

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: P182836

Luminaire Tested: **LDSQA4A18935D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182836
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: LDSQA4A18935D010TE LAR35FL 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1656.5 lumens
Efficiency: N/A
Efficacy: 56.9 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

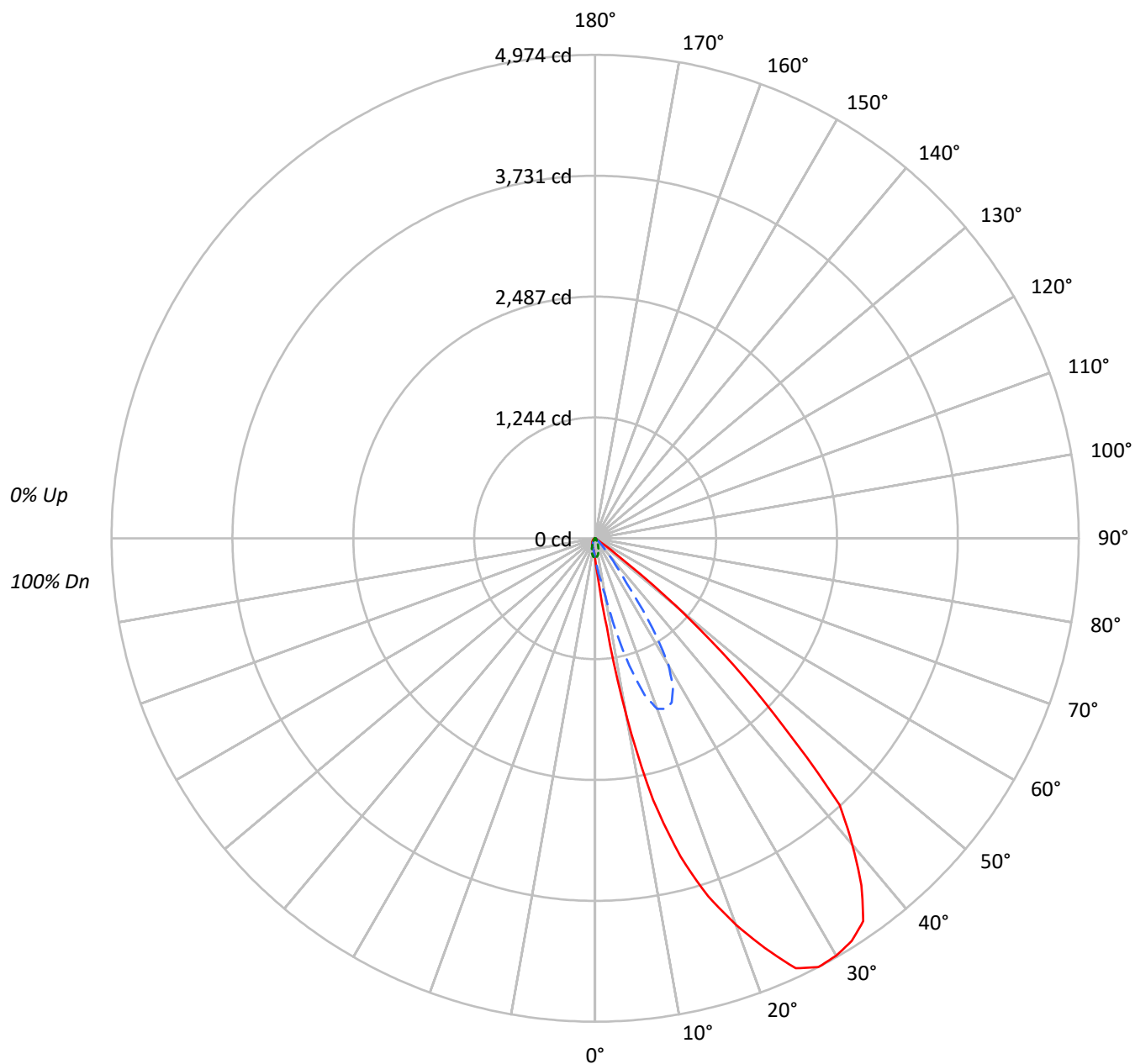
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182836

CATALOG NUMBER: LDSQA4A18935D010TE LAR35FL 4LSQAL1H 30°

Luminous Intensity Polar Plot





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CATALOG NUMBER: LDSQA4A18935D010TE LAR35FL 4LSQAL1H 30°

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20
RC	80					70					50					30					10
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																					
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102
1	112	109	106	104		110	107	104	102		103	101	99		99	97	96		96	94	93
2	106	100	95	91		103	98	94	90		95	91	88		92	89	86		89	86	84
3	99	91	85	80		97	90	84	80		87	82	78		84	80	77		82	79	76
4	92	83	77	71		90	82	76	71		80	74	70		78	73	69		76	72	68
5	86	76	69	64		84	75	68	64		73	67	63		71	66	62		70	65	62
6	80	70	62	57		79	69	62	57		67	61	57		66	60	56		64	59	56
7	75	64	57	52		74	63	56	51		62	56	51		60	55	51		59	54	50
8	70	59	52	47		69	58	51	46		57	51	46		56	50	46		55	50	46
9	66	54	47	42		64	54	47	42		53	46	42		52	46	42		51	45	42
10	62	50	43	38		60	50	43	38		49	42	38		48	42	38		47	42	38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	19840	19840	19840
5°	46503	18729	13089
10°	183745	16457	10919
15°	340063	13178	9578
20°	436041	9588	8670
25°	521710	6809	7675
30°	554735	4474	6756
35°	568538	2696	5890
40°	520429	1758	5058
45°	375538	1233	4137
50°	163944	980	3436
55°	11299	828	2888
60°	2054	794	2364
65°	756	756	1673
70°	680	935	1161
75°	599	1235	1235
80°	0	1841	1339
85°	0	3668	889



TEST NUMBER: P182836

CATALOG NUMBER: LDSQA4A18935D010TE LAR35FL 4LSQAL1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	29.8	1.8
10°-20°	234.5	14.2
20°-30°	490.9	29.6
30°-40°	546.4	33.0
40°-50°	313.7	18.9
50°-60°	31.3	1.9
60°-70°	4.9	0.3
70°-80°	3.1	0.2
80°-90°	1.9	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°	755.2	45.6
0°-40°	1301.6	78.6
0°-60°	1646.6	99.4
0°-90°	1656.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1656.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	205	205	205	205	205	
5°	478	330	193	140	135	88
15°	3391	1354	131	92	96	958
25°	4881	1863	64	56	72	2210
35°	4807	569	23	33	50	2935
45°	2741	68	9	18	30	2093
55°	67	10	5	11	17	200
65°	3	2	3	6	7	4
75°	2	2	3	4	3	1
85°	0	2	3	2	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182836

CATALOG NUMBER: LDSQA4A18935D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8
2.5°	306.0	299.5	293.0	288.9	284.8	290.5	286.4	284.8	273.4	267.7	262.8
5°	478.2	466.0	448.0	433.3	418.6	421.9	410.5	396.6	368.0	347.6	329.7
7.5°	923.0	892.8	837.3	783.4	729.5	719.8	683.9	621.8	541.9	481.5	429.2
10°	1867.9	1776.5	1674.5	1564.4	1435.4	1399.5	1310.6	1142.5	958.9	749.1	597.3
12.5°	2757.4	2715.8	2595.9	2453.0	2313.5	2227.8	2135.6	1858.1	1566.8	1229.0	946.6
15°	3390.7	3365.4	3260.1	3130.4	2980.2	2924.7	2812.1	2535.5	2167.4	1763.5	1353.8
17.5°	3859.9	3816.7	3706.5	3565.3	3387.4	3340.1	3205.4	2930.4	2548.5	2142.9	1688.4
20°	4229.6	4202.7	4059.9	3890.1	3677.1	3620.0	3462.5	3176.1	2760.7	2329.8	1867.1
22.5°	4561.7	4516.0	4340.6	4138.2	3895.0	3833.8	3658.4	3344.2	2897.8	2418.0	1898.9
25°	4880.8	4811.4	4598.4	4333.2	4047.6	3964.4	3771.8	3438.8	2948.4	2425.3	1863.0
27.5°	4973.8	4938.7	4742.1	4433.6	4103.1	4009.3	3808.5	3460.1	2929.6	2358.4	1734.1
30°	4959.1	4929.8	4765.7	4443.4	4093.3	3994.6	3790.6	3394.8	2820.3	2183.8	1506.4
32.5°	4912.6	4901.2	4702.9	4358.5	4001.9	3894.2	3673.9	3232.4	2615.4	1917.7	1100.9
35°	4807.4	4762.5	4515.2	4191.2	3848.5	3730.2	3481.3	2999.8	2345.3	1396.3	568.8
37.5°	4498.9	4463.8	4268.8	3984.8	3651.0	3499.2	3236.5	2699.5	1815.7	794.0	340.3
40°	4115.3	4098.2	3944.8	3691.0	3334.4	3163.0	2877.4	2209.0	1108.2	451.3	224.4
42.5°	3722.0	3717.1	3553.1	3287.9	2901.1	2704.4	2408.2	1490.1	589.2	272.6	129.8
45°	2741.1	2770.5	2656.2	2497.1	2201.7	2058.9	1674.5	767.9	339.5	151.0	68.5
47.5°	1922.6	1890.0	1687.6	1409.3	1139.2	964.6	729.5	363.1	181.2	79.2	39.2
50°	1087.8	1093.5	910.7	736.9	483.1	382.7	290.5	182.8	87.3	41.6	23.7
52.5°	284.0	297.0	256.2	220.3	187.7	152.6	123.2	79.2	41.6	24.5	15.5
55°	66.9	69.4	64.5	60.4	57.1	50.6	44.9	34.3	22.8	15.5	9.8
57.5°	23.7	24.5	23.7	23.7	22.8	22.0	20.4	18.0	13.9	9.8	6.5
60°	10.6	11.4	10.6	11.4	11.4	11.4	11.4	11.4	8.2	5.7	4.1
62.5°	4.9	4.9	4.9	4.9	5.7	5.7	6.5	6.5	4.9	4.1	3.3
65°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.4
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
70°	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
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: P182836

CATALOG NUMBER: LDSQA4A18935D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8
2.5°	253.8	253.0	244.0	237.5	234.2	229.3	223.6	215.4	206.5	198.3	195.0
5°	308.5	297.9	279.1	263.6	256.2	248.9	235.8	221.1	207.3	192.6	185.2
7.5°	379.5	348.5	311.7	283.2	270.9	258.7	239.9	219.5	200.7	181.2	170.6
10°	476.6	404.8	341.1	295.4	277.5	261.1	234.2	208.9	188.5	167.3	153.4
12.5°	681.4	503.5	372.1	301.1	277.5	256.2	223.6	194.2	171.4	149.3	136.3
15°	981.7	679.8	439.9	306.8	271.7	244.8	207.3	175.5	151.0	131.4	119.1
17.5°	1224.1	842.2	523.9	321.5	264.4	229.3	186.1	152.6	129.8	111.8	102.0
20°	1346.5	910.7	562.3	324.0	246.4	204.8	160.8	128.9	108.5	93.0	84.9
22.5°	1344.0	888.7	528.0	284.0	216.3	177.1	135.5	106.1	89.8	77.5	71.0
25°	1259.2	786.7	440.7	226.9	174.6	146.9	110.2	85.7	72.6	63.7	57.9
27.5°	1100.0	639.0	328.9	168.1	136.3	115.9	85.7	68.5	57.9	51.4	47.3
30°	863.4	427.6	207.3	124.9	103.6	87.3	66.1	53.0	45.7	40.0	37.5
32.5°	475.8	222.8	139.5	91.4	75.9	63.7	49.0	38.4	33.5	29.4	28.6
35°	262.8	157.5	99.6	61.2	50.6	43.3	33.5	27.7	24.5	22.8	22.8
37.5°	186.1	101.2	59.6	38.4	32.6	28.6	22.8	19.6	18.8	18.0	18.0
40°	111.8	59.6	35.9	25.3	22.0	19.6	17.1	14.7	14.7	13.9	14.7
42.5°	61.2	35.9	24.5	18.0	15.5	14.7	12.2	11.4	11.4	11.4	12.2
45°	36.7	23.7	17.1	13.1	11.4	9.8	9.0	8.2	9.0	9.0	9.8
47.5°	23.7	17.1	11.4	8.2	7.3	6.5	5.7	6.5	6.5	7.3	8.2
50°	16.3	10.6	7.3	4.9	4.9	4.1	4.9	4.9	5.7	6.5	7.3
52.5°	10.6	7.3	4.9	4.1	3.3	3.3	3.3	4.1	4.9	5.7	6.5
55°	6.5	4.9	4.1	3.3	3.3	3.3	3.3	3.3	4.1	4.9	5.7
57.5°	4.9	4.1	3.3	2.4	2.4	2.4	3.3	3.3	4.1	4.1	4.9
60°	3.3	3.3	2.4	2.4	2.4	2.4	2.4	3.3	3.3	4.1	4.9
62.5°	3.3	3.3	2.4	2.4	2.4	2.4	3.3	3.3	3.3	4.1	4.1
65°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	4.1
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	4.1
70°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	4.1
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3
75°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3
77.5°	1.6	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3
80°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3
82.5°	1.6	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3
85°	1.6	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3
87.5°	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3
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: P182836

CATALOG NUMBER: LDSQA4A18935D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8
2.5°	191.0	185.2	180.3	182.0	178.7	173.0	171.4	167.3	162.4	161.6	161.6
5°	177.1	168.1	160.8	159.9	156.7	150.2	148.5	144.4	140.4	139.5	138.7
7.5°	159.9	150.2	143.6	142.0	139.5	133.8	133.0	128.9	126.5	124.9	124.9
10°	142.8	133.8	128.1	127.3	125.7	120.8	120.0	116.7	114.2	113.4	112.6
12.5°	126.5	119.1	114.2	113.4	111.8	107.7	106.9	104.5	102.8	102.0	102.0
15°	111.0	104.5	100.4	99.6	98.7	94.7	94.7	93.0	92.2	92.2	93.0
17.5°	95.5	89.8	86.5	85.7	85.7	82.4	83.2	82.4	82.4	82.4	84.1
20°	80.0	75.1	72.6	73.4	71.8	71.0	71.8	71.8	71.8	73.4	75.9
22.5°	66.9	62.8	60.4	61.2	61.2	60.4	61.2	62.0	63.7	66.1	68.5
25°	54.7	51.4	50.6	51.4	51.4	51.4	53.0	54.7	56.3	58.8	61.2
27.5°	44.1	41.6	41.6	42.4	43.3	43.3	45.7	47.3	49.8	52.2	54.7
30°	35.1	34.3	34.3	35.9	35.9	36.7	40.0	41.6	43.3	45.7	48.1
32.5°	27.7	27.7	28.6	30.2	30.2	31.8	34.3	35.9	37.5	40.0	42.4
35°	22.8	23.7	24.5	25.3	26.1	26.9	29.4	31.0	32.6	35.1	36.7
37.5°	18.8	19.6	20.4	22.0	22.0	22.8	25.3	26.9	27.7	30.2	32.6
40°	15.5	16.3	17.1	18.8	18.8	19.6	22.0	22.8	23.7	26.1	28.6
42.5°	13.1	13.9	14.7	15.5	16.3	17.1	18.8	19.6	21.2	22.8	24.5
45°	10.6	11.4	12.2	13.1	13.9	14.7	15.5	17.1	18.0	19.6	21.2
47.5°	9.0	9.8	10.6	11.4	12.2	12.2	13.9	14.7	15.5	17.1	18.8
50°	8.2	9.0	9.8	9.8	10.6	11.4	12.2	13.1	13.9	14.7	16.3
52.5°	6.5	7.3	8.2	9.0	9.0	9.8	10.6	11.4	12.2	13.1	13.9
55°	6.5	6.5	7.3	8.2	8.2	9.0	9.8	10.6	10.6	11.4	12.2
57.5°	5.7	6.5	6.5	7.3	7.3	8.2	9.0	9.0	9.8	9.8	10.6
60°	4.9	5.7	6.5	6.5	6.5	7.3	7.3	8.2	8.2	9.0	9.0
62.5°	4.9	5.7	5.7	6.5	6.5	6.5	7.3	7.3	7.3	8.2	8.2
65°	4.9	4.9	5.7	5.7	5.7	5.7	6.5	6.5	6.5	7.3	7.3
67.5°	4.1	4.9	4.9	4.9	5.7	5.7	5.7	5.7	5.7	6.5	6.5
70°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7	5.7
72.5°	4.1	4.1	4.1	4.1	4.9	4.9	4.9	4.9	4.9	4.9	4.9
75°	3.3	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
77.5°	3.3	3.3	3.3	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
80°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
82.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.4	2.4
85°	3.3	3.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6
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: P182836

CATALOG NUMBER: LDSQA4A18935D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	204.8	204.8	204.8	204.8	204.8	204.8	204.8	204.8
2.5°	158.3	156.7	155.9	158.3	155.0	156.7	155.9	156.7
5°	136.3	134.6	133.8	136.3	133.0	134.6	133.0	134.6
7.5°	122.4	121.6	120.8	122.4	120.0	121.6	120.8	121.6
10°	111.0	110.2	109.4	111.8	109.4	111.0	110.2	111.0
12.5°	101.2	101.2	100.4	102.0	100.4	102.0	101.2	102.0
15°	92.2	93.0	92.2	93.8	93.0	94.7	93.8	95.5
17.5°	84.9	85.7	85.7	88.1	87.3	89.8	88.9	89.8
20°	77.5	78.3	79.2	80.8	80.8	83.2	82.4	84.1
22.5°	70.2	71.8	71.8	74.3	74.3	76.7	76.7	77.5
25°	62.8	65.3	66.1	67.7	68.5	71.0	71.0	71.8
27.5°	57.1	58.8	59.6	62.0	62.8	65.3	65.3	66.9
30°	50.6	53.0	53.9	55.5	56.3	58.8	58.8	60.4
32.5°	44.9	46.5	48.1	49.8	50.6	53.0	53.0	54.7
35°	39.2	41.6	42.4	44.1	45.7	48.1	48.1	49.8
37.5°	34.3	36.7	37.5	39.2	40.8	43.3	43.3	44.9
40°	30.2	32.6	33.5	35.1	35.9	39.2	39.2	40.0
42.5°	26.9	28.6	29.4	31.0	31.8	33.5	33.5	35.1
45°	22.8	24.5	25.3	26.1	27.7	29.4	29.4	30.2
47.5°	19.6	21.2	22.0	22.8	23.7	25.3	25.3	26.9
50°	17.1	18.0	18.8	19.6	20.4	22.0	22.0	22.8
52.5°	14.7	15.5	16.3	17.1	18.0	18.8	19.6	20.4
55°	13.1	13.9	13.9	14.7	15.5	16.3	16.3	17.1
57.5°	11.4	12.2	12.2	12.2	13.1	13.9	13.9	14.7
60°	9.8	10.6	10.6	10.6	11.4	11.4	11.4	12.2
62.5°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
65°	7.3	7.3	7.3	7.3	7.3	7.3	6.5	7.3
67.5°	6.5	6.5	6.5	5.7	5.7	5.7	5.7	5.7
70°	5.7	5.7	5.7	4.9	4.9	4.9	4.1	4.1
72.5°	4.9	4.9	4.9	4.1	4.1	4.1	3.3	3.3
75°	4.1	4.1	4.1	4.1	3.3	3.3	3.3	3.3
77.5°	3.3	3.3	3.3	3.3	3.3	3.3	2.4	2.4
80°	3.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4
82.5°	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6
85°	1.6	1.6	1.6	1.6	1.6	1.6	0.8	0.8
87.5°	1.6	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



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— 0°-180° - - 45°-225° - - - 90°-270°













(END OF REPORT)