

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: P182801

Luminaire Tested: **LDSQA4A18840D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182801
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: LDSQA4A18840D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2088.9 lumens
Efficiency: N/A
Efficacy: 71.7 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

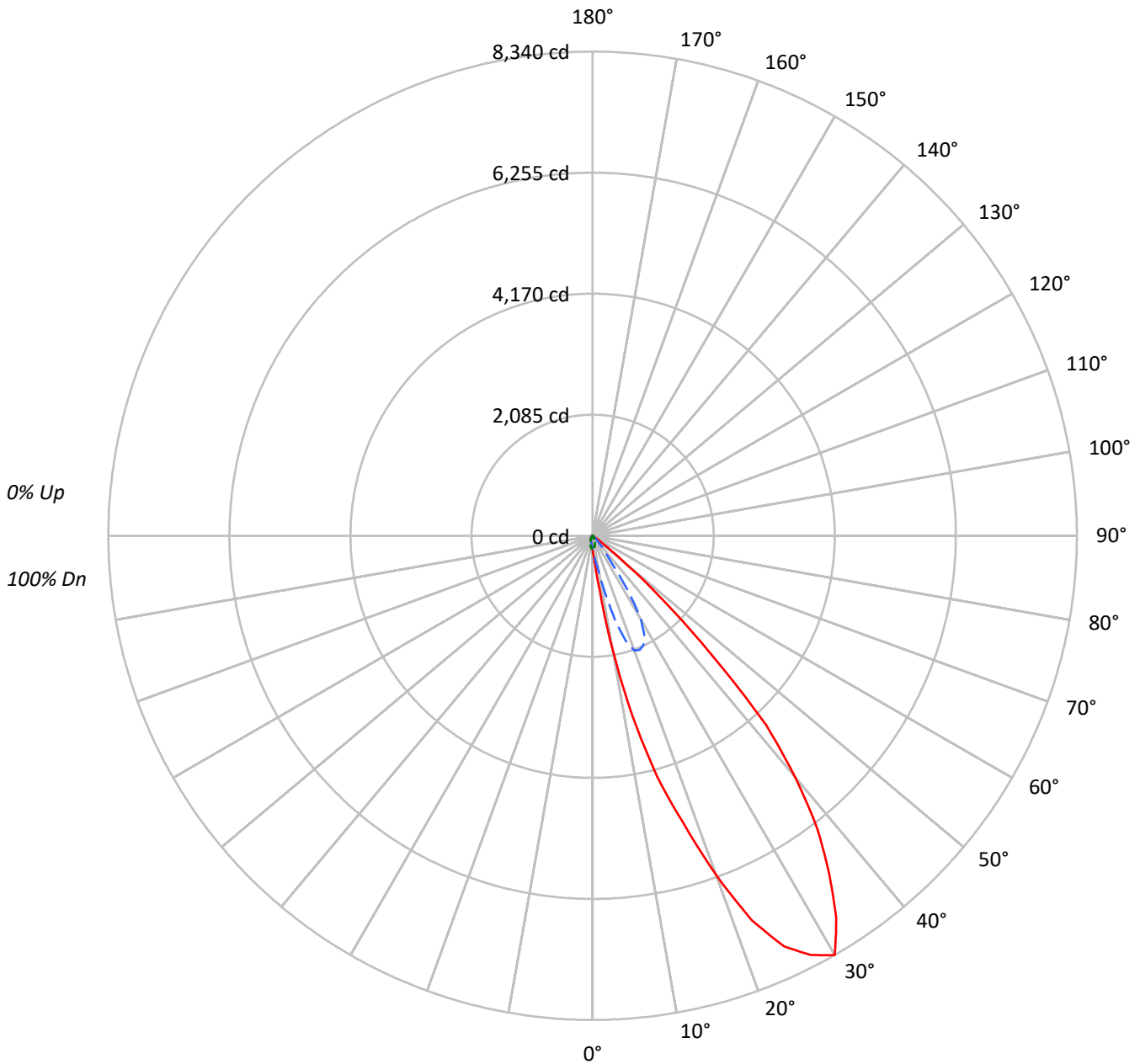
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	22553	22553	22553
5°	50490	21219	15199
10°	197989	18572	11972
15°	429815	15044	10410
20°	641206	11134	9402
25°	834000	7846	8188
30°	932975	5280	7159
35°	839620	3098	6079
40°	685208	2125	5311
45°	393430	1439	4316
50°	115083	1100	3632
55°	13292	878	3006
60°	2848	1008	2441
65°	963	963	1673
70°	878	1190	1190
75°	786	1572	1160
80°	0	2343	1172
85°	0	4668	1112



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.4	1.6
10°-20°	286.0	13.7
20°-30°	682.2	32.7
30°-40°	719.9	34.5
40°-50°	326.5	15.6
50°-60°	28.6	1.4
60°-70°	6.0	0.3
70°-80°	3.9	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°	1001.5	47.9
0°-40°	1721.5	82.4
0°-60°	2076.6	99.4
0°-90°	2088.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2088.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	233	233	233	233	233	
5°	519	381	218	168	156	93
15°	4286	1507	150	103	104	1247
25°	7802	2075	73	63	77	3544
35°	7100	573	26	36	51	4384
45°	2872	81	10	20	32	2277
55°	79	13	5	12	18	157
65°	4	4	4	8	7	6
75°	2	2	4	5	3	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°	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8
2.5°	346.1	348.2	338.8	339.8	330.4	334.6	331.4	323.0	316.8	306.3	302.1
5°	519.2	522.3	501.3	495.1	473.0	473.0	463.6	441.6	421.6	397.5	380.7
7.5°	949.2	961.8	898.9	851.7	782.4	765.7	733.1	657.6	595.7	532.8	485.6
10°	2012.7	1989.7	1859.6	1752.6	1574.3	1508.2	1420.1	1203.0	1003.7	805.5	650.3
12.5°	3173.8	3248.3	2997.6	2910.5	2628.4	2568.6	2380.9	2026.4	1689.7	1339.4	1028.9
15°	4285.6	4307.6	4088.4	3946.8	3602.8	3525.2	3294.4	2878.0	2424.9	1936.2	1507.2
17.5°	5178.1	5266.3	4944.3	4792.2	4345.4	4220.6	3948.9	3442.3	2937.8	2404.0	1895.3
20°	6219.7	6242.7	5860.9	5568.3	4984.1	4794.3	4469.1	3840.9	3239.9	2630.5	2105.0
22.5°	7166.8	7161.5	6670.7	6257.4	5518.0	5291.4	4889.7	4145.0	3446.5	2731.2	2125.0
25°	7802.4	7819.1	7293.7	6804.9	5897.7	5591.4	5138.3	4303.4	3516.8	2728.0	2074.6
27.5°	8141.1	8124.4	7561.1	7038.8	6037.2	5694.2	5202.3	4308.7	3452.8	2621.1	1923.6
30°	8340.4	8116.0	7515.0	6972.7	5942.8	5590.3	5090.0	4142.9	3239.9	2381.9	1654.0
32.5°	7807.6	7720.5	7197.2	6621.4	5617.6	5268.3	4774.3	3790.5	2902.2	2015.9	1185.2
35°	7099.6	7102.8	6592.0	6053.9	5107.9	4803.7	4294.0	3361.5	2490.0	1401.3	572.7
37.5°	6357.0	6367.5	5881.9	5381.6	4539.4	4219.5	3742.3	2872.8	1791.4	713.2	345.1
40°	5418.3	5440.4	5021.9	4620.2	3843.0	3534.6	3108.8	2174.3	1001.6	398.6	233.9
42.5°	4427.2	4454.4	4083.2	3726.5	3065.8	2812.0	2434.4	1346.7	497.2	258.0	137.4
45°	2871.7	2950.4	2674.6	2524.6	2141.7	1990.7	1589.0	687.0	300.0	151.0	80.8
47.5°	1643.5	1644.6	1411.7	1130.7	927.2	806.6	630.4	312.6	175.2	85.0	49.3
50°	763.6	782.4	619.9	516.0	369.2	312.6	257.0	168.9	92.3	49.3	30.4
52.5°	222.4	234.9	212.9	193.0	163.6	145.8	124.8	82.9	48.2	29.4	18.9
55°	78.7	83.9	78.7	73.4	66.1	59.8	53.5	39.9	27.3	17.8	12.6
57.5°	32.5	33.6	32.5	31.5	29.4	29.4	26.2	22.0	16.8	11.5	8.4
60°	14.7	15.7	14.7	15.7	14.7	14.7	14.7	15.7	10.5	7.3	6.3
62.5°	6.3	7.3	7.3	7.3	7.3	8.4	8.4	7.3	6.3	5.2	4.2
65°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
67.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
70°	3.1	3.1	3.1	3.1	3.1	3.1	2.1	2.1	3.1	3.1	3.1
72.5°	3.1	3.1	3.1	3.1	2.1	2.1	2.1	2.1	2.1	3.1	3.1
75°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1
80°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1
82.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1
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°	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8
2.5°	296.8	287.4	272.7	263.3	259.1	252.8	248.6	238.1	233.9	225.5	222.4
5°	365.0	346.1	324.1	306.3	294.7	282.1	263.3	242.3	231.8	218.2	210.8
7.5°	442.6	401.7	362.9	331.4	316.8	300.0	275.8	243.3	223.4	205.6	195.1
10°	541.2	457.3	396.5	346.1	324.1	302.1	272.7	234.9	209.8	188.8	177.3
12.5°	771.9	551.7	426.9	354.5	326.2	298.9	262.2	223.4	194.0	169.9	157.3
15°	1110.7	770.9	508.7	361.9	318.8	285.3	243.3	204.5	174.1	150.0	137.4
17.5°	1410.7	982.8	622.0	389.1	316.8	269.6	220.3	180.4	151.0	128.0	117.5
20°	1574.3	1093.9	697.5	405.9	307.3	245.4	194.0	156.3	128.0	108.0	98.6
22.5°	1577.5	1087.7	670.2	369.2	270.6	212.9	167.8	132.2	107.0	89.2	81.8
25°	1483.1	970.2	559.0	290.5	221.3	180.4	140.5	110.1	87.1	73.4	67.1
27.5°	1306.9	788.7	411.1	209.8	173.1	145.8	113.3	88.1	68.2	59.8	54.5
30°	1027.9	513.9	240.2	156.3	134.3	112.2	86.0	61.9	53.5	47.2	43.0
32.5°	551.7	249.6	167.8	115.4	95.4	78.7	56.6	45.1	38.8	34.6	33.6
35°	288.4	182.5	112.2	73.4	60.8	51.4	38.8	31.5	28.3	26.2	26.2
37.5°	206.6	114.3	71.3	47.2	39.9	32.5	27.3	23.1	21.0	21.0	21.0
40°	122.7	70.3	43.0	30.4	26.2	23.1	19.9	16.8	16.8	16.8	16.8
42.5°	74.5	44.1	30.4	21.0	18.9	16.8	14.7	13.6	12.6	12.6	13.6
45°	46.1	30.4	19.9	15.7	14.7	12.6	11.5	10.5	10.5	10.5	11.5
47.5°	29.4	22.0	14.7	10.5	9.4	8.4	7.3	7.3	8.4	8.4	9.4
50°	22.0	13.6	9.4	7.3	6.3	6.3	5.2	6.3	6.3	7.3	8.4
52.5°	12.6	8.4	6.3	5.2	5.2	4.2	4.2	5.2	5.2	6.3	7.3
55°	8.4	6.3	5.2	4.2	4.2	4.2	4.2	4.2	5.2	5.2	6.3
57.5°	6.3	5.2	4.2	4.2	4.2	3.1	4.2	4.2	4.2	5.2	6.3
60°	5.2	4.2	4.2	4.2	4.2	3.1	3.1	4.2	4.2	5.2	5.2
62.5°	4.2	4.2	4.2	4.2	4.2	3.1	4.2	4.2	4.2	4.2	5.2
65°	3.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	5.2
67.5°	3.1	3.1	4.2	4.2	4.2	3.1	4.2	4.2	4.2	4.2	5.2
70°	3.1	3.1	3.1	4.2	4.2	3.1	4.2	4.2	4.2	4.2	4.2
72.5°	3.1	3.1	3.1	4.2	4.2	3.1	4.2	4.2	4.2	4.2	4.2
75°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2
77.5°	3.1	3.1	3.1	3.1	4.2	3.1	4.2	4.2	4.2	4.2	4.2
80°	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2	4.2
82.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2
85°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2	4.2
87.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.2	4.2	4.2
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8
2.5°	214.0	210.8	204.5	203.5	202.4	198.2	195.1	191.9	191.9	188.8	186.7
5°	198.2	193.0	185.6	182.5	181.5	176.2	172.0	168.9	167.8	164.7	161.5
7.5°	181.5	175.2	166.8	163.6	162.6	157.3	153.1	150.0	147.9	144.7	142.6
10°	163.6	156.3	148.9	145.8	144.7	139.5	136.3	133.2	131.1	129.0	126.9
12.5°	144.7	138.4	131.1	128.0	126.9	122.7	119.6	117.5	116.4	114.3	113.3
15°	125.9	119.6	113.3	111.2	110.1	107.0	104.9	103.8	102.8	102.8	101.7
17.5°	107.0	101.7	96.5	95.4	94.4	92.3	91.2	90.2	91.2	91.2	92.3
20°	89.2	85.0	80.8	80.8	79.7	78.7	78.7	78.7	80.8	81.8	83.9
22.5°	73.4	70.3	67.1	67.1	67.1	67.1	67.1	69.2	71.3	73.4	74.5
25°	60.8	57.7	56.6	56.6	56.6	57.7	58.7	60.8	62.9	65.0	67.1
27.5°	49.3	47.2	47.2	47.2	48.2	49.3	50.3	52.4	55.6	57.7	59.8
30°	39.9	38.8	38.8	39.9	40.9	42.0	44.1	46.1	48.2	50.3	52.4
32.5°	31.5	32.5	32.5	33.6	34.6	35.7	37.8	39.9	42.0	44.1	45.1
35°	26.2	26.2	27.3	28.3	29.4	30.4	32.5	34.6	35.7	37.8	39.9
37.5°	21.0	22.0	23.1	24.1	25.2	26.2	27.3	29.4	30.4	32.5	34.6
40°	17.8	18.9	19.9	21.0	21.0	23.1	23.1	25.2	26.2	28.3	30.4
42.5°	14.7	15.7	16.8	17.8	17.8	18.9	19.9	21.0	23.1	24.1	26.2
45°	11.5	12.6	13.6	14.7	15.7	16.8	16.8	18.9	19.9	21.0	23.1
47.5°	10.5	11.5	12.6	12.6	13.6	14.7	14.7	16.8	17.8	18.9	19.9
50°	8.4	9.4	10.5	11.5	11.5	12.6	13.6	14.7	15.7	16.8	16.8
52.5°	7.3	8.4	9.4	9.4	10.5	11.5	11.5	12.6	13.6	13.6	14.7
55°	7.3	8.4	8.4	9.4	9.4	10.5	10.5	11.5	11.5	12.6	12.6
57.5°	6.3	7.3	7.3	8.4	8.4	9.4	9.4	10.5	10.5	10.5	11.5
60°	6.3	6.3	7.3	7.3	8.4	8.4	8.4	9.4	9.4	9.4	10.5
62.5°	5.2	6.3	6.3	7.3	7.3	7.3	8.4	8.4	8.4	9.4	9.4
65°	5.2	6.3	6.3	7.3	7.3	7.3	7.3	7.3	8.4	8.4	8.4
67.5°	5.2	5.2	6.3	6.3	6.3	6.3	7.3	7.3	7.3	7.3	7.3
70°	5.2	5.2	5.2	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
72.5°	4.2	5.2	5.2	5.2	5.2	6.3	6.3	6.3	6.3	6.3	5.2
75°	4.2	4.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
77.5°	4.2	4.2	4.2	5.2	5.2	5.2	5.2	5.2	5.2	4.2	4.2
80°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.1
82.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.1	3.1	3.1
85°	4.2	3.1	4.2	4.2	4.2	3.1	3.1	3.1	3.1	3.1	2.1
87.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.1	2.1
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: P182801

CATALOG NUMBER: LDSQA4A18840D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	232.8	232.8	232.8	232.8	232.8	232.8	232.8	232.8
2.5°	184.6	182.5	183.5	183.5	181.5	180.4	180.4	181.5
5°	159.4	157.3	158.4	158.4	156.3	155.2	155.2	156.3
7.5°	140.5	138.4	139.5	139.5	137.4	137.4	137.4	137.4
10°	125.9	124.8	124.8	124.8	122.7	123.8	122.7	121.7
12.5°	112.2	112.2	112.2	112.2	111.2	112.2	111.2	111.2
15°	101.7	101.7	102.8	102.8	102.8	103.8	103.8	103.8
17.5°	93.3	94.4	95.4	96.5	96.5	97.5	97.5	97.5
20°	85.0	87.1	88.1	89.2	89.2	91.2	90.2	91.2
22.5°	76.6	78.7	79.7	80.8	81.8	82.9	82.9	83.9
25°	69.2	71.3	72.4	73.4	74.5	76.6	76.6	76.6
27.5°	61.9	64.0	65.0	67.1	68.2	70.3	70.3	70.3
30°	54.5	56.6	57.7	58.7	60.8	62.9	62.9	64.0
32.5°	47.2	50.3	51.4	52.4	54.5	56.6	57.7	57.7
35°	42.0	44.1	45.1	47.2	48.2	51.4	51.4	51.4
37.5°	36.7	38.8	40.9	42.0	43.0	45.1	46.1	47.2
40°	32.5	34.6	35.7	36.7	38.8	40.9	42.0	42.0
42.5°	28.3	30.4	31.5	32.5	33.6	35.7	35.7	35.7
45°	25.2	26.2	27.3	28.3	29.4	30.4	31.5	31.5
47.5°	21.0	23.1	23.1	24.1	25.2	27.3	27.3	28.3
50°	17.8	19.9	19.9	21.0	22.0	23.1	24.1	24.1
52.5°	15.7	16.8	17.8	17.8	18.9	19.9	21.0	21.0
55°	13.6	14.7	14.7	15.7	15.7	16.8	17.8	17.8
57.5°	11.5	12.6	13.6	13.6	13.6	14.7	14.7	15.7
60°	10.5	11.5	11.5	11.5	11.5	12.6	12.6	12.6
62.5°	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
65°	8.4	8.4	8.4	8.4	7.3	7.3	7.3	7.3
67.5°	7.3	7.3	7.3	7.3	6.3	6.3	6.3	6.3
70°	6.3	6.3	6.3	6.3	5.2	5.2	5.2	4.2
72.5°	5.2	5.2	5.2	5.2	5.2	4.2	4.2	4.2
75°	5.2	4.2	4.2	4.2	4.2	4.2	3.1	3.1
77.5°	4.2	4.2	4.2	3.1	3.1	3.1	3.1	3.1
80°	3.1	3.1	3.1	3.1	3.1	2.1	2.1	2.1
82.5°	3.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
85°	2.1	2.1	2.1	2.1	1.0	1.0	1.0	1.0
87.5°	2.1	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)