

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: P182758

Luminaire Tested: **LDSQA4A28827D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182758
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26801)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A28827D010TE LAR35FL 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2880.6 lumens
Efficiency: N/A
Efficacy: 64.7 lumens/watt
Spacing Criteria (0/90/45): 2.46 / 0.59 / 1.2
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

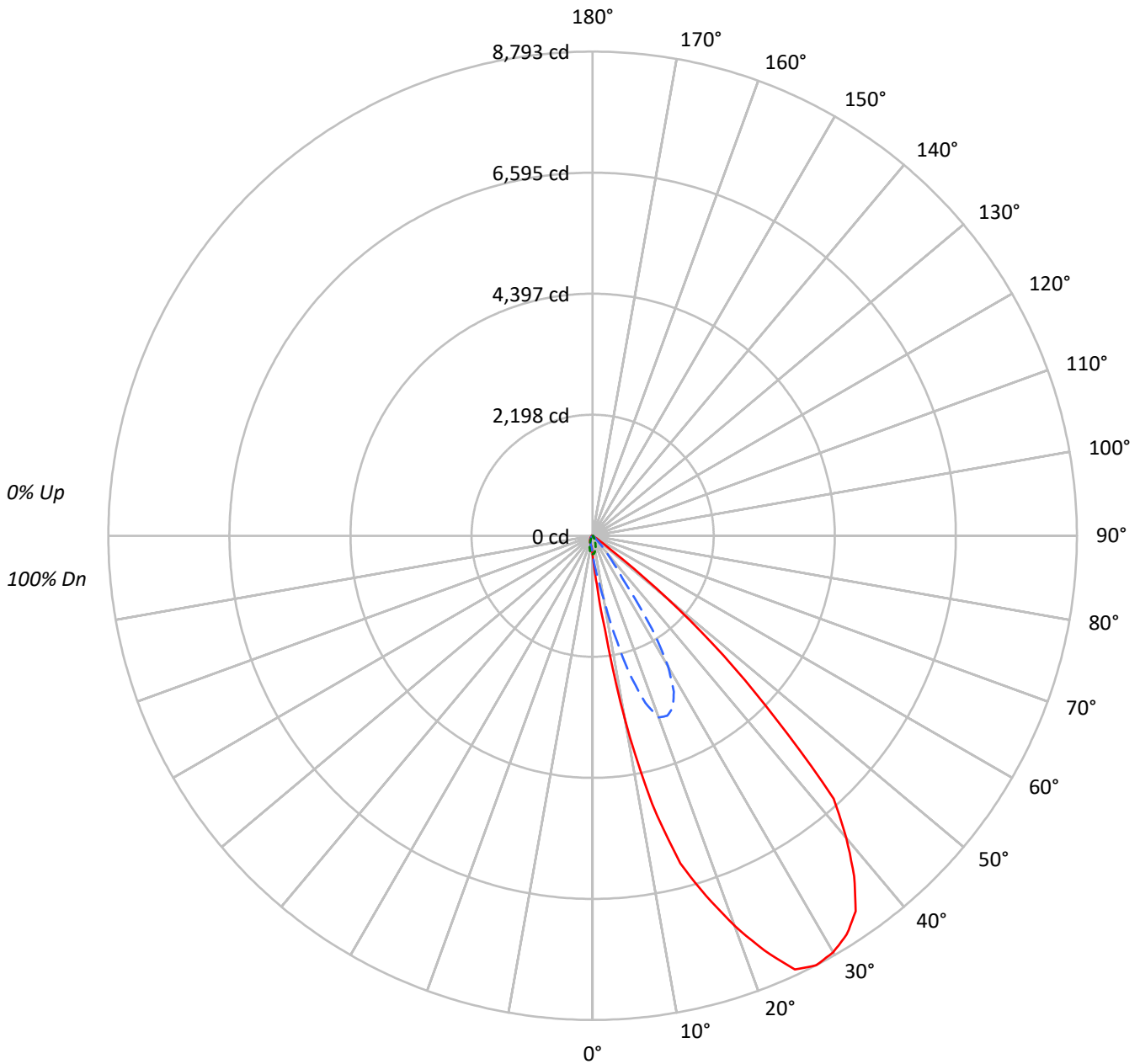
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182758

CATALOG NUMBER: LDSQA4A28827D010TE LAR35FL 4LSQA1H 30°

Luminous Intensity Polar Plot





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CATALOG NUMBER: LDSQA4A28827D010TE LAR35FL 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	112	109	106	104	110	107	105	102	103	101	99	99	98	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83																			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74																			
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67																			
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	60																			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55																			
7	75	64	57	52	74	64	57	52	62	56	52	61	55	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	39	37																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	32560	32560	32560
5°	85625	31021	20256
10°	335697	26845	16861
15°	618034	21152	14934
20°	776607	14948	13588
25°	928919	9866	12121
30°	976847	6197	10616
35°	984729	3737	9201
40°	906137	2504	7841
45°	644693	1808	6508
50°	266397	1387	5365
55°	15370	1334	4678
60°	1783	1279	3836
65°	596	1513	2728
70°	736	1501	1869
75°	973	1984	1984
80°	0	2957	2232
85°	0	5891	2890



TEST NUMBER: P182758

CATALOG NUMBER: LDSQA4A28827D010TE LAR35FL 4LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.8	1.8
10°-20°	422.1	14.7
20°-30°	873.1	30.3
30°-40°	950.4	33.0
40°-50°	521.1	18.1
50°-60°	45.1	1.6
60°-70°	7.4	0.3
70°-80°	5.3	0.2
80°-90°	3.3	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°	1348.0	46.8
0°-40°	2298.4	79.8
0°-60°	2864.6	99.4
0°-90°	2880.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2880.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	336	336	336	336	336	
5°	880	602	319	220	208	161
15°	6162	2590	211	142	149	1721
25°	8690	3446	92	87	113	3924
35°	8327	942	32	50	78	5110
45°	4706	96	13	28	48	3592
55°	91	10	8	17	28	311
65°	3	4	7	10	12	4
75°	3	4	5	8	5	2
85°	0	3	5	4	3	0
90°	0	0	0	0	0	



TEST NUMBER: P182758

CATALOG NUMBER: LDSQA4A28827D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1
2.5°	528.6	510.1	507.5	510.1	496.9	495.6	498.3	487.7	478.5	469.3	461.3
5°	880.5	842.3	830.4	814.6	775.1	761.9	759.2	717.1	676.2	638.0	602.4
7.5°	1710.9	1634.5	1593.6	1514.5	1393.3	1339.2	1310.2	1171.8	1042.6	925.3	818.6
10°	3412.6	3212.3	3114.7	2965.8	2700.8	2570.4	2475.4	2127.5	1784.7	1455.2	1165.2
12.5°	4979.9	4869.2	4725.5	4646.4	4216.7	4051.9	3895.1	3412.6	2890.7	2358.1	1829.6
15°	6162.3	6000.1	5847.2	5810.3	5472.9	5280.4	5106.4	4606.9	3986.0	3308.5	2590.1
17.5°	6856.9	6740.9	6595.9	6526.1	6130.6	5975.1	5777.4	5293.6	4689.9	4015.0	3180.6
20°	7533.1	7361.8	7157.4	7052.0	6614.4	6435.1	6211.0	5702.2	5062.9	4345.9	3511.5
22.5°	8151.3	7929.9	7639.9	7476.4	6984.8	6787.0	6536.6	5985.6	5293.6	4473.7	3539.2
25°	8690.4	8490.1	8103.9	7817.8	7237.8	7004.5	6713.2	6137.2	5376.6	4463.2	3445.6
27.5°	8793.2	8658.8	8312.1	7981.3	7326.2	7066.5	6764.6	6168.8	5318.7	4316.9	3193.8
30°	8732.6	8587.6	8309.5	7972.0	7289.3	7026.9	6713.2	6034.4	5091.9	3975.5	2732.5
32.5°	8586.3	8461.1	8128.9	7773.0	7107.4	6834.5	6503.6	5719.4	4703.1	3432.4	2010.1
35°	8326.6	8138.1	7737.4	7444.8	6818.7	6537.9	6133.3	5298.9	4121.8	2467.5	942.5
37.5°	7798.1	7614.8	7326.2	7055.9	6445.7	6114.8	5687.7	4713.6	3055.4	1345.8	582.6
40°	7165.3	7007.2	6755.4	6493.1	5864.4	5483.4	5012.8	3684.2	1797.9	757.9	358.5
42.5°	6477.3	6313.8	6029.1	5723.3	5037.9	4635.9	4127.1	2384.5	947.7	446.8	195.1
45°	4705.7	4559.4	4352.5	4132.3	3735.6	3445.6	2776.0	1252.2	524.6	237.3	96.2
47.5°	3220.2	3046.2	2663.9	2201.3	1784.7	1526.4	1148.1	543.1	268.9	118.6	56.7
50°	1767.6	1583.1	1388.0	1080.9	723.7	594.5	462.7	262.3	121.3	59.3	31.6
52.5°	433.7	383.6	350.6	322.9	255.7	230.7	195.1	109.4	55.4	33.0	22.4
55°	91.0	84.4	80.4	79.1	72.5	69.9	60.6	42.2	30.3	21.1	10.5
57.5°	26.4	25.0	26.4	26.4	26.4	25.0	25.0	18.5	17.1	10.5	6.6
60°	9.2	9.2	9.2	10.5	10.5	10.5	11.9	11.9	9.2	6.6	5.3
62.5°	4.0	4.0	4.0	5.3	5.3	6.6	6.6	6.6	5.3	5.3	4.0
65°	2.6	2.6	2.6	2.6	4.0	4.0	4.0	4.0	4.0	4.0	4.0
67.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	4.0
70°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	4.0
72.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	4.0
75°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	4.0
77.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	2.6	2.6	4.0
80°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	2.6	2.6	2.6
82.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.6	2.6	2.6
85°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.6	2.6	2.6
87.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	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: P182758

CATALOG NUMBER: LDSQA4A28827D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1
2.5°	438.9	425.8	409.9	392.8	390.2	380.9	367.8	349.3	342.7	329.5	317.7
5°	551.0	515.4	478.5	445.5	435.0	420.5	396.8	363.8	342.7	319.0	299.2
7.5°	701.2	619.5	544.4	485.1	466.6	442.9	406.0	363.8	332.2	299.2	272.9
10°	901.6	735.5	606.3	510.1	479.8	448.2	399.4	348.0	311.1	272.9	245.2
12.5°	1287.8	905.6	664.3	523.3	481.1	440.3	378.3	322.9	280.8	242.5	214.9
15°	1830.9	1228.5	781.7	532.5	467.9	417.8	345.3	288.7	246.5	210.9	184.5
17.5°	2289.6	1534.3	938.5	558.9	458.7	388.8	307.1	249.1	208.3	176.6	155.5
20°	2513.7	1671.4	1009.7	562.8	432.3	345.3	262.3	206.9	171.4	145.0	126.5
22.5°	2487.3	1625.3	943.8	493.0	365.1	291.3	217.5	167.4	137.1	116.0	102.8
25°	2310.7	1424.9	769.8	377.0	284.7	235.9	170.0	130.5	106.8	92.3	81.7
27.5°	2014.1	1144.1	561.5	266.3	216.2	179.3	126.5	100.2	81.7	71.2	64.6
30°	1551.4	731.6	322.9	191.1	156.9	127.9	94.9	72.5	62.0	55.4	50.1
32.5°	800.1	355.9	214.9	137.1	110.7	92.3	65.9	52.7	46.1	42.2	39.5
35°	438.9	253.1	148.9	88.3	71.2	59.3	44.8	36.9	34.3	31.6	31.6
37.5°	301.9	156.9	83.0	52.7	43.5	36.9	30.3	26.4	25.0	25.0	25.0
40°	174.0	83.0	47.5	33.0	27.7	25.0	21.1	19.8	19.8	19.8	21.1
42.5°	89.6	48.8	31.6	22.4	19.8	17.1	14.5	14.5	14.5	15.8	17.1
45°	52.7	33.0	21.1	14.5	13.2	11.9	10.5	10.5	11.9	13.2	14.5
47.5°	33.0	22.4	13.2	9.2	7.9	7.9	7.9	7.9	9.2	10.5	11.9
50°	22.4	11.9	7.9	5.3	5.3	5.3	5.3	6.6	7.9	9.2	10.5
52.5°	11.9	6.6	5.3	4.0	4.0	4.0	5.3	5.3	6.6	7.9	9.2
55°	6.6	5.3	4.0	4.0	4.0	4.0	4.0	5.3	6.6	7.9	9.2
57.5°	5.3	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	6.6	7.9
60°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	6.6	7.9
62.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	6.6	6.6
65°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	6.6	6.6
67.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	6.6
70°	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3	6.6
72.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3
75°	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3	5.3	6.6
77.5°	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3	5.3
80°	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3	5.3
82.5°	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3	5.3
85°	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3	5.3	5.3
87.5°	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3	5.3
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: P182758

CATALOG NUMBER: LDSQA4A28827D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1
2.5°	311.1	300.5	290.0	290.0	284.7	276.8	274.2	266.3	261.0	258.4	255.7
5°	284.7	268.9	254.4	253.1	246.5	237.3	233.3	225.4	220.1	217.5	216.2
7.5°	254.4	238.6	224.1	221.4	216.2	209.6	205.6	199.0	196.4	193.8	192.4
10°	225.4	209.6	199.0	196.4	192.4	187.2	183.2	179.3	176.6	175.3	175.3
12.5°	196.4	184.5	175.3	172.7	170.0	166.1	163.4	160.8	159.5	159.5	159.5
15°	170.0	159.5	151.6	151.6	148.9	146.3	146.3	143.7	142.4	143.7	145.0
17.5°	143.7	135.8	129.2	129.2	127.9	126.5	126.5	126.5	127.9	129.2	131.8
20°	118.6	112.0	109.4	109.4	108.1	109.4	109.4	110.7	112.0	116.0	119.9
22.5°	96.2	92.3	89.6	91.0	91.0	92.3	93.6	96.2	98.9	102.8	106.8
25°	77.8	75.1	73.8	75.1	76.5	77.8	80.4	83.0	87.0	91.0	96.2
27.5°	62.0	60.6	60.6	62.0	63.3	65.9	69.9	72.5	76.5	80.4	85.7
30°	50.1	48.8	50.1	52.7	54.0	56.7	59.3	63.3	67.2	71.2	76.5
32.5°	39.5	40.9	42.2	43.5	44.8	48.8	51.4	54.0	58.0	62.0	67.2
35°	33.0	34.3	35.6	36.9	38.2	40.9	43.5	46.1	50.1	54.0	59.3
37.5°	26.4	27.7	29.0	31.6	33.0	34.3	38.2	39.5	43.5	46.1	51.4
40°	22.4	23.7	25.0	26.4	27.7	30.3	33.0	34.3	36.9	40.9	44.8
42.5°	18.5	19.8	21.1	22.4	23.7	26.4	27.7	30.3	33.0	35.6	38.2
45°	15.8	17.1	18.5	19.8	21.1	22.4	23.7	26.4	27.7	30.3	33.0
47.5°	13.2	14.5	17.1	17.1	18.5	19.8	21.1	22.4	25.0	26.4	29.0
50°	11.9	13.2	14.5	15.8	15.8	17.1	18.5	19.8	21.1	22.4	25.0
52.5°	10.5	11.9	13.2	13.2	14.5	15.8	17.1	17.1	18.5	19.8	21.1
55°	9.2	10.5	11.9	11.9	13.2	14.5	14.5	15.8	17.1	17.1	18.5
57.5°	9.2	9.2	10.5	10.5	11.9	11.9	13.2	14.5	14.5	15.8	17.1
60°	7.9	9.2	9.2	10.5	10.5	11.9	11.9	13.2	13.2	14.5	14.5
62.5°	7.9	7.9	9.2	9.2	10.5	10.5	11.9	11.9	11.9	13.2	13.2
65°	7.9	7.9	9.2	9.2	9.2	10.5	10.5	10.5	10.5	11.9	11.9
67.5°	6.6	7.9	7.9	9.2	9.2	9.2	9.2	9.2	10.5	10.5	10.5
70°	6.6	7.9	7.9	7.9	7.9	9.2	9.2	9.2	9.2	9.2	9.2
72.5°	6.6	6.6	6.6	6.6	7.9	7.9	7.9	7.9	7.9	7.9	7.9
75°	6.6	6.6	6.6	6.6	6.6	7.9	7.9	7.9	7.9	7.9	7.9
77.5°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
80°	5.3	5.3	5.3	5.3	5.3	6.6	5.3	5.3	5.3	5.3	5.3
82.5°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.0	4.0
85°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.0	4.0	4.0	4.0
87.5°	5.3	5.3	5.3	4.0	4.0	4.0	4.0	4.0	4.0	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: P182758

CATALOG NUMBER: LDSQA4A28827D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	336.1	336.1	336.1	336.1	336.1	336.1	336.1	336.1
2.5°	251.8	249.1	251.8	249.1	249.1	243.9	247.8	245.2
5°	212.2	209.6	212.2	210.9	208.3	206.9	209.6	208.3
7.5°	189.8	187.2	189.8	189.8	187.2	185.9	188.5	187.2
10°	172.7	171.4	172.7	172.7	171.4	170.0	172.7	171.4
12.5°	158.2	156.9	159.5	159.5	158.2	158.2	160.8	158.2
15°	145.0	145.0	147.6	147.6	147.6	147.6	150.3	148.9
17.5°	131.8	134.4	137.1	138.4	138.4	138.4	141.0	141.0
20°	121.3	123.9	126.5	127.9	129.2	129.2	131.8	131.8
22.5°	109.4	112.0	116.0	117.3	118.6	119.9	122.6	122.6
25°	98.9	101.5	105.5	106.8	109.4	110.7	113.4	113.4
27.5°	88.3	92.3	94.9	97.5	98.9	101.5	104.1	104.1
30°	79.1	83.0	85.7	88.3	89.6	92.3	94.9	94.9
32.5°	69.9	73.8	76.5	79.1	81.7	83.0	87.0	87.0
35°	62.0	64.6	68.5	69.9	72.5	75.1	77.8	77.8
37.5°	54.0	56.7	59.3	62.0	64.6	65.9	68.5	69.9
40°	47.5	50.1	52.7	54.0	56.7	59.3	60.6	62.0
42.5°	40.9	43.5	46.1	47.5	50.1	51.4	54.0	54.0
45°	35.6	38.2	39.5	40.9	43.5	44.8	47.5	47.5
47.5°	30.3	33.0	34.3	35.6	36.9	38.2	40.9	40.9
50°	26.4	27.7	29.0	30.3	31.6	34.3	35.6	35.6
52.5°	22.4	25.0	25.0	26.4	27.7	29.0	30.3	31.6
55°	19.8	21.1	22.4	22.4	23.7	25.0	26.4	27.7
57.5°	17.1	18.5	19.8	19.8	21.1	21.1	22.4	23.7
60°	15.8	15.8	17.1	17.1	17.1	18.5	18.5	19.8
62.5°	13.2	13.2	14.5	14.5	14.5	14.5	14.5	14.5
65°	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9
67.5°	10.5	10.5	10.5	10.5	9.2	9.2	9.2	9.2
70°	9.2	9.2	9.2	9.2	7.9	7.9	7.9	6.6
72.5°	7.9	7.9	7.9	7.9	6.6	6.6	5.3	5.3
75°	6.6	6.6	6.6	6.6	6.6	5.3	5.3	5.3
77.5°	6.6	5.3	5.3	5.3	5.3	5.3	5.3	4.0
80°	5.3	5.3	4.0	4.0	4.0	4.0	4.0	4.0
82.5°	4.0	4.0	4.0	4.0	2.6	2.6	2.6	2.6
85°	4.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6
87.5°	2.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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













(END OF REPORT)