

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: P182734

Luminaire Tested: **LDSQA4A18827D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182734
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: LDSQA4A18827D010TE 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: 2103.1 lumens
Efficiency: N/A
Efficacy: 72.2 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

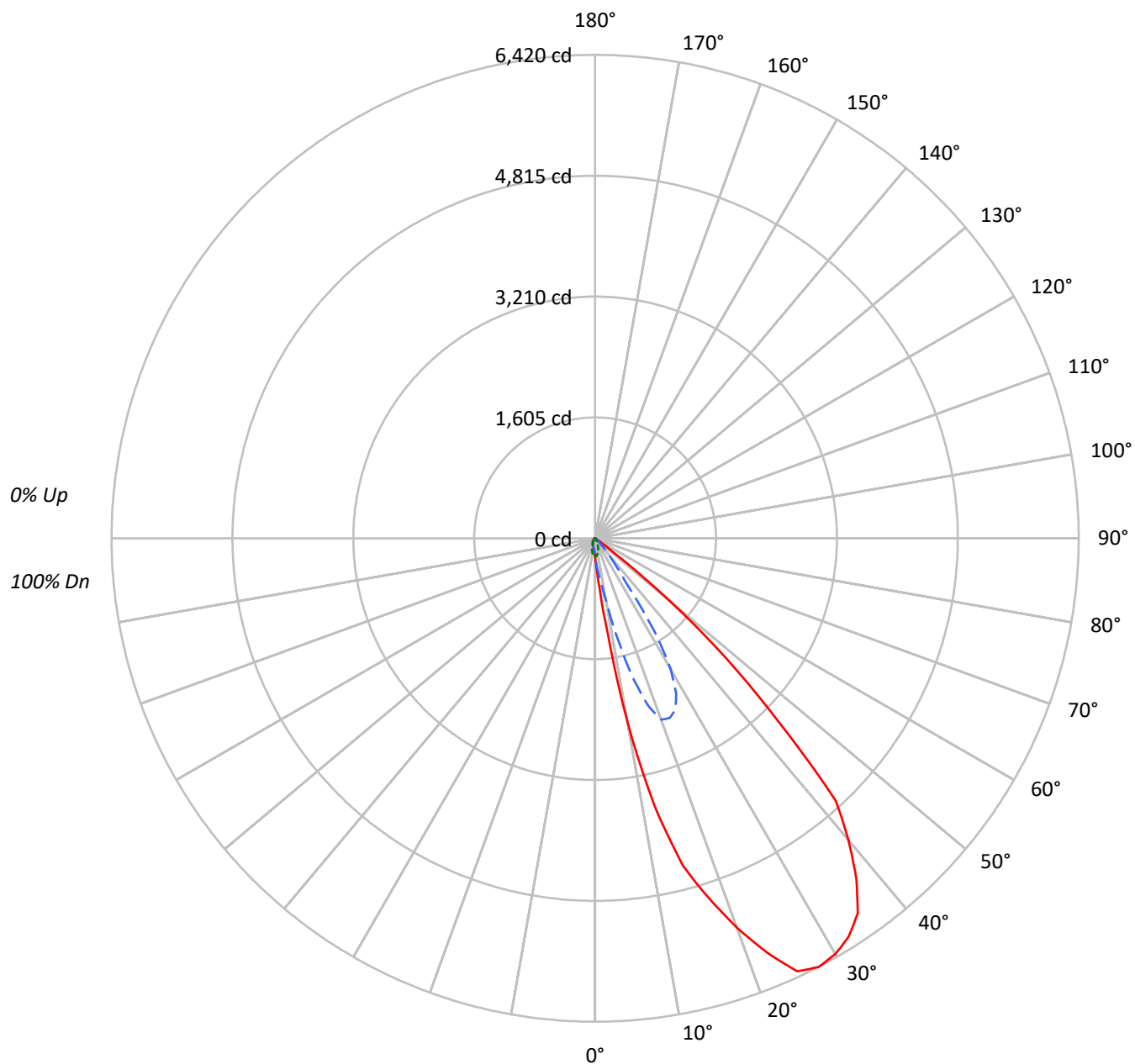
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	23773	23773	23773
5°	62519	22648	14791
10°	245098	19595	12306
15°	451227	15445	10902
20°	567010	10918	9918
25°	678208	7204	8851
30°	713199	4519	7752
35°	718957	2732	6717
40°	661573	1821	5716
45°	470700	1315	4740
50°	194493	1010	3918
55°	11215	980	3412
60°	1298	930	2790
65°	436	1100	1994
70°	538	1076	1360
75°	711	1422	1422
80°	0	2120	1618
85°	0	4224	2112



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.6	1.8
10°-20°	308.2	14.7
20°-30°	637.4	30.3
30°-40°	693.9	33.0
40°-50°	380.5	18.1
50°-60°	32.9	1.6
60°-70°	5.4	0.3
70°-80°	3.8	0.2
80°-90°	2.4	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°	984.2	46.8
0°-40°	1678.0	79.8
0°-60°	2091.4	99.4
0°-90°	2103.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2103.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	245	245	245	245	245	
5°	643	440	233	161	152	117
15°	4499	1891	154	104	109	1256
25°	6345	2516	67	64	83	2865
35°	6079	688	23	37	57	3731
45°	3436	70	10	20	35	2622
55°	66	8	6	12	20	227
65°	2	3	5	8	9	3
75°	2	3	4	6	4	1
85°	0	2	4	3	2	0
90°	0	0	0	0	0	



TEST NUMBER: P182734

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4
2.5°	385.9	372.4	370.5	372.4	362.8	361.9	363.8	356.1	349.3	342.6	336.8
5°	642.9	615.0	606.3	594.7	565.9	556.3	554.3	523.5	493.7	465.8	439.8
7.5°	1249.2	1193.3	1163.5	1105.8	1017.2	977.8	956.6	855.5	761.2	675.6	597.6
10°	2491.6	2345.3	2274.1	2165.3	1971.9	1876.6	1807.3	1553.3	1303.1	1062.5	850.7
12.5°	3635.8	3555.0	3450.1	3392.4	3078.6	2958.3	2843.8	2491.6	2110.5	1721.7	1335.8
15°	4499.1	4380.7	4269.1	4242.1	3995.8	3855.3	3728.2	3363.5	2910.2	2415.6	1891.1
17.5°	5006.3	4921.6	4815.7	4764.7	4476.0	4362.4	4218.1	3864.9	3424.1	2931.4	2322.2
20°	5500.0	5374.8	5225.7	5148.7	4829.2	4698.3	4534.7	4163.2	3696.5	3172.9	2563.8
22.5°	5951.3	5789.6	5577.9	5458.6	5099.6	4955.2	4772.4	4370.1	3864.9	3266.3	2584.0
25°	6344.9	6198.6	5916.7	5707.8	5284.4	5114.0	4901.4	4480.8	3925.5	3258.6	2515.6
27.5°	6420.0	6321.8	6068.7	5827.2	5348.9	5159.3	4938.9	4503.9	3883.2	3151.8	2331.8
30°	6375.7	6269.8	6066.8	5820.4	5321.9	5130.4	4901.4	4405.7	3717.6	2902.5	1995.0
32.5°	6268.9	6177.5	5934.9	5675.1	5189.1	4989.9	4748.3	4175.7	3433.7	2506.0	1467.6
35°	6079.3	5941.7	5649.1	5435.5	4978.3	4773.4	4477.9	3868.7	3009.3	1801.6	688.1
37.5°	5693.4	5559.6	5348.9	5151.6	4706.0	4464.4	4152.6	3441.4	2230.8	982.6	425.4
40°	5231.4	5116.0	4932.2	4740.6	4281.6	4003.5	3659.9	2689.8	1312.7	553.4	261.8
42.5°	4729.1	4609.8	4401.9	4178.6	3678.2	3384.7	3013.2	1740.9	691.9	326.2	142.4
45°	3435.7	3328.8	3177.7	3017.0	2727.4	2515.6	2026.8	914.3	383.0	173.2	70.3
47.5°	2351.1	2224.0	1945.0	1607.2	1303.1	1114.4	838.2	396.5	196.3	86.6	41.4
50°	1290.5	1155.8	1013.4	789.1	528.3	434.0	337.8	191.5	88.5	43.3	23.1
52.5°	316.6	280.0	256.0	235.8	186.7	168.4	142.4	79.9	40.4	24.1	16.4
55°	66.4	61.6	58.7	57.7	52.9	51.0	44.3	30.8	22.1	15.4	7.7
57.5°	19.2	18.3	19.2	19.2	19.2	18.3	18.3	13.5	12.5	7.7	4.8
60°	6.7	6.7	6.7	7.7	7.7	7.7	8.7	8.7	6.7	4.8	3.8
62.5°	2.9	2.9	2.9	3.8	3.8	4.8	4.8	4.8	3.8	3.8	2.9
65°	1.9	1.9	1.9	1.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9
72.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9
75°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.9	1.9	1.9	2.9
80°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.9	1.9	1.9	1.9
82.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.9	1.9	1.9
85°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.9	1.9	1.9
87.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.9	1.9	1.9
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°	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4
2.5°	320.5	310.8	299.3	286.8	284.9	278.1	268.5	255.0	250.2	240.6	231.9
5°	402.3	376.3	349.3	325.3	317.6	307.0	289.7	265.6	250.2	232.9	218.5
7.5°	512.0	452.3	397.5	354.2	340.7	323.4	296.4	265.6	242.5	218.5	199.2
10°	658.3	537.0	442.7	372.4	350.3	327.2	291.6	254.1	227.1	199.2	179.0
12.5°	940.2	661.1	485.0	382.1	351.3	321.4	276.2	235.8	205.0	177.1	156.9
15°	1336.7	896.9	570.7	388.8	341.6	305.1	252.1	210.8	180.0	154.0	134.7
17.5°	1671.6	1120.2	685.2	408.0	334.9	283.9	224.2	181.9	152.1	129.0	113.6
20°	1835.2	1220.3	737.2	410.9	315.7	252.1	191.5	151.1	125.1	105.9	92.4
22.5°	1816.0	1186.6	689.1	359.9	266.6	212.7	158.8	122.2	100.1	84.7	75.1
25°	1687.0	1040.3	562.0	275.2	207.9	172.3	124.1	95.3	78.0	67.4	59.7
27.5°	1470.5	835.3	410.0	194.4	157.8	130.9	92.4	73.1	59.7	52.0	47.2
30°	1132.7	534.1	235.8	139.5	114.5	93.3	69.3	52.9	45.2	40.4	36.6
32.5°	584.2	259.8	156.9	100.1	80.8	67.4	48.1	38.5	33.7	30.8	28.9
35°	320.5	184.8	108.7	64.5	52.0	43.3	32.7	26.9	25.0	23.1	23.1
37.5°	220.4	114.5	60.6	38.5	31.8	26.9	22.1	19.2	18.3	18.3	18.3
40°	127.0	60.6	34.6	24.1	20.2	18.3	15.4	14.4	14.4	14.4	15.4
42.5°	65.4	35.6	23.1	16.4	14.4	12.5	10.6	10.6	10.6	11.5	12.5
45°	38.5	24.1	15.4	10.6	9.6	8.7	7.7	7.7	8.7	9.6	10.6
47.5°	24.1	16.4	9.6	6.7	5.8	5.8	5.8	5.8	6.7	7.7	8.7
50°	16.4	8.7	5.8	3.8	3.8	3.8	3.8	4.8	5.8	6.7	7.7
52.5°	8.7	4.8	3.8	2.9	2.9	2.9	3.8	3.8	4.8	5.8	6.7
55°	4.8	3.8	2.9	2.9	2.9	2.9	2.9	3.8	4.8	5.8	6.7
57.5°	3.8	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	4.8	5.8
60°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	4.8	5.8
62.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	4.8	4.8
65°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	4.8	4.8
67.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	3.8	4.8
70°	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	3.8	3.8	4.8
72.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	3.8	3.8
75°	2.9	2.9	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8	4.8
77.5°	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8
80°	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8
82.5°	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8
85°	2.9	2.9	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8	3.8
87.5°	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8
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°	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4
2.5°	227.1	219.4	211.7	211.7	207.9	202.1	200.2	194.4	190.5	188.6	186.7
5°	207.9	196.3	185.7	184.8	180.0	173.2	170.3	164.6	160.7	158.8	157.8
7.5°	185.7	174.2	163.6	161.7	157.8	153.0	150.1	145.3	143.4	141.5	140.5
10°	164.6	153.0	145.3	143.4	140.5	136.7	133.8	130.9	129.0	128.0	128.0
12.5°	143.4	134.7	128.0	126.1	124.1	121.3	119.3	117.4	116.4	116.4	116.4
15°	124.1	116.4	110.7	110.7	108.7	106.8	106.8	104.9	103.9	104.9	105.9
17.5°	104.9	99.1	94.3	94.3	93.3	92.4	92.4	92.4	93.3	94.3	96.2
20°	86.6	81.8	79.9	79.9	78.9	79.9	79.9	80.8	81.8	84.7	87.6
22.5°	70.3	67.4	65.4	66.4	66.4	67.4	68.3	70.3	72.2	75.1	78.0
25°	56.8	54.9	53.9	54.9	55.8	56.8	58.7	60.6	63.5	66.4	70.3
27.5°	45.2	44.3	44.3	45.2	46.2	48.1	51.0	52.9	55.8	58.7	62.6
30°	36.6	35.6	36.6	38.5	39.5	41.4	43.3	46.2	49.1	52.0	55.8
32.5°	28.9	29.8	30.8	31.8	32.7	35.6	37.5	39.5	42.3	45.2	49.1
35°	24.1	25.0	26.0	26.9	27.9	29.8	31.8	33.7	36.6	39.5	43.3
37.5°	19.2	20.2	21.2	23.1	24.1	25.0	27.9	28.9	31.8	33.7	37.5
40°	16.4	17.3	18.3	19.2	20.2	22.1	24.1	25.0	26.9	29.8	32.7
42.5°	13.5	14.4	15.4	16.4	17.3	19.2	20.2	22.1	24.1	26.0	27.9
45°	11.5	12.5	13.5	14.4	15.4	16.4	17.3	19.2	20.2	22.1	24.1
47.5°	9.6	10.6	12.5	12.5	13.5	14.4	15.4	16.4	18.3	19.2	21.2
50°	8.7	9.6	10.6	11.5	11.5	12.5	13.5	14.4	15.4	16.4	18.3
52.5°	7.7	8.7	9.6	9.6	10.6	11.5	12.5	12.5	13.5	14.4	15.4
55°	6.7	7.7	8.7	8.7	9.6	10.6	10.6	11.5	12.5	12.5	13.5
57.5°	6.7	6.7	7.7	7.7	8.7	8.7	9.6	10.6	10.6	11.5	12.5
60°	5.8	6.7	6.7	7.7	7.7	8.7	8.7	9.6	9.6	10.6	10.6
62.5°	5.8	5.8	6.7	6.7	7.7	7.7	8.7	8.7	8.7	9.6	9.6
65°	5.8	5.8	6.7	6.7	6.7	7.7	7.7	7.7	7.7	8.7	8.7
67.5°	4.8	5.8	5.8	6.7	6.7	6.7	6.7	6.7	7.7	7.7	7.7
70°	4.8	5.8	5.8	5.8	5.8	6.7	6.7	6.7	6.7	6.7	6.7
72.5°	4.8	4.8	4.8	4.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
75°	4.8	4.8	4.8	4.8	4.8	5.8	5.8	5.8	5.8	5.8	5.8
77.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
80°	3.8	3.8	3.8	3.8	3.8	4.8	3.8	3.8	3.8	3.8	3.8
82.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	2.9	2.9
85°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	2.9	2.9	2.9	2.9
87.5°	3.8	3.8	3.8	2.9	2.9	2.9	2.9	2.9	2.9	1.9	1.9
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: P182734

CATALOG NUMBER: LDSQA4A18827D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4
2.5°	183.8	181.9	183.8	181.9	181.9	178.0	180.9	179.0
5°	154.9	153.0	154.9	154.0	152.1	151.1	153.0	152.1
7.5°	138.6	136.7	138.6	138.6	136.7	135.7	137.6	136.7
10°	126.1	125.1	126.1	126.1	125.1	124.1	126.1	125.1
12.5°	115.5	114.5	116.4	116.4	115.5	115.5	117.4	115.5
15°	105.9	105.9	107.8	107.8	107.8	107.8	109.7	108.7
17.5°	96.2	98.2	100.1	101.0	101.0	101.0	103.0	103.0
20°	88.5	90.5	92.4	93.3	94.3	94.3	96.2	96.2
22.5°	79.9	81.8	84.7	85.7	86.6	87.6	89.5	89.5
25°	72.2	74.1	77.0	78.0	79.9	80.8	82.8	82.8
27.5°	64.5	67.4	69.3	71.2	72.2	74.1	76.0	76.0
30°	57.7	60.6	62.6	64.5	65.4	67.4	69.3	69.3
32.5°	51.0	53.9	55.8	57.7	59.7	60.6	63.5	63.5
35°	45.2	47.2	50.0	51.0	52.9	54.9	56.8	56.8
37.5°	39.5	41.4	43.3	45.2	47.2	48.1	50.0	51.0
40°	34.6	36.6	38.5	39.5	41.4	43.3	44.3	45.2
42.5°	29.8	31.8	33.7	34.6	36.6	37.5	39.5	39.5
45°	26.0	27.9	28.9	29.8	31.8	32.7	34.6	34.6
47.5°	22.1	24.1	25.0	26.0	26.9	27.9	29.8	29.8
50°	19.2	20.2	21.2	22.1	23.1	25.0	26.0	26.0
52.5°	16.4	18.3	18.3	19.2	20.2	21.2	22.1	23.1
55°	14.4	15.4	16.4	16.4	17.3	18.3	19.2	20.2
57.5°	12.5	13.5	14.4	14.4	15.4	15.4	16.4	17.3
60°	11.5	11.5	12.5	12.5	12.5	13.5	13.5	14.4
62.5°	9.6	9.6	10.6	10.6	10.6	10.6	10.6	10.6
65°	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
67.5°	7.7	7.7	7.7	7.7	6.7	6.7	6.7	6.7
70°	6.7	6.7	6.7	6.7	5.8	5.8	5.8	4.8
72.5°	5.8	5.8	5.8	5.8	4.8	4.8	3.8	3.8
75°	4.8	4.8	4.8	4.8	4.8	3.8	3.8	3.8
77.5°	4.8	3.8	3.8	3.8	3.8	3.8	3.8	2.9
80°	3.8	3.8	2.9	2.9	2.9	2.9	2.9	2.9
82.5°	2.9	2.9	2.9	2.9	1.9	1.9	1.9	1.9
85°	2.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
87.5°	1.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)