

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: P182856

Luminaire Tested: **LDSQA4A28835D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182856
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: LDSQA4A28835D010TE 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: 2780.4 lumens
Efficiency: N/A
Efficacy: 62.5 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

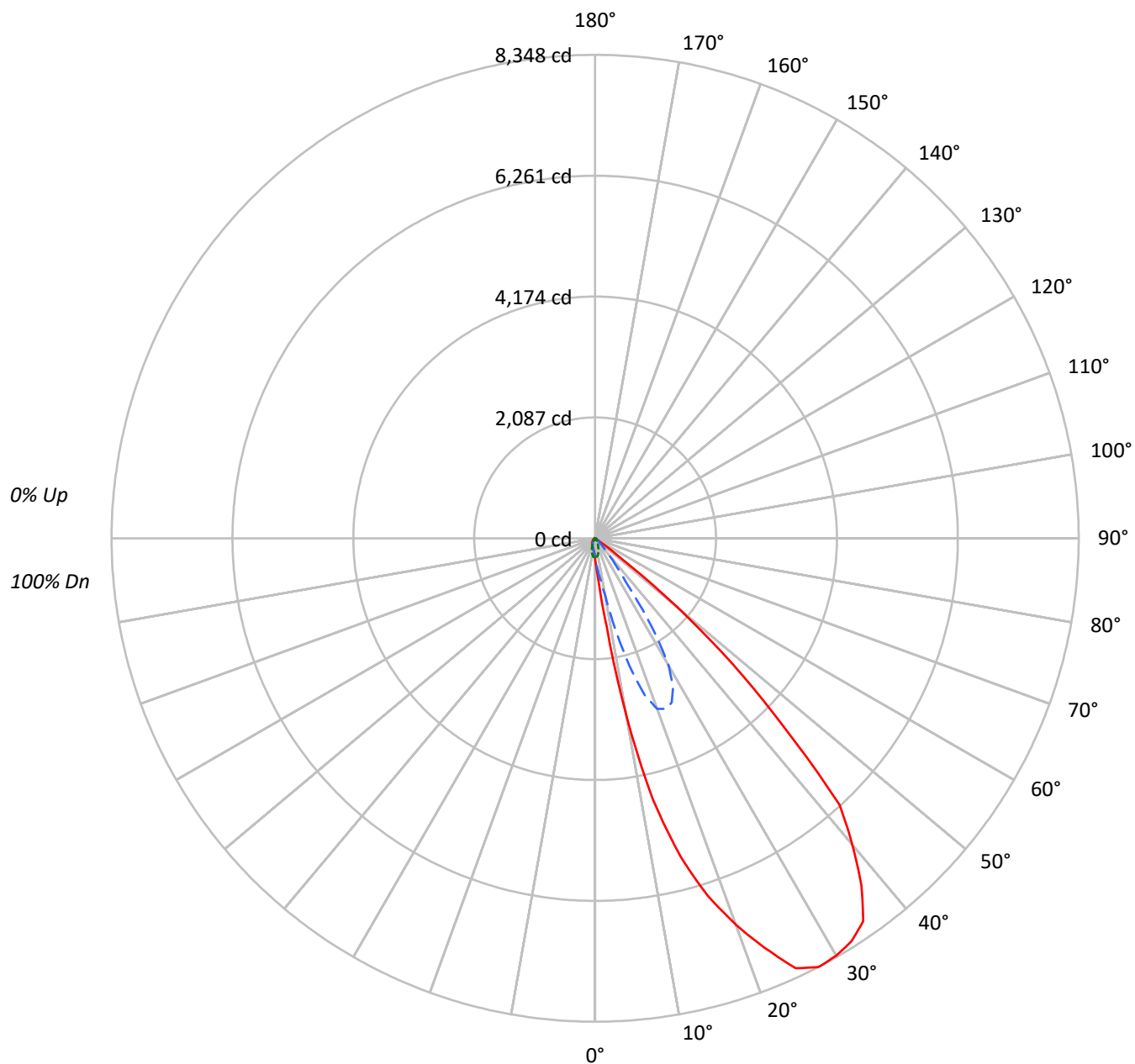
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	33306	33306	33306
5°	78049	31439	21977
10°	308419	27622	18326
15°	570776	22115	16077
20°	731876	16093	14546
25°	875666	11416	12880
30°	931107	7506	11343
35°	954253	4541	9887
40°	873523	2947	8486
45°	630321	2069	6946
50°	275169	1658	5787
55°	18967	1385	4864
60°	3449	1318	3972
65°	1261	1261	2819
70°	1161	1558	1926
75°	1011	2059	2059
80°	0	3068	2287
85°	0	6113	1556



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	50.1	1.8
10°-20°	393.6	14.2
20°-30°	823.9	29.6
30°-40°	917.1	33.0
40°-50°	526.5	18.9
50°-60°	52.6	1.9
60°-70°	8.2	0.3
70°-80°	5.2	0.2
80°-90°	3.2	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°	1267.6	45.6
0°-40°	2184.7	78.6
0°-60°	2763.7	99.4
0°-90°	2780.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2780.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	344	344	344	344	344	
5°	803	553	323	236	226	147
15°	5691	2272	220	155	160	1609
25°	8192	3127	107	94	120	3710
35°	8069	955	38	55	84	4927
45°	4601	115	15	30	51	3513
55°	112	16	8	18	29	335
65°	6	4	6	11	12	7
75°	3	3	6	7	6	2
85°	0	3	6	4	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182856

CATALOG NUMBER: LDSQA4A28835D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
2.5°	513.6	502.7	491.7	484.9	478.0	487.6	480.8	478.0	458.9	449.3	441.0
5°	802.6	782.1	752.0	727.3	702.7	708.1	689.0	665.7	617.7	583.5	553.4
7.5°	1549.1	1498.5	1405.3	1314.9	1224.5	1208.1	1147.8	1043.7	909.5	808.1	720.5
10°	3135.3	2981.9	2810.6	2625.7	2409.3	2349.0	2199.7	1917.6	1609.4	1257.4	1002.6
12.5°	4628.2	4558.4	4357.0	4117.3	3883.1	3739.3	3584.5	3118.8	2629.8	2062.8	1588.9
15°	5691.1	5648.7	5472.0	5254.2	5002.2	4909.0	4720.0	4255.7	3637.9	2959.9	2272.3
17.5°	6478.7	6406.1	6221.2	5984.2	5685.7	5606.2	5380.2	4918.6	4277.6	3596.8	2833.9
20°	7099.2	7054.0	6814.3	6529.4	6171.9	6076.0	5811.7	5330.9	4633.7	3910.5	3133.9
22.5°	7656.7	7580.0	7285.5	6945.8	6537.6	6434.9	6140.4	5613.1	4863.8	4058.4	3187.3
25°	8192.2	8075.8	7718.3	7273.1	6793.7	6654.0	6330.8	5771.9	4948.7	4070.8	3127.0
27.5°	8348.4	8289.5	7959.4	7441.6	6886.9	6729.4	6392.4	5807.6	4917.2	3958.5	2910.6
30°	8323.7	8274.4	7999.1	7458.1	6870.4	6704.7	6362.3	5698.0	4733.7	3665.3	2528.5
32.5°	8245.6	8226.5	7893.6	7315.6	6717.0	6536.2	6166.4	5425.4	4389.9	3218.8	1847.7
35°	8068.9	7993.6	7578.6	7034.8	6459.5	6260.9	5843.2	5035.0	3936.5	2343.6	954.7
37.5°	7551.2	7492.3	7164.9	6688.3	6128.1	5873.3	5432.3	4531.0	3047.6	1332.7	571.2
40°	6907.4	6878.7	6621.2	6195.2	5596.6	5309.0	4829.6	3707.8	1860.1	757.4	376.7
42.5°	6247.2	6239.0	5963.7	5518.5	4869.3	4539.2	4042.0	2501.1	988.9	457.5	217.8
45°	4600.8	4650.2	4458.4	4191.3	3695.5	3455.8	2810.6	1288.9	569.8	253.4	115.1
47.5°	3227.0	3172.2	2832.6	2365.5	1912.1	1619.0	1224.5	609.5	304.1	132.9	65.7
50°	1825.8	1835.4	1528.6	1236.8	810.9	642.4	487.6	306.8	146.6	69.9	39.7
52.5°	476.7	498.6	430.1	369.8	315.0	256.1	206.8	132.9	69.9	41.1	26.0
55°	112.3	116.4	108.2	101.4	95.9	84.9	75.3	57.5	38.4	26.0	16.4
57.5°	39.7	41.1	39.7	39.7	38.4	37.0	34.2	30.1	23.3	16.4	11.0
60°	17.8	19.2	17.8	19.2	19.2	19.2	19.2	19.2	13.7	9.6	6.8
62.5°	8.2	8.2	8.2	8.2	9.6	9.6	11.0	11.0	8.2	6.8	5.5
65°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	4.1
67.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
70°	4.1	4.1	4.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.1
72.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
75°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7	2.7
80°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.7	2.7	2.7
82.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.7	2.7	2.7
85°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7
87.5°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7
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°	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
2.5°	426.0	424.6	409.5	398.6	393.1	384.9	375.3	361.6	346.5	332.8	327.4
5°	517.7	499.9	468.4	442.4	430.1	417.8	395.8	371.2	347.9	323.3	310.9
7.5°	636.9	584.9	523.2	475.3	454.7	434.2	402.7	368.5	336.9	304.1	286.3
10°	799.9	679.4	572.5	495.8	465.7	438.3	393.1	350.6	316.4	280.8	257.5
12.5°	1143.7	845.1	624.6	505.4	465.7	430.1	375.3	326.0	287.6	250.7	228.7
15°	1647.8	1141.0	738.3	515.0	456.1	410.9	347.9	294.5	253.4	220.5	200.0
17.5°	2054.6	1413.5	879.4	539.7	443.8	384.9	312.3	256.1	217.8	187.6	171.2
20°	2260.0	1528.6	943.7	543.8	413.7	343.8	269.8	216.4	182.2	156.1	142.4
22.5°	2255.9	1491.6	886.2	476.7	363.0	297.2	227.4	178.1	150.7	130.1	119.2
25°	2113.5	1320.4	739.6	380.8	293.1	246.5	184.9	143.8	121.9	106.8	97.2
27.5°	1846.4	1072.5	552.0	282.2	228.7	194.5	143.8	115.1	97.2	86.3	79.4
30°	1449.1	717.7	347.9	209.6	174.0	146.6	110.9	89.0	76.7	67.1	63.0
32.5°	798.5	373.9	234.2	153.4	127.4	106.8	82.2	64.4	56.2	49.3	47.9
35°	441.0	264.4	167.1	102.7	84.9	72.6	56.2	46.6	41.1	38.4	38.4
37.5°	312.3	169.8	100.0	64.4	54.8	47.9	38.4	32.9	31.5	30.1	30.1
40°	187.6	100.0	60.3	42.5	37.0	32.9	28.8	24.7	24.7	23.3	24.7
42.5°	102.7	60.3	41.1	30.1	26.0	24.7	20.5	19.2	19.2	19.2	20.5
45°	61.6	39.7	28.8	21.9	19.2	16.4	15.1	13.7	15.1	15.1	16.4
47.5°	39.7	28.8	19.2	13.7	12.3	11.0	9.6	11.0	11.0	12.3	13.7
50°	27.4	17.8	12.3	8.2	8.2	6.8	8.2	8.2	9.6	11.0	12.3
52.5°	17.8	12.3	8.2	6.8	5.5	5.5	5.5	6.8	8.2	9.6	11.0
55°	11.0	8.2	6.8	5.5	5.5	5.5	5.5	5.5	6.8	8.2	9.6
57.5°	8.2	6.8	5.5	4.1	4.1	4.1	5.5	5.5	6.8	6.8	8.2
60°	5.5	5.5	4.1	4.1	4.1	4.1	4.1	5.5	5.5	6.8	8.2
62.5°	5.5	5.5	4.1	4.1	4.1	4.1	5.5	5.5	5.5	6.8	6.8
65°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5	6.8
67.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	6.8
70°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	6.8
72.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5
75°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5	5.5
77.5°	2.7	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5	5.5
80°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5	5.5
82.5°	2.7	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5	5.5
85°	2.7	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5	5.5
87.5°	2.7	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5
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°	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
2.5°	320.5	310.9	302.7	305.4	300.0	290.4	287.6	280.8	272.6	271.2	271.2
5°	297.2	282.2	269.8	268.5	263.0	252.0	249.3	242.4	235.6	234.2	232.9
7.5°	268.5	252.0	241.1	238.3	234.2	224.6	223.3	216.4	212.3	209.6	209.6
10°	239.7	224.6	215.0	213.7	210.9	202.7	201.3	195.9	191.8	190.4	189.0
12.5°	212.3	200.0	191.8	190.4	187.6	180.8	179.4	175.3	172.6	171.2	171.2
15°	186.3	175.3	168.5	167.1	165.7	158.9	158.9	156.1	154.8	154.8	156.1
17.5°	160.3	150.7	145.2	143.8	143.8	138.3	139.7	138.3	138.3	138.3	141.1
20°	134.2	126.0	121.9	123.3	120.5	119.2	120.5	120.5	120.5	123.3	127.4
22.5°	112.3	105.5	101.4	102.7	102.7	101.4	102.7	104.1	106.8	110.9	115.1
25°	91.8	86.3	84.9	86.3	86.3	86.3	89.0	91.8	94.5	98.6	102.7
27.5°	74.0	69.9	69.9	71.2	72.6	72.6	76.7	79.4	83.6	87.7	91.8
30°	58.9	57.5	57.5	60.3	60.3	61.6	67.1	69.9	72.6	76.7	80.8
32.5°	46.6	46.6	47.9	50.7	50.7	53.4	57.5	60.3	63.0	67.1	71.2
35°	38.4	39.7	41.1	42.5	43.8	45.2	49.3	52.0	54.8	58.9	61.6
37.5°	31.5	32.9	34.2	37.0	37.0	38.4	42.5	45.2	46.6	50.7	54.8
40°	26.0	27.4	28.8	31.5	31.5	32.9	37.0	38.4	39.7	43.8	47.9
42.5°	21.9	23.3	24.7	26.0	27.4	28.8	31.5	32.9	35.6	38.4	41.1
45°	17.8	19.2	20.5	21.9	23.3	24.7	26.0	28.8	30.1	32.9	35.6
47.5°	15.1	16.4	17.8	19.2	20.5	20.5	23.3	24.7	26.0	28.8	31.5
50°	13.7	15.1	16.4	16.4	17.8	19.2	20.5	21.9	23.3	24.7	27.4
52.5°	11.0	12.3	13.7	15.1	15.1	16.4	17.8	19.2	20.5	21.9	23.3
55°	11.0	11.0	12.3	13.7	13.7	15.1	16.4	17.8	17.8	19.2	20.5
57.5°	9.6	11.0	11.0	12.3	12.3	13.7	15.1	15.1	16.4	16.4	17.8
60°	8.2	9.6	11.0	11.0	11.0	12.3	12.3	13.7	13.7	15.1	15.1
62.5°	8.2	9.6	9.6	11.0	11.0	11.0	12.3	12.3	12.3	13.7	13.7
65°	8.2	8.2	9.6	9.6	9.6	9.6	11.0	11.0	11.0	12.3	12.3
67.5°	6.8	8.2	8.2	8.2	9.6	9.6	9.6	9.6	9.6	11.0	11.0
70°	6.8	6.8	8.2	8.2	8.2	8.2	8.2	9.6	9.6	9.6	9.6
72.5°	6.8	6.8	6.8	6.8	8.2	8.2	8.2	8.2	8.2	8.2	8.2
75°	5.5	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
77.5°	5.5	5.5	5.5	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
80°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
82.5°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	4.1	4.1
85°	5.5	5.5	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
87.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	2.7	2.7	2.7
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: P182856

CATALOG NUMBER: LDSQA4A28835D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	343.8	343.8	343.8	343.8	343.8	343.8	343.8	343.8
2.5°	265.7	263.0	261.6	265.7	260.2	263.0	261.6	263.0
5°	228.7	226.0	224.6	228.7	223.3	226.0	223.3	226.0
7.5°	205.5	204.1	202.7	205.5	201.3	204.1	202.7	204.1
10°	186.3	184.9	183.5	187.6	183.5	186.3	184.9	186.3
12.5°	169.8	169.8	168.5	171.2	168.5	171.2	169.8	171.2
15°	154.8	156.1	154.8	157.5	156.1	158.9	157.5	160.3
17.5°	142.4	143.8	143.8	147.9	146.6	150.7	149.3	150.7
20°	130.1	131.5	132.9	135.6	135.6	139.7	138.3	141.1
22.5°	117.8	120.5	120.5	124.6	124.6	128.8	128.8	130.1
25°	105.5	109.6	110.9	113.7	115.1	119.2	119.2	120.5
27.5°	95.9	98.6	100.0	104.1	105.5	109.6	109.6	112.3
30°	84.9	89.0	90.4	93.1	94.5	98.6	98.6	101.4
32.5°	75.3	78.1	80.8	83.6	84.9	89.0	89.0	91.8
35°	65.7	69.9	71.2	74.0	76.7	80.8	80.8	83.6
37.5°	57.5	61.6	63.0	65.7	68.5	72.6	72.6	75.3
40°	50.7	54.8	56.2	58.9	60.3	65.7	65.7	67.1
42.5°	45.2	47.9	49.3	52.0	53.4	56.2	56.2	58.9
45°	38.4	41.1	42.5	43.8	46.6	49.3	49.3	50.7
47.5°	32.9	35.6	37.0	38.4	39.7	42.5	42.5	45.2
50°	28.8	30.1	31.5	32.9	34.2	37.0	37.0	38.4
52.5°	24.7	26.0	27.4	28.8	30.1	31.5	32.9	34.2
55°	21.9	23.3	23.3	24.7	26.0	27.4	27.4	28.8
57.5°	19.2	20.5	20.5	20.5	21.9	23.3	23.3	24.7
60°	16.4	17.8	17.8	17.8	19.2	19.2	19.2	20.5
62.5°	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
65°	12.3	12.3	12.3	12.3	12.3	12.3	11.0	12.3
67.5°	11.0	11.0	11.0	9.6	9.6	9.6	9.6	9.6
70°	9.6	9.6	9.6	8.2	8.2	8.2	6.8	6.8
72.5°	8.2	8.2	8.2	6.8	6.8	6.8	5.5	5.5
75°	6.8	6.8	6.8	6.8	5.5	5.5	5.5	5.5
77.5°	5.5	5.5	5.5	5.5	5.5	5.5	4.1	4.1
80°	5.5	4.1	4.1	4.1	4.1	4.1	4.1	4.1
82.5°	4.1	4.1	4.1	4.1	2.7	2.7	2.7	2.7
85°	2.7	2.7	2.7	2.7	2.7	2.7	1.4	1.4
87.5°	2.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)