

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: P182702

Luminaire Tested: **LDSQA4A18827D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182702
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26800)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A18827D010TE LAR25NF 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2064.6 lumens
Efficiency: N/A
Efficacy: 70.9 lumens/watt
Spacing Criteria (0/90/45): 2.38 / 0.59 / 1.18
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

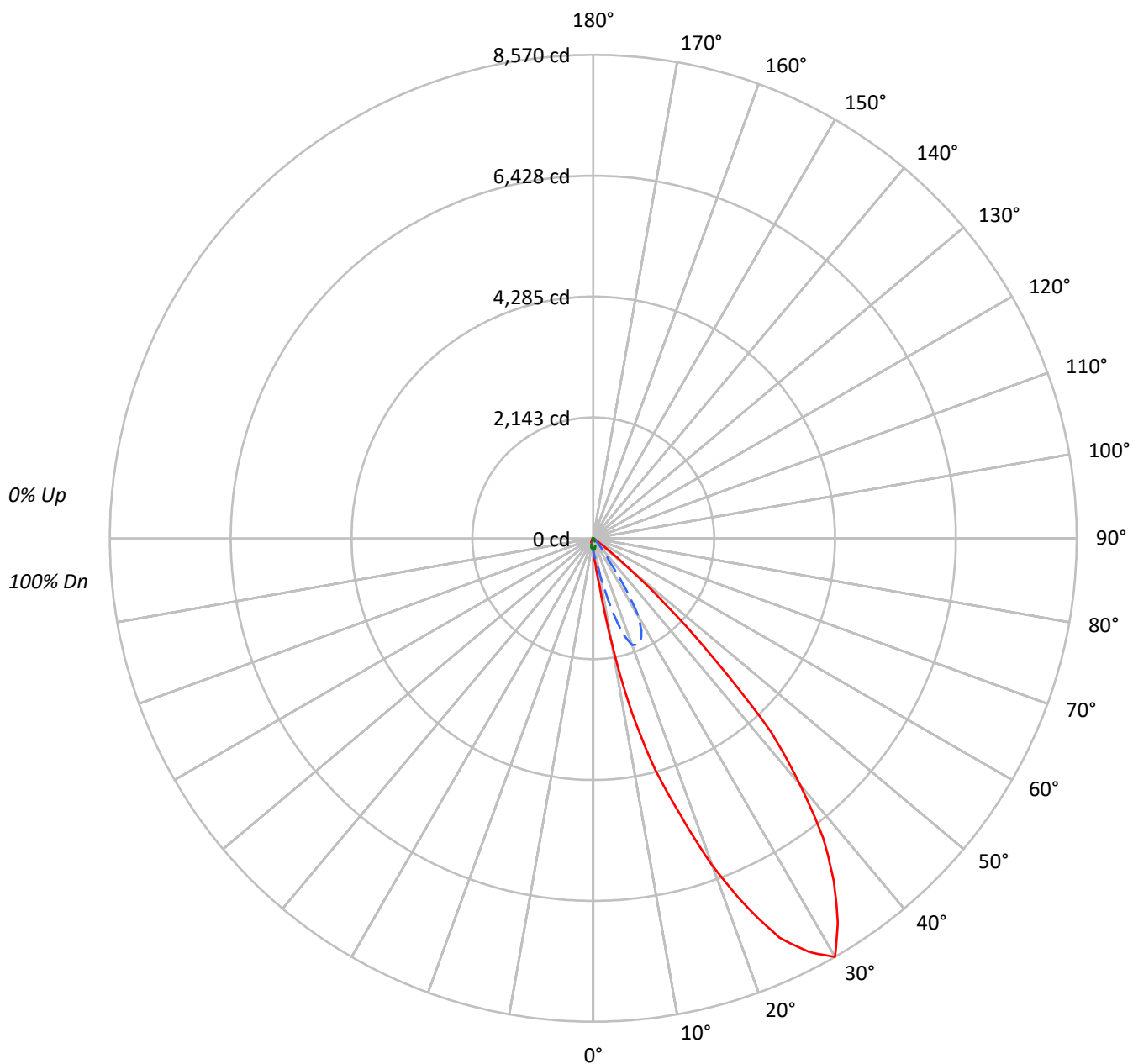
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	84	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	82	76	72	80	75	71	78	73	70	76	72	69	67		
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61		
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55		
7	76	64	57	52	74	64	57	52	62	56	52	61	56	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	38	37		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	20886	20886	20886
5°	46221	19760	13887
10°	185053	17156	11598
15°	426555	13650	10190
20°	636742	9680	9093
25°	835165	6456	8092
30°	958703	4072	7070
35°	879026	2602	6114
40°	720858	1695	5210
45°	417913	1178	4206
50°	118429	859	3466
55°	10843	811	2905
60°	1666	930	2422
65°	436	871	1765
70°	538	1076	1360
75°	711	1422	1422
80°	0	2120	1060
85°	0	4224	1112



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.6	1.5
10°-20°	274.6	13.3
20°-30°	668.9	32.4
30°-40°	725.0	35.1
40°-50°	328.5	15.9
50°-60°	25.4	1.2
60°-70°	5.2	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°	974.1	47.2
0°-40°	1699.1	82.3
0°-60°	2053.0	99.4
0°-90°	2064.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2064.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	216	216	216	216	216	
5°	475	351	203	153	143	86
15°	4253	1392	136	99	102	1236
25°	7813	1998	60	59	76	3561
35°	7433	508	22	34	52	4572
45°	3050	64	9	19	31	2408
55°	64	9	5	12	17	147
65°	2	3	4	8	8	3
75°	2	3	4	6	4	1
85°	0	3	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°	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
2.5°	323.0	317.2	320.1	312.4	307.6	303.8	305.7	303.8	291.3	288.5	278.9
5°	475.3	466.7	466.7	450.4	433.2	422.6	422.6	410.2	383.3	370.9	350.7
7.5°	852.0	834.7	820.3	769.5	703.4	666.0	656.5	603.7	535.7	492.6	441.8
10°	1881.2	1809.3	1758.5	1626.3	1449.0	1338.8	1291.8	1109.7	893.2	730.2	582.7
12.5°	3163.5	3065.7	2976.6	2760.0	2505.1	2331.6	2238.7	1970.3	1549.6	1248.7	934.4
15°	4253.1	4147.7	4042.2	3778.7	3509.4	3358.9	3188.4	2832.8	2277.0	1849.6	1391.5
17.5°	5147.2	5087.8	4979.5	4593.3	4254.0	4019.2	3841.9	3377.2	2805.0	2317.2	1798.8
20°	6176.4	6029.8	5836.2	5367.6	4903.8	4609.6	4360.4	3794.0	3132.8	2572.2	2014.4
22.5°	7042.8	6938.3	6660.4	6042.3	5359.9	5108.9	4804.1	4122.7	3343.6	2680.5	2039.3
25°	7813.3	7649.4	7300.6	6565.5	5866.9	5439.5	5065.7	4301.0	3421.2	2688.1	1998.1
27.5°	8264.6	8050.9	7640.8	6839.6	6042.3	5569.8	5155.8	4331.7	3372.4	2586.5	1847.7
30°	8570.4	8144.9	7691.6	6842.5	5986.7	5503.7	5074.4	4177.4	3169.2	2354.6	1594.7
32.5°	8066.3	7820.0	7386.8	6570.3	5683.9	5212.4	4785.9	3842.9	2852.0	2010.6	1109.7
35°	7432.8	7233.5	6856.9	6046.1	5229.6	4784.9	4332.6	3413.6	2439.0	1381.9	507.9
37.5°	6696.8	6540.6	6135.2	5394.4	4675.7	4240.6	3787.3	2909.5	1717.3	685.2	308.6
40°	5700.2	5567.9	5235.4	4640.2	3978.0	3564.0	3146.2	2176.4	932.5	382.4	201.2
42.5°	4685.3	4574.1	4271.3	3756.7	3175.0	2833.8	2465.8	1326.3	463.8	240.5	112.1
45°	3050.4	2911.4	2748.5	2512.7	2225.2	2015.4	1581.2	640.2	275.0	134.2	64.2
47.5°	1749.0	1657.0	1389.6	1096.3	890.3	812.7	591.3	298.0	151.4	77.6	39.3
50°	785.8	726.4	609.5	496.4	359.4	280.8	238.6	149.5	74.7	42.2	26.8
52.5°	193.6	197.4	186.9	163.9	145.7	123.6	107.3	70.0	39.3	25.9	17.2
55°	64.2	65.2	59.4	56.5	51.7	47.9	44.1	31.6	24.0	23.0	8.6
57.5°	23.0	23.0	24.0	22.0	21.1	20.1	19.2	16.3	14.4	8.6	4.8
60°	8.6	8.6	8.6	9.6	9.6	9.6	10.5	9.6	6.7	4.8	3.8
62.5°	3.8	3.8	3.8	3.8	4.8	4.8	5.7	4.8	3.8	3.8	2.9
65°	1.9	1.9	2.9	2.9	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	2.9	2.9
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9	2.9
72.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9	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	2.9
82.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.9	1.9	1.9	2.9
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.9	1.9	2.9
87.5°	0.0	0.0	0.0	0.0	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°	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
2.5°	269.3	263.5	252.0	243.4	236.7	235.7	230.0	220.4	216.6	209.9	204.1
5°	331.6	317.2	299.0	281.7	269.3	262.6	242.5	224.2	213.7	203.2	193.6
7.5°	398.7	366.1	334.5	306.7	289.4	278.9	254.9	225.2	206.0	190.7	178.2
10°	483.0	415.9	361.3	318.2	295.2	280.8	252.0	216.6	192.6	174.4	162.0
12.5°	675.6	492.6	386.2	323.9	295.2	275.0	240.5	205.1	178.2	156.2	142.8
15°	1005.3	688.1	458.1	326.8	285.6	262.6	223.3	185.9	159.1	136.1	123.6
17.5°	1315.8	905.6	572.1	346.9	279.8	244.4	200.3	163.9	136.1	114.0	103.5
20°	1476.8	1013.9	635.4	362.2	270.2	221.4	173.5	139.9	113.1	93.9	85.3
22.5°	1480.6	1004.3	604.7	326.8	234.8	189.7	148.5	115.0	92.0	75.7	69.0
25°	1389.6	888.4	497.4	254.9	189.7	159.1	123.6	93.9	71.9	60.4	55.6
27.5°	1218.0	718.7	367.0	184.0	148.5	126.5	96.8	71.9	54.6	47.0	44.1
30°	942.0	444.7	203.2	136.1	112.1	94.9	70.0	47.9	41.2	36.4	34.5
32.5°	467.7	217.5	143.7	96.8	76.7	60.4	44.1	35.5	31.6	28.7	27.8
35°	254.0	156.2	90.1	58.5	46.0	38.3	29.7	24.9	23.0	22.0	22.0
37.5°	177.3	93.0	54.6	35.5	28.7	25.9	21.1	18.2	17.2	17.2	17.2
40°	97.7	55.6	33.5	23.0	19.2	17.2	14.4	13.4	13.4	13.4	14.4
42.5°	56.5	34.5	23.0	16.3	13.4	12.5	10.5	9.6	10.5	10.5	11.5
45°	36.4	25.9	15.3	11.5	9.6	8.6	7.7	7.7	8.6	8.6	9.6
47.5°	25.9	18.2	10.5	7.7	5.7	5.7	5.7	5.7	6.7	7.7	8.6
50°	15.3	9.6	5.7	4.8	3.8	3.8	3.8	4.8	5.7	5.7	6.7
52.5°	8.6	5.7	3.8	3.8	2.9	2.9	3.8	3.8	4.8	5.7	6.7
55°	4.8	3.8	2.9	2.9	2.9	2.9	2.9	3.8	3.8	4.8	5.7
57.5°	3.8	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	4.8	4.8
60°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	4.8	4.8
62.5°	2.9	2.9	2.9	2.9	2.9	2.9	3.8	3.8	3.8	3.8	4.8
65°	2.9	2.9	2.9	3.8	2.9	3.8	3.8	3.8	3.8	3.8	4.8
67.5°	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.8
70°	2.9	2.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.8
72.5°	2.9	2.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.8
75°	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
77.5°	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
80°	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
82.5°	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
85°	2.9	2.9	2.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
87.5°	2.9	2.9	2.9	2.9	3.8	3.8	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°	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
2.5°	202.2	195.5	190.7	188.8	185.0	185.9	183.0	181.1	175.4	175.4	171.5
5°	186.9	178.2	172.5	169.6	165.8	164.8	162.0	159.1	153.3	152.4	149.5
7.5°	170.6	162.0	155.2	152.4	148.5	147.6	143.7	141.8	137.0	136.1	133.2
10°	153.3	143.7	138.0	135.1	131.3	131.3	128.4	126.5	122.7	122.7	120.7
12.5°	135.1	126.5	122.7	118.8	116.9	116.9	115.0	113.1	110.2	111.2	110.2
15°	116.0	109.2	105.4	103.5	102.5	102.5	101.6	100.6	98.7	100.6	98.7
17.5°	97.7	93.0	90.1	89.1	88.2	88.2	88.2	89.1	88.2	90.1	90.1
20°	80.5	76.7	74.7	74.7	73.8	75.7	75.7	77.6	77.6	80.5	81.5
22.5°	66.1	63.2	62.3	62.3	62.3	64.2	65.2	67.1	68.0	70.9	72.8
25°	52.7	51.7	51.7	51.7	52.7	54.6	56.5	58.5	59.4	63.2	64.2
27.5°	43.1	42.2	43.1	43.1	44.1	47.0	48.9	50.8	52.7	55.6	57.5
30°	34.5	34.5	35.5	36.4	37.4	39.3	42.2	44.1	46.0	48.9	50.8
32.5°	27.8	28.7	29.7	30.7	30.7	33.5	35.5	38.3	39.3	42.2	44.1
35°	23.0	24.0	24.9	25.9	25.9	28.7	30.7	32.6	34.5	36.4	38.3
37.5°	18.2	19.2	21.1	22.0	22.0	24.9	25.9	27.8	29.7	31.6	33.5
40°	15.3	16.3	18.2	18.2	19.2	21.1	22.0	24.0	25.9	27.8	29.7
42.5°	12.5	13.4	15.3	16.3	16.3	18.2	19.2	21.1	22.0	24.0	24.9
45°	11.5	11.5	13.4	13.4	14.4	15.3	17.2	18.2	19.2	21.1	22.0
47.5°	9.6	10.5	11.5	12.5	12.5	13.4	14.4	15.3	16.3	18.2	19.2
50°	7.7	8.6	10.5	10.5	10.5	12.5	13.4	14.4	14.4	15.3	16.3
52.5°	7.7	7.7	8.6	9.6	9.6	10.5	11.5	12.5	12.5	13.4	14.4
55°	6.7	6.7	7.7	8.6	8.6	9.6	10.5	10.5	11.5	11.5	12.5
57.5°	5.7	6.7	7.7	7.7	7.7	8.6	9.6	9.6	10.5	10.5	11.5
60°	5.7	6.7	6.7	7.7	7.7	8.6	8.6	8.6	9.6	9.6	9.6
62.5°	5.7	5.7	6.7	6.7	6.7	7.7	7.7	8.6	8.6	8.6	8.6
65°	5.7	5.7	6.7	6.7	6.7	7.7	7.7	7.7	7.7	7.7	7.7
67.5°	4.8	5.7	5.7	5.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
70°	4.8	4.8	5.7	5.7	5.7	6.7	6.7	6.7	6.7	6.7	6.7
72.5°	4.8	4.8	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
75°	4.8	4.8	4.8	4.8	4.8	5.7	5.7	5.7	5.7	4.8	4.8
77.5°	3.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.8
80°	3.8	3.8	4.8	3.8	4.8	4.8	4.8	4.8	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	1.9
87.5°	3.8	3.8	3.8	3.8	3.8	3.8	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: P182702

CATALOG NUMBER: LDSQA4A18827D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
2.5°	169.6	171.5	169.6	171.5	166.7	168.7	170.6	165.8
5°	147.6	145.7	146.6	148.5	144.7	145.7	146.6	142.8
7.5°	132.2	133.2	131.3	133.2	130.3	131.3	132.2	129.4
10°	119.8	120.7	119.8	120.7	117.9	119.8	120.7	117.9
12.5°	108.3	110.2	109.2	111.2	108.3	110.2	112.1	108.3
15°	99.7	101.6	100.6	102.5	100.6	102.5	104.5	101.6
17.5°	91.0	93.0	93.0	94.9	93.9	95.8	97.7	94.9
20°	82.4	85.3	85.3	87.2	87.2	88.2	91.0	88.2
22.5°	74.7	77.6	77.6	79.5	79.5	81.5	83.4	81.5
25°	66.1	70.0	70.9	72.8	72.8	74.7	77.6	75.7
27.5°	60.4	63.2	64.2	66.1	67.1	69.0	70.9	69.0
30°	52.7	56.5	57.5	59.4	60.4	63.2	64.2	63.2
32.5°	47.0	49.8	50.8	52.7	54.6	56.5	58.5	57.5
35°	41.2	44.1	45.0	47.0	47.9	50.8	52.7	51.7
37.5°	36.4	39.3	40.2	41.2	42.2	45.0	47.0	46.0
40°	31.6	33.5	34.5	36.4	37.4	39.3	41.2	41.2
42.5°	27.8	29.7	30.7	31.6	32.6	34.5	36.4	35.5
45°	24.0	25.9	26.8	27.8	28.7	29.7	31.6	30.7
47.5°	20.1	22.0	23.0	24.0	24.9	25.9	27.8	26.8
50°	17.2	19.2	19.2	20.1	21.1	22.0	24.0	23.0
52.5°	15.3	16.3	17.2	17.2	18.2	19.2	21.1	20.1
55°	13.4	14.4	14.4	15.3	15.3	16.3	17.2	17.2
57.5°	11.5	12.5	12.5	13.4	13.4	14.4	15.3	15.3
60°	10.5	10.5	11.5	11.5	11.5	12.5	12.5	12.5
62.5°	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
65°	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
67.5°	6.7	6.7	6.7	6.7	6.7	5.7	5.7	5.7
70°	5.7	5.7	5.7	5.7	5.7	4.8	4.8	4.8
72.5°	5.7	5.7	4.8	4.8	4.8	4.8	4.8	3.8
75°	4.8	4.8	4.8	4.8	3.8	3.8	3.8	3.8
77.5°	3.8	3.8	3.8	3.8	2.9	2.9	2.9	2.9
80°	3.8	2.9	2.9	2.9	2.9	2.9	2.9	1.9
82.5°	2.9	2.9	2.9	1.9	1.9	1.9	1.9	1.9
85°	1.9	1.9	1.9	1.9	1.0	1.0	1.0	1.0
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)