

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: P182740

Luminaire Tested: **LDSQA4A18935D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182740
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: LDSQA4A18935D010TE LAR35FL 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
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: 1783.0 lumens
Efficiency: N/A
Efficacy: 61.2 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

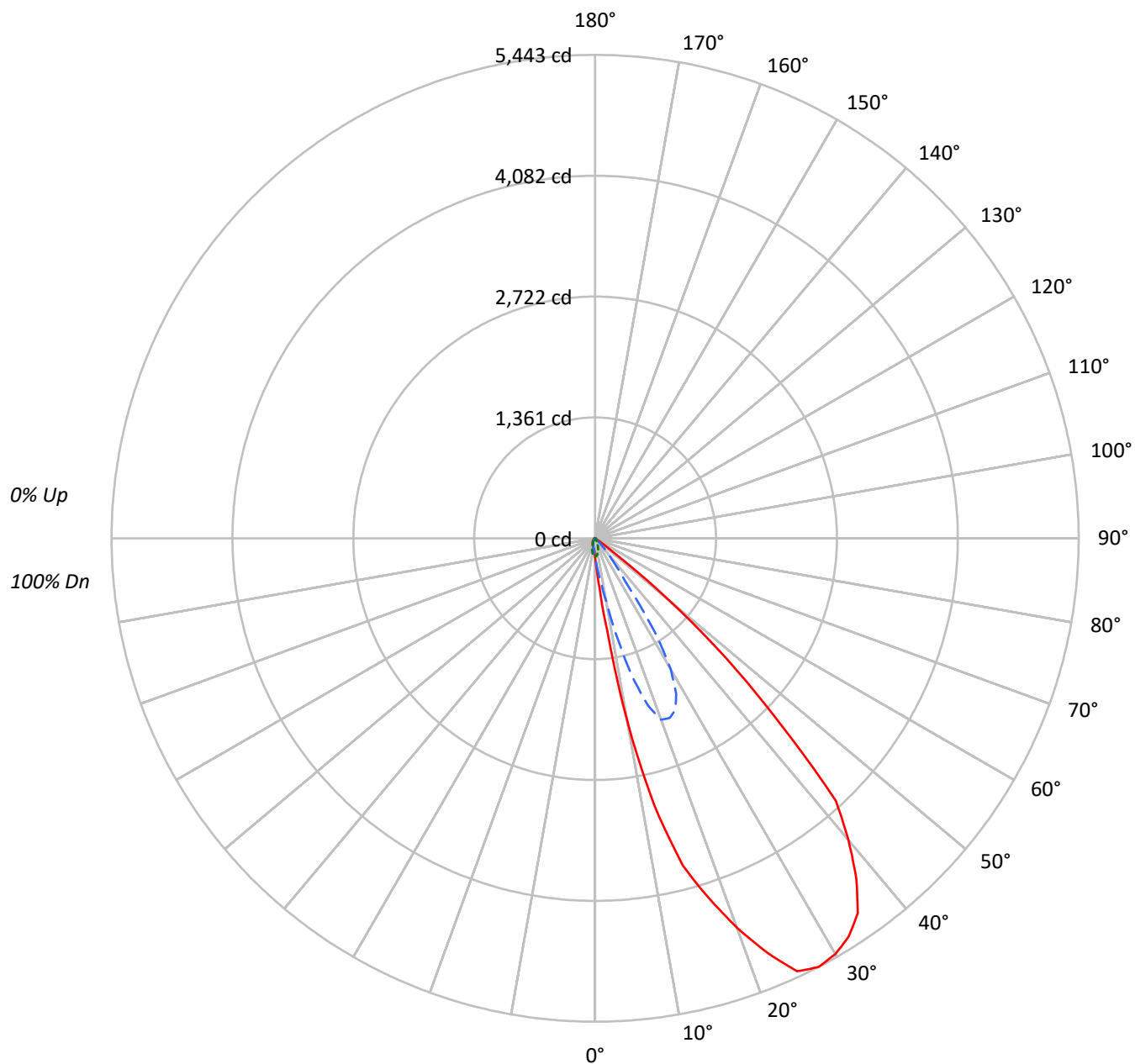
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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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	105	102		103	101	99		99	98	96		96	94	93
2	106	100	95	91		103	98	94	90		95	91	88		92	89	86		89	87	84
3	99	91	85	81		97	90	84	80		87	83	79		85	81	77		82	79	76
4	92	83	77	72		91	82	76	71		80	75	71		78	73	70		76	72	69
5	86	76	69	64		85	75	69	64		74	68	63		72	67	63		70	66	62
6	81	70	63	58		79	69	62	58		68	62	57		66	61	57		65	60	56
7	75	64	57	52		74	64	57	52		62	56	52		61	55	51		60	55	51
8	71	59	52	47		69	59	52	47		57	51	47		56	51	47		55	50	46
9	66	55	48	43		65	54	47	43		53	47	43		52	46	42		51	46	42
10	62	50	44	39		61	50	43	39		49	43	39		48	43	39		47	42	39

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	20160	20160	20160
5°	52999	19196	12535
10°	207797	16615	10437
15°	382557	13088	9247
20°	480711	9247	8412
25°	574995	6103	7504
30°	604659	3837	6566
35°	609540	2318	5688
40°	560896	1543	4843
45°	399061	1123	4028
50°	164893	859	3316
55°	9509	828	2888
60°	1104	794	2364
65°	367	940	1673
70°	453	935	1161
75°	599	1235	1235
80°	0	1841	1339
85°	0	3668	1778



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	32.7	1.8
10°-20°	261.3	14.7
20°-30°	540.4	30.3
30°-40°	588.3	33.0
40°-50°	322.6	18.1
50°-60°	27.9	1.6
60°-70°	4.5	0.3
70°-80°	3.3	0.2
80°-90°	2.0	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°	834.4	46.8
0°-40°	1422.7	79.8
0°-60°	1773.1	99.4
0°-90°	1783.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1783.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	208	208	208	208	208	
5°	545	373	197	136	129	99
15°	3814	1603	130	88	92	1065
25°	5379	2133	57	54	70	2429
35°	5154	583	20	31	48	3163
45°	2913	60	8	17	29	2223
55°	56	6	5	11	17	192
65°	2	2	4	6	7	2
75°	2	2	3	5	3	1
85°	0	2	3	2	2	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1
2.5°	327.2	315.8	314.1	315.8	307.6	306.8	308.4	301.9	296.2	290.5	285.6
5°	545.0	521.4	514.0	504.2	479.8	471.6	470.0	443.9	418.6	394.9	372.9
7.5°	1059.0	1011.7	986.4	937.5	862.4	829.0	811.0	725.3	645.4	572.8	506.7
10°	2112.4	1988.4	1928.0	1835.8	1671.8	1591.0	1532.3	1316.9	1104.7	900.8	721.3
12.5°	3082.5	3014.0	2925.0	2876.1	2610.1	2508.1	2411.0	2112.4	1789.3	1459.7	1132.5
15°	3814.4	3714.0	3619.4	3596.5	3387.6	3268.5	3160.8	2851.6	2467.3	2047.9	1603.3
17.5°	4244.3	4172.5	4082.8	4039.5	3794.8	3698.5	3576.1	3276.7	2903.0	2485.2	1968.8
20°	4662.9	4556.8	4430.4	4365.1	4094.2	3983.2	3844.5	3529.6	3133.9	2690.0	2173.6
22.5°	5045.6	4908.5	4729.0	4627.8	4323.5	4201.1	4046.1	3705.0	3276.7	2769.2	2190.7
25°	5379.3	5255.2	5016.2	4839.1	4480.1	4335.7	4155.4	3798.9	3328.1	2762.7	2132.8
27.5°	5442.9	5359.7	5145.1	4940.3	4534.8	4374.1	4187.2	3818.4	3292.2	2672.1	1976.9
30°	5405.4	5315.6	5143.5	4934.6	4512.0	4349.6	4155.4	3735.2	3151.8	2460.8	1691.4
32.5°	5314.8	5237.3	5031.7	4811.4	4399.4	4230.5	4025.7	3540.2	2911.1	2124.6	1244.3
35°	5154.1	5037.4	4789.4	4608.2	4220.7	4046.9	3796.4	3279.9	2551.3	1527.4	583.4
37.5°	4826.9	4713.5	4534.8	4367.5	3989.8	3785.0	3520.6	2917.7	1891.3	833.0	360.6
40°	4435.3	4337.3	4181.5	4019.1	3630.0	3394.2	3102.9	2280.5	1112.9	469.1	221.9
42.5°	4009.4	3908.2	3731.9	3542.7	3118.4	2869.5	2554.6	1476.0	586.6	276.6	120.8
45°	2912.8	2822.2	2694.1	2557.9	2312.3	2132.8	1718.3	775.1	324.7	146.9	59.6
47.5°	1993.3	1885.6	1648.9	1362.6	1104.7	944.8	710.7	336.2	166.4	73.4	35.1
50°	1094.1	979.9	859.1	669.0	447.9	368.0	286.4	162.4	75.1	36.7	19.6
52.5°	268.4	237.4	217.0	199.9	158.3	142.8	120.8	67.7	34.3	20.4	13.9
55°	56.3	52.2	49.8	49.0	44.9	43.2	37.5	26.1	18.8	13.1	6.5
57.5°	16.3	15.5	16.3	16.3	16.3	15.5	15.5	11.4	10.6	6.5	4.1
60°	5.7	5.7	5.7	6.5	6.5	6.5	7.3	7.3	5.7	4.1	3.3
62.5°	2.4	2.4	2.4	3.3	3.3	4.1	4.1	4.1	3.3	3.3	2.4
65°	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
70°	1.6	1.6	1.6	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	2.4
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	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	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6
87.5°	0.0	0.0	0.0	0.8	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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1
2.5°	271.7	263.5	253.7	243.1	241.5	235.8	227.6	216.2	212.1	204.0	196.6
5°	341.0	319.0	296.2	275.8	269.2	260.3	245.6	225.2	212.1	197.4	185.2
7.5°	434.1	383.5	337.0	300.3	288.8	274.1	251.3	225.2	205.6	185.2	168.9
10°	558.1	455.3	375.3	315.8	297.0	277.4	247.2	215.4	192.6	168.9	151.8
12.5°	797.1	560.5	411.2	323.9	297.8	272.5	234.2	199.9	173.8	150.1	133.0
15°	1133.3	760.4	483.8	329.6	289.6	258.6	213.8	178.7	152.6	130.5	114.2
17.5°	1417.2	949.7	580.9	345.9	283.9	240.7	190.1	154.2	128.9	109.3	96.3
20°	1555.9	1034.6	625.0	348.4	267.6	213.8	162.4	128.1	106.1	89.7	78.3
22.5°	1539.6	1006.0	584.2	305.1	226.0	180.3	134.6	103.6	84.9	71.8	63.6
25°	1430.3	882.0	476.5	233.3	176.2	146.0	105.3	80.8	66.1	57.1	50.6
27.5°	1246.7	708.2	347.6	164.8	133.8	111.0	78.3	62.0	50.6	44.1	40.0
30°	960.3	452.8	199.9	118.3	97.1	79.1	58.7	44.9	38.3	34.3	31.0
32.5°	495.3	220.3	133.0	84.9	68.5	57.1	40.8	32.6	28.6	26.1	24.5
35°	271.7	156.7	92.2	54.7	44.1	36.7	27.7	22.8	21.2	19.6	19.6
37.5°	186.8	97.1	51.4	32.6	26.9	22.8	18.8	16.3	15.5	15.5	15.5
40°	107.7	51.4	29.4	20.4	17.1	15.5	13.1	12.2	12.2	12.2	13.1
42.5°	55.5	30.2	19.6	13.9	12.2	10.6	9.0	9.0	9.0	9.8	10.6
45°	32.6	20.4	13.1	9.0	8.2	7.3	6.5	6.5	7.3	8.2	9.0
47.5°	20.4	13.9	8.2	5.7	4.9	4.9	4.9	4.9	5.7	6.5	7.3
50°	13.9	7.3	4.9	3.3	3.3	3.3	3.3	4.1	4.9	5.7	6.5
52.5°	7.3	4.1	3.3	2.4	2.4	2.4	3.3	3.3	4.1	4.9	5.7
55°	4.1	3.3	2.4	2.4	2.4	2.4	2.4	3.3	4.1	4.9	5.7
57.5°	3.3	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	4.1	4.9
60°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	4.1	4.9
62.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	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	4.1	4.1
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	4.1
70°	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3	4.1
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3
75°	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3	3.3	4.1
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3	3.3
80°	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3	3.3
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3	3.3
85°	2.4	2.4	2.4	2.4	2.4	3.3	3.3	3.3	3.3	3.3	3.3
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	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



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1
2.5°	192.6	186.0	179.5	179.5	176.2	171.3	169.7	164.8	161.5	159.9	158.3
5°	176.2	166.4	157.5	156.7	152.6	146.9	144.4	139.5	136.3	134.6	133.8
7.5°	157.5	147.7	138.7	137.1	133.8	129.7	127.3	123.2	121.6	119.9	119.1
10°	139.5	129.7	123.2	121.6	119.1	115.9	113.4	111.0	109.3	108.5	108.5
12.5°	121.6	114.2	108.5	106.9	105.3	102.8	101.2	99.5	98.7	98.7	98.7
15°	105.3	98.7	93.8	93.8	92.2	90.6	90.6	88.9	88.1	88.9	89.7
17.5°	88.9	84.0	80.0	80.0	79.1	78.3	78.3	78.3	79.1	80.0	81.6
20°	73.4	69.4	67.7	67.7	66.9	67.7	67.7	68.5	69.4	71.8	74.2
22.5°	59.6	57.1	55.5	56.3	56.3	57.1	57.9	59.6	61.2	63.6	66.1
25°	48.1	46.5	45.7	46.5	47.3	48.1	49.8	51.4	53.8	56.3	59.6
27.5°	38.3	37.5	37.5	38.3	39.2	40.8	43.2	44.9	47.3	49.8	53.0
30°	31.0	30.2	31.0	32.6	33.5	35.1	36.7	39.2	41.6	44.1	47.3
32.5°	24.5	25.3	26.1	26.9	27.7	30.2	31.8	33.5	35.9	38.3	41.6
35°	20.4	21.2	22.0	22.8	23.7	25.3	26.9	28.6	31.0	33.5	36.7
37.5°	16.3	17.1	17.9	19.6	20.4	21.2	23.7	24.5	26.9	28.6	31.8
40°	13.9	14.7	15.5	16.3	17.1	18.8	20.4	21.2	22.8	25.3	27.7
42.5°	11.4	12.2	13.1	13.9	14.7	16.3	17.1	18.8	20.4	22.0	23.7
45°	9.8	10.6	11.4	12.2	13.1	13.9	14.7	16.3	17.1	18.8	20.4
47.5°	8.2	9.0	10.6	10.6	11.4	12.2	13.1	13.9	15.5	16.3	17.9
50°	7.3	8.2	9.0	9.8	9.8	10.6	11.4	12.2	13.1	13.9	15.5
52.5°	6.5	7.3	8.2	8.2	9.0	9.8	10.6	10.6	11.4	12.2	13.1
55°	5.7	6.5	7.3	7.3	8.2	9.0	9.0	9.8	10.6	10.6	11.4
57.5°	5.7	5.7	6.5	6.5	7.3	7.3	8.2	9.0	9.0	9.8	10.6
60°	4.9	5.7	5.7	6.5	6.5	7.3	7.3	8.2	8.2	9.0	9.0
62.5°	4.9	4.9	5.7	5.7	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	6.5	6.5	6.5	6.5	7.3	7.3
67.5°	4.1	4.9	4.9	5.7	5.7	5.7	5.7	5.7	6.5	6.5	6.5
70°	4.1	4.9	4.9	4.9	4.9	5.7	5.7	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°	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.9	4.9	4.9	4.9
77.5°	4.1	4.1	4.1	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	4.1	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	3.3	3.3	3.3	3.3	3.3	2.4	2.4	2.4	2.4
87.5°	3.3	3.3	3.3	2.4	2.4	2.4	2.4	2.4	2.4	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: P182740

CATALOG NUMBER: LDSQA4A18935D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1
2.5°	155.8	154.2	155.8	154.2	154.2	150.9	153.4	151.8
5°	131.4	129.7	131.4	130.5	128.9	128.1	129.7	128.9
7.5°	117.5	115.9	117.5	117.5	115.9	115.0	116.7	115.9
10°	106.9	106.1	106.9	106.9	106.1	105.3	106.9	106.1
12.5°	97.9	97.1	98.7	98.7	97.9	97.9	99.5	97.9
15°	89.7	89.7	91.4	91.4	91.4	91.4	93.0	92.2
17.5°	81.6	83.2	84.9	85.7	85.7	85.7	87.3	87.3
20°	75.1	76.7	78.3	79.1	80.0	80.0	81.6	81.6
22.5°	67.7	69.4	71.8	72.6	73.4	74.2	75.9	75.9
25°	61.2	62.8	65.3	66.1	67.7	68.5	70.2	70.2
27.5°	54.7	57.1	58.7	60.4	61.2	62.8	64.5	64.5
30°	49.0	51.4	53.0	54.7	55.5	57.1	58.7	58.7
32.5°	43.2	45.7	47.3	49.0	50.6	51.4	53.8	53.8
35°	38.3	40.0	42.4	43.2	44.9	46.5	48.1	48.1
37.5°	33.5	35.1	36.7	38.3	40.0	40.8	42.4	43.2
40°	29.4	31.0	32.6	33.5	35.1	36.7	37.5	38.3
42.5°	25.3	26.9	28.6	29.4	31.0	31.8	33.5	33.5
45°	22.0	23.7	24.5	25.3	26.9	27.7	29.4	29.4
47.5°	18.8	20.4	21.2	22.0	22.8	23.7	25.3	25.3
50°	16.3	17.1	17.9	18.8	19.6	21.2	22.0	22.0
52.5°	13.9	15.5	15.5	16.3	17.1	17.9	18.8	19.6
55°	12.2	13.1	13.9	13.9	14.7	15.5	16.3	17.1
57.5°	10.6	11.4	12.2	12.2	13.1	13.1	13.9	14.7
60°	9.8	9.8	10.6	10.6	10.6	11.4	11.4	12.2
62.5°	8.2	8.2	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	7.3	7.3
67.5°	6.5	6.5	6.5	6.5	5.7	5.7	5.7	5.7
70°	5.7	5.7	5.7	5.7	4.9	4.9	4.9	4.1
72.5°	4.9	4.9	4.9	4.9	4.1	4.1	3.3	3.3
75°	4.1	4.1	4.1	4.1	4.1	3.3	3.3	3.3
77.5°	4.1	3.3	3.3	3.3	3.3	3.3	3.3	2.4
80°	3.3	3.3	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°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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)