

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: P182828

Luminaire Tested: **LDSQA4A28935D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182828
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26803)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A28935D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2226.5 lumens
Efficiency: N/A
Efficacy: 50.0 lumens/watt
Spacing Criteria (0/90/45): 2.36 / 0.61 / 1.19
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

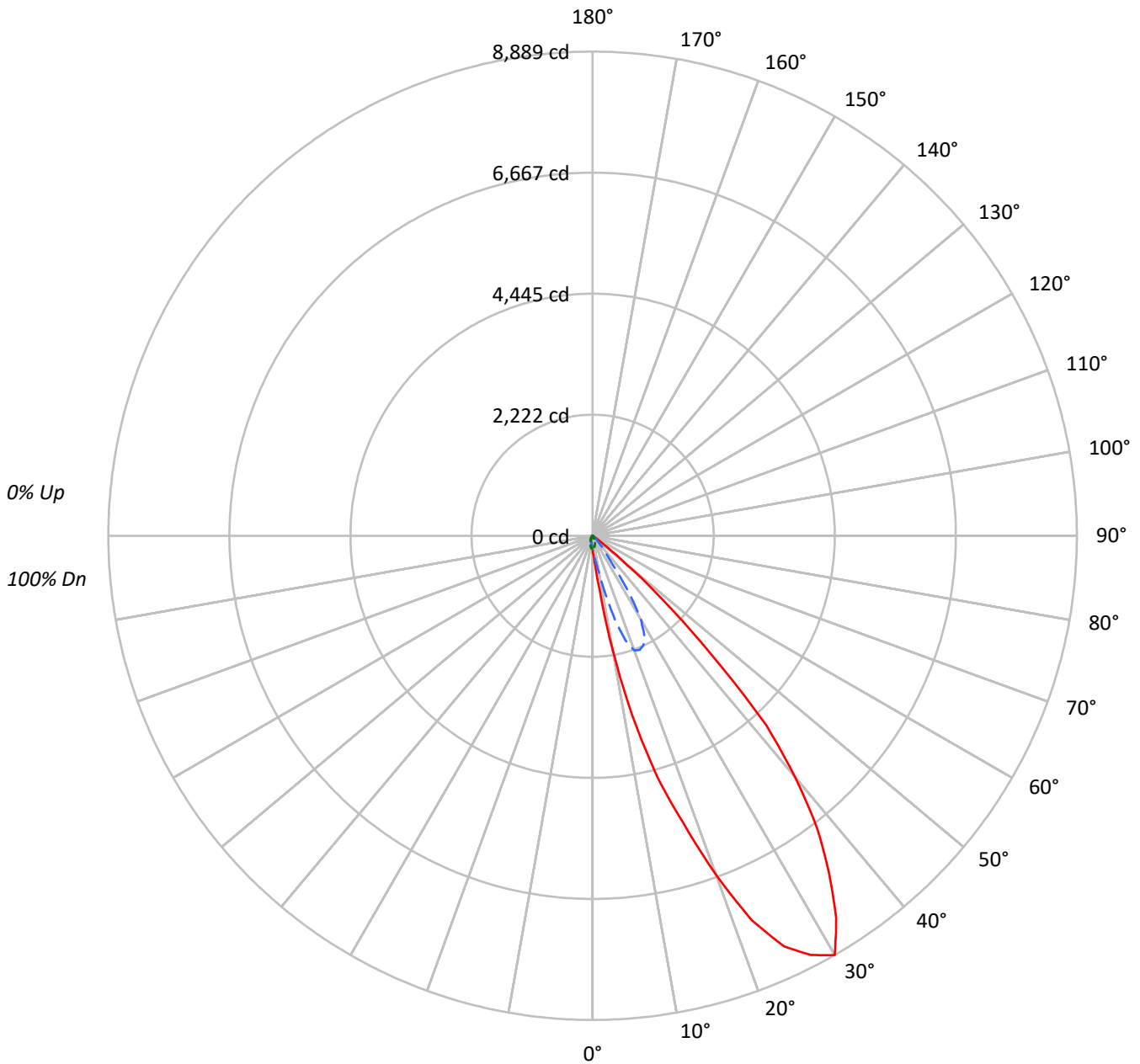
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83																			
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75																			
4	93	84	77	72	91	83	76	72	80	75	71	78	74	70	76	72	69	67																			
5	87	77	70	65	85	76	69	64	74	68	64	72	67	63	70	66	63	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	57	55																			
7	76	65	57	52	74	64	57	52	62	56	52	61	56	52	60	55	51	50																			
8	71	59	52	47	69	59	52	47	58	51	47	57	51	47	55	50	47	45																			
9	66	55	48	43	65	54	48	43	53	47	43	52	47	43	51	46	42	41																			
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	37																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	24044	24044	24044
5°	53806	22610	16201
10°	211023	19792	12759
15°	458098	16037	11102
20°	683391	11866	10031
25°	888867	8359	8722
30°	994365	5627	7629
35°	894873	3300	6481
40°	730292	2264	5653
45°	419324	1534	4590
50°	122649	1176	3873
55°	14154	946	3209
60°	3023	1085	2596
65°	1032	1032	1788
70°	963	1275	1275
75°	823	1684	1273
80°	0	2510	1227
85°	0	5002	1223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.6	1.6
10°-20°	304.8	13.7
20°-30°	727.1	32.7
30°-40°	767.3	34.5
40°-50°	348.0	15.6
50°-60°	30.5	1.4
60°-70°	6.4	0.3
70°-80°	4.2	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°	1067.4	47.9
0°-40°	1834.7	82.4
0°-60°	2213.2	99.4
0°-90°	2226.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2226.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	248	248	248	248	248	
5°	553	406	232	179	167	99
15°	4568	1606	160	110	111	1329
25°	8316	2211	78	67	82	3778
35°	7567	610	28	38	55	4673
45°	3061	86	11	21	34	2427
55°	84	13	6	12	19	167
65°	4	4	4	9	8	6
75°	2	2	4	6	3	2
85°	0	2	4	3	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182828

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2
2.5°	368.9	371.1	361.1	362.2	352.1	356.6	353.2	344.3	337.6	326.4	321.9
5°	553.3	556.7	534.3	527.6	504.2	504.2	494.1	470.6	449.4	423.7	405.8
7.5°	1011.7	1025.1	958.0	907.7	833.9	816.0	781.4	700.9	634.9	567.9	517.6
10°	2145.2	2120.6	1982.0	1867.9	1677.9	1607.5	1513.6	1282.2	1069.8	858.5	693.1
12.5°	3382.6	3462.0	3194.8	3102.1	2801.3	2737.6	2537.5	2159.7	1800.9	1427.5	1096.6
15°	4567.6	4591.0	4357.4	4206.5	3839.8	3757.1	3511.2	3067.4	2584.5	2063.6	1606.4
17.5°	5518.9	5612.8	5269.6	5107.5	4631.3	4498.3	4208.7	3668.8	3131.1	2562.1	2020.0
20°	6628.9	6653.5	6246.6	5934.7	5312.1	5109.7	4763.2	4093.6	3453.1	2803.6	2243.5
22.5°	7638.3	7632.7	7109.6	6669.1	5881.0	5639.6	5211.4	4417.8	3673.3	2910.9	2264.8
25°	8315.7	8333.6	7773.6	7252.7	6285.7	5959.3	5476.4	4586.6	3748.2	2907.5	2211.1
27.5°	8676.8	8658.9	8058.6	7501.9	6434.4	6068.8	5544.6	4592.2	3680.0	2793.5	2050.1
30°	8889.2	8650.0	8009.4	7431.5	6333.8	5958.2	5425.0	4415.5	3453.1	2538.7	1762.9
32.5°	8321.3	8228.5	7670.7	7057.0	5987.2	5615.0	5088.5	4039.9	3093.1	2148.5	1263.2
35°	7566.8	7570.1	7025.7	6452.3	5444.0	5119.8	4576.5	3582.7	2653.8	1493.5	610.3
37.5°	6775.3	6786.5	6268.9	5735.7	4838.1	4497.1	3988.5	3061.8	1909.3	760.1	367.8
40°	5774.8	5798.3	5352.3	4924.2	4095.8	3767.2	3313.3	2317.3	1067.6	424.8	249.3
42.5°	4718.5	4747.5	4351.8	3971.7	3267.5	2997.0	2594.5	1435.3	529.9	275.0	146.4
45°	3060.7	3144.5	2850.5	2690.7	2282.7	2121.7	1693.6	732.2	319.7	161.0	86.1
47.5°	1751.7	1752.8	1504.6	1205.0	988.2	859.6	671.8	333.1	186.7	90.5	52.5
50°	813.8	833.9	660.7	550.0	393.5	333.1	273.9	180.0	98.4	52.5	32.4
52.5°	237.0	250.4	226.9	205.7	174.4	155.4	133.0	88.3	51.4	31.3	20.1
55°	83.8	89.4	83.8	78.2	70.4	63.7	57.0	42.5	29.1	19.0	13.4
57.5°	34.7	35.8	34.7	33.5	31.3	31.3	27.9	23.5	17.9	12.3	8.9
60°	15.6	16.8	15.6	16.8	15.6	15.6	15.6	16.8	11.2	7.8	6.7
62.5°	6.7	7.8	7.8	7.8	7.8	8.9	8.9	7.8	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	4.5
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	3.4	3.4	3.4	2.2	2.2	3.4	3.4	3.4
72.5°	3.4	3.4	3.4	3.4	2.2	2.2	2.2	2.2	2.2	3.4	3.4
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	1.1	2.2	2.2	2.2
80°	0.0	0.0	0.0	0.0	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°	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2
2.5°	316.4	306.3	290.6	280.6	276.1	269.4	264.9	253.8	249.3	240.3	237.0
5°	389.0	368.9	345.4	326.4	314.1	300.7	280.6	258.2	247.0	232.5	224.7
7.5°	471.7	428.1	386.8	353.2	337.6	319.7	294.0	259.3	238.1	219.1	207.9
10°	576.8	487.4	422.5	368.9	345.4	321.9	290.6	250.4	223.6	201.2	188.9
12.5°	822.7	588.0	455.0	377.8	347.7	318.6	279.5	238.1	206.8	181.1	167.7
15°	1183.8	821.6	542.2	385.7	339.8	304.1	259.3	218.0	185.6	159.9	146.4
17.5°	1503.5	1047.4	662.9	414.7	337.6	287.3	234.7	192.3	161.0	136.4	125.2
20°	1677.9	1165.9	743.4	432.6	327.5	261.6	206.8	166.6	136.4	115.1	105.1
22.5°	1681.3	1159.2	714.3	393.5	288.4	226.9	178.9	140.8	114.0	95.0	87.2
25°	1580.6	1034.0	595.8	309.6	235.9	192.3	149.8	117.4	92.8	78.2	71.5
27.5°	1392.8	840.6	438.2	223.6	184.4	155.4	120.7	93.9	72.7	63.7	58.1
30°	1095.5	547.7	256.0	166.6	143.1	119.6	91.7	66.0	57.0	50.3	45.8
32.5°	588.0	266.0	178.9	123.0	101.7	83.8	60.4	48.1	41.4	36.9	35.8
35°	307.4	194.5	119.6	78.2	64.8	54.8	41.4	33.5	30.2	27.9	27.9
37.5°	220.2	121.8	76.0	50.3	42.5	34.7	29.1	24.6	22.4	22.4	22.4
40°	130.8	74.9	45.8	32.4	27.9	24.6	21.2	17.9	17.9	17.9	17.9
42.5°	79.4	46.9	32.4	22.4	20.1	17.9	15.6	14.5	13.4	13.4	14.5
45°	49.2	32.4	21.2	16.8	15.6	13.4	12.3	11.2	11.2	11.2	12.3
47.5°	31.3	23.5	15.6	11.2	10.1	8.9	7.8	7.8	8.9	8.9	10.1
50°	23.5	14.5	10.1	7.8	6.7	6.7	5.6	6.7	6.7	7.8	8.9
52.5°	13.4	8.9	6.7	5.6	5.6	4.5	4.5	5.6	5.6	6.7	7.8
55°	8.9	6.7	5.6	4.5	4.5	4.5	4.5	4.5	5.6	5.6	6.7
57.5°	6.7	5.6	4.5	4.5	4.5	3.4	4.5	4.5	4.5	5.6	6.7
60°	5.6	4.5	4.5	4.5	4.5	3.4	3.4	4.5	4.5	5.6	5.6
62.5°	4.5	4.5	4.5	4.5	4.5	3.4	4.5	4.5	4.5	4.5	5.6
65°	3.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.6
67.5°	3.4	3.4	4.5	4.5	4.5	3.4	4.5	4.5	4.5	4.5	5.6
70°	3.4	3.4	3.4	4.5	4.5	3.4	4.5	4.5	4.5	4.5	4.5
72.5°	3.4	3.4	3.4	4.5	4.5	3.4	4.5	4.5	4.5	4.5	4.5
75°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5
77.5°	3.4	3.4	3.4	3.4	4.5	3.4	4.5	4.5	4.5	4.5	4.5
80°	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5	4.5	4.5
82.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5	4.5
85°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.5	4.5	4.5	4.5
87.5°	3.4	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°	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2
2.5°	228.0	224.7	218.0	216.9	215.7	211.3	207.9	204.6	204.6	201.2	199.0
5°	211.3	205.7	197.9	194.5	193.4	187.8	183.3	180.0	178.9	175.5	172.1
7.5°	193.4	186.7	177.7	174.4	173.3	167.7	163.2	159.9	157.6	154.3	152.0
10°	174.4	166.6	158.7	155.4	154.3	148.7	145.3	142.0	139.7	137.5	135.3
12.5°	154.3	147.6	139.7	136.4	135.3	130.8	127.4	125.2	124.1	121.8	120.7
15°	134.1	127.4	120.7	118.5	117.4	114.0	111.8	110.7	109.5	109.5	108.4
17.5°	114.0	108.4	102.8	101.7	100.6	98.4	97.3	96.1	97.3	97.3	98.4
20°	95.0	90.5	86.1	86.1	85.0	83.8	83.8	83.8	86.1	87.2	89.4
22.5°	78.2	74.9	71.5	71.5	71.5	71.5	71.5	73.8	76.0	78.2	79.4
25°	64.8	61.5	60.4	60.4	60.4	61.5	62.6	64.8	67.1	69.3	71.5
27.5°	52.5	50.3	50.3	50.3	51.4	52.5	53.7	55.9	59.2	61.5	63.7
30°	42.5	41.4	41.4	42.5	43.6	44.7	46.9	49.2	51.4	53.7	55.9
32.5°	33.5	34.7	34.7	35.8	36.9	38.0	40.2	42.5	44.7	46.9	48.1
35°	27.9	27.9	29.1	30.2	31.3	32.4	34.7	36.9	38.0	40.2	42.5
37.5°	22.4	23.5	24.6	25.7	26.8	27.9	29.1	31.3	32.4	34.7	36.9
40°	19.0	20.1	21.2	22.4	22.4	24.6	24.6	26.8	27.9	30.2	32.4
42.5°	15.6	16.8	17.9	19.0	19.0	20.1	21.2	22.4	24.6	25.7	27.9
45°	12.3	13.4	14.5	15.6	16.8	17.9	17.9	20.1	21.2	22.4	24.6
47.5°	11.2	12.3	13.4	13.4	14.5	15.6	15.6	17.9	19.0	20.1	21.2
50°	8.9	10.1	11.2	12.3	12.3	13.4	14.5	15.6	16.8	17.9	17.9
52.5°	7.8	8.9	10.1	10.1	11.2	12.3	12.3	13.4	14.5	14.5	15.6
55°	7.8	8.9	8.9	10.1	10.1	11.2	11.2	12.3	12.3	13.4	13.4
57.5°	6.7	7.8	7.8	8.9	8.9	10.1	10.1	11.2	11.2	11.2	12.3
60°	6.7	6.7	7.8	7.8	8.9	8.9	8.9	10.1	10.1	10.1	11.2
62.5°	5.6	6.7	6.7	7.8	7.8	7.8	8.9	8.9	8.9	10.1	10.1
65°	5.6	6.7	6.7	7.8	7.8	7.8	7.8	7.8	8.9	8.9	8.9
67.5°	5.6	5.6	6.7	6.7	6.7	6.7	7.8	7.8	7.8	7.8	7.8
70°	5.6	5.6	5.6	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
72.5°	4.5	5.6	5.6	5.6	5.6	6.7	6.7	6.7	6.7	6.7	5.6
75°	4.5	4.5	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	4.5	4.5
80°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.4
82.5°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.4	3.4	3.4
85°	4.5	3.4	4.5	4.5	4.5	3.4	3.4	3.4	3.4	3.4	2.2
87.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	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: P182828

CATALOG NUMBER: LDSQA4A28935D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	248.2	248.2	248.2	248.2	248.2	248.2	248.2	248.2
2.5°	196.7	194.5	195.6	195.6	193.4	192.3	192.3	193.4
5°	169.9	167.7	168.8	168.8	166.6	165.4	165.4	166.6
7.5°	149.8	147.6	148.7	148.7	146.4	146.4	146.4	146.4
10°	134.1	133.0	133.0	133.0	130.8	131.9	130.8	129.7
12.5°	119.6	119.6	119.6	119.6	118.5	119.6	118.5	118.5
15°	108.4	108.4	109.5	109.5	109.5	110.7	110.7	110.7
17.5°	99.5	100.6	101.7	102.8	102.8	104.0	104.0	104.0
20°	90.5	92.8	93.9	95.0	95.0	97.3	96.1	97.3
22.5°	81.6	83.8	85.0	86.1	87.2	88.3	88.3	89.4
25°	73.8	76.0	77.1	78.2	79.4	81.6	81.6	81.6
27.5°	66.0	68.2	69.3	71.5	72.7	74.9	74.9	74.9
30°	58.1	60.4	61.5	62.6	64.8	67.1	67.1	68.2
32.5°	50.3	53.7	54.8	55.9	58.1	60.4	61.5	61.5
35°	44.7	46.9	48.1	50.3	51.4	54.8	54.8	54.8
37.5°	39.1	41.4	43.6	44.7	45.8	48.1	49.2	50.3
40°	34.7	36.9	38.0	39.1	41.4	43.6	44.7	44.7
42.5°	30.2	32.4	33.5	34.7	35.8	38.0	38.0	38.0
45°	26.8	27.9	29.1	30.2	31.3	32.4	33.5	33.5
47.5°	22.4	24.6	24.6	25.7	26.8	29.1	29.1	30.2
50°	19.0	21.2	21.2	22.4	23.5	24.6	25.7	25.7
52.5°	16.8	17.9	19.0	19.0	20.1	21.2	22.4	22.4
55°	14.5	15.6	15.6	16.8	16.8	17.9	19.0	19.0
57.5°	12.3	13.4	14.5	14.5	14.5	15.6	15.6	16.8
60°	11.2	12.3	12.3	12.3	12.3	13.4	13.4	13.4
62.5°	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
65°	8.9	8.9	8.9	8.9	7.8	7.8	7.8	7.8
67.5°	7.8	7.8	7.8	7.8	6.7	6.7	6.7	6.7
70°	6.7	6.7	6.7	6.7	5.6	5.6	5.6	4.5
72.5°	5.6	5.6	5.6	5.6	5.6	4.5	4.5	4.5
75°	5.6	4.5	4.5	4.5	4.5	4.5	3.4	3.4
77.5°	4.5	4.5	4.5	3.4	3.4	3.4	3.4	3.4
80°	3.4	3.4	3.4	3.4	3.4	2.2	2.2	2.2
82.5°	3.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2
85°	2.2	2.2	2.2	2.2	1.1	1.1	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)