

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: P182809

Luminaire Tested: **LDSQA4A09840D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182809
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: LDSQA4A09840D010TE 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: 1132.2 lumens
Efficiency: N/A
Efficacy: 81.8 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

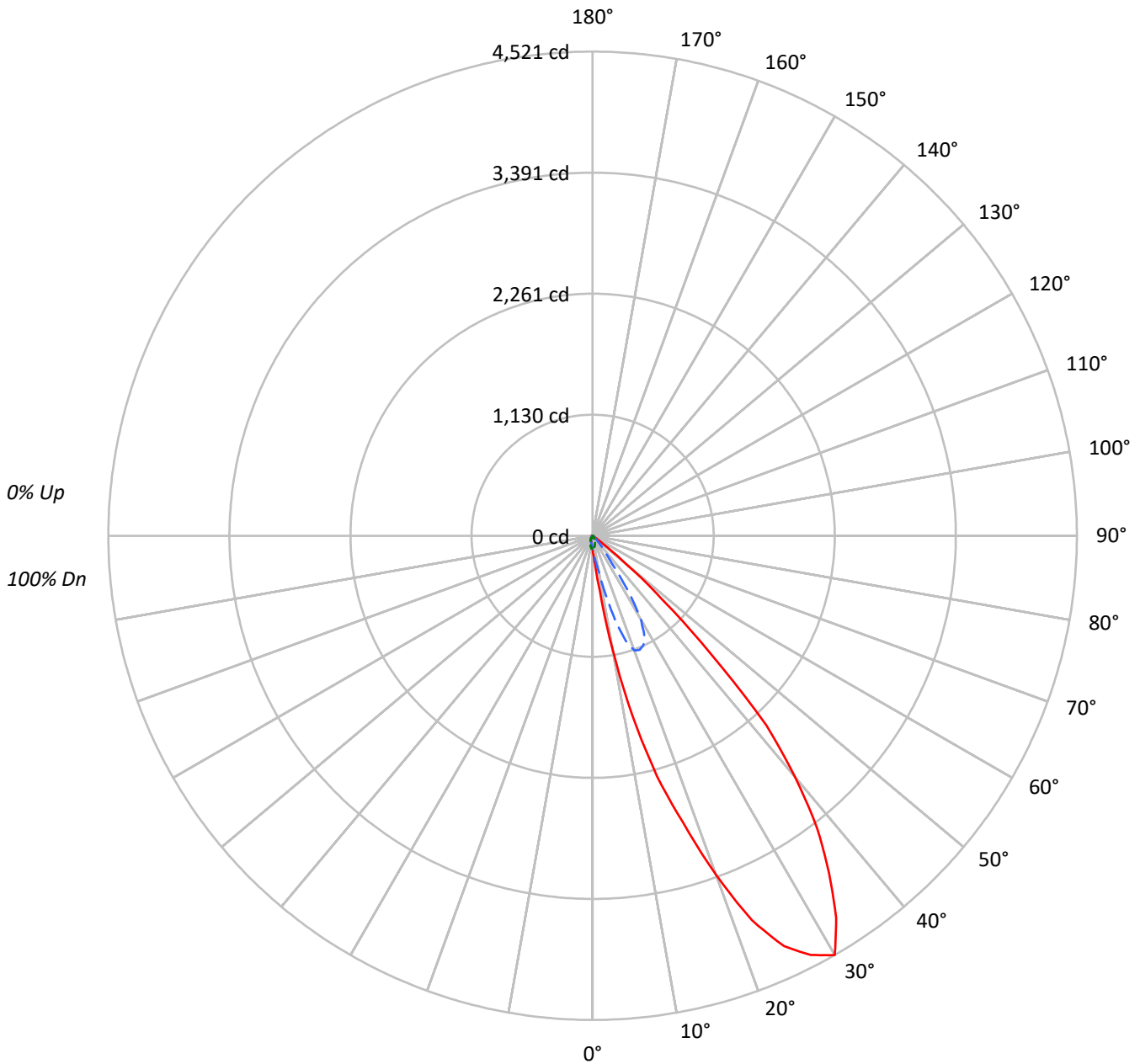
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182809

CATALOG NUMBER: LDSQA4A09840D010TE LAR25NF 4LSQAL1H 30°

Luminous Intensity Polar Plot





TEST NUMBER: P182809

CATALOG NUMBER: LDSQA4A09840D010TE LAR25NF 4LSQAL1H 30°

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	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°	12226	12226	12226
5°	27365	11494	8237
10°	107312	10063	6483
15°	232960	8154	5646
20°	347536	6041	5103
25°	452028	4254	4436
30°	505684	2864	3882
35°	455088	1679	3300
40°	371393	1151	2871
45°	213244	781	2343
50°	62379	603	1974
55°	7195	473	1638
60°	1550	543	1318
65°	527	527	917
70°	482	651	651
75°	412	861	636
80°	0	1283	614
85°	0	2556	667



TEST NUMBER: P182809

CATALOG NUMBER: LDSQA4A09840D010TE LAR25NF 4LSQAL1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	18.1	1.6
10°-20°	155.0	13.7
20°-30°	369.8	32.7
30°-40°	390.2	34.5
40°-50°	177.0	15.6
50°-60°	15.5	1.4
60°-70°	3.3	0.3
70°-80°	2.1	0.2
80°-90°	1.3	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°	542.8	47.9
0°-40°	933.1	82.4
0°-60°	1125.5	99.4
0°-90°	1132.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1132.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	126	126	126	126	126	
5°	281	206	118	91	85	50
15°	2323	817	81	56	56	676
25°	4229	1124	40	34	42	1921
35°	3848	310	14	19	28	2376
45°	1556	44	6	11	17	1234
55°	43	7	3	6	10	85
65°	2	2	2	4	4	3
75°	1	1	2	3	2	1
85°	0	1	2	2	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182809

CATALOG NUMBER: LDSQA4A09840D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2
2.5°	187.6	188.7	183.6	184.2	179.1	181.3	179.6	175.1	171.7	166.0	163.7
5°	281.4	283.1	271.7	268.3	256.4	256.4	251.3	239.3	228.5	215.5	206.4
7.5°	514.5	521.3	487.2	461.6	424.1	415.0	397.4	356.4	322.9	288.8	263.2
10°	1090.9	1078.4	1007.9	949.9	853.3	817.5	769.7	652.0	544.0	436.6	352.5
12.5°	1720.2	1760.6	1624.7	1577.5	1424.6	1392.2	1290.5	1098.3	915.8	726.0	557.7
15°	2322.8	2334.8	2215.9	2139.2	1952.7	1910.7	1785.6	1559.9	1314.3	1049.4	816.9
17.5°	2806.6	2854.3	2679.8	2597.4	2355.2	2287.6	2140.3	1865.8	1592.3	1303.0	1027.2
20°	3371.1	3383.6	3176.7	3018.1	2701.4	2598.5	2422.3	2081.8	1756.0	1425.8	1140.9
22.5°	3884.4	3881.6	3615.5	3391.6	2990.8	2868.0	2650.3	2246.6	1868.0	1480.3	1151.7
25°	4228.9	4238.0	3953.2	3688.3	3196.6	3030.6	2785.0	2332.5	1906.1	1478.6	1124.5
27.5°	4412.6	4403.5	4098.2	3815.1	3272.2	3086.3	2819.7	2335.3	1871.4	1420.6	1042.6
30°	4520.6	4398.9	4073.2	3779.3	3221.0	3030.0	2758.8	2245.5	1756.0	1291.0	896.5
32.5°	4231.8	4184.6	3900.9	3588.8	3044.8	2855.5	2587.7	2054.5	1573.0	1092.6	642.4
35°	3848.1	3849.8	3572.9	3281.3	2768.5	2603.6	2327.4	1822.0	1349.6	759.5	310.4
37.5°	3445.6	3451.3	3188.0	2916.9	2460.4	2287.0	2028.3	1557.1	971.0	386.6	187.0
40°	2936.8	2948.7	2721.9	2504.2	2082.9	1915.8	1685.0	1178.5	542.9	216.0	126.8
42.5°	2399.6	2414.3	2213.1	2019.8	1661.7	1524.1	1319.4	729.9	269.5	139.8	74.5
45°	1556.5	1599.1	1449.6	1368.3	1160.8	1079.0	861.3	372.4	162.6	81.9	43.8
47.5°	890.8	891.4	765.2	612.8	502.5	437.2	341.7	169.4	94.9	46.0	26.7
50°	413.9	424.1	336.0	279.7	200.1	169.4	139.3	91.5	50.0	26.7	16.5
52.5°	120.5	127.3	115.4	104.6	88.7	79.0	67.6	44.9	26.2	15.9	10.2
55°	42.6	45.5	42.6	39.8	35.8	32.4	29.0	21.6	14.8	9.7	6.8
57.5°	17.6	18.2	17.6	17.1	15.9	15.9	14.2	11.9	9.1	6.3	4.5
60°	8.0	8.5	8.0	8.5	8.0	8.0	8.0	8.5	5.7	4.0	3.4
62.5°	3.4	4.0	4.0	4.0	4.0	4.5	4.5	4.0	3.4	2.8	2.3
65°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
70°	1.7	1.7	1.7	1.7	1.7	1.7	1.1	1.1	1.7	1.7	1.7
72.5°	1.7	1.7	1.7	1.7	1.1	1.1	1.1	1.1	1.1	1.7	1.7
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1
80°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.1	1.1
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: P182809

CATALOG NUMBER: LDSQA4A09840D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2
2.5°	160.9	155.8	147.8	142.7	140.4	137.0	134.7	129.0	126.8	122.2	120.5
5°	197.8	187.6	175.7	166.0	159.7	152.9	142.7	131.3	125.6	118.2	114.3
7.5°	239.9	217.7	196.7	179.6	171.7	162.6	149.5	131.9	121.1	111.4	105.7
10°	293.3	247.9	214.9	187.6	175.7	163.7	147.8	127.3	113.7	102.3	96.1
12.5°	418.4	299.0	231.4	192.1	176.8	162.0	142.1	121.1	105.2	92.1	85.3
15°	602.0	417.8	275.7	196.1	172.8	154.6	131.9	110.9	94.4	81.3	74.5
17.5°	764.6	532.7	337.1	210.9	171.7	146.1	119.4	97.8	81.9	69.4	63.7
20°	853.3	592.9	378.0	220.0	166.6	133.0	105.2	84.7	69.4	58.6	53.4
22.5°	855.0	589.5	363.3	200.1	146.7	115.4	91.0	71.6	58.0	48.3	44.3
25°	803.8	525.8	303.0	157.5	119.9	97.8	76.2	59.7	47.2	39.8	36.4
27.5°	708.3	427.5	222.8	113.7	93.8	79.0	61.4	47.8	37.0	32.4	29.6
30°	557.1	278.6	130.2	84.7	72.8	60.8	46.6	33.5	29.0	25.6	23.3
32.5°	299.0	135.3	91.0	62.5	51.7	42.6	30.7	24.4	21.0	18.8	18.2
35°	156.3	98.9	60.8	39.8	33.0	27.9	21.0	17.1	15.3	14.2	14.2
37.5°	112.0	62.0	38.7	25.6	21.6	17.6	14.8	12.5	11.4	11.4	11.4
40°	66.5	38.1	23.3	16.5	14.2	12.5	10.8	9.1	9.1	9.1	9.1
42.5°	40.4	23.9	16.5	11.4	10.2	9.1	8.0	7.4	6.8	6.8	7.4
45°	25.0	16.5	10.8	8.5	8.0	6.8	6.3	5.7	5.7	5.7	6.3
47.5°	15.9	11.9	8.0	5.7	5.1	4.5	4.0	4.0	4.5	4.5	5.1
50°	11.9	7.4	5.1	4.0	3.4	3.4	2.8	3.4	3.4	4.0	4.5
52.5°	6.8	4.5	3.4	2.8	2.8	2.3	2.3	2.8	2.8	3.4	4.0
55°	4.5	3.4	2.8	2.3	2.3	2.3	2.3	2.3	2.8	2.8	3.4
57.5°	3.4	2.8	2.3	2.3	2.3	1.7	2.3	2.3	2.3	2.8	3.4
60°	2.8	2.3	2.3	2.3	2.3	1.7	1.7	2.3	2.3	2.8	2.8
62.5°	2.3	2.3	2.3	2.3	2.3	1.7	2.3	2.3	2.3	2.3	2.8
65°	1.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.8
67.5°	1.7	1.7	2.3	2.3	2.3	1.7	2.3	2.3	2.3	2.3	2.8
70°	1.7	1.7	1.7	2.3	2.3	1.7	2.3	2.3	2.3	2.3	2.3
72.5°	1.7	1.7	1.7	2.3	2.3	1.7	2.3	2.3	2.3	2.3	2.3
75°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3
77.5°	1.7	1.7	1.7	1.7	2.3	1.7	2.3	2.3	2.3	2.3	2.3
80°	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3	2.3
82.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3
85°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3	2.3
87.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.3	2.3	2.3
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: P182809

CATALOG NUMBER: LDSQA4A09840D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2
2.5°	116.0	114.3	110.9	110.3	109.7	107.4	105.7	104.0	104.0	102.3	101.2
5°	107.4	104.6	100.6	98.9	98.3	95.5	93.2	91.5	91.0	89.3	87.5
7.5°	98.3	94.9	90.4	88.7	88.1	85.3	83.0	81.3	80.2	78.5	77.3
10°	88.7	84.7	80.7	79.0	78.5	75.6	73.9	72.2	71.1	69.9	68.8
12.5°	78.5	75.0	71.1	69.4	68.8	66.5	64.8	63.7	63.1	62.0	61.4
15°	68.2	64.8	61.4	60.3	59.7	58.0	56.8	56.3	55.7	55.7	55.1
17.5°	58.0	55.1	52.3	51.7	51.2	50.0	49.5	48.9	49.5	49.5	50.0
20°	48.3	46.0	43.8	43.8	43.2	42.6	42.6	42.6	43.8	44.3	45.5
22.5°	39.8	38.1	36.4	36.4	36.4	36.4	36.4	37.5	38.7	39.8	40.4
25°	33.0	31.3	30.7	30.7	30.7	31.3	31.8	33.0	34.1	35.2	36.4
27.5°	26.7	25.6	25.6	25.6	26.2	26.7	27.3	28.4	30.1	31.3	32.4
30°	21.6	21.0	21.0	21.6	22.2	22.7	23.9	25.0	26.2	27.3	28.4
32.5°	17.1	17.6	17.6	18.2	18.8	19.3	20.5	21.6	22.7	23.9	24.4
35°	14.2	14.2	14.8	15.3	15.9	16.5	17.6	18.8	19.3	20.5	21.6
37.5°	11.4	11.9	12.5	13.1	13.6	14.2	14.8	15.9	16.5	17.6	18.8
40°	9.7	10.2	10.8	11.4	11.4	12.5	12.5	13.6	14.2	15.3	16.5
42.5°	8.0	8.5	9.1	9.7	9.7	10.2	10.8	11.4	12.5	13.1	14.2
45°	6.3	6.8	7.4	8.0	8.5	9.1	9.1	10.2	10.8	11.4	12.5
47.5°	5.7	6.3	6.8	6.8	7.4	8.0	8.0	9.1	9.7	10.2	10.8
50°	4.5	5.1	5.7	6.3	6.3	6.8	7.4	8.0	8.5	9.1	9.1
52.5°	4.0	4.5	5.1	5.1	5.7	6.3	6.3	6.8	7.4	7.4	8.0
55°	4.0	4.5	4.5	5.1	5.1	5.7	5.7	6.3	6.3	6.8	6.8
57.5°	3.4	4.0	4.0	4.5	4.5	5.1	5.1	5.7	5.7	5.7	6.3
60°	3.4	3.4	4.0	4.0	4.5	4.5	4.5	5.1	5.1	5.1	5.7
62.5°	2.8	3.4	3.4	4.0	4.0	4.0	4.5	4.5	4.5	5.1	5.1
65°	2.8	3.4	3.4	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5
67.5°	2.8	2.8	3.4	3.4	3.4	3.4	4.0	4.0	4.0	4.0	4.0
70°	2.8	2.8	2.8	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
72.5°	2.3	2.8	2.8	2.8	2.8	3.4	3.4	3.4	3.4	3.4	2.8
75°	2.3	2.3	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
77.5°	2.3	2.3	2.3	2.8	2.8	2.8	2.8	2.8	2.8	2.3	2.3
80°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.7
82.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.7	1.7	1.7
85°	2.3	1.7	2.3	2.3	2.3	1.7	1.7	1.7	1.7	1.7	1.1
87.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.1	1.1
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: P182809

CATALOG NUMBER: LDSQA4A09840D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	126.2	126.2	126.2	126.2	126.2	126.2	126.2	126.2
2.5°	100.1	98.9	99.5	99.5	98.3	97.8	97.8	98.3
5°	86.4	85.3	85.8	85.8	84.7	84.1	84.1	84.7
7.5°	76.2	75.0	75.6	75.6	74.5	74.5	74.5	74.5
10°	68.2	67.6	67.6	67.6	66.5	67.1	66.5	65.9
12.5°	60.8	60.8	60.8	60.8	60.3	60.8	60.3	60.3
15°	55.1	55.1	55.7	55.7	55.7	56.3	56.3	56.3
17.5°	50.6	51.2	51.7	52.3	52.3	52.9	52.9	52.9
20°	46.0	47.2	47.8	48.3	48.3	49.5	48.9	49.5
22.5°	41.5	42.6	43.2	43.8	44.3	44.9	44.9	45.5
25°	37.5	38.7	39.2	39.8	40.4	41.5	41.5	41.5
27.5°	33.5	34.7	35.2	36.4	37.0	38.1	38.1	38.1
30°	29.6	30.7	31.3	31.8	33.0	34.1	34.1	34.7
32.5°	25.6	27.3	27.9	28.4	29.6	30.7	31.3	31.3
35°	22.7	23.9	24.4	25.6	26.2	27.9	27.9	27.9
37.5°	19.9	21.0	22.2	22.7	23.3	24.4	25.0	25.6
40°	17.6	18.8	19.3	19.9	21.0	22.2	22.7	22.7
42.5°	15.3	16.5	17.1	17.6	18.2	19.3	19.3	19.3
45°	13.6	14.2	14.8	15.3	15.9	16.5	17.1	17.1
47.5°	11.4	12.5	12.5	13.1	13.6	14.8	14.8	15.3
50°	9.7	10.8	10.8	11.4	11.9	12.5	13.1	13.1
52.5°	8.5	9.1	9.7	9.7	10.2	10.8	11.4	11.4
55°	7.4	8.0	8.0	8.5	8.5	9.1	9.7	9.7
57.5°	6.3	6.8	7.4	7.4	7.4	8.0	8.0	8.5
60°	5.7	6.3	6.3	6.3	6.3	6.8	6.8	6.8
62.5°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
65°	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0
67.5°	4.0	4.0	4.0	4.0	3.4	3.4	3.4	3.4
70°	3.4	3.4	3.4	3.4	2.8	2.8	2.8	2.3
72.5°	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3
75°	2.8	2.3	2.3	2.3	2.3	2.3	1.7	1.7
77.5°	2.3	2.3	2.3	1.7	1.7	1.7	1.7	1.7
80°	1.7	1.7	1.7	1.7	1.7	1.1	1.1	1.1
82.5°	1.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
87.5°	1.1	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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)