

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: P182763

Luminaire Tested: **LDSQA4A28930D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182763
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: LDSQA4A28930D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2418.9 lumens
Efficiency: N/A
Efficacy: 54.4 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

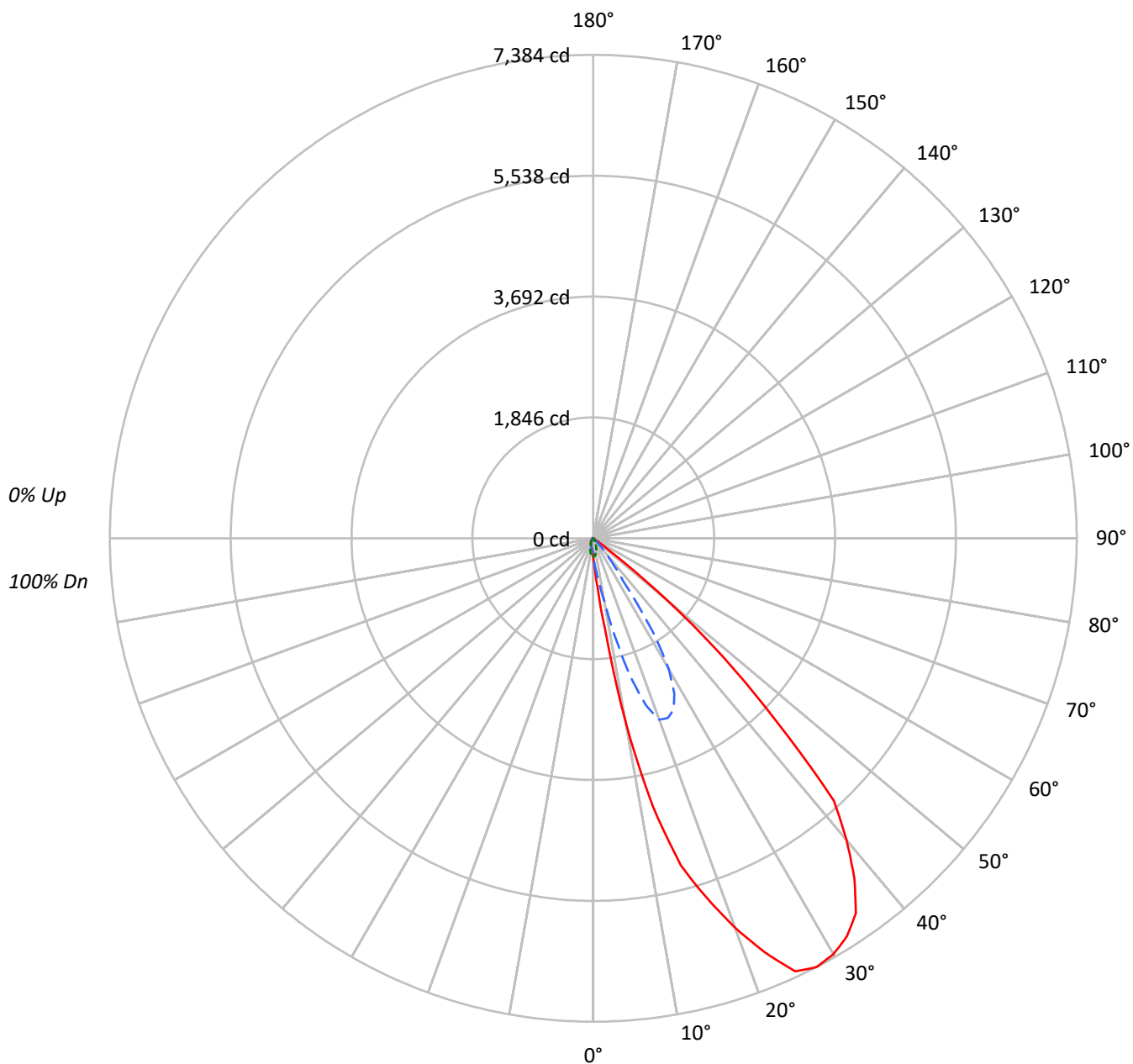
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	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	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°	27348	27348	27348
5°	71903	26052	17008
10°	281908	22537	14155
15°	518985	17762	12547
20°	652154	12557	11412
25°	780063	8284	10176
30°	820307	5202	8915
35°	826931	3146	7723
40°	760934	2099	6576
45°	541379	1521	5453
50°	223716	1160	4506
55°	12904	1115	3918
60°	1492	1066	3216
65°	504	1261	2292
70°	623	1246	1558
75°	823	1647	1647
80°	0	2455	1841
85°	0	4891	2445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.4	1.8
10°-20°	354.4	14.7
20°-30°	733.1	30.3
30°-40°	798.1	33.0
40°-50°	437.6	18.1
50°-60°	37.9	1.6
60°-70°	6.2	0.3
70°-80°	4.4	0.2
80°-90°	2.8	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°	1132.0	46.8
0°-40°	1930.0	79.8
0°-60°	2405.5	99.4
0°-90°	2418.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2418.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	282	282	282	282	282	
5°	739	506	268	185	175	135
15°	5175	2175	177	120	125	1445
25°	7298	2893	78	73	95	3295
35°	6992	791	27	42	65	4291
45°	3952	81	11	23	40	3016
55°	76	9	7	14	23	261
65°	2	3	6	9	10	3
75°	2	3	4	7	4	1
85°	0	2	4	3	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°	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3
2.5°	443.9	428.4	426.2	428.4	417.3	416.2	418.4	409.6	401.8	394.1	387.4
5°	739.4	707.3	697.3	684.1	650.9	639.8	637.6	602.2	567.8	535.7	505.9
7.5°	1436.8	1372.6	1338.2	1271.8	1170.0	1124.6	1100.3	984.0	875.6	777.0	687.4
10°	2865.8	2697.5	2615.6	2490.5	2268.0	2158.5	2078.8	1786.5	1498.7	1222.0	978.5
12.5°	4181.9	4088.9	3968.2	3901.8	3541.0	3402.6	3270.9	2865.8	2427.4	1980.2	1536.4
15°	5174.7	5038.6	4910.2	4879.2	4595.8	4434.2	4288.1	3868.6	3347.3	2778.3	2175.1
17.5°	5758.1	5660.7	5538.9	5480.3	5148.2	5017.6	4851.5	4445.3	3938.3	3371.6	2670.9
20°	6325.9	6182.0	6010.5	5921.9	5554.4	5403.9	5215.7	4788.4	4251.6	3649.4	2948.8
22.5°	6845.1	6659.1	6415.6	6278.3	5865.5	5699.4	5489.1	5026.4	4445.3	3756.8	2972.0
25°	7297.8	7129.5	6805.2	6565.0	6078.0	5882.1	5637.4	5153.7	4515.0	3748.0	2893.4
27.5°	7384.1	7271.2	6980.1	6702.3	6152.1	5934.1	5680.6	5180.3	4466.3	3625.1	2682.0
30°	7333.2	7211.4	6977.9	6694.5	6121.1	5900.9	5637.4	5067.4	4275.9	3338.4	2294.6
32.5°	7210.3	7105.2	6826.2	6527.4	5968.4	5739.3	5461.4	4802.8	3949.4	2882.4	1688.0
35°	6992.3	6834.0	6497.5	6251.8	5726.0	5490.2	5150.4	4449.7	3461.3	2072.1	791.4
37.5°	6548.4	6394.5	6152.1	5925.2	5412.7	5134.9	4776.3	3958.3	2565.8	1130.1	489.2
40°	6017.1	5884.3	5672.9	5452.6	4924.6	4604.7	4209.5	3093.8	1509.8	636.5	301.1
42.5°	5439.3	5302.0	5063.0	4806.2	4230.6	3893.0	3465.7	2002.4	795.9	375.2	163.8
45°	3951.6	3828.8	3655.0	3470.1	3136.9	2893.4	2331.1	1051.6	440.5	199.2	80.8
47.5°	2704.2	2558.0	2237.0	1848.5	1498.7	1281.8	964.1	456.0	225.8	99.6	47.6
50°	1484.4	1329.4	1165.6	907.7	607.7	499.2	388.5	220.3	101.8	49.8	26.6
52.5°	364.2	322.1	294.4	271.2	214.7	193.7	163.8	91.9	46.5	27.7	18.8
55°	76.4	70.8	67.5	66.4	60.9	58.7	50.9	35.4	25.5	17.7	8.9
57.5°	22.1	21.0	22.1	22.1	22.1	21.0	21.0	15.5	14.4	8.9	5.5
60°	7.7	7.7	7.7	8.9	8.9	8.9	10.0	10.0	7.7	5.5	4.4
62.5°	3.3	3.3	3.3	4.4	4.4	5.5	5.5	5.5	4.4	4.4	3.3
65°	2.2	2.2	2.2	2.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3
67.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3
70°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3
72.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3
75°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3
77.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.3
80°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2	2.2
82.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.2	2.2	2.2
85°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.2	2.2	2.2
87.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.2	2.2	2.2
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°	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3
2.5°	368.6	357.5	344.2	329.9	327.6	319.9	308.8	293.3	287.8	276.7	266.8
5°	462.7	432.8	401.8	374.1	365.3	353.1	333.2	305.5	287.8	267.9	251.3
7.5°	588.9	520.2	457.1	407.3	391.8	371.9	340.9	305.5	278.9	251.3	229.1
10°	757.1	617.6	509.2	428.4	402.9	376.3	335.4	292.2	261.2	229.1	205.9
12.5°	1081.4	760.4	557.9	439.4	404.0	369.7	317.7	271.2	235.8	203.7	180.4
15°	1537.5	1031.6	656.4	447.2	392.9	350.9	290.0	242.4	207.0	177.1	155.0
17.5°	1922.7	1288.4	788.1	469.3	385.2	326.5	257.9	209.2	174.9	148.3	130.6
20°	2110.9	1403.5	847.9	472.6	363.1	290.0	220.3	173.8	143.9	121.8	106.3
22.5°	2088.7	1364.8	792.5	414.0	306.6	244.6	182.6	140.6	115.1	97.4	86.3
25°	1940.4	1196.6	646.4	316.6	239.1	198.1	142.8	109.6	89.7	77.5	68.6
27.5°	1691.3	960.8	471.5	223.6	181.5	150.5	106.3	84.1	68.6	59.8	54.2
30°	1302.8	614.3	271.2	160.5	131.7	107.4	79.7	60.9	52.0	46.5	42.1
32.5°	671.9	298.9	180.4	115.1	93.0	77.5	55.3	44.3	38.7	35.4	33.2
35°	368.6	212.5	125.1	74.2	59.8	49.8	37.6	31.0	28.8	26.6	26.6
37.5°	253.5	131.7	69.7	44.3	36.5	31.0	25.5	22.1	21.0	21.0	21.0
40°	146.1	69.7	39.8	27.7	23.2	21.0	17.7	16.6	16.6	16.6	17.7
42.5°	75.3	41.0	26.6	18.8	16.6	14.4	12.2	12.2	12.2	13.3	14.4
45°	44.3	27.7	17.7	12.2	11.1	10.0	8.9	8.9	10.0	11.1	12.2
47.5°	27.7	18.8	11.1	7.7	6.6	6.6	6.6	6.6	7.7	8.9	10.0
50°	18.8	10.0	6.6	4.4	4.4	4.4	4.4	5.5	6.6	7.7	8.9
52.5°	10.0	5.5	4.4	3.3	3.3	3.3	4.4	4.4	5.5	6.6	7.7
55°	5.5	4.4	3.3	3.3	3.3	3.3	3.3	4.4	5.5	6.6	7.7
57.5°	4.4	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	5.5	6.6
60°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	5.5	6.6
62.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	5.5	5.5
65°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	5.5	5.5
67.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	4.4	5.5
70°	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	4.4	4.4	5.5
72.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	4.4	4.4
75°	3.3	3.3	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4	5.5
77.5°	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4
80°	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4
82.5°	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4
85°	3.3	3.3	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4	4.4
87.5°	3.3	3.3	3.3	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4
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°	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3
2.5°	261.2	252.4	243.5	243.5	239.1	232.4	230.2	223.6	219.2	217.0	214.7
5°	239.1	225.8	213.6	212.5	207.0	199.2	195.9	189.3	184.9	182.6	181.5
7.5°	213.6	200.3	188.2	186.0	181.5	176.0	172.7	167.1	164.9	162.7	161.6
10°	189.3	176.0	167.1	164.9	161.6	157.2	153.9	150.5	148.3	147.2	147.2
12.5°	164.9	155.0	147.2	145.0	142.8	139.5	137.3	135.0	133.9	133.9	133.9
15°	142.8	133.9	127.3	127.3	125.1	122.9	122.9	120.7	119.5	120.7	121.8
17.5°	120.7	114.0	108.5	108.5	107.4	106.3	106.3	106.3	107.4	108.5	110.7
20°	99.6	94.1	91.9	91.9	90.8	91.9	91.9	93.0	94.1	97.4	100.7
22.5°	80.8	77.5	75.3	76.4	76.4	77.5	78.6	80.8	83.0	86.3	89.7
25°	65.3	63.1	62.0	63.1	64.2	65.3	67.5	69.7	73.1	76.4	80.8
27.5°	52.0	50.9	50.9	52.0	53.1	55.3	58.7	60.9	64.2	67.5	71.9
30°	42.1	41.0	42.1	44.3	45.4	47.6	49.8	53.1	56.5	59.8	64.2
32.5°	33.2	34.3	35.4	36.5	37.6	41.0	43.2	45.4	48.7	52.0	56.5
35°	27.7	28.8	29.9	31.0	32.1	34.3	36.5	38.7	42.1	45.4	49.8
37.5°	22.1	23.2	24.4	26.6	27.7	28.8	32.1	33.2	36.5	38.7	43.2
40°	18.8	19.9	21.0	22.1	23.2	25.5	27.7	28.8	31.0	34.3	37.6
42.5°	15.5	16.6	17.7	18.8	19.9	22.1	23.2	25.5	27.7	29.9	32.1
45°	13.3	14.4	15.5	16.6	17.7	18.8	19.9	22.1	23.2	25.5	27.7
47.5°	11.1	12.2	14.4	14.4	15.5	16.6	17.7	18.8	21.0	22.1	24.4
50°	10.0	11.1	12.2	13.3	13.3	14.4	15.5	16.6	17.7	18.8	21.0
52.5°	8.9	10.0	11.1	11.1	12.2	13.3	14.4	14.4	15.5	16.6	17.7
55°	7.7	8.9	10.0	10.0	11.1	12.2	12.2	13.3	14.4	14.4	15.5
57.5°	7.7	7.7	8.9	8.9	10.0	10.0	11.1	12.2	12.2	13.3	14.4
60°	6.6	7.7	7.7	8.9	8.9	10.0	10.0	11.1	11.1	12.2	12.2
62.5°	6.6	6.6	7.7	7.7	8.9	8.9	10.0	10.0	10.0	11.1	11.1
65°	6.6	6.6	7.7	7.7	7.7	8.9	8.9	8.9	8.9	10.0	10.0
67.5°	5.5	6.6	6.6	7.7	7.7	7.7	7.7	7.7	8.9	8.9	8.9
70°	5.5	6.6	6.6	6.6	6.6	7.7	7.7	7.7	7.7	7.7	7.7
72.5°	5.5	5.5	5.5	5.5	6.6	6.6	6.6	6.6	6.6	6.6	6.6
75°	5.5	5.5	5.5	5.5	5.5	6.6	6.6	6.6	6.6	6.6	6.6
77.5°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
80°	4.4	4.4	4.4	4.4	4.4	5.5	4.4	4.4	4.4	4.4	4.4
82.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.3	3.3
85°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.3	3.3	3.3	3.3
87.5°	4.4	4.4	4.4	3.3	3.3	3.3	3.3	3.3	3.3	2.2	2.2
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: P182763

CATALOG NUMBER: LDSQA4A28930D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	282.3	282.3	282.3	282.3	282.3	282.3	282.3	282.3
2.5°	211.4	209.2	211.4	209.2	209.2	204.8	208.1	205.9
5°	178.2	176.0	178.2	177.1	174.9	173.8	176.0	174.9
7.5°	159.4	157.2	159.4	159.4	157.2	156.1	158.3	157.2
10°	145.0	143.9	145.0	145.0	143.9	142.8	145.0	143.9
12.5°	132.8	131.7	133.9	133.9	132.8	132.8	135.0	132.8
15°	121.8	121.8	124.0	124.0	124.0	124.0	126.2	125.1
17.5°	110.7	112.9	115.1	116.2	116.2	116.2	118.4	118.4
20°	101.8	104.0	106.3	107.4	108.5	108.5	110.7	110.7
22.5°	91.9	94.1	97.4	98.5	99.6	100.7	102.9	102.9
25°	83.0	85.2	88.6	89.7	91.9	93.0	95.2	95.2
27.5°	74.2	77.5	79.7	81.9	83.0	85.2	87.4	87.4
30°	66.4	69.7	71.9	74.2	75.3	77.5	79.7	79.7
32.5°	58.7	62.0	64.2	66.4	68.6	69.7	73.1	73.1
35°	52.0	54.2	57.6	58.7	60.9	63.1	65.3	65.3
37.5°	45.4	47.6	49.8	52.0	54.2	55.3	57.6	58.7
40°	39.8	42.1	44.3	45.4	47.6	49.8	50.9	52.0
42.5°	34.3	36.5	38.7	39.8	42.1	43.2	45.4	45.4
45°	29.9	32.1	33.2	34.3	36.5	37.6	39.8	39.8
47.5°	25.5	27.7	28.8	29.9	31.0	32.1	34.3	34.3
50°	22.1	23.2	24.4	25.5	26.6	28.8	29.9	29.9
52.5°	18.8	21.0	21.0	22.1	23.2	24.4	25.5	26.6
55°	16.6	17.7	18.8	18.8	19.9	21.0	22.1	23.2
57.5°	14.4	15.5	16.6	16.6	17.7	17.7	18.8	19.9
60°	13.3	13.3	14.4	14.4	14.4	15.5	15.5	16.6
62.5°	11.1	11.1	12.2	12.2	12.2	12.2	12.2	12.2
65°	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
67.5°	8.9	8.9	8.9	8.9	7.7	7.7	7.7	7.7
70°	7.7	7.7	7.7	7.7	6.6	6.6	6.6	5.5
72.5°	6.6	6.6	6.6	6.6	5.5	5.5	4.4	4.4
75°	5.5	5.5	5.5	5.5	5.5	4.4	4.4	4.4
77.5°	5.5	4.4	4.4	4.4	4.4	4.4	4.4	3.3
80°	4.4	4.4	3.3	3.3	3.3	3.3	3.3	3.3
82.5°	3.3	3.3	3.3	3.3	2.2	2.2	2.2	2.2
85°	3.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2
87.5°	2.2	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



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— 0°-180° - - 45°-225° - - - 90°-270°













(END OF REPORT)