

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: P182840

Luminaire Tested: **LDSQA4A09835D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182840
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26804)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A09835D010TE LAR35FL 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1100.3 lumens
Efficiency: N/A
Efficacy: 79.5 lumens/watt
Spacing Criteria (0/90/45): 2.46 / 0.61 / 1.2
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

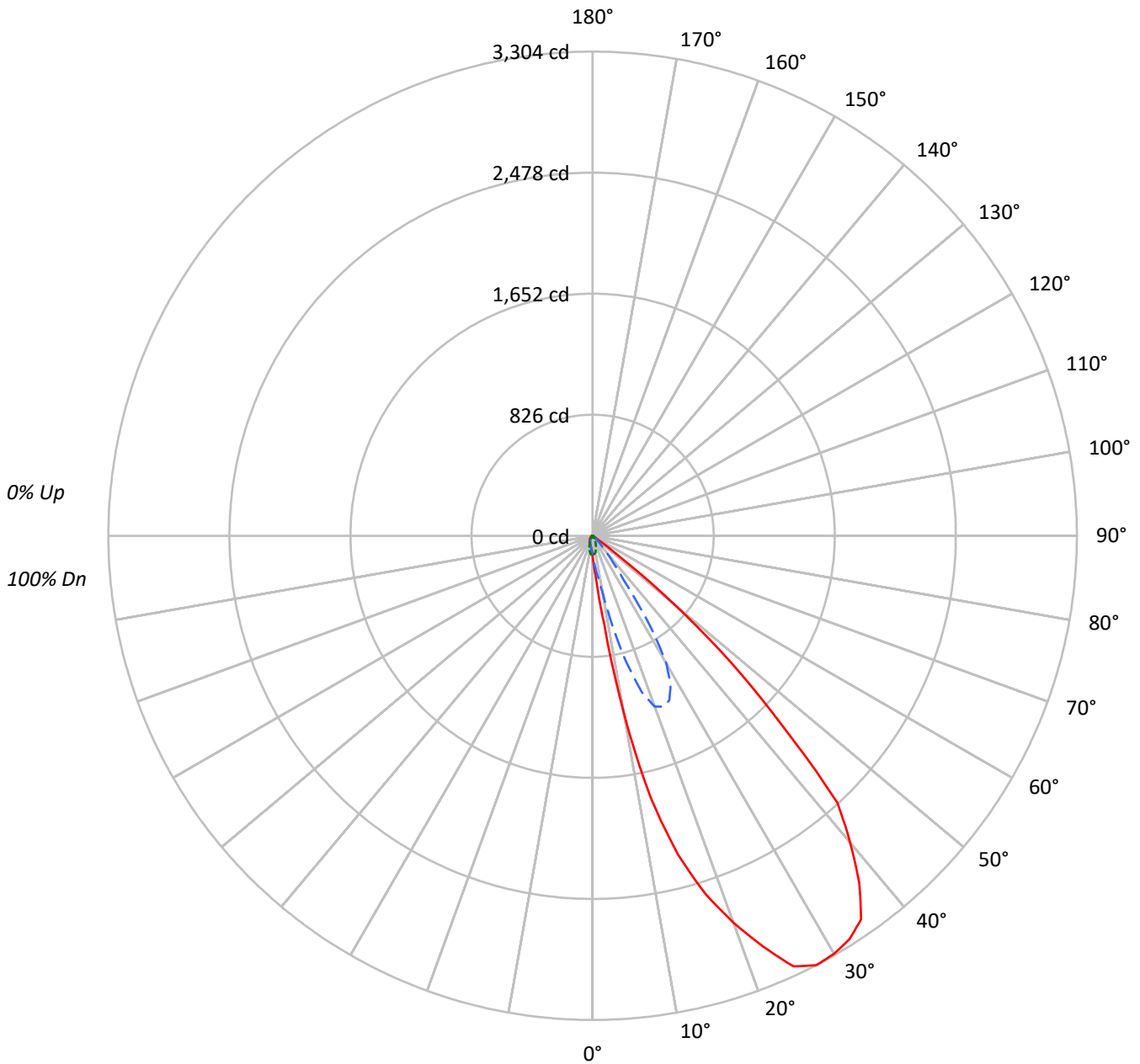
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182840

CATALOG NUMBER: LDSQA4A09835D010TE LAR35FL 4LSQAL1H 30°

Luminous Intensity Polar Plot





TEST NUMBER: P182840

CATALOG NUMBER: LDSQA4A09835D010TE LAR35FL 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	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82																			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74																			
4	92	83	77	71	90	82	76	71	80	74	70	78	73	69	76	72	68	67																			
5	86	76	69	64	84	75	68	64	73	67	63	71	66	62	70	65	62	60																			
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54																			
7	75	64	57	52	74	63	56	51	62	56	51	60	55	51	59	54	50	49																			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	13175	13175	13175
5°	30885	12438	8694
10°	122048	10929	7250
15°	225869	8756	6359
20°	289618	6371	5753
25°	346517	4521	5099
30°	368463	2976	4486
35°	377626	1798	3915
40°	345671	1163	3364
45°	249441	822	2754
50°	108889	648	2291
55°	7499	557	1925
60°	1356	523	1569
65°	504	504	1123
70°	453	623	765
75°	412	823	823
80°	0	1227	893
85°	0	2445	556



TEST NUMBER: P182840

CATALOG NUMBER: LDSQA4A09835D010TE LAR35FL 4LSQAL1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	19.8	1.8
10°-20°	155.7	14.2
20°-30°	326.0	29.6
30°-40°	362.9	33.0
40°-50°	208.3	18.9
50°-60°	20.8	1.9
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°	501.6	45.6
0°-40°	864.5	78.6
0°-60°	1093.7	99.4
0°-90°	1100.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1100.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	136	136	136	136	136	
5°	318	219	128	93	89	58
15°	2252	899	87	61	63	637
25°	3242	1237	42	37	48	1468
35°	3193	378	15	22	33	1950
45°	1821	46	6	12	20	1390
55°	44	6	3	7	11	133
65°	2	2	2	4	5	3
75°	1	1	2	3	2	1
85°	0	1	2	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P182840

CATALOG NUMBER: LDSQA4A09835D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0
2.5°	203.3	198.9	194.6	191.9	189.2	193.0	190.3	189.2	181.6	177.8	174.5
5°	317.6	309.5	297.6	287.8	278.1	280.2	272.6	263.4	244.5	230.9	219.0
7.5°	613.0	593.0	556.1	520.3	484.6	478.1	454.2	413.0	359.9	319.8	285.1
10°	1240.7	1180.0	1112.2	1039.1	953.4	929.6	870.5	758.8	636.9	497.6	396.8
12.5°	1831.5	1803.9	1724.2	1629.3	1536.6	1479.7	1418.5	1234.2	1040.7	816.3	628.7
15°	2252.1	2235.3	2165.4	2079.2	1979.5	1942.6	1867.8	1684.1	1439.6	1171.3	899.2
17.5°	2563.8	2535.0	2461.9	2368.1	2249.9	2218.5	2129.1	1946.4	1692.7	1423.4	1121.4
20°	2809.3	2791.4	2696.6	2583.8	2442.4	2404.4	2299.8	2109.6	1833.7	1547.5	1240.1
22.5°	3029.9	2999.6	2883.0	2748.6	2587.1	2546.4	2429.9	2221.2	1924.7	1606.0	1261.3
25°	3241.8	3195.8	3054.3	2878.1	2688.4	2633.1	2505.2	2284.1	1958.3	1610.9	1237.4
27.5°	3303.6	3280.3	3149.7	2944.8	2725.3	2663.0	2529.6	2298.2	1945.9	1566.4	1151.8
30°	3293.9	3274.4	3165.4	2951.3	2718.8	2653.2	2517.7	2254.8	1873.2	1450.5	1000.6
32.5°	3263.0	3255.4	3123.7	2894.9	2658.1	2586.5	2440.2	2147.0	1737.2	1273.8	731.2
35°	3193.1	3163.2	2999.0	2783.8	2556.2	2477.6	2312.3	1992.5	1557.8	927.4	377.8
37.5°	2988.2	2964.9	2835.3	2646.7	2425.0	2324.2	2149.7	1793.0	1206.0	527.4	226.0
40°	2733.4	2722.0	2620.1	2451.6	2214.7	2100.9	1911.2	1467.3	736.1	299.7	149.1
42.5°	2472.2	2468.9	2360.0	2183.8	1926.9	1796.3	1599.5	989.7	391.3	181.0	86.2
45°	1820.7	1840.2	1764.3	1658.6	1462.4	1367.5	1112.2	510.0	225.5	100.3	45.5
47.5°	1277.0	1255.3	1120.9	936.1	756.7	640.7	484.6	241.2	120.3	52.6	26.0
50°	722.5	726.3	604.9	489.4	320.9	254.2	193.0	121.4	58.0	27.6	15.7
52.5°	188.6	197.3	170.2	146.3	124.7	101.4	81.8	52.6	27.6	16.3	10.3
55°	44.4	46.1	42.8	40.1	37.9	33.6	29.8	22.8	15.2	10.3	6.5
57.5°	15.7	16.3	15.7	15.7	15.2	14.6	13.6	11.9	9.2	6.5	4.3
60°	7.0	7.6	7.0	7.6	7.6	7.6	7.6	7.6	5.4	3.8	2.7
62.5°	3.3	3.3	3.3	3.3	3.8	3.8	4.3	4.3	3.3	2.7	2.2
65°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.6
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
70°	1.6	1.6	1.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.6
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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	0.5	0.5	0.5	0.5	1.1	1.1	1.1	1.1
80°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	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: P182840

CATALOG NUMBER: LDSQA4A09835D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0
2.5°	168.6	168.0	162.1	157.7	155.6	152.3	148.5	143.1	137.1	131.7	129.5
5°	204.9	197.8	185.4	175.1	170.2	165.3	156.6	146.9	137.7	127.9	123.0
7.5°	252.0	231.4	207.1	188.1	180.0	171.8	159.4	145.8	133.3	120.3	113.3
10°	316.5	268.8	226.6	196.2	184.3	173.4	155.6	138.8	125.2	111.1	101.9
12.5°	452.6	334.4	247.2	200.0	184.3	170.2	148.5	129.0	113.8	99.2	90.5
15°	652.1	451.5	292.2	203.8	180.5	162.6	137.7	116.5	100.3	87.3	79.1
17.5°	813.0	559.4	348.0	213.6	175.6	152.3	123.6	101.4	86.2	74.3	67.8
20°	894.3	604.9	373.5	215.2	163.7	136.0	106.8	85.6	72.1	61.8	56.4
22.5°	892.7	590.3	350.7	188.6	143.6	117.6	90.0	70.5	59.6	51.5	47.2
25°	836.3	522.5	292.7	150.7	116.0	97.6	73.2	56.9	48.2	42.3	38.5
27.5°	730.6	424.4	218.4	111.7	90.5	77.0	56.9	45.5	38.5	34.1	31.4
30°	573.5	284.0	137.7	82.9	68.8	58.0	43.9	35.2	30.4	26.6	24.9
32.5°	316.0	148.0	92.7	60.7	50.4	42.3	32.5	25.5	22.2	19.5	19.0
35°	174.5	104.6	66.1	40.7	33.6	28.7	22.2	18.4	16.3	15.2	15.2
37.5°	123.6	67.2	39.6	25.5	21.7	19.0	15.2	13.0	12.5	11.9	11.9
40°	74.3	39.6	23.8	16.8	14.6	13.0	11.4	9.8	9.8	9.2	9.8
42.5°	40.7	23.8	16.3	11.9	10.3	9.8	8.1	7.6	7.6	7.6	8.1
45°	24.4	15.7	11.4	8.7	7.6	6.5	6.0	5.4	6.0	6.0	6.5
47.5°	15.7	11.4	7.6	5.4	4.9	4.3	3.8	4.3	4.3	4.9	5.4
50°	10.8	7.0	4.9	3.3	3.3	2.7	3.3	3.3	3.8	4.3	4.9
52.5°	7.0	4.9	3.3	2.7	2.2	2.2	2.2	2.7	3.3	3.8	4.3
55°	4.3	3.3	2.7	2.2	2.2	2.2	2.2	2.2	2.7	3.3	3.8
57.5°	3.3	2.7	2.2	1.6	1.6	1.6	2.2	2.2	2.7	2.7	3.3
60°	2.2	2.2	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.7	3.3
62.5°	2.2	2.2	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.7	2.7
65°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.7
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.7
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.7
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.2
77.5°	1.1	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.2
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.2
82.5°	1.1	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.2
85°	1.1	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2	2.2
87.5°	1.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.2	2.2
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: P182840

CATALOG NUMBER: LDSQA4A09835D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0
2.5°	126.8	123.0	119.8	120.9	118.7	114.9	113.8	111.1	107.9	107.3	107.3
5°	117.6	111.7	106.8	106.2	104.1	99.7	98.6	95.9	93.2	92.7	92.1
7.5°	106.2	99.7	95.4	94.3	92.7	88.9	88.3	85.6	84.0	82.9	82.9
10°	94.9	88.9	85.1	84.6	83.5	80.2	79.7	77.5	75.9	75.3	74.8
12.5°	84.0	79.1	75.9	75.3	74.3	71.5	71.0	69.4	68.3	67.8	67.8
15°	73.7	69.4	66.7	66.1	65.6	62.9	62.9	61.8	61.2	61.2	61.8
17.5°	63.4	59.6	57.5	56.9	56.9	54.7	55.3	54.7	54.7	54.7	55.8
20°	53.1	49.9	48.2	48.8	47.7	47.2	47.7	47.7	47.7	48.8	50.4
22.5°	44.4	41.7	40.1	40.7	40.7	40.1	40.7	41.2	42.3	43.9	45.5
25°	36.3	34.1	33.6	34.1	34.1	34.1	35.2	36.3	37.4	39.0	40.7
27.5°	29.3	27.6	27.6	28.2	28.7	28.7	30.4	31.4	33.1	34.7	36.3
30°	23.3	22.8	22.8	23.8	23.8	24.4	26.6	27.6	28.7	30.4	32.0
32.5°	18.4	18.4	19.0	20.1	20.1	21.1	22.8	23.8	24.9	26.6	28.2
35°	15.2	15.7	16.3	16.8	17.3	17.9	19.5	20.6	21.7	23.3	24.4
37.5°	12.5	13.0	13.6	14.6	14.6	15.2	16.8	17.9	18.4	20.1	21.7
40°	10.3	10.8	11.4	12.5	12.5	13.0	14.6	15.2	15.7	17.3	19.0
42.5°	8.7	9.2	9.8	10.3	10.8	11.4	12.5	13.0	14.1	15.2	16.3
45°	7.0	7.6	8.1	8.7	9.2	9.8	10.3	11.4	11.9	13.0	14.1
47.5°	6.0	6.5	7.0	7.6	8.1	8.1	9.2	9.8	10.3	11.4	12.5
50°	5.4	6.0	6.5	6.5	7.0	7.6	8.1	8.7	9.2	9.8	10.8
52.5°	4.3	4.9	5.4	6.0	6.0	6.5	7.0	7.6	8.1	8.7	9.2
55°	4.3	4.3	4.9	5.4	5.4	6.0	6.5	7.0	7.0	7.6	8.1
57.5°	3.8	4.3	4.3	4.9	4.9	5.4	6.0	6.0	6.5	6.5	7.0
60°	3.3	3.8	4.3	4.3	4.3	4.9	4.9	5.4	5.4	6.0	6.0
62.5°	3.3	3.8	3.8	4.3	4.3	4.3	4.9	4.9	4.9	5.4	5.4
65°	3.3	3.3	3.8	3.8	3.8	3.8	4.3	4.3	4.3	4.9	4.9
67.5°	2.7	3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8	4.3	4.3
70°	2.7	2.7	3.3	3.3	3.3	3.3	3.3	3.8	3.8	3.8	3.8
72.5°	2.7	2.7	2.7	2.7	3.3	3.3	3.3	3.3	3.3	3.3	3.3
75°	2.2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	2.2	2.2	2.2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
80°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
82.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.6	1.6
85°	2.2	2.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	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: P182840

CATALOG NUMBER: LDSQA4A09835D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0
2.5°	105.2	104.1	103.5	105.2	103.0	104.1	103.5	104.1
5°	90.5	89.4	88.9	90.5	88.3	89.4	88.3	89.4
7.5°	81.3	80.8	80.2	81.3	79.7	80.8	80.2	80.8
10°	73.7	73.2	72.6	74.3	72.6	73.7	73.2	73.7
12.5°	67.2	67.2	66.7	67.8	66.7	67.8	67.2	67.8
15°	61.2	61.8	61.2	62.3	61.8	62.9	62.3	63.4
17.5°	56.4	56.9	56.9	58.5	58.0	59.6	59.1	59.6
20°	51.5	52.0	52.6	53.7	53.7	55.3	54.7	55.8
22.5°	46.6	47.7	47.7	49.3	49.3	51.0	51.0	51.5
25°	41.7	43.4	43.9	45.0	45.5	47.2	47.2	47.7
27.5°	37.9	39.0	39.6	41.2	41.7	43.4	43.4	44.4
30°	33.6	35.2	35.8	36.9	37.4	39.0	39.0	40.1
32.5°	29.8	30.9	32.0	33.1	33.6	35.2	35.2	36.3
35°	26.0	27.6	28.2	29.3	30.4	32.0	32.0	33.1
37.5°	22.8	24.4	24.9	26.0	27.1	28.7	28.7	29.8
40°	20.1	21.7	22.2	23.3	23.8	26.0	26.0	26.6
42.5°	17.9	19.0	19.5	20.6	21.1	22.2	22.2	23.3
45°	15.2	16.3	16.8	17.3	18.4	19.5	19.5	20.1
47.5°	13.0	14.1	14.6	15.2	15.7	16.8	16.8	17.9
50°	11.4	11.9	12.5	13.0	13.6	14.6	14.6	15.2
52.5°	9.8	10.3	10.8	11.4	11.9	12.5	13.0	13.6
55°	8.7	9.2	9.2	9.8	10.3	10.8	10.8	11.4
57.5°	7.6	8.1	8.1	8.1	8.7	9.2	9.2	9.8
60°	6.5	7.0	7.0	7.0	7.6	7.6	7.6	8.1
62.5°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
65°	4.9	4.9	4.9	4.9	4.9	4.9	4.3	4.9
67.5°	4.3	4.3	4.3	3.8	3.8	3.8	3.8	3.8
70°	3.8	3.8	3.8	3.3	3.3	3.3	2.7	2.7
72.5°	3.3	3.3	3.3	2.7	2.7	2.7	2.2	2.2
75°	2.7	2.7	2.7	2.7	2.2	2.2	2.2	2.2
77.5°	2.2	2.2	2.2	2.2	2.2	2.2	1.6	1.6
80°	2.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	1.6	1.6	1.6	1.1	1.1	1.1	1.1
85°	1.1	1.1	1.1	1.1	1.1	1.1	0.5	0.5
87.5°	1.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)