

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: P182860

Luminaire Tested: **LDSQA4A28935D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182860
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: LDSQA4A28935D010TE 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: 2268.9 lumens
Efficiency: N/A
Efficacy: 51.0 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

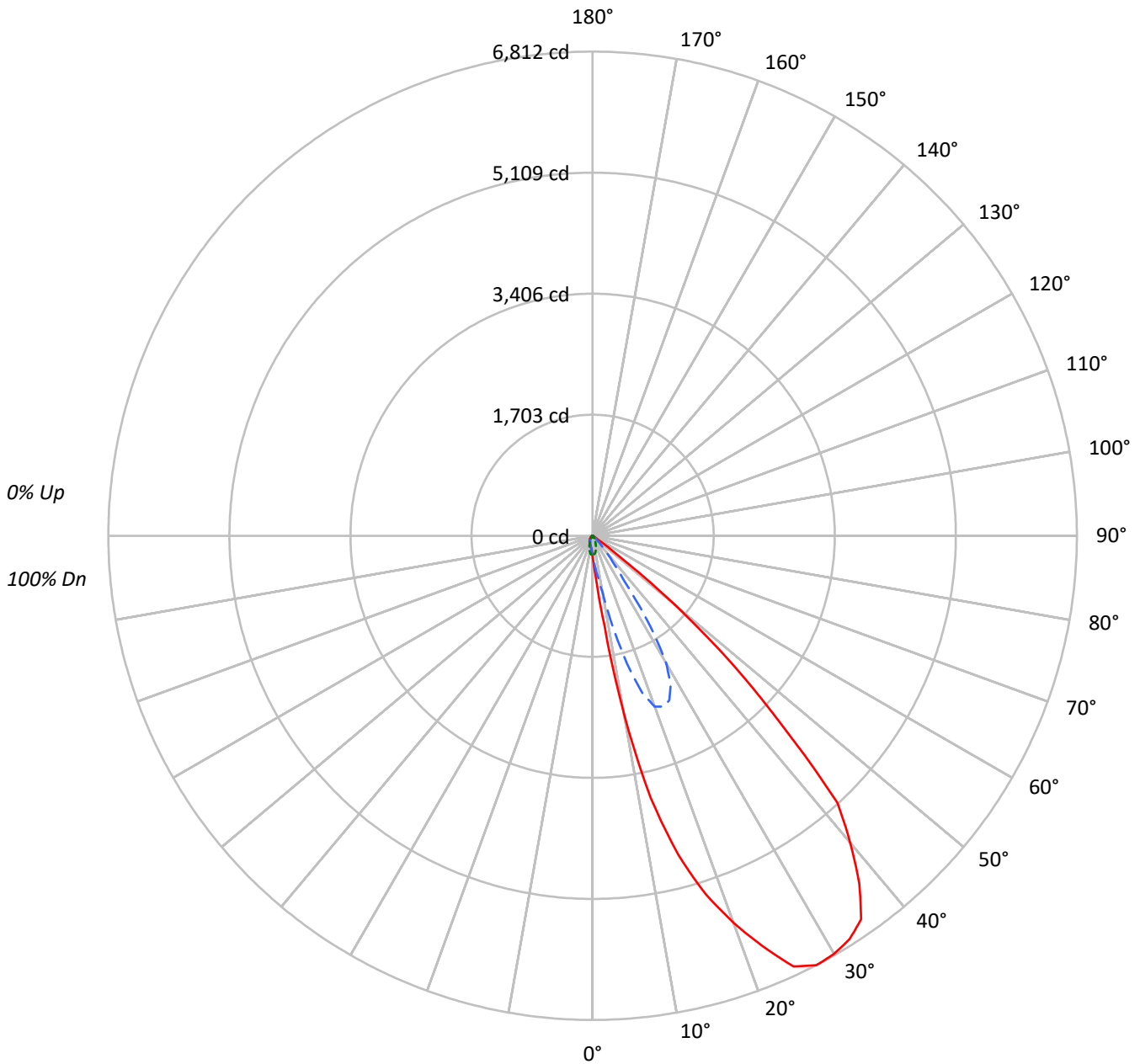
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									50									30									10									0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0																
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	104	102	103	101	99	99	97	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82																			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74																			
4	92	83	77	71	90	82	76	71	80	74	70	78	73	69	76	72	68	67																			
5	86	76	69	64	84	75	68	64	73	67	63	71	66	62	70	65	62	60																			
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54																			
7	75	64	57	52	74	63	56	51	62	56	51	60	55	51	59	54	50	49																			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	27174	27174	27174
5°	63696	25653	17932
10°	251679	22537	14952
15°	465770	18053	13118
20°	597226	13134	11866
25°	714572	9321	10518
30°	759812	6130	9251
35°	778703	3702	8066
40°	712828	2403	6930
45°	514362	1685	5672
50°	224545	1341	4717
55°	15488	1132	3969
60°	2809	1085	3255
65°	1032	1032	2315
70°	963	1275	1586
75°	823	1684	1684
80°	0	2510	1897
85°	0	5002	1223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.9	1.8
10°-20°	321.2	14.2
20°-30°	672.3	29.6
30°-40°	748.4	33.0
40°-50°	429.6	18.9
50°-60°	42.9	1.9
60°-70°	6.7	0.3
70°-80°	4.3	0.2
80°-90°	2.6	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°	1034.4	45.6
0°-40°	1782.8	78.6
0°-60°	2255.3	99.4
0°-90°	2268.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2268.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	280	280	280	280	280	
5°	655	452	264	192	184	120
15°	4644	1854	180	126	131	1313
25°	6685	2552	87	77	98	3027
35°	6584	779	31	45	68	4021
45°	3754	94	12	25	41	2867
55°	92	13	7	14	24	274
65°	4	3	4	9	10	6
75°	2	2	4	6	4	2
85°	0	2	4	3	1	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°	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5
2.5°	419.1	410.2	401.3	395.7	390.1	397.9	392.3	390.1	374.4	366.6	359.9
5°	655.0	638.2	613.6	593.5	573.4	577.9	562.2	543.2	504.1	476.1	451.6
7.5°	1264.1	1222.8	1146.8	1073.0	999.2	985.8	936.6	851.7	742.2	659.5	587.9
10°	2558.5	2433.3	2293.6	2142.7	1966.1	1916.9	1795.1	1564.8	1313.3	1026.1	818.2
12.5°	3776.8	3719.8	3555.5	3359.9	3168.7	3051.4	2925.1	2545.0	2146.0	1683.3	1296.6
15°	4644.1	4609.5	4465.3	4287.6	4081.9	4005.9	3851.7	3472.8	2968.7	2415.4	1854.3
17.5°	5286.8	5227.6	5076.7	4883.3	4639.6	4574.8	4390.4	4013.7	3490.6	2935.1	2312.6
20°	5793.1	5756.2	5560.6	5328.2	5036.4	4958.2	4742.5	4350.2	3781.2	3191.1	2557.3
22.5°	6248.0	6185.5	5945.1	5667.9	5334.9	5251.0	5010.7	4580.4	3969.0	3311.8	2600.9
25°	6685.1	6590.1	6298.3	5935.1	5543.9	5429.9	5166.1	4710.1	4038.3	3321.9	2551.8
27.5°	6812.5	6764.4	6495.1	6072.6	5619.9	5491.4	5216.4	4739.1	4012.6	3230.2	2375.2
30°	6792.4	6752.1	6527.5	6086.0	5606.5	5471.2	5191.8	4649.7	3862.8	2991.0	2063.3
32.5°	6728.7	6713.0	6441.4	5969.7	5481.3	5333.8	5032.0	4427.3	3582.3	2626.6	1507.8
35°	6584.5	6523.0	6184.3	5740.6	5271.2	5109.1	4768.2	4108.7	3212.3	1912.4	779.0
37.5°	6162.0	6113.9	5846.8	5457.8	5000.7	4792.8	4432.9	3697.4	2486.9	1087.5	466.1
40°	5636.7	5613.2	5403.1	5055.4	4567.0	4332.3	3941.1	3025.7	1517.9	618.1	307.4
42.5°	5097.9	5091.2	4866.5	4503.3	3973.5	3704.1	3298.4	2041.0	807.0	373.3	177.7
45°	3754.4	3794.7	3638.2	3420.2	3015.6	2820.0	2293.6	1051.8	465.0	206.8	93.9
47.5°	2633.3	2588.6	2311.4	1930.3	1560.3	1321.1	999.2	497.4	248.1	108.4	53.7
50°	1489.9	1497.7	1247.4	1009.3	661.7	524.2	397.9	250.4	119.6	57.0	32.4
52.5°	389.0	406.8	351.0	301.8	257.1	209.0	168.8	108.4	57.0	33.5	21.2
55°	91.7	95.0	88.3	82.7	78.2	69.3	61.5	46.9	31.3	21.2	13.4
57.5°	32.4	33.5	32.4	32.4	31.3	30.2	27.9	24.6	19.0	13.4	8.9
60°	14.5	15.6	14.5	15.6	15.6	15.6	15.6	15.6	11.2	7.8	5.6
62.5°	6.7	6.7	6.7	6.7	7.8	7.8	8.9	8.9	6.7	5.6	4.5
65°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.4
67.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
70°	3.4	3.4	3.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.4
72.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
75°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2	2.2
80°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	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	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2
87.5°	0.0	0.0	0.0	0.0	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°	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5
2.5°	347.6	346.5	334.2	325.3	320.8	314.1	306.3	295.1	282.8	271.6	267.1
5°	422.5	408.0	382.3	361.0	351.0	340.9	323.0	302.9	283.9	263.8	253.7
7.5°	519.7	477.3	427.0	387.8	371.1	354.3	328.6	300.7	275.0	248.1	233.6
10°	652.7	554.4	467.2	404.6	380.0	357.7	320.8	286.1	258.2	229.1	210.1
12.5°	933.3	689.6	509.7	412.4	380.0	351.0	306.3	266.0	234.7	204.5	186.7
15°	1344.6	931.1	602.5	420.3	372.2	335.3	283.9	240.3	206.8	180.0	163.2
17.5°	1676.6	1153.5	717.6	440.4	362.1	314.1	254.8	209.0	177.7	153.1	139.7
20°	1844.2	1247.4	770.1	443.7	337.6	280.5	220.2	176.6	148.7	127.4	116.2
22.5°	1840.9	1217.2	723.2	389.0	296.2	242.5	185.5	145.3	122.9	106.2	97.2
25°	1724.6	1077.5	603.6	310.7	239.2	201.2	150.9	117.4	99.5	87.2	79.4
27.5°	1506.7	875.2	450.4	230.2	186.7	158.7	117.4	93.9	79.4	70.4	64.8
30°	1182.5	585.7	283.9	171.0	142.0	119.6	90.5	72.7	62.6	54.8	51.4
32.5°	651.6	305.1	191.1	125.2	103.9	87.2	67.1	52.5	45.8	40.2	39.1
35°	359.9	215.7	136.4	83.8	69.3	59.2	45.8	38.0	33.5	31.3	31.3
37.5°	254.8	138.6	81.6	52.5	44.7	39.1	31.3	26.8	25.7	24.6	24.6
40°	153.1	81.6	49.2	34.6	30.2	26.8	23.5	20.1	20.1	19.0	20.1
42.5°	83.8	49.2	33.5	24.6	21.2	20.1	16.8	15.6	15.6	15.6	16.8
45°	50.3	32.4	23.5	17.9	15.6	13.4	12.3	11.2	12.3	12.3	13.4
47.5°	32.4	23.5	15.6	11.2	10.1	8.9	7.8	8.9	8.9	10.1	11.2
50°	22.4	14.5	10.1	6.7	6.7	5.6	6.7	6.7	7.8	8.9	10.1
52.5°	14.5	10.1	6.7	5.6	4.5	4.5	4.5	5.6	6.7	7.8	8.9
55°	8.9	6.7	5.6	4.5	4.5	4.5	4.5	4.5	5.6	6.7	7.8
57.5°	6.7	5.6	4.5	3.4	3.4	3.4	4.5	4.5	5.6	5.6	6.7
60°	4.5	4.5	3.4	3.4	3.4	3.4	3.4	4.5	4.5	5.6	6.7
62.5°	4.5	4.5	3.4	3.4	3.4	3.4	4.5	4.5	4.5	5.6	5.6
65°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5	5.6
67.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	5.6
70°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	5.6
72.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5
75°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5	4.5
77.5°	2.2	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5	4.5
80°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5	4.5
82.5°	2.2	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5	4.5
85°	2.2	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5	4.5
87.5°	2.2	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5
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°	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5
2.5°	261.5	253.7	247.0	249.3	244.8	237.0	234.7	229.1	222.4	221.3	221.3
5°	242.5	230.2	220.2	219.1	214.6	205.7	203.4	197.8	192.2	191.1	190.0
7.5°	219.1	205.7	196.7	194.5	191.1	183.3	182.2	176.6	173.2	171.0	171.0
10°	195.6	183.3	175.5	174.4	172.1	165.4	164.3	159.8	156.5	155.4	154.2
12.5°	173.2	163.2	156.5	155.4	153.1	147.5	146.4	143.1	140.8	139.7	139.7
15°	152.0	143.1	137.5	136.4	135.2	129.7	129.7	127.4	126.3	126.3	127.4
17.5°	130.8	122.9	118.5	117.4	117.4	112.9	114.0	112.9	112.9	112.9	115.1
20°	109.5	102.8	99.5	100.6	98.4	97.2	98.4	98.4	98.4	100.6	103.9
22.5°	91.7	86.1	82.7	83.8	83.8	82.7	83.8	84.9	87.2	90.5	93.9
25°	74.9	70.4	69.3	70.4	70.4	70.4	72.7	74.9	77.1	80.5	83.8
27.5°	60.4	57.0	57.0	58.1	59.2	59.2	62.6	64.8	68.2	71.5	74.9
30°	48.1	46.9	46.9	49.2	49.2	50.3	54.8	57.0	59.2	62.6	65.9
32.5°	38.0	38.0	39.1	41.4	41.4	43.6	46.9	49.2	51.4	54.8	58.1
35°	31.3	32.4	33.5	34.6	35.8	36.9	40.2	42.5	44.7	48.1	50.3
37.5°	25.7	26.8	27.9	30.2	30.2	31.3	34.6	36.9	38.0	41.4	44.7
40°	21.2	22.4	23.5	25.7	25.7	26.8	30.2	31.3	32.4	35.8	39.1
42.5°	17.9	19.0	20.1	21.2	22.4	23.5	25.7	26.8	29.1	31.3	33.5
45°	14.5	15.6	16.8	17.9	19.0	20.1	21.2	23.5	24.6	26.8	29.1
47.5°	12.3	13.4	14.5	15.6	16.8	16.8	19.0	20.1	21.2	23.5	25.7
50°	11.2	12.3	13.4	13.4	14.5	15.6	16.8	17.9	19.0	20.1	22.4
52.5°	8.9	10.1	11.2	12.3	12.3	13.4	14.5	15.6	16.8	17.9	19.0
55°	8.9	8.9	10.1	11.2	11.2	12.3	13.4	14.5	14.5	15.6	16.8
57.5°	7.8	8.9	8.9	10.1	10.1	11.2	12.3	12.3	13.4	13.4	14.5
60°	6.7	7.8	8.9	8.9	8.9	10.1	10.1	11.2	11.2	12.3	12.3
62.5°	6.7	7.8	7.8	8.9	8.9	8.9	10.1	10.1	10.1	11.2	11.2
65°	6.7	6.7	7.8	7.8	7.8	7.8	8.9	8.9	8.9	10.1	10.1
67.5°	5.6	6.7	6.7	6.7	7.8	7.8	7.8	7.8	7.8	8.9	8.9
70°	5.6	5.6	6.7	6.7	6.7	6.7	6.7	7.8	7.8	7.8	7.8
72.5°	5.6	5.6	5.6	5.6	6.7	6.7	6.7	6.7	6.7	6.7	6.7
75°	4.5	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
77.5°	4.5	4.5	4.5	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
80°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
82.5°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.4	3.4
85°	4.5	4.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
87.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	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



TEST NUMBER: P182860

CATALOG NUMBER: LDSQA4A28935D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5
2.5°	216.8	214.6	213.5	216.8	212.4	214.6	213.5	214.6
5°	186.7	184.4	183.3	186.7	182.2	184.4	182.2	184.4
7.5°	167.7	166.5	165.4	167.7	164.3	166.5	165.4	166.5
10°	152.0	150.9	149.8	153.1	149.8	152.0	150.9	152.0
12.5°	138.6	138.6	137.5	139.7	137.5	139.7	138.6	139.7
15°	126.3	127.4	126.3	128.5	127.4	129.7	128.5	130.8
17.5°	116.2	117.4	117.4	120.7	119.6	122.9	121.8	122.9
20°	106.2	107.3	108.4	110.7	110.7	114.0	112.9	115.1
22.5°	96.1	98.4	98.4	101.7	101.7	105.1	105.1	106.2
25°	86.1	89.4	90.5	92.8	93.9	97.2	97.2	98.4
27.5°	78.2	80.5	81.6	84.9	86.1	89.4	89.4	91.7
30°	69.3	72.7	73.8	76.0	77.1	80.5	80.5	82.7
32.5°	61.5	63.7	65.9	68.2	69.3	72.7	72.7	74.9
35°	53.7	57.0	58.1	60.4	62.6	65.9	65.9	68.2
37.5°	46.9	50.3	51.4	53.7	55.9	59.2	59.2	61.5
40°	41.4	44.7	45.8	48.1	49.2	53.7	53.7	54.8
42.5°	36.9	39.1	40.2	42.5	43.6	45.8	45.8	48.1
45°	31.3	33.5	34.6	35.8	38.0	40.2	40.2	41.4
47.5°	26.8	29.1	30.2	31.3	32.4	34.6	34.6	36.9
50°	23.5	24.6	25.7	26.8	27.9	30.2	30.2	31.3
52.5°	20.1	21.2	22.4	23.5	24.6	25.7	26.8	27.9
55°	17.9	19.0	19.0	20.1	21.2	22.4	22.4	23.5
57.5°	15.6	16.8	16.8	16.8	17.9	19.0	19.0	20.1
60°	13.4	14.5	14.5	14.5	15.6	15.6	15.6	16.8
62.5°	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
65°	10.1	10.1	10.1	10.1	10.1	10.1	8.9	10.1
67.5°	8.9	8.9	8.9	7.8	7.8	7.8	7.8	7.8
70°	7.8	7.8	7.8	6.7	6.7	6.7	5.6	5.6
72.5°	6.7	6.7	6.7	5.6	5.6	5.6	4.5	4.5
75°	5.6	5.6	5.6	5.6	4.5	4.5	4.5	4.5
77.5°	4.5	4.5	4.5	4.5	4.5	4.5	3.4	3.4
80°	4.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4
82.5°	3.4	3.4	3.4	3.4	2.2	2.2	2.2	2.2
85°	2.2	2.2	2.2	2.2	2.2	2.2	1.1	1.1
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)