

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: P182721

Luminaire Tested: **LDSQA4A13840D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182721
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: LDSQA4A13840D010TE 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 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1805.6 lumens
Efficiency: N/A
Efficacy: 81.1 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

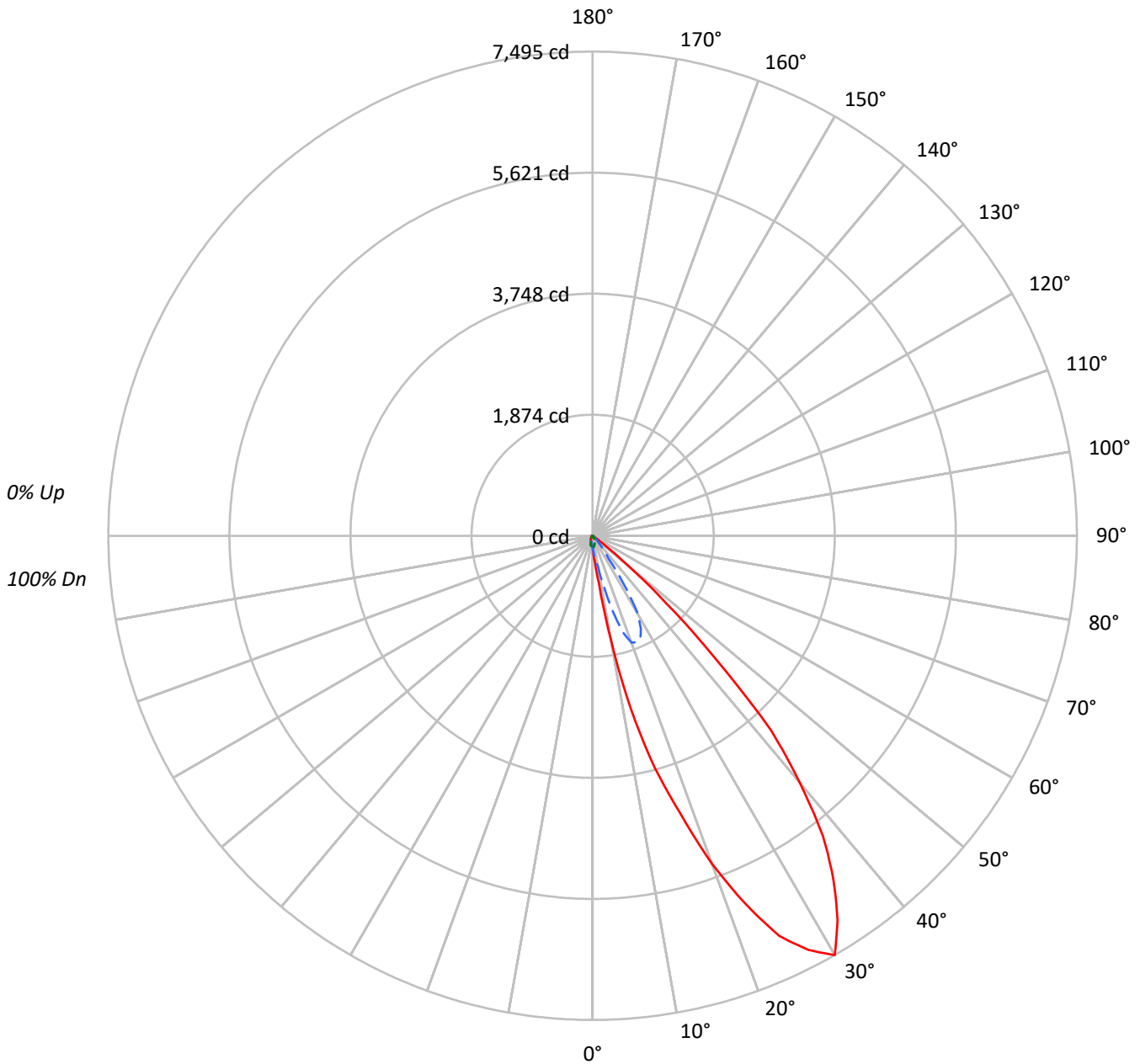
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182721

CATALOG NUMBER: LDSQA4A13840D010TE LAR25NF 4LSQA1H 30°

Luminous Intensity Polar Plot





TEST NUMBER: P182721

CATALOG NUMBER: LDSQA4A13840D010TE 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°	18271	18271	18271
5°	40425	17281	12146
10°	161838	15001	10142
15°	373029	11935	8906
20°	556855	8464	7948
25°	730370	5644	7076
30°	838407	3557	6186
35°	768734	2282	5357
40°	630413	1480	4553
45°	365468	1028	3672
50°	103569	754	3029
55°	9492	709	2550
60°	1453	814	2112
65°	390	779	1536
70°	482	963	1190
75°	636	1273	1273
80°	0	1897	948
85°	0	3779	889



TEST NUMBER: P182721

CATALOG NUMBER: LDSQA4A13840D010TE LAR25NF 4LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	26.8	1.5
10°-20°	240.1	13.3
20°-30°	585.0	32.4
30°-40°	634.0	35.1
40°-50°	287.3	15.9
50°-60°	22.2	1.2
60°-70°	4.6	0.3
70°-80°	3.4	0.2
80°-90°	2.1	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°	851.9	47.2
0°-40°	1485.9	82.3
0°-60°	1795.5	99.4
0°-90°	1805.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1805.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	189	189	189	189	189	
5°	416	307	178	134	125	75
15°	3719	1217	119	86	89	1081
25°	6833	1747	53	52	66	3115
35°	6500	444	19	30	45	3998
45°	2668	56	8	17	27	2106
55°	56	8	4	10	15	128
65°	2	2	3	7	7	3
75°	2	2	3	5	3	1
85°	0	2	3	2	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182721

CATALOG NUMBER: LDSQA4A13840D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6
2.5°	282.4	277.4	279.9	273.2	269.0	265.7	267.4	265.7	254.8	252.3	243.9
5°	415.7	408.1	408.1	393.9	378.8	369.6	369.6	358.7	335.2	324.3	306.7
7.5°	745.1	730.0	717.4	673.0	615.2	582.5	574.1	528.0	468.5	430.8	386.4
10°	1645.2	1582.3	1537.9	1422.2	1267.2	1170.8	1129.7	970.5	781.1	638.6	509.6
12.5°	2766.5	2681.0	2603.1	2413.7	2190.8	2039.1	1957.8	1723.1	1355.2	1092.0	817.1
15°	3719.4	3627.3	3535.1	3304.6	3069.1	2937.5	2788.3	2477.4	1991.3	1617.5	1216.9
17.5°	4501.4	4449.4	4354.7	4017.0	3720.3	3514.9	3359.9	2953.4	2453.1	2026.5	1573.1
20°	5401.5	5273.3	5104.0	4694.1	4288.5	4031.2	3813.3	3318.0	2739.7	2249.4	1761.7
22.5°	6159.1	6067.8	5824.7	5284.2	4687.4	4467.9	4201.3	3605.5	2924.1	2344.1	1783.5
25°	6832.9	6689.6	6384.6	5741.8	5130.8	4757.0	4430.1	3761.3	2992.0	2350.8	1747.4
27.5°	7227.7	7040.8	6682.1	5981.4	5284.2	4871.0	4508.9	3788.2	2949.2	2262.0	1615.8
30°	7495.0	7122.9	6726.5	5984.0	5235.5	4813.2	4437.7	3653.2	2771.6	2059.2	1394.6
32.5°	7054.2	6838.8	6460.0	5745.9	4970.7	4558.4	4185.4	3360.7	2494.2	1758.3	970.5
35°	6500.2	6325.9	5996.5	5287.5	4573.5	4184.6	3789.0	2985.3	2132.9	1208.5	444.2
37.5°	5856.6	5720.0	5365.5	4717.6	4089.0	3708.5	3312.1	2544.4	1501.9	599.2	269.9
40°	4985.0	4869.3	4578.5	4058.0	3478.9	3116.9	2751.4	1903.3	815.5	334.4	176.0
42.5°	4097.4	4000.2	3735.4	3285.3	2776.6	2478.2	2156.4	1159.9	405.6	210.4	98.1
45°	2667.6	2546.1	2403.6	2197.5	1946.0	1762.5	1382.8	559.8	240.5	117.3	56.2
47.5°	1529.5	1449.1	1215.2	958.8	778.6	710.7	517.1	260.6	132.4	67.9	34.4
50°	687.2	635.3	533.0	434.1	314.3	245.6	208.7	130.7	65.4	36.9	23.5
52.5°	169.3	172.6	163.4	143.3	127.4	108.1	93.9	61.2	34.4	22.6	15.1
55°	56.2	57.0	52.0	49.4	45.3	41.9	38.6	27.7	21.0	20.1	7.5
57.5°	20.1	20.1	21.0	19.3	18.4	17.6	16.8	14.2	12.6	7.5	4.2
60°	7.5	7.5	7.5	8.4	8.4	8.4	9.2	8.4	5.9	4.2	3.4
62.5°	3.4	3.4	3.4	3.4	4.2	4.2	5.0	4.2	3.4	3.4	2.5
65°	1.7	1.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.5	2.5
70°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.5	2.5
72.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.5	2.5
75°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.5
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	1.7	1.7	2.5
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	1.7	1.7	2.5
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	1.7	1.7	2.5
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	1.7	2.5
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	1.7	1.7
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: P182721

CATALOG NUMBER: LDSQA4A13840D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6
2.5°	235.5	230.5	220.4	212.9	207.0	206.2	201.1	192.8	189.4	183.5	178.5
5°	290.0	277.4	261.5	246.4	235.5	229.6	212.0	196.1	186.9	177.7	169.3
7.5°	348.6	320.2	292.5	268.2	253.1	243.9	222.9	197.0	180.2	166.8	155.9
10°	422.4	363.7	316.0	278.2	258.1	245.6	220.4	189.4	168.5	152.5	141.6
12.5°	590.9	430.8	337.8	283.3	258.1	240.5	210.4	179.4	155.9	136.6	124.9
15°	879.2	601.7	400.6	285.8	249.8	229.6	195.3	162.6	139.1	119.0	108.1
17.5°	1150.7	792.0	500.3	303.4	244.7	213.7	175.2	143.3	119.0	99.7	90.5
20°	1291.5	886.7	555.7	316.8	236.3	193.6	151.7	122.4	98.9	82.1	74.6
22.5°	1294.8	878.3	528.8	285.8	205.3	165.9	129.9	100.6	80.5	66.2	60.3
25°	1215.2	776.9	435.0	222.9	165.9	139.1	108.1	82.1	62.9	52.8	48.6
27.5°	1065.2	628.6	321.0	160.9	129.9	110.6	84.6	62.9	47.8	41.1	38.6
30°	823.8	388.9	177.7	119.0	98.1	83.0	61.2	41.9	36.0	31.8	30.2
32.5°	409.0	190.2	125.7	84.6	67.0	52.8	38.6	31.0	27.7	25.1	24.3
35°	222.1	136.6	78.8	51.1	40.2	33.5	26.0	21.8	20.1	19.3	19.3
37.5°	155.0	81.3	47.8	31.0	25.1	22.6	18.4	15.9	15.1	15.1	15.1
40°	85.5	48.6	29.3	20.1	16.8	15.1	12.6	11.7	11.7	11.7	12.6
42.5°	49.4	30.2	20.1	14.2	11.7	10.9	9.2	8.4	9.2	9.2	10.1
45°	31.8	22.6	13.4	10.1	8.4	7.5	6.7	6.7	7.5	7.5	8.4
47.5°	22.6	15.9	9.2	6.7	5.0	5.0	5.0	5.0	5.9	6.7	7.5
50°	13.4	8.4	5.0	4.2	3.4	3.4	3.4	4.2	5.0	5.0	5.9
52.5°	7.5	5.0	3.4	3.4	2.5	2.5	3.4	3.4	4.2	5.0	5.9
55°	4.2	3.4	2.5	2.5	2.5	2.5	2.5	3.4	3.4	4.2	5.0
57.5°	3.4	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	4.2	4.2
60°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	4.2	4.2
62.5°	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	4.2
65°	2.5	2.5	2.5	3.4	2.5	3.4	3.4	3.4	3.4	3.4	4.2
67.5°	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.2
70°	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.2
72.5°	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.2
75°	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
77.5°	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
80°	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
82.5°	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
85°	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
87.5°	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4
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: P182721

CATALOG NUMBER: LDSQA4A13840D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6
2.5°	176.8	171.0	166.8	165.1	161.8	162.6	160.1	158.4	153.4	153.4	150.0
5°	163.4	155.9	150.9	148.3	145.0	144.2	141.6	139.1	134.1	133.3	130.7
7.5°	149.2	141.6	135.8	133.3	129.9	129.1	125.7	124.0	119.8	119.0	116.5
10°	134.1	125.7	120.7	118.2	114.8	114.8	112.3	110.6	107.3	107.3	105.6
12.5°	118.2	110.6	107.3	103.9	102.2	102.2	100.6	98.9	96.4	97.2	96.4
15°	101.4	95.5	92.2	90.5	89.7	89.7	88.8	88.0	86.3	88.0	86.3
17.5°	85.5	81.3	78.8	77.9	77.1	77.1	77.1	77.9	77.1	78.8	78.8
20°	70.4	67.0	65.4	65.4	64.5	66.2	66.2	67.9	67.9	70.4	71.2
22.5°	57.8	55.3	54.5	54.5	54.5	56.2	57.0	58.7	59.5	62.0	63.7
25°	46.1	45.3	45.3	45.3	46.1	47.8	49.4	51.1	52.0	55.3	56.2
27.5°	37.7	36.9	37.7	37.7	38.6	41.1	42.7	44.4	46.1	48.6	50.3
30°	30.2	30.2	31.0	31.8	32.7	34.4	36.9	38.6	40.2	42.7	44.4
32.5°	24.3	25.1	26.0	26.8	26.8	29.3	31.0	33.5	34.4	36.9	38.6
35°	20.1	21.0	21.8	22.6	22.6	25.1	26.8	28.5	30.2	31.8	33.5
37.5°	15.9	16.8	18.4	19.3	19.3	21.8	22.6	24.3	26.0	27.7	29.3
40°	13.4	14.2	15.9	15.9	16.8	18.4	19.3	21.0	22.6	24.3	26.0
42.5°	10.9	11.7	13.4	14.2	14.2	15.9	16.8	18.4	19.3	21.0	21.8
45°	10.1	10.1	11.7	11.7	12.6	13.4	15.1	15.9	16.8	18.4	19.3
47.5°	8.4	9.2	10.1	10.9	10.9	11.7	12.6	13.4	14.2	15.9	16.8
50°	6.7	7.5	9.2	9.2	9.2	10.9	11.7	12.6	12.6	13.4	14.2
52.5°	6.7	6.7	7.5	8.4	8.4	9.2	10.1	10.9	10.9	11.7	12.6
55°	5.9	5.9	6.7	7.5	7.5	8.4	9.2	9.2	10.1	10.1	10.9
57.5°	5.0	5.9	6.7	6.7	6.7	7.5	8.4	8.4	9.2	9.2	10.1
60°	5.0	5.9	5.9	6.7	6.7	7.5	7.5	7.5	8.4	8.4	8.4
62.5°	5.0	5.0	5.9	5.9	5.9	6.7	6.7	7.5	7.5	7.5	7.5
65°	5.0	5.0	5.9	5.9	5.9	6.7	6.7	6.7	6.7	6.7	6.7
67.5°	4.2	5.0	5.0	5.0	5.9	5.9	5.9	5.9	5.9	5.9	5.9
70°	4.2	4.2	5.0	5.0	5.0	5.9	5.9	5.9	5.9	5.9	5.9
72.5°	4.2	4.2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
75°	4.2	4.2	4.2	4.2	4.2	5.0	5.0	5.0	5.0	4.2	4.2
77.5°	3.4	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.4
80°	3.4	3.4	4.2	3.4	4.2	4.2	4.2	4.2	3.4	3.4	3.4
82.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	2.5	2.5
85°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	2.5	2.5	2.5	1.7
87.5°	3.4	3.4	3.4	3.4	3.4	3.4	2.5	2.5	2.5	1.7	1.7
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: P182721

CATALOG NUMBER: LDSQA4A13840D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	188.6	188.6	188.6	188.6	188.6	188.6	188.6	188.6
2.5°	148.3	150.0	148.3	150.0	145.8	147.5	149.2	145.0
5°	129.1	127.4	128.2	129.9	126.6	127.4	128.2	124.9
7.5°	115.7	116.5	114.8	116.5	114.0	114.8	115.7	113.1
10°	104.8	105.6	104.8	105.6	103.1	104.8	105.6	103.1
12.5°	94.7	96.4	95.5	97.2	94.7	96.4	98.1	94.7
15°	87.2	88.8	88.0	89.7	88.0	89.7	91.4	88.8
17.5°	79.6	81.3	81.3	83.0	82.1	83.8	85.5	83.0
20°	72.1	74.6	74.6	76.3	76.3	77.1	79.6	77.1
22.5°	65.4	67.9	67.9	69.6	69.6	71.2	72.9	71.2
25°	57.8	61.2	62.0	63.7	63.7	65.4	67.9	66.2
27.5°	52.8	55.3	56.2	57.8	58.7	60.3	62.0	60.3
30°	46.1	49.4	50.3	52.0	52.8	55.3	56.2	55.3
32.5°	41.1	43.6	44.4	46.1	47.8	49.4	51.1	50.3
35°	36.0	38.6	39.4	41.1	41.9	44.4	46.1	45.3
37.5°	31.8	34.4	35.2	36.0	36.9	39.4	41.1	40.2
40°	27.7	29.3	30.2	31.8	32.7	34.4	36.0	36.0
42.5°	24.3	26.0	26.8	27.7	28.5	30.2	31.8	31.0
45°	21.0	22.6	23.5	24.3	25.1	26.0	27.7	26.8
47.5°	17.6	19.3	20.1	21.0	21.8	22.6	24.3	23.5
50°	15.1	16.8	16.8	17.6	18.4	19.3	21.0	20.1
52.5°	13.4	14.2	15.1	15.1	15.9	16.8	18.4	17.6
55°	11.7	12.6	12.6	13.4	13.4	14.2	15.1	15.1
57.5°	10.1	10.9	10.9	11.7	11.7	12.6	13.4	13.4
60°	9.2	9.2	10.1	10.1	10.1	10.9	10.9	10.9
62.5°	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
65°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
67.5°	5.9	5.9	5.9	5.9	5.9	5.0	5.0	5.0
70°	5.0	5.0	5.0	5.0	5.0	4.2	4.2	4.2
72.5°	5.0	5.0	4.2	4.2	4.2	4.2	4.2	3.4
75°	4.2	4.2	4.2	4.2	3.4	3.4	3.4	3.4
77.5°	3.4	3.4	3.4	3.4	2.5	2.5	2.5	2.5
80°	3.4	2.5	2.5	2.5	2.5	2.5	2.5	1.7
82.5°	2.5	2.5	2.5	1.7	1.7	1.7	1.7	1.7
85°	1.7	1.7	1.7	1.7	0.8	0.8	0.8	0.8
87.5°	1.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)