

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: P182829

Luminaire Tested: **LDSQA4A28940D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182829
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: LDSQA4A28940D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2403.9 lumens
Efficiency: N/A
Efficacy: 54.0 lumens/watt
Spacing Criteria (0/90/45): 2.37 / 0.61 / 1.19
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

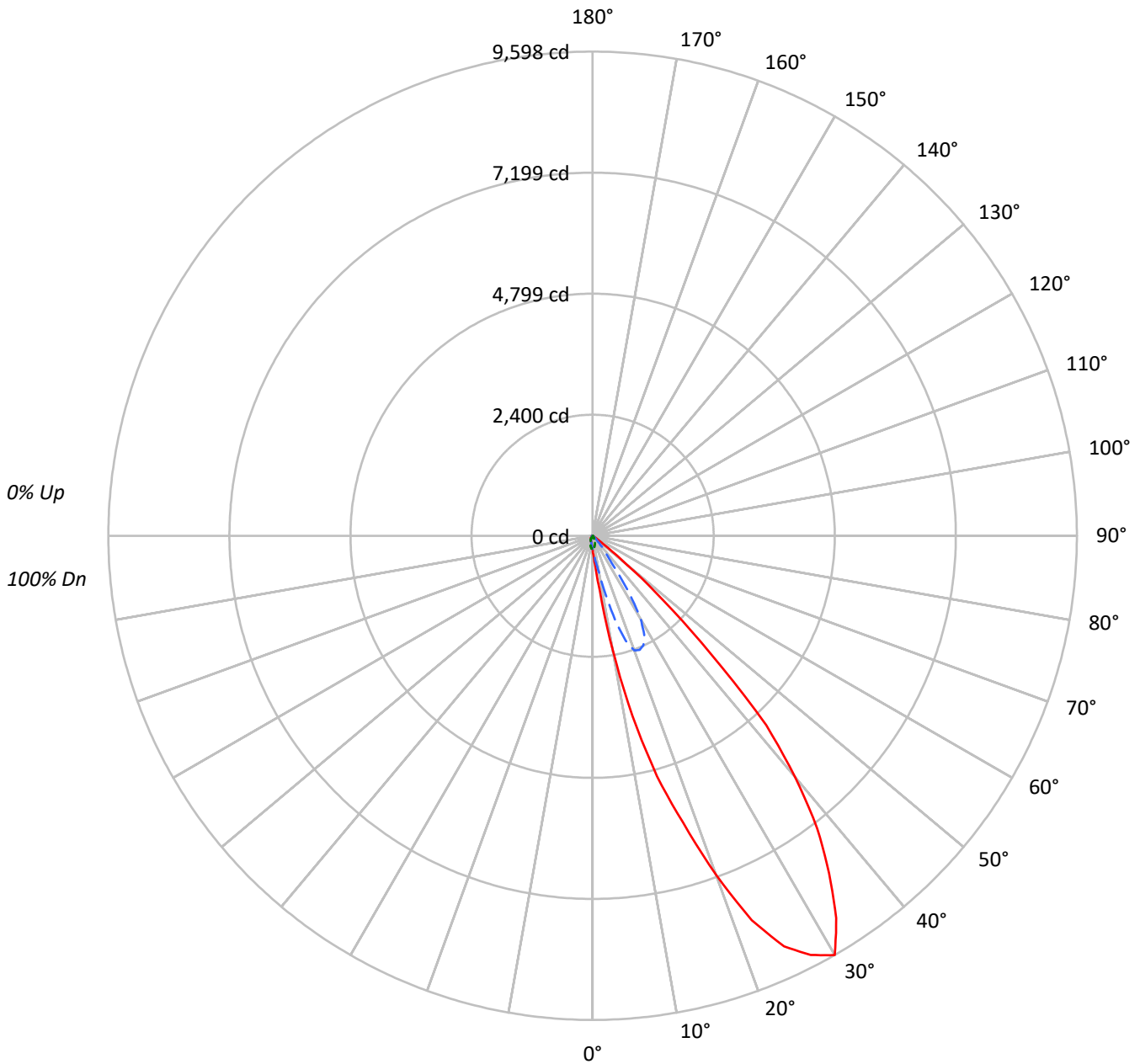
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				
RC	80				70				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°	25953	25953	25953
5°	58104	24418	17485
10°	227844	21376	13772
15°	494614	17311	11985
20°	737876	12814	10825
25°	959735	9032	9417
30°	1073641	6074	8233
35°	966209	3572	6989
40°	788515	2441	6108
45°	452752	1658	4959
50°	132430	1266	4190
55°	15285	1013	3462
60°	3274	1163	2809
65°	1100	1100	1926
70°	1020	1360	1360
75°	898	1797	1347
80°	0	2678	1339
85°	0	5335	1334



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.4	1.6
10°-20°	329.1	13.7
20°-30°	785.0	32.7
30°-40°	828.5	34.5
40°-50°	375.7	15.6
50°-60°	33.0	1.4
60°-70°	6.9	0.3
70°-80°	4.5	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°	1152.5	47.9
0°-40°	1981.0	82.4
0°-60°	2389.7	99.4
0°-90°	2403.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2403.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	268	268	268	268	268	
5°	598	438	251	193	180	107
15°	4932	1734	173	118	120	1435
25°	8979	2387	84	72	88	4079
35°	8170	659	30	41	59	5045
45°	3305	93	12	23	36	2620
55°	90	14	6	13	20	181
65°	5	5	5	10	8	6
75°	2	2	5	6	4	2
85°	0	2	5	4	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°	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9
2.5°	398.3	400.7	389.9	391.1	380.2	385.0	381.4	371.7	364.5	352.4	347.6
5°	597.5	601.1	576.9	569.7	544.3	544.3	533.5	508.1	485.2	457.4	438.1
7.5°	1092.3	1106.8	1034.4	980.1	900.4	881.1	843.7	756.8	685.6	613.1	558.8
10°	2316.2	2289.6	2140.0	2016.9	1811.7	1735.6	1634.2	1384.4	1155.1	927.0	748.3
12.5°	3652.3	3738.0	3449.5	3349.4	3024.7	2955.9	2739.8	2331.9	1944.4	1541.3	1184.0
15°	4931.7	4957.1	4704.8	4541.9	4146.0	4056.7	3791.1	3311.9	2790.5	2228.1	1734.4
17.5°	5958.9	6060.2	5689.7	5514.7	5000.5	4856.9	4544.3	3961.3	3380.7	2766.4	2181.0
20°	7157.4	7183.9	6744.6	6407.8	5735.6	5517.1	5142.9	4420.0	3728.4	3027.1	2422.4
22.5°	8247.3	8241.2	7676.4	7200.8	6349.9	6089.2	5626.9	4770.0	3966.1	3143.0	2445.3
25°	8978.7	8998.0	8393.3	7830.9	6786.8	6434.4	5913.0	4952.2	4047.0	3139.4	2387.4
27.5°	9368.6	9349.3	8701.1	8100.0	6947.4	6552.7	5986.6	4958.3	3973.4	3016.2	2213.6
30°	9597.9	9339.6	8648.0	8024.0	6838.7	6433.2	5857.5	4767.6	3728.4	2741.0	1903.4
32.5°	8984.7	8884.6	8282.3	7619.7	6464.6	6062.7	5494.2	4362.0	3339.7	2319.8	1363.9
35°	8170.0	8173.7	7585.9	6966.7	5878.0	5528.0	4941.4	3868.4	2865.4	1612.5	659.0
37.5°	7315.5	7327.6	6768.7	6193.0	5223.8	4855.7	4306.5	3305.9	2061.5	820.7	397.1
40°	6235.2	6260.6	5779.0	5316.7	4422.4	4067.5	3577.5	2502.1	1152.7	458.7	269.2
42.5°	5094.7	5126.0	4698.8	4288.4	3528.0	3235.9	2801.4	1549.8	572.1	296.9	158.1
45°	3304.7	3395.2	3077.8	2905.2	2464.6	2290.8	1828.6	790.6	345.2	173.8	92.9
47.5°	1891.3	1892.5	1624.6	1301.1	1067.0	928.2	725.4	359.7	201.6	97.8	56.7
50°	878.7	900.4	713.3	593.8	424.9	359.7	295.7	194.3	106.2	56.7	35.0
52.5°	255.9	270.4	245.0	222.1	188.3	167.8	143.6	95.4	55.5	33.8	21.7
55°	90.5	96.6	90.5	84.5	76.0	68.8	61.6	45.9	31.4	20.5	14.5
57.5°	37.4	38.6	37.4	36.2	33.8	33.8	30.2	25.3	19.3	13.3	9.7
60°	16.9	18.1	16.9	18.1	16.9	16.9	16.9	18.1	12.1	8.4	7.2
62.5°	7.2	8.4	8.4	8.4	8.4	9.7	9.7	8.4	7.2	6.0	4.8
65°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
67.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
70°	3.6	3.6	3.6	3.6	3.6	3.6	2.4	2.4	3.6	3.6	3.6
72.5°	3.6	3.6	3.6	3.6	2.4	2.4	2.4	2.4	2.4	3.6	3.6
75°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
77.5°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4	2.4
80°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	2.4	2.4	2.4
82.5°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4	2.4
85°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	2.4	2.4	2.4
87.5°	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	2.4	2.4	2.4
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9
2.5°	341.6	330.7	313.8	303.0	298.1	290.9	286.1	274.0	269.2	259.5	255.9
5°	420.0	398.3	373.0	352.4	339.2	324.7	303.0	278.8	266.7	251.1	242.6
7.5°	509.3	462.3	417.6	381.4	364.5	345.2	317.4	280.0	257.1	236.6	224.5
10°	622.8	526.2	456.2	398.3	373.0	347.6	313.8	270.4	241.4	217.3	204.0
12.5°	888.3	634.9	491.2	408.0	375.4	344.0	301.7	257.1	223.3	195.5	181.0
15°	1278.2	887.1	585.4	416.4	366.9	328.3	280.0	235.4	200.4	172.6	158.1
17.5°	1623.4	1130.9	715.7	447.8	364.5	310.2	253.5	207.6	173.8	147.3	135.2
20°	1811.7	1258.9	802.6	467.1	353.6	282.4	223.3	179.8	147.3	124.3	113.5
22.5°	1815.3	1251.6	771.3	424.9	311.4	245.0	193.1	152.1	123.1	102.6	94.1
25°	1706.7	1116.5	643.3	334.3	254.7	207.6	161.7	126.7	100.2	84.5	77.2
27.5°	1503.9	907.6	473.1	241.4	199.2	167.8	130.4	101.4	78.5	68.8	62.8
30°	1182.8	591.4	276.4	179.8	154.5	129.1	99.0	71.2	61.6	54.3	49.5
32.5°	634.9	287.3	193.1	132.8	109.8	90.5	65.2	51.9	44.7	39.8	38.6
35°	331.9	210.0	129.1	84.5	70.0	59.1	44.7	36.2	32.6	30.2	30.2
37.5°	237.8	131.6	82.1	54.3	45.9	37.4	31.4	26.6	24.1	24.1	24.1
40°	141.2	80.9	49.5	35.0	30.2	26.6	22.9	19.3	19.3	19.3	19.3
42.5°	85.7	50.7	35.0	24.1	21.7	19.3	16.9	15.7	14.5	14.5	15.7
45°	53.1	35.0	22.9	18.1	16.9	14.5	13.3	12.1	12.1	12.1	13.3
47.5°	33.8	25.3	16.9	12.1	10.9	9.7	8.4	8.4	9.7	9.7	10.9
50°	25.3	15.7	10.9	8.4	7.2	7.2	6.0	7.2	7.2	8.4	9.7
52.5°	14.5	9.7	7.2	6.0	6.0	4.8	4.8	6.0	6.0	7.2	8.4
55°	9.7	7.2	6.0	4.8	4.8	4.8	4.8	4.8	6.0	6.0	7.2
57.5°	7.2	6.0	4.8	4.8	4.8	3.6	4.8	4.8	4.8	6.0	7.2
60°	6.0	4.8	4.8	4.8	4.8	3.6	3.6	4.8	4.8	6.0	6.0
62.5°	4.8	4.8	4.8	4.8	4.8	3.6	4.8	4.8	4.8	4.8	6.0
65°	3.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	6.0
67.5°	3.6	3.6	4.8	4.8	4.8	3.6	4.8	4.8	4.8	4.8	6.0
70°	3.6	3.6	3.6	4.8	4.8	3.6	4.8	4.8	4.8	4.8	4.8
72.5°	3.6	3.6	3.6	4.8	4.8	3.6	4.8	4.8	4.8	4.8	4.8
75°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8
77.5°	3.6	3.6	3.6	3.6	4.8	3.6	4.8	4.8	4.8	4.8	4.8
80°	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8
82.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8
85°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8
87.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8
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°	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9
2.5°	246.2	242.6	235.4	234.2	232.9	228.1	224.5	220.9	220.9	217.3	214.8
5°	228.1	222.1	213.6	210.0	208.8	202.8	197.9	194.3	193.1	189.5	185.9
7.5°	208.8	201.6	191.9	188.3	187.1	181.0	176.2	172.6	170.2	166.6	164.1
10°	188.3	179.8	171.4	167.8	166.6	160.5	156.9	153.3	150.9	148.5	146.0
12.5°	166.6	159.3	150.9	147.3	146.0	141.2	137.6	135.2	134.0	131.6	130.4
15°	144.8	137.6	130.4	127.9	126.7	123.1	120.7	119.5	118.3	118.3	117.1
17.5°	123.1	117.1	111.0	109.8	108.6	106.2	105.0	103.8	105.0	105.0	106.2
20°	102.6	97.8	92.9	92.9	91.7	90.5	90.5	90.5	92.9	94.1	96.6
22.5°	84.5	80.9	77.2	77.2	77.2	77.2	77.2	79.7	82.1	84.5	85.7
25°	70.0	66.4	65.2	65.2	65.2	66.4	67.6	70.0	72.4	74.8	77.2
27.5°	56.7	54.3	54.3	54.3	55.5	56.7	57.9	60.3	64.0	66.4	68.8
30°	45.9	44.7	44.7	45.9	47.1	48.3	50.7	53.1	55.5	57.9	60.3
32.5°	36.2	37.4	37.4	38.6	39.8	41.0	43.5	45.9	48.3	50.7	51.9
35°	30.2	30.2	31.4	32.6	33.8	35.0	37.4	39.8	41.0	43.5	45.9
37.5°	24.1	25.3	26.6	27.8	29.0	30.2	31.4	33.8	35.0	37.4	39.8
40°	20.5	21.7	22.9	24.1	24.1	26.6	26.6	29.0	30.2	32.6	35.0
42.5°	16.9	18.1	19.3	20.5	20.5	21.7	22.9	24.1	26.6	27.8	30.2
45°	13.3	14.5	15.7	16.9	18.1	19.3	19.3	21.7	22.9	24.1	26.6
47.5°	12.1	13.3	14.5	14.5	15.7	16.9	16.9	19.3	20.5	21.7	22.9
50°	9.7	10.9	12.1	13.3	13.3	14.5	15.7	16.9	18.1	19.3	19.3
52.5°	8.4	9.7	10.9	10.9	12.1	13.3	13.3	14.5	15.7	15.7	16.9
55°	8.4	9.7	9.7	10.9	10.9	12.1	12.1	13.3	13.3	14.5	14.5
57.5°	7.2	8.4	8.4	9.7	9.7	10.9	10.9	12.1	12.1	12.1	13.3
60°	7.2	7.2	8.4	8.4	9.7	9.7	9.7	10.9	10.9	10.9	12.1
62.5°	6.0	7.2	7.2	8.4	8.4	8.4	9.7	9.7	9.7	10.9	10.9
65°	6.0	7.2	7.2	8.4	8.4	8.4	8.4	8.4	9.7	9.7	9.7
67.5°	6.0	6.0	7.2	7.2	7.2	7.2	8.4	8.4	8.4	8.4	8.4
70°	6.0	6.0	6.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
72.5°	4.8	6.0	6.0	6.0	6.0	7.2	7.2	7.2	7.2	7.2	6.0
75°	4.8	4.8	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
77.5°	4.8	4.8	4.8	6.0	6.0	6.0	6.0	6.0	6.0	4.8	4.8
80°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.6
82.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.6	3.6	3.6
85°	4.8	3.6	4.8	4.8	4.8	3.6	3.6	3.6	3.6	3.6	2.4
87.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	2.4	2.4
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: P182829

CATALOG NUMBER: LDSQA4A28940D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	267.9	267.9	267.9	267.9	267.9	267.9	267.9	267.9
2.5°	212.4	210.0	211.2	211.2	208.8	207.6	207.6	208.8
5°	183.5	181.0	182.3	182.3	179.8	178.6	178.6	179.8
7.5°	161.7	159.3	160.5	160.5	158.1	158.1	158.1	158.1
10°	144.8	143.6	143.6	143.6	141.2	142.4	141.2	140.0
12.5°	129.1	129.1	129.1	129.1	127.9	129.1	127.9	127.9
15°	117.1	117.1	118.3	118.3	118.3	119.5	119.5	119.5
17.5°	107.4	108.6	109.8	111.0	111.0	112.2	112.2	112.2
20°	97.8	100.2	101.4	102.6	102.6	105.0	103.8	105.0
22.5°	88.1	90.5	91.7	92.9	94.1	95.4	95.4	96.6
25°	79.7	82.1	83.3	84.5	85.7	88.1	88.1	88.1
27.5°	71.2	73.6	74.8	77.2	78.5	80.9	80.9	80.9
30°	62.8	65.2	66.4	67.6	70.0	72.4	72.4	73.6
32.5°	54.3	57.9	59.1	60.3	62.8	65.2	66.4	66.4
35°	48.3	50.7	51.9	54.3	55.5	59.1	59.1	59.1
37.5°	42.2	44.7	47.1	48.3	49.5	51.9	53.1	54.3
40°	37.4	39.8	41.0	42.2	44.7	47.1	48.3	48.3
42.5°	32.6	35.0	36.2	37.4	38.6	41.0	41.0	41.0
45°	29.0	30.2	31.4	32.6	33.8	35.0	36.2	36.2
47.5°	24.1	26.6	26.6	27.8	29.0	31.4	31.4	32.6
50°	20.5	22.9	22.9	24.1	25.3	26.6	27.8	27.8
52.5°	18.1	19.3	20.5	20.5	21.7	22.9	24.1	24.1
55°	15.7	16.9	16.9	18.1	18.1	19.3	20.5	20.5
57.5°	13.3	14.5	15.7	15.7	15.7	16.9	16.9	18.1
60°	12.1	13.3	13.3	13.3	13.3	14.5	14.5	14.5
62.5°	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9
65°	9.7	9.7	9.7	9.7	8.4	8.4	8.4	8.4
67.5°	8.4	8.4	8.4	8.4	7.2	7.2	7.2	7.2
70°	7.2	7.2	7.2	7.2	6.0	6.0	6.0	4.8
72.5°	6.0	6.0	6.0	6.0	6.0	4.8	4.8	4.8
75°	6.0	4.8	4.8	4.8	4.8	4.8	3.6	3.6
77.5°	4.8	4.8	4.8	3.6	3.6	3.6	3.6	3.6
80°	3.6	3.6	3.6	3.6	3.6	2.4	2.4	2.4
82.5°	3.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
85°	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2
87.5°	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
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)