

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: P182858

Luminaire Tested: **LDSQA4A28927D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182858
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: LDSQA4A28927D010TE LAR35FL 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2147.9 lumens
Efficiency: N/A
Efficacy: 48.3 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

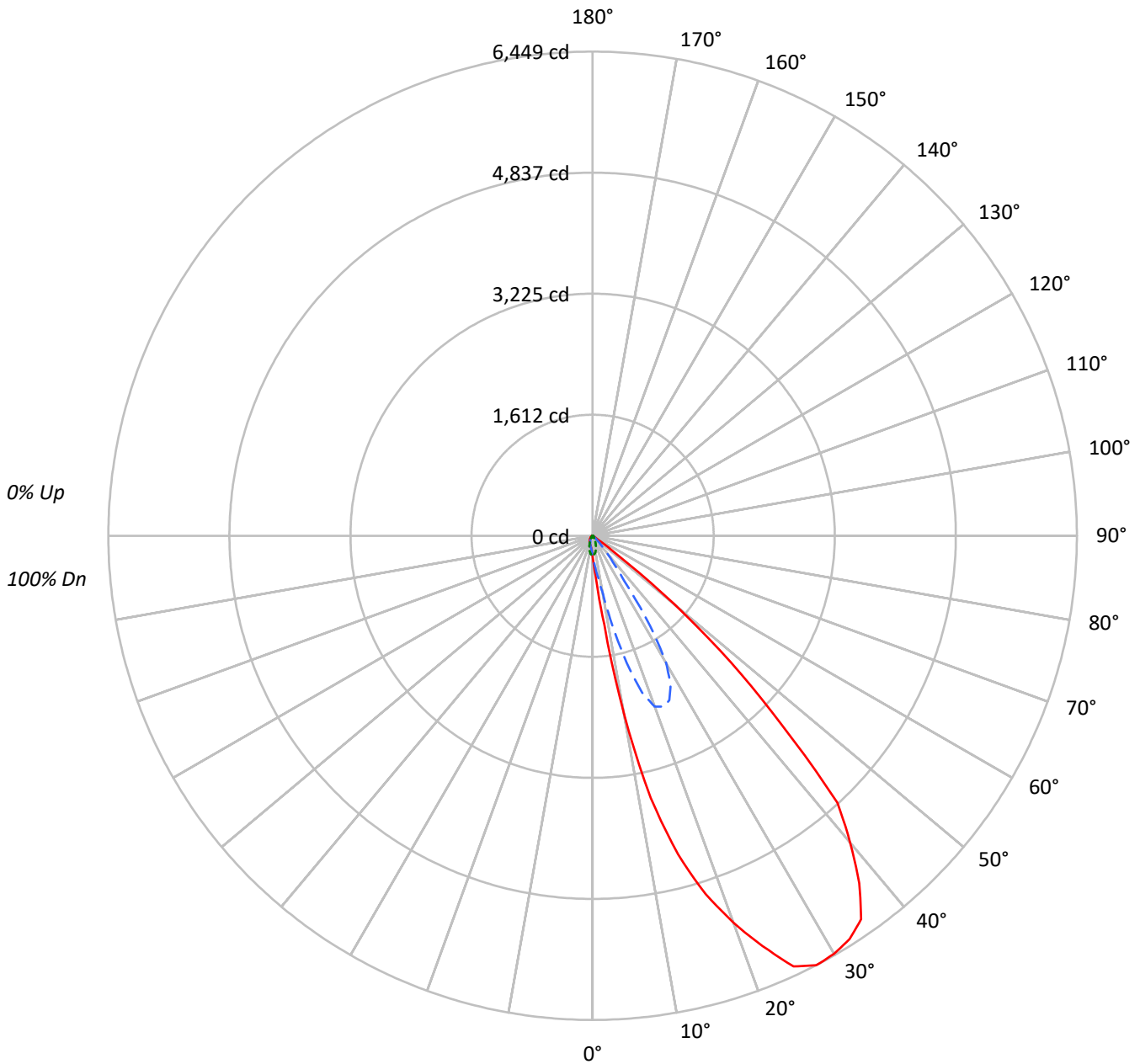
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182858

CATALOG NUMBER: LDSQA4A28927D010TE LAR35FL 4LSQAL1H 30°

Luminous Intensity Polar Plot





TEST NUMBER: P182858

CATALOG NUMBER: LDSQA4A28927D010TE 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°	25730	25730	25730
5°	60302	24282	16979
10°	238252	21336	14155
15°	440937	17090	12416
20°	565381	12433	11237
25°	676465	8818	9951
30°	719296	5794	8759
35°	737181	3501	7628
40°	674813	2276	6551
45°	486934	1589	5370
50°	212578	1281	4461
55°	14660	1064	3750
60°	2674	1027	3081
65°	963	963	2178
70°	906	1190	1501
75°	786	1572	1572
80°	0	2343	1785
85°	0	4668	1223



TEST NUMBER: P182858

CATALOG NUMBER: LDSQA4A28927D010TE LAR35FL 4LSQAL1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.7	1.8
10°-20°	304.0	14.2
20°-30°	636.5	29.6
30°-40°	708.5	33.0
40°-50°	406.7	18.9
50°-60°	40.6	1.9
60°-70°	6.4	0.3
70°-80°	4.0	0.2
80°-90°	2.5	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°	979.2	45.6
0°-40°	1687.7	78.6
0°-60°	2135.0	99.4
0°-90°	2147.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2147.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	266	266	266	266	266	
5°	620	428	250	182	175	114
15°	4396	1755	170	120	124	1243
25°	6329	2416	82	73	93	2866
35°	6233	738	30	42	64	3806
45°	3554	89	12	23	39	2714
55°	87	13	6	14	22	259
65°	4	3	4	8	10	5
75°	2	2	4	5	4	2
85°	0	2	4	3	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182858

CATALOG NUMBER: LDSQA4A28927D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6
2.5°	396.8	388.3	379.9	374.6	369.3	376.7	371.4	369.3	354.5	347.1	340.7
5°	620.1	604.2	580.9	561.9	542.8	547.0	532.2	514.2	477.2	450.8	427.5
7.5°	1196.7	1157.6	1085.6	1015.8	946.0	933.3	886.7	806.3	702.6	624.3	556.6
10°	2422.0	2303.5	2171.3	2028.4	1861.2	1814.7	1699.3	1481.4	1243.3	971.3	774.5
12.5°	3575.4	3521.4	3365.9	3180.7	2999.8	2888.7	2769.1	2409.3	2031.6	1593.5	1227.4
15°	4396.5	4363.7	4227.2	4058.9	3864.2	3792.3	3646.3	3287.6	2810.4	2286.6	1755.4
17.5°	5004.9	4948.8	4806.0	4622.9	4392.2	4330.9	4156.3	3799.7	3304.5	2778.6	2189.2
20°	5484.2	5449.3	5264.1	5044.0	4767.9	4693.8	4489.6	4118.2	3579.6	3020.9	2421.0
22.5°	5914.9	5855.6	5628.1	5365.7	5050.4	4971.0	4743.5	4336.2	3757.4	3135.2	2462.2
25°	6328.6	6238.6	5962.5	5618.6	5248.2	5140.3	4890.6	4458.9	3823.0	3144.7	2415.7
27.5°	6449.2	6403.7	6148.7	5748.7	5320.2	5198.5	4938.2	4486.4	3798.6	3058.0	2248.5
30°	6430.2	6392.1	6179.4	5761.4	5307.5	5179.5	4914.9	4401.8	3656.8	2831.5	1953.3
32.5°	6369.8	6355.0	6097.9	5651.4	5189.0	5049.3	4763.6	4191.2	3391.3	2486.6	1427.4
35°	6233.4	6175.2	5854.5	5434.5	4990.1	4836.6	4513.9	3889.6	3041.0	1810.4	737.5
37.5°	5833.4	5787.9	5535.0	5166.8	4734.0	4537.2	4196.5	3500.2	2354.3	1029.5	441.2
40°	5336.1	5313.9	5114.9	4785.9	4323.5	4101.3	3730.9	2864.3	1436.9	585.1	291.0
42.5°	4826.1	4819.7	4607.0	4263.1	3761.6	3506.6	3122.5	1932.1	764.0	353.4	168.2
45°	3554.2	3592.3	3444.2	3237.8	2854.8	2669.6	2171.3	995.7	440.2	195.8	88.9
47.5°	2492.9	2450.6	2188.2	1827.4	1477.1	1250.7	946.0	470.9	234.9	102.6	50.8
50°	1410.5	1417.9	1180.9	955.5	626.4	496.3	376.7	237.0	113.2	54.0	30.7
52.5°	368.2	385.2	332.2	285.7	243.4	197.9	159.8	102.6	54.0	31.7	20.1
55°	86.8	89.9	83.6	78.3	74.1	65.6	58.2	44.4	29.6	20.1	12.7
57.5°	30.7	31.7	30.7	30.7	29.6	28.6	26.5	23.3	18.0	12.7	8.5
60°	13.8	14.8	13.8	14.8	14.8	14.8	14.8	14.8	10.6	7.4	5.3
62.5°	6.3	6.3	6.3	6.3	7.4	7.4	8.5	8.5	6.3	5.3	4.2
65°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.2
67.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
70°	3.2	3.2	3.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	2.1	2.1
80°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1
82.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	2.1
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: P182858

CATALOG NUMBER: LDSQA4A28927D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6
2.5°	329.1	328.0	316.4	307.9	303.7	297.3	289.9	279.3	267.7	257.1	252.9
5°	400.0	386.2	361.9	341.8	332.2	322.7	305.8	286.7	268.8	249.7	240.2
7.5°	492.0	451.8	404.2	367.2	351.3	335.4	311.1	284.6	260.3	234.9	221.1
10°	617.9	524.8	442.3	383.0	359.8	338.6	303.7	270.9	244.4	216.9	198.9
12.5°	883.5	652.9	482.5	390.4	359.8	332.2	289.9	251.8	222.2	193.6	176.7
15°	1272.9	881.4	570.3	397.9	352.4	317.4	268.8	227.5	195.8	170.4	154.5
17.5°	1587.2	1092.0	679.3	416.9	342.8	297.3	241.3	197.9	168.2	145.0	132.3
20°	1745.9	1180.9	729.0	420.1	319.6	265.6	208.4	167.2	140.7	120.6	110.0
22.5°	1742.7	1152.3	684.6	368.2	280.4	229.6	175.6	137.6	116.4	100.5	92.1
25°	1632.7	1020.0	571.4	294.2	226.4	190.5	142.8	111.1	94.2	82.5	75.1
27.5°	1426.3	828.5	426.4	218.0	176.7	150.3	111.1	88.9	75.1	66.7	61.4
30°	1119.5	554.5	268.8	161.9	134.4	113.2	85.7	68.8	59.3	51.8	48.7
32.5°	616.9	288.9	180.9	118.5	98.4	82.5	63.5	49.7	43.4	38.1	37.0
35°	340.7	204.2	129.1	79.4	65.6	56.1	43.4	36.0	31.7	29.6	29.6
37.5°	241.3	131.2	77.2	49.7	42.3	37.0	29.6	25.4	24.3	23.3	23.3
40°	145.0	77.2	46.6	32.8	28.6	25.4	22.2	19.0	19.0	18.0	19.0
42.5°	79.4	46.6	31.7	23.3	20.1	19.0	15.9	14.8	14.8	14.8	15.9
45°	47.6	30.7	22.2	16.9	14.8	12.7	11.6	10.6	11.6	11.6	12.7
47.5°	30.7	22.2	14.8	10.6	9.5	8.5	7.4	8.5	8.5	9.5	10.6
50°	21.2	13.8	9.5	6.3	6.3	5.3	6.3	6.3	7.4	8.5	9.5
52.5°	13.8	9.5	6.3	5.3	4.2	4.2	4.2	5.3	6.3	7.4	8.5
55°	8.5	6.3	5.3	4.2	4.2	4.2	4.2	4.2	5.3	6.3	7.4
57.5°	6.3	5.3	4.2	3.2	3.2	3.2	4.2	4.2	5.3	5.3	6.3
60°	4.2	4.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	5.3	6.3
62.5°	4.2	4.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2	5.3	5.3
65°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2	5.3
67.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	5.3
70°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	5.3
72.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2
75°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2	4.2
77.5°	2.1	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2	4.2
80°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2	4.2
82.5°	2.1	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2	4.2
85°	2.1	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2	4.2
87.5°	2.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	4.2	4.2
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: P182858

CATALOG NUMBER: LDSQA4A28927D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6
2.5°	247.6	240.2	233.8	236.0	231.7	224.3	222.2	216.9	210.6	209.5	209.5
5°	229.6	218.0	208.4	207.4	203.2	194.7	192.6	187.3	182.0	180.9	179.9
7.5°	207.4	194.7	186.2	184.1	180.9	173.5	172.5	167.2	164.0	161.9	161.9
10°	185.2	173.5	166.1	165.1	162.9	156.6	155.5	151.3	148.1	147.1	146.0
12.5°	164.0	154.5	148.1	147.1	145.0	139.7	138.6	135.4	133.3	132.3	132.3
15°	143.9	135.4	130.1	129.1	128.0	122.7	122.7	120.6	119.6	119.6	120.6
17.5°	123.8	116.4	112.2	111.1	111.1	106.9	107.9	106.9	106.9	106.9	109.0
20°	103.7	97.3	94.2	95.2	93.1	92.1	93.1	93.1	93.1	95.2	98.4
22.5°	86.8	81.5	78.3	79.4	79.4	78.3	79.4	80.4	82.5	85.7	88.9
25°	70.9	66.7	65.6	66.7	66.7	66.7	68.8	70.9	73.0	76.2	79.4
27.5°	57.1	54.0	54.0	55.0	56.1	56.1	59.3	61.4	64.5	67.7	70.9
30°	45.5	44.4	44.4	46.6	46.6	47.6	51.8	54.0	56.1	59.3	62.4
32.5°	36.0	36.0	37.0	39.2	39.2	41.3	44.4	46.6	48.7	51.8	55.0
35°	29.6	30.7	31.7	32.8	33.9	34.9	38.1	40.2	42.3	45.5	47.6
37.5°	24.3	25.4	26.5	28.6	28.6	29.6	32.8	34.9	36.0	39.2	42.3
40°	20.1	21.2	22.2	24.3	24.3	25.4	28.6	29.6	30.7	33.9	37.0
42.5°	16.9	18.0	19.0	20.1	21.2	22.2	24.3	25.4	27.5	29.6	31.7
45°	13.8	14.8	15.9	16.9	18.0	19.0	20.1	22.2	23.3	25.4	27.5
47.5°	11.6	12.7	13.8	14.8	15.9	15.9	18.0	19.0	20.1	22.2	24.3
50°	10.6	11.6	12.7	12.7	13.8	14.8	15.9	16.9	18.0	19.0	21.2
52.5°	8.5	9.5	10.6	11.6	11.6	12.7	13.8	14.8	15.9	16.9	18.0
55°	8.5	8.5	9.5	10.6	10.6	11.6	12.7	13.8	13.8	14.8	15.9
57.5°	7.4	8.5	8.5	9.5	9.5	10.6	11.6	11.6	12.7	12.7	13.8
60°	6.3	7.4	8.5	8.5	8.5	9.5	9.5	10.6	10.6	11.6	11.6
62.5°	6.3	7.4	7.4	8.5	8.5	8.5	9.5	9.5	9.5	10.6	10.6
65°	6.3	6.3	7.4	7.4	7.4	7.4	8.5	8.5	8.5	9.5	9.5
67.5°	5.3	6.3	6.3	6.3	7.4	7.4	7.4	7.4	7.4	8.5	8.5
70°	5.3	5.3	6.3	6.3	6.3	6.3	6.3	7.4	7.4	7.4	7.4
72.5°	5.3	5.3	5.3	5.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
75°	4.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
77.5°	4.2	4.2	4.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
80°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
82.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2
85°	4.2	4.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
87.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.1	2.1	2.1
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: P182858

CATALOG NUMBER: LDSQA4A28927D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	265.6	265.6	265.6	265.6	265.6	265.6	265.6	265.6
2.5°	205.3	203.2	202.1	205.3	201.0	203.2	202.1	203.2
5°	176.7	174.6	173.5	176.7	172.5	174.6	172.5	174.6
7.5°	158.7	157.7	156.6	158.7	155.5	157.7	156.6	157.7
10°	143.9	142.8	141.8	145.0	141.8	143.9	142.8	143.9
12.5°	131.2	131.2	130.1	132.3	130.1	132.3	131.2	132.3
15°	119.6	120.6	119.6	121.7	120.6	122.7	121.7	123.8
17.5°	110.0	111.1	111.1	114.3	113.2	116.4	115.3	116.4
20°	100.5	101.6	102.6	104.8	104.8	107.9	106.9	109.0
22.5°	91.0	93.1	93.1	96.3	96.3	99.5	99.5	100.5
25°	81.5	84.6	85.7	87.8	88.9	92.1	92.1	93.1
27.5°	74.1	76.2	77.2	80.4	81.5	84.6	84.6	86.8
30°	65.6	68.8	69.8	72.0	73.0	76.2	76.2	78.3
32.5°	58.2	60.3	62.4	64.5	65.6	68.8	68.8	70.9
35°	50.8	54.0	55.0	57.1	59.3	62.4	62.4	64.5
37.5°	44.4	47.6	48.7	50.8	52.9	56.1	56.1	58.2
40°	39.2	42.3	43.4	45.5	46.6	50.8	50.8	51.8
42.5°	34.9	37.0	38.1	40.2	41.3	43.4	43.4	45.5
45°	29.6	31.7	32.8	33.9	36.0	38.1	38.1	39.2
47.5°	25.4	27.5	28.6	29.6	30.7	32.8	32.8	34.9
50°	22.2	23.3	24.3	25.4	26.5	28.6	28.6	29.6
52.5°	19.0	20.1	21.2	22.2	23.3	24.3	25.4	26.5
55°	16.9	18.0	18.0	19.0	20.1	21.2	21.2	22.2
57.5°	14.8	15.9	15.9	15.9	16.9	18.0	18.0	19.0
60°	12.7	13.8	13.8	13.8	14.8	14.8	14.8	15.9
62.5°	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
65°	9.5	9.5	9.5	9.5	9.5	9.5	8.5	9.5
67.5°	8.5	8.5	8.5	7.4	7.4	7.4	7.4	7.4
70°	7.4	7.4	7.4	6.3	6.3	6.3	5.3	5.3
72.5°	6.3	6.3	6.3	5.3	5.3	5.3	4.2	4.2
75°	5.3	5.3	5.3	5.3	4.2	4.2	4.2	4.2
77.5°	4.2	4.2	4.2	4.2	4.2	4.2	3.2	3.2
80°	4.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
82.5°	3.2	3.2	3.2	3.2	2.1	2.1	2.1	2.1
85°	2.1	2.1	2.1	2.1	2.1	2.1	1.1	1.1
87.5°	2.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)