

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: P182724

Luminaire Tested: **LDSQA4A13935D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182724
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26800)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A13935D010TE LAR25NF 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1405.0 lumens
Efficiency: N/A
Efficacy: 63.1 lumens/watt
Spacing Criteria (0/90/45): 2.38 / 0.59 / 1.18
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

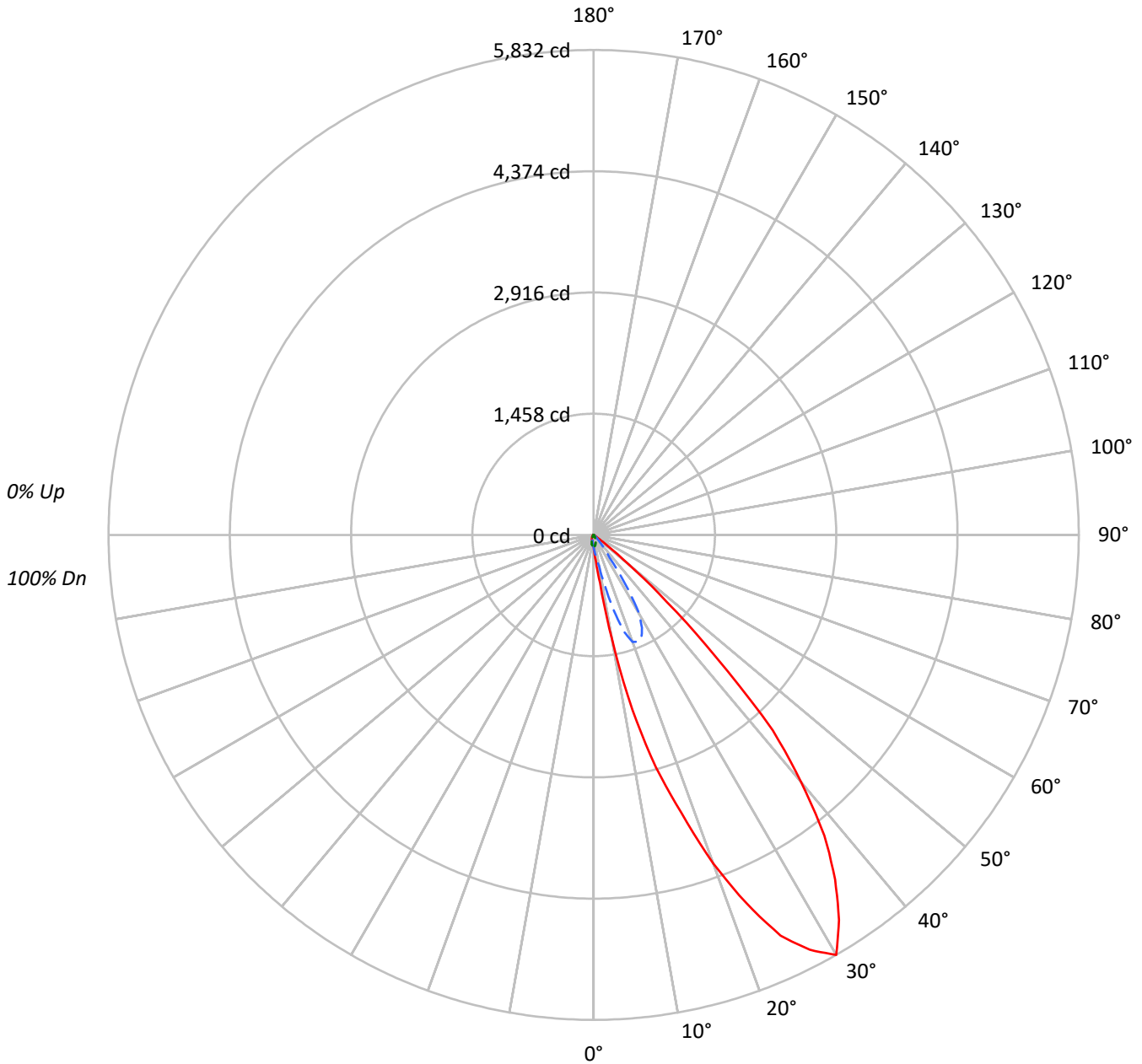
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182724

CATALOG NUMBER: LDSQA4A13935D010TE LAR25NF 4LSQA1H 30°

Luminous Intensity Polar Plot





TEST NUMBER: P182724

CATALOG NUMBER: LDSQA4A13935D010TE LAR25NF 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	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	84	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	82	76	72	80	75	71	78	73	70	76	72	69	67																			
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55																			
7	76	64	57	52	74	64	57	52	62	56	52	61	56	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	38	37																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	14212	14212	14212
5°	31459	13449	9452
10°	125933	11677	7889
15°	290278	9287	6930
20°	433309	6588	6186
25°	568335	4393	5505
30°	652402	2774	4810
35°	598186	1774	4163
40°	490546	1151	3541
45°	284390	808	2863
50°	80600	588	2366
55°	7381	557	1976
60°	1143	639	1647
65°	298	596	1192
70°	368	736	935
75°	487	973	973
80°	0	1450	725
85°	0	2890	778



TEST NUMBER: P182724

CATALOG NUMBER: LDSQA4A13935D010TE LAR25NF 4LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	20.8	1.5
10°-20°	186.8	13.3
20°-30°	455.2	32.4
30°-40°	493.4	35.1
40°-50°	223.5	15.9
50°-60°	17.3	1.2
60°-70°	3.6	0.3
70°-80°	2.6	0.2
80°-90°	1.7	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°	662.9	47.2
0°-40°	1156.3	82.3
0°-60°	1397.1	99.4
0°-90°	1405.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1405.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	147	147	147	147	147	
5°	324	239	138	104	97	58
15°	2894	947	93	67	69	841
25°	5317	1360	41	40	52	2424
35°	5058	346	15	24	35	3111
45°	2076	44	6	13	21	1639
55°	44	6	3	8	12	100
65°	1	2	3	5	5	2
75°	1	2	3	4	3	1
85°	0	2	3	2	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182724

CATALOG NUMBER: LDSQA4A13935D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7
2.5°	219.8	215.9	217.8	212.6	209.3	206.7	208.0	206.7	198.3	196.3	189.8
5°	323.5	317.6	317.6	306.5	294.8	287.6	287.6	279.1	260.9	252.4	238.7
7.5°	579.8	568.0	558.2	523.7	478.7	453.2	446.7	410.9	364.6	335.2	300.6
10°	1280.2	1231.3	1196.7	1106.7	986.1	911.1	879.1	755.2	607.8	496.9	396.5
12.5°	2152.8	2086.2	2025.6	1878.2	1704.7	1586.7	1523.4	1340.8	1054.5	849.8	635.8
15°	2894.3	2822.5	2750.8	2571.4	2388.2	2285.8	2169.7	1927.8	1549.5	1258.7	946.9
17.5°	3502.7	3462.3	3388.6	3125.8	2894.9	2735.1	2614.5	2298.2	1908.9	1576.9	1224.1
20°	4203.1	4103.4	3971.6	3652.7	3337.1	3136.9	2967.3	2581.9	2131.9	1750.4	1370.8
22.5°	4792.7	4721.6	4532.5	4111.8	3647.5	3476.6	3269.2	2805.6	2275.4	1824.1	1387.8
25°	5317.0	5205.5	4968.1	4467.9	3992.5	3701.6	3447.3	2926.9	2328.2	1829.3	1359.7
27.5°	5624.2	5478.7	5199.6	4654.4	4111.8	3790.3	3508.6	2947.7	2294.9	1760.2	1257.4
30°	5832.2	5542.7	5234.2	4656.4	4074.0	3745.3	3453.2	2842.7	2156.7	1602.3	1085.2
32.5°	5489.2	5321.6	5026.8	4471.2	3867.9	3547.1	3256.9	2615.1	1940.8	1368.2	755.2
35°	5058.1	4922.5	4666.2	4114.4	3558.8	3256.2	2948.4	2323.0	1659.7	940.4	345.6
37.5°	4557.3	4450.9	4175.1	3671.0	3181.9	2885.8	2577.3	1979.9	1168.7	466.3	210.0
40°	3879.0	3789.0	3562.7	3157.7	2707.1	2425.4	2141.0	1481.0	634.5	260.2	137.0
42.5°	3188.4	3112.7	2906.6	2556.4	2160.6	1928.4	1678.0	902.6	315.6	163.7	76.3
45°	2075.8	1981.2	1870.4	1709.9	1514.3	1371.5	1076.1	435.6	187.2	91.3	43.7
47.5°	1190.2	1127.6	945.6	746.1	605.9	553.0	402.4	202.8	103.0	52.8	26.7
50°	534.8	494.3	414.8	337.8	244.6	191.1	162.4	101.7	50.9	28.7	18.3
52.5°	131.7	134.3	127.2	111.5	99.1	84.1	73.0	47.6	26.7	17.6	11.7
55°	43.7	44.3	40.4	38.5	35.2	32.6	30.0	21.5	16.3	15.7	5.9
57.5°	15.7	15.7	16.3	15.0	14.3	13.7	13.0	11.1	9.8	5.9	3.3
60°	5.9	5.9	5.9	6.5	6.5	6.5	7.2	6.5	4.6	3.3	2.6
62.5°	2.6	2.6	2.6	2.6	3.3	3.3	3.9	3.3	2.6	2.6	2.0
65°	1.3	1.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0	2.0
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0	2.0
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0	2.0
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0
77.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	1.3	2.0
80°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	1.3	2.0
82.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	1.3	2.0
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	2.0
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	1.3	1.3
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: P182724

CATALOG NUMBER: LDSQA4A13935D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7
2.5°	183.3	179.3	171.5	165.6	161.1	160.4	156.5	150.0	147.4	142.8	138.9
5°	225.6	215.9	203.5	191.7	183.3	178.7	165.0	152.6	145.4	138.3	131.7
7.5°	271.3	249.1	227.6	208.7	197.0	189.8	173.5	153.3	140.2	129.8	121.3
10°	328.7	283.0	245.9	216.5	200.9	191.1	171.5	147.4	131.1	118.7	110.2
12.5°	459.8	335.2	262.8	220.4	200.9	187.2	163.7	139.6	121.3	106.3	97.2
15°	684.1	468.2	311.7	222.4	194.3	178.7	152.0	126.5	108.3	92.6	84.1
17.5°	895.4	616.3	389.3	236.1	190.4	166.3	136.3	111.5	92.6	77.6	70.4
20°	1005.0	690.0	432.4	246.5	183.9	150.6	118.0	95.2	77.0	63.9	58.0
22.5°	1007.6	683.5	411.5	222.4	159.8	129.1	101.1	78.3	62.6	51.5	47.0
25°	945.6	604.5	338.5	173.5	129.1	108.3	84.1	63.9	48.9	41.1	37.8
27.5°	828.9	489.1	249.8	125.2	101.1	86.1	65.9	48.9	37.2	32.0	30.0
30°	641.1	302.6	138.3	92.6	76.3	64.6	47.6	32.6	28.0	24.8	23.5
32.5°	318.3	148.0	97.8	65.9	52.2	41.1	30.0	24.1	21.5	19.6	18.9
35°	172.8	106.3	61.3	39.8	31.3	26.1	20.2	17.0	15.7	15.0	15.0
37.5°	120.6	63.3	37.2	24.1	19.6	17.6	14.3	12.4	11.7	11.7	11.7
40°	66.5	37.8	22.8	15.7	13.0	11.7	9.8	9.1	9.1	9.1	9.8
42.5°	38.5	23.5	15.7	11.1	9.1	8.5	7.2	6.5	7.2	7.2	7.8
45°	24.8	17.6	10.4	7.8	6.5	5.9	5.2	5.2	5.9	5.9	6.5
47.5°	17.6	12.4	7.2	5.2	3.9	3.9	3.9	3.9	4.6	5.2	5.9
50°	10.4	6.5	3.9	3.3	2.6	2.6	2.6	3.3	3.9	3.9	4.6
52.5°	5.9	3.9	2.6	2.6	2.0	2.0	2.6	2.6	3.3	3.9	4.6
55°	3.3	2.6	2.0	2.0	2.0	2.0	2.0	2.6	2.6	3.3	3.9
57.5°	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	3.3	3.3
60°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	3.3	3.3
62.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	3.3
65°	2.0	2.0	2.0	2.6	2.0	2.6	2.6	2.6	2.6	2.6	3.3
67.5°	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.3
70°	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.3
72.5°	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.3
75°	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
77.5°	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
80°	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
82.5°	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
85°	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
87.5°	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6
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: P182724

CATALOG NUMBER: LDSQA4A13935D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7
2.5°	137.6	133.0	129.8	128.5	125.9	126.5	124.6	123.3	119.3	119.3	116.7
5°	127.2	121.3	117.4	115.4	112.8	112.2	110.2	108.3	104.3	103.7	101.7
7.5°	116.1	110.2	105.6	103.7	101.1	100.4	97.8	96.5	93.3	92.6	90.6
10°	104.3	97.8	93.9	92.0	89.3	89.3	87.4	86.1	83.5	83.5	82.2
12.5°	92.0	86.1	83.5	80.9	79.6	79.6	78.3	77.0	75.0	75.6	75.0
15°	78.9	74.3	71.7	70.4	69.8	69.8	69.1	68.5	67.2	68.5	67.2
17.5°	66.5	63.3	61.3	60.7	60.0	60.0	60.0	60.7	60.0	61.3	61.3
20°	54.8	52.2	50.9	50.9	50.2	51.5	51.5	52.8	52.8	54.8	55.4
22.5°	45.0	43.0	42.4	42.4	42.4	43.7	44.3	45.7	46.3	48.3	49.6
25°	35.9	35.2	35.2	35.2	35.9	37.2	38.5	39.8	40.4	43.0	43.7
27.5°	29.3	28.7	29.3	29.3	30.0	32.0	33.3	34.6	35.9	37.8	39.1
30°	23.5	23.5	24.1	24.8	25.4	26.7	28.7	30.0	31.3	33.3	34.6
32.5°	18.9	19.6	20.2	20.9	20.9	22.8	24.1	26.1	26.7	28.7	30.0
35°	15.7	16.3	17.0	17.6	17.6	19.6	20.9	22.2	23.5	24.8	26.1
37.5°	12.4	13.0	14.3	15.0	15.0	17.0	17.6	18.9	20.2	21.5	22.8
40°	10.4	11.1	12.4	12.4	13.0	14.3	15.0	16.3	17.6	18.9	20.2
42.5°	8.5	9.1	10.4	11.1	11.1	12.4	13.0	14.3	15.0	16.3	17.0
45°	7.8	7.8	9.1	9.1	9.8	10.4	11.7	12.4	13.0	14.3	15.0
47.5°	6.5	7.2	7.8	8.5	8.5	9.1	9.8	10.4	11.1	12.4	13.0
50°	5.2	5.9	7.2	7.2	7.2	8.5	9.1	9.8	9.8	10.4	11.1
52.5°	5.2	5.2	5.9	6.5	6.5	7.2	7.8	8.5	8.5	9.1	9.8
55°	4.6	4.6	5.2	5.9	5.9	6.5	7.2	7.2	7.8	7.8	8.5
57.5°	3.9	4.6	5.2	5.2	5.2	5.9	6.5	6.5	7.2	7.2	7.8
60°	3.9	4.6	4.6	5.2	5.2	5.9	5.9	5.9	6.5	6.5	6.5
62.5°	3.9	3.9	4.6	4.6	4.6	5.2	5.2	5.9	5.9	5.9	5.9
65°	3.9	3.9	4.6	4.6	4.6	5.2	5.2	5.2	5.2	5.2	5.2
67.5°	3.3	3.9	3.9	3.9	4.6	4.6	4.6	4.6	4.6	4.6	4.6
70°	3.3	3.3	3.9	3.9	3.9	4.6	4.6	4.6	4.6	4.6	4.6
72.5°	3.3	3.3	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
75°	3.3	3.3	3.3	3.3	3.3	3.9	3.9	3.9	3.9	3.3	3.3
77.5°	2.6	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.6
80°	2.6	2.6	3.3	2.6	3.3	3.3	3.3	3.3	2.6	2.6	2.6
82.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.0	2.0
85°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0	1.3
87.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0	1.3	1.3
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: P182724

CATALOG NUMBER: LDSQA4A13935D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7
2.5°	115.4	116.7	115.4	116.7	113.5	114.8	116.1	112.8
5°	100.4	99.1	99.8	101.1	98.5	99.1	99.8	97.2
7.5°	90.0	90.6	89.3	90.6	88.7	89.3	90.0	88.0
10°	81.5	82.2	81.5	82.2	80.2	81.5	82.2	80.2
12.5°	73.7	75.0	74.3	75.6	73.7	75.0	76.3	73.7
15°	67.8	69.1	68.5	69.8	68.5	69.8	71.1	69.1
17.5°	62.0	63.3	63.3	64.6	63.9	65.2	66.5	64.6
20°	56.1	58.0	58.0	59.3	59.3	60.0	62.0	60.0
22.5°	50.9	52.8	52.8	54.1	54.1	55.4	56.7	55.4
25°	45.0	47.6	48.3	49.6	49.6	50.9	52.8	51.5
27.5°	41.1	43.0	43.7	45.0	45.7	47.0	48.3	47.0
30°	35.9	38.5	39.1	40.4	41.1	43.0	43.7	43.0
32.5°	32.0	33.9	34.6	35.9	37.2	38.5	39.8	39.1
35°	28.0	30.0	30.7	32.0	32.6	34.6	35.9	35.2
37.5°	24.8	26.7	27.4	28.0	28.7	30.7	32.0	31.3
40°	21.5	22.8	23.5	24.8	25.4	26.7	28.0	28.0
42.5°	18.9	20.2	20.9	21.5	22.2	23.5	24.8	24.1
45°	16.3	17.6	18.3	18.9	19.6	20.2	21.5	20.9
47.5°	13.7	15.0	15.7	16.3	17.0	17.6	18.9	18.3
50°	11.7	13.0	13.0	13.7	14.3	15.0	16.3	15.7
52.5°	10.4	11.1	11.7	11.7	12.4	13.0	14.3	13.7
55°	9.1	9.8	9.8	10.4	10.4	11.1	11.7	11.7
57.5°	7.8	8.5	8.5	9.1	9.1	9.8	10.4	10.4
60°	7.2	7.2	7.8	7.8	7.8	8.5	8.5	8.5
62.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
65°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
67.5°	4.6	4.6	4.6	4.6	4.6	3.9	3.9	3.9
70°	3.9	3.9	3.9	3.9	3.9	3.3	3.3	3.3
72.5°	3.9	3.9	3.3	3.3	3.3	3.3	3.3	2.6
75°	3.3	3.3	3.3	3.3	2.6	2.6	2.6	2.6
77.5°	2.6	2.6	2.6	2.6	2.0	2.0	2.0	2.0
80°	2.6	2.0	2.0	2.0	2.0	2.0	2.0	1.3
82.5°	2.0	2.0	2.0	1.3	1.3	1.3	1.3	1.3
85°	1.3	1.3	1.3	1.3	0.7	0.7	0.7	0.7
87.5°	1.3	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



Report Generated By E9808895 / USPTCWHP6082093





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













(END OF REPORT)