
35°	9724	784	36	49	70	6005
45°	3933	111	14	27	43	3118
55°	108	17	7	16	24	215
65°	6	6	6	12	10	8
75°	3	3	6	7	4	2
85°	0	3	6	4	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182825

CATALOG NUMBER: LDSQA4A28840D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9
2.5°	474.1	476.9	464.0	465.4	452.5	458.3	454.0	442.5	433.8	419.5	413.7
5°	711.1	715.4	686.7	678.1	647.9	647.9	635.0	604.8	577.5	544.5	521.5
7.5°	1300.1	1317.3	1231.1	1166.5	1071.7	1048.7	1004.2	900.7	816.0	729.8	665.1
10°	2756.8	2725.2	2547.0	2400.5	2156.3	2065.8	1945.1	1647.7	1374.8	1103.3	890.7
12.5°	4347.1	4449.1	4105.7	3986.5	3600.0	3518.2	3261.0	2775.5	2314.3	1834.5	1409.3
15°	5869.8	5900.0	5599.7	5405.8	4934.6	4828.3	4512.3	3941.9	3321.3	2651.9	2064.4
17.5°	7092.3	7213.0	6772.0	6563.7	5951.7	5780.8	5408.7	4714.8	4023.8	3292.6	2595.9
20°	8518.9	8550.5	8027.6	7626.7	6826.6	6566.6	6121.2	5260.7	4437.6	3602.9	2883.2
22.5°	9816.1	9808.9	9136.6	8570.6	7557.8	7247.5	6697.3	5677.3	4720.6	3740.8	2910.5
25°	10686.6	10709.6	9989.9	9320.5	8077.8	7658.4	7037.8	5894.2	4816.8	3736.5	2841.5
27.5°	11150.7	11127.7	10356.2	9640.8	8268.9	7799.1	7125.4	5901.4	4729.2	3590.0	2634.7
30°	11423.6	11116.2	10293.0	9550.3	8139.6	7656.9	6971.7	5674.5	4437.6	3262.4	2265.5
32.5°	10693.8	10574.6	9857.7	9069.1	7694.3	7215.9	6539.3	5191.8	3975.0	2761.1	1623.3
35°	9724.1	9728.5	9028.8	8291.9	6996.1	6579.5	5881.3	4604.2	3410.4	1919.3	784.4
37.5°	8707.0	8721.4	8056.3	7371.0	6217.5	5779.3	5125.7	3934.8	2453.7	976.9	472.6
40°	7421.3	7451.5	6878.3	6328.1	5263.6	4841.2	4258.0	2978.0	1371.9	545.9	320.4
42.5°	6063.8	6101.1	5592.6	5104.1	4199.1	3851.4	3334.3	1844.6	680.9	353.4	188.2
45°	3933.3	4041.1	3663.3	3457.8	2933.5	2726.6	2176.4	941.0	410.9	206.9	110.6
47.5°	2251.1	2252.5	1933.6	1548.6	1269.9	1104.7	863.4	428.1	239.9	116.4	67.5
50°	1045.8	1071.7	849.0	706.8	505.7	428.1	352.0	231.3	126.4	67.5	41.7
52.5°	304.6	321.8	291.6	264.3	224.1	199.7	171.0	113.5	66.1	40.2	25.9
55°	107.7	114.9	107.7	100.6	90.5	81.9	73.3	54.6	37.4	24.4	17.2
57.5°	44.5	46.0	44.5	43.1	40.2	40.2	35.9	30.2	23.0	15.8	11.5
60°	20.1	21.5	20.1	21.5	20.1	20.1	20.1	21.5	14.4	10.1	8.6
62.5°	8.6	10.1	10.1	10.1	10.1	11.5	11.5	10.1	8.6	7.2	5.7
65°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
67.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
70°	4.3	4.3	4.3	4.3	4.3	4.3	2.9	2.9	4.3	4.3	4.3
72.5°	4.3	4.3	4.3	4.3	2.9	2.9	2.9	2.9	2.9	4.3	4.3
75°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
77.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.9	2.9	2.9
80°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.9	2.9	2.9
82.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.9	2.9	2.9
85°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.9	2.9	2.9
87.5°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.9	2.9	2.9
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: P182825

CATALOG NUMBER: LDSQA4A28840D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9
2.5°	406.5	393.6	373.5	360.6	354.8	346.2	340.5	326.1	320.4	308.9	304.6
5°	499.9	474.1	443.9	419.5	403.7	386.4	360.6	331.8	317.5	298.8	288.8
7.5°	606.2	550.2	497.1	454.0	433.8	410.9	377.8	333.3	306.0	281.6	267.2
10°	741.3	626.3	543.0	474.1	443.9	413.7	373.5	321.8	287.3	258.6	242.8
12.5°	1057.3	755.6	584.7	485.6	446.8	409.4	359.1	306.0	265.8	232.7	215.5
15°	1521.3	1055.9	696.7	495.6	436.7	390.7	333.3	280.1	238.5	205.4	188.2
17.5°	1932.2	1346.1	851.9	533.0	433.8	369.2	301.7	247.1	206.9	175.3	160.9
20°	2156.3	1498.3	955.3	556.0	420.9	336.2	265.8	214.0	175.3	148.0	135.0
22.5°	2160.6	1489.7	918.0	505.7	370.6	291.6	229.9	181.0	146.5	122.1	112.1
25°	2031.3	1328.8	765.7	397.9	303.1	247.1	192.5	150.8	119.2	100.6	91.9
27.5°	1790.0	1080.3	563.1	287.3	237.0	199.7	155.1	120.7	93.4	81.9	74.7
30°	1407.8	703.9	329.0	214.0	183.9	153.7	117.8	84.8	73.3	64.6	58.9
32.5°	755.6	341.9	229.9	158.0	130.7	107.7	77.6	61.8	53.2	47.4	46.0
35°	395.1	250.0	153.7	100.6	83.3	70.4	53.2	43.1	38.8	35.9	35.9
37.5°	283.0	156.6	97.7	64.6	54.6	44.5	37.4	31.6	28.7	28.7	28.7
40°	168.1	96.3	58.9	41.7	35.9	31.6	27.3	23.0	23.0	23.0	23.0
42.5°	102.0	60.3	41.7	28.7	25.9	23.0	20.1	18.7	17.2	17.2	18.7
45°	63.2	41.7	27.3	21.5	20.1	17.2	15.8	14.4	14.4	14.4	15.8
47.5°	40.2	30.2	20.1	14.4	12.9	11.5	10.1	10.1	11.5	11.5	12.9
50°	30.2	18.7	12.9	10.1	8.6	8.6	7.2	8.6	8.6	10.1	11.5
52.5°	17.2	11.5	8.6	7.2	7.2	5.7	5.7	7.2	7.2	8.6	10.1
55°	11.5	8.6	7.2	5.7	5.7	5.7	5.7	5.7	7.2	7.2	8.6
57.5°	8.6	7.2	5.7	5.7	5.7	4.3	5.7	5.7	5.7	7.2	8.6
60°	7.2	5.7	5.7	5.7	5.7	4.3	4.3	5.7	5.7	7.2	7.2
62.5°	5.7	5.7	5.7	5.7	5.7	4.3	5.7	5.7	5.7	5.7	7.2
65°	4.3	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	7.2
67.5°	4.3	4.3	5.7	5.7	5.7	4.3	5.7	5.7	5.7	5.7	7.2
70°	4.3	4.3	4.3	5.7	5.7	4.3	5.7	5.7	5.7	5.7	5.7
72.5°	4.3	4.3	4.3	5.7	5.7	4.3	5.7	5.7	5.7	5.7	5.7
75°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7
77.5°	4.3	4.3	4.3	4.3	5.7	4.3	5.7	5.7	5.7	5.7	5.7
80°	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7
82.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7
85°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7
87.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7
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: P182825

CATALOG NUMBER: LDSQA4A28840D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9
2.5°	293.1	288.8	280.1	278.7	277.3	271.5	267.2	262.9	262.9	258.6	255.7
5°	271.5	264.3	254.3	250.0	248.5	241.3	235.6	231.3	229.9	225.5	221.2
7.5°	248.5	239.9	228.4	224.1	222.7	215.5	209.7	205.4	202.6	198.2	195.4
10°	224.1	214.0	204.0	199.7	198.2	191.1	186.8	182.4	179.6	176.7	173.8
12.5°	198.2	189.6	179.6	175.3	173.8	168.1	163.8	160.9	159.5	156.6	155.1
15°	172.4	163.8	155.1	152.3	150.8	146.5	143.7	142.2	140.8	140.8	139.3
17.5°	146.5	139.3	132.2	130.7	129.3	126.4	125.0	123.5	125.0	125.0	126.4
20°	122.1	116.4	110.6	110.6	109.2	107.7	107.7	107.7	110.6	112.1	114.9
22.5°	100.6	96.3	91.9	91.9	91.9	91.9	91.9	94.8	97.7	100.6	102.0
25°	83.3	79.0	77.6	77.6	77.6	79.0	80.4	83.3	86.2	89.1	91.9
27.5°	67.5	64.6	64.6	64.6	66.1	67.5	69.0	71.8	76.1	79.0	81.9
30°	54.6	53.2	53.2	54.6	56.0	57.5	60.3	63.2	66.1	69.0	71.8
32.5°	43.1	44.5	44.5	46.0	47.4	48.8	51.7	54.6	57.5	60.3	61.8
35°	35.9	35.9	37.4	38.8	40.2	41.7	44.5	47.4	48.8	51.7	54.6
37.5°	28.7	30.2	31.6	33.0	34.5	35.9	37.4	40.2	41.7	44.5	47.4
40°	24.4	25.9	27.3	28.7	28.7	31.6	31.6	34.5	35.9	38.8	41.7
42.5°	20.1	21.5	23.0	24.4	24.4	25.9	27.3	28.7	31.6	33.0	35.9
45°	15.8	17.2	18.7	20.1	21.5	23.0	23.0	25.9	27.3	28.7	31.6
47.5°	14.4	15.8	17.2	17.2	18.7	20.1	20.1	23.0	24.4	25.9	27.3
50°	11.5	12.9	14.4	15.8	15.8	17.2	18.7	20.1	21.5	23.0	23.0
52.5°	10.1	11.5	12.9	12.9	14.4	15.8	15.8	17.2	18.7	18.7	20.1
55°	10.1	11.5	11.5	12.9	12.9	14.4	14.4	15.8	15.8	17.2	17.2
57.5°	8.6	10.1	10.1	11.5	11.5	12.9	12.9	14.4	14.4	14.4	15.8
60°	8.6	8.6	10.1	10.1	11.5	11.5	11.5	12.9	12.9	12.9	14.4
62.5°	7.2	8.6	8.6	10.1	10.1	10.1	11.5	11.5	11.5	12.9	12.9
65°	7.2	8.6	8.6	10.1	10.1	10.1	10.1	10.1	11.5	11.5	11.5
67.5°	7.2	7.2	8.6	8.6	8.6	8.6	10.1	10.1	10.1	10.1	10.1
70°	7.2	7.2	7.2	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
72.5°	5.7	7.2	7.2	7.2	7.2	8.6	8.6	8.6	8.6	8.6	7.2
75°	5.7	5.7	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
77.5°	5.7	5.7	5.7	7.2	7.2	7.2	7.2	7.2	7.2	5.7	5.7
80°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	4.3
82.5°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	4.3	4.3	4.3
85°	5.7	4.3	5.7	5.7	5.7	4.3	4.3	4.3	4.3	4.3	2.9
87.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	2.9	2.9
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: P182825

CATALOG NUMBER: LDSQA4A28840D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	318.9	318.9	318.9	318.9	318.9	318.9	318.9	318.9
2.5°	252.8	250.0	251.4	251.4	248.5	247.1	247.1	248.5
5°	218.4	215.5	216.9	216.9	214.0	212.6	212.6	214.0
7.5°	192.5	189.6	191.1	191.1	188.2	188.2	188.2	188.2
10°	172.4	171.0	171.0	171.0	168.1	169.5	168.1	166.6
12.5°	153.7	153.7	153.7	153.7	152.3	153.7	152.3	152.3
15°	139.3	139.3	140.8	140.8	140.8	142.2	142.2	142.2
17.5°	127.9	129.3	130.7	132.2	132.2	133.6	133.6	133.6
20°	116.4	119.2	120.7	122.1	122.1	125.0	123.5	125.0
22.5°	104.9	107.7	109.2	110.6	112.1	113.5	113.5	114.9
25°	94.8	97.7	99.1	100.6	102.0	104.9	104.9	104.9
27.5°	84.8	87.6	89.1	91.9	93.4	96.3	96.3	96.3
30°	74.7	77.6	79.0	80.4	83.3	86.2	86.2	87.6
32.5°	64.6	69.0	70.4	71.8	74.7	77.6	79.0	79.0
35°	57.5	60.3	61.8	64.6	66.1	70.4	70.4	70.4
37.5°	50.3	53.2	56.0	57.5	58.9	61.8	63.2	64.6
40°	44.5	47.4	48.8	50.3	53.2	56.0	57.5	57.5
42.5°	38.8	41.7	43.1	44.5	46.0	48.8	48.8	48.8
45°	34.5	35.9	37.4	38.8	40.2	41.7	43.1	43.1
47.5°	28.7	31.6	31.6	33.0	34.5	37.4	37.4	38.8
50°	24.4	27.3	27.3	28.7	30.2	31.6	33.0	33.0
52.5°	21.5	23.0	24.4	24.4	25.9	27.3	28.7	28.7
55°	18.7	20.1	20.1	21.5	21.5	23.0	24.4	24.4
57.5°	15.8	17.2	18.7	18.7	18.7	20.1	20.1	21.5
60°	14.4	15.8	15.8	15.8	15.8	17.2	17.2	17.2
62.5°	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
65°	11.5	11.5	11.5	11.5	10.1	10.1	10.1	10.1
67.5°	10.1	10.1	10.1	10.1	8.6	8.6	8.6	8.6
70°	8.6	8.6	8.6	8.6	7.2	7.2	7.2	5.7
72.5°	7.2	7.2	7.2	7.2	7.2	5.7	5.7	5.7
75°	7.2	5.7	5.7	5.7	5.7	5.7	4.3	4.3
77.5°	5.7	5.7	5.7	4.3	4.3	4.3	4.3	4.3
80°	4.3	4.3	4.3	4.3	4.3	2.9	2.9	2.9
82.5°	4.3	2.9	2.9	2.9	2.9	2.9	2.9	2.9
85°	2.9	2.9	2.9	2.9	1.4	1.4	1.4	1.4
87.5°	2.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)