

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: P182823

Luminaire Tested: **LDSQA4A28830D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182823
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: LDSQA4A28830D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2680.2 lumens
Efficiency: N/A
Efficacy: 60.2 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

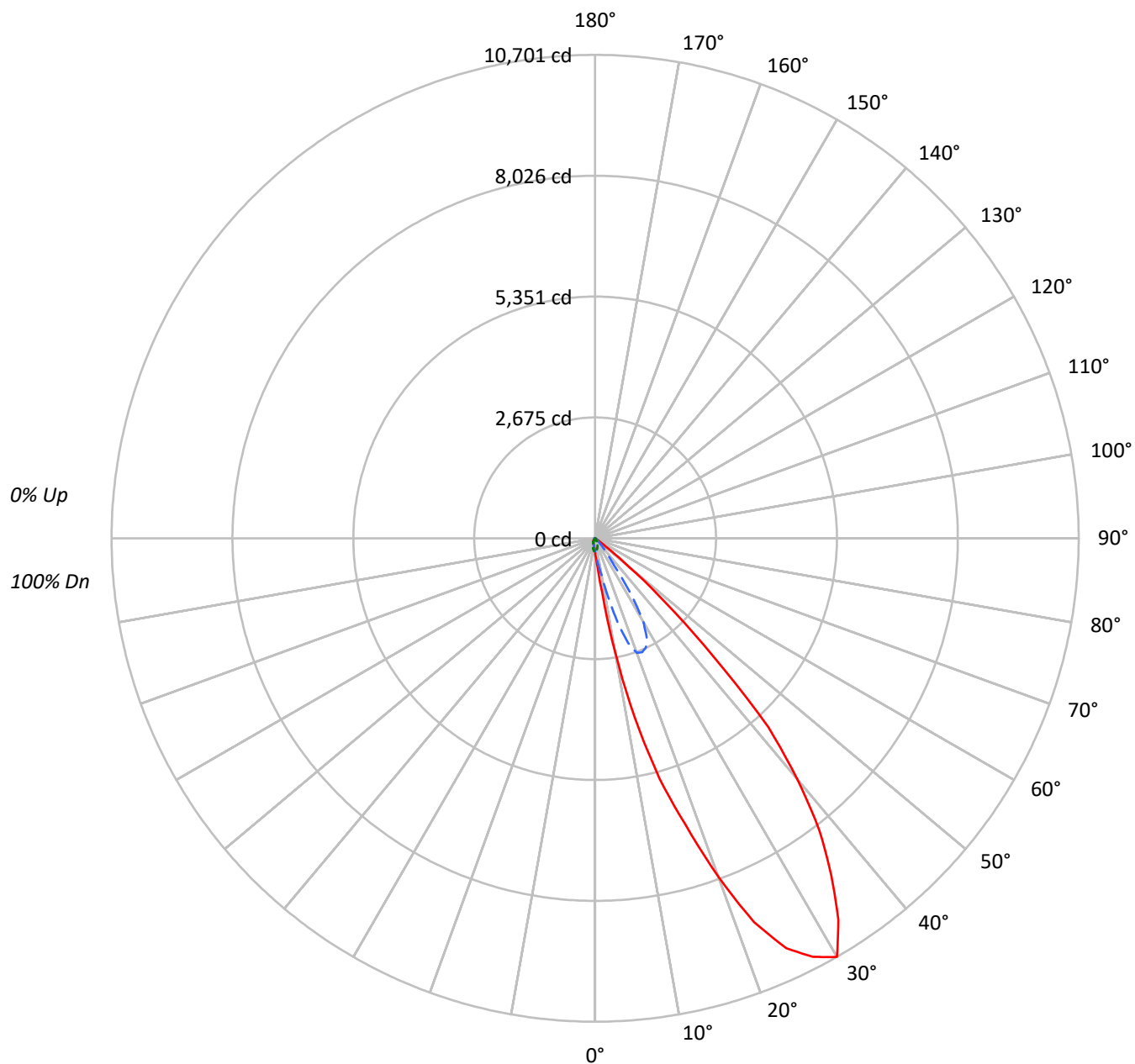
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	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
1	113	109	106	104	110	107	105	102		103	101	99		99	98	96		96	95	93
2	106	100	95	91	103	98	94	90		95	91	88		92	89	86		89	87	85
3	99	91	86	81	97	90	85	80		87	83	79		85	81	78		82	79	76
4	93	84	77	72	91	83	76	72		80	75	71		78	74	70		76	72	69
5	87	77	70	65	85	76	69	64		74	68	64		72	67	63		70	66	63
6	81	70	63	58	79	69	63	58		68	62	57		66	61	57		65	60	57
7	76	65	57	52	74	64	57	52		62	56	52		61	56	52		60	55	51
8	71	59	52	47	69	59	52	47		58	51	47		57	51	47		55	50	47
9	66	55	48	43	65	54	48	43		53	47	43		52	47	43		51	46	42
10	62	51	44	39	61	50	44	39		49	43	39		48	43	39		48	42	39

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	28937	28937	28937
5°	64775	27219	19498
10°	254030	23825	15356
15°	551450	19296	13359
20°	822669	14289	12072
25°	1070024	10069	10497
30°	1197014	6779	9184
35°	1077246	3974	7794
40°	879138	2719	6804
45°	504786	1850	5535
50°	147652	1417	4672
55°	17042	1132	3868
60°	3643	1298	3119
65°	1238	1238	2155
70°	1133	1530	1530
75°	1011	2021	1497
80°	0	3013	1506
85°	0	6002	1445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.8	1.6
10°-20°	366.9	13.7
20°-30°	875.3	32.7
30°-40°	923.7	34.5
40°-50°	418.9	15.6
50°-60°	36.7	1.4
60°-70°	7.7	0.3
70°-80°	5.0	0.2
80°-90°	3.1	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°	1285.0	47.9
0°-40°	2208.7	82.4
0°-60°	2664.3	99.4
0°-90°	2680.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2680.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	299	299	299	299	299	
5°	666	488	280	215	200	120
15°	5498	1934	192	132	133	1600
25°	10010	2662	94	81	98	4548
35°	9109	735	34	46	66	5625
45°	3684	104	14	26	40	2921
55°	101	16	7	15	23	201
65°	5	5	5	11	9	7
75°	3	3	5	7	4	2
85°	0	3	5	4	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182823

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7
2.5°	444.1	446.8	434.7	436.0	423.9	429.3	425.2	414.5	406.4	392.9	387.6
5°	666.1	670.1	643.2	635.2	606.9	606.9	594.8	566.5	541.0	510.0	488.5
7.5°	1217.8	1234.0	1153.2	1092.7	1003.9	982.3	940.6	843.7	764.3	683.6	623.0
10°	2582.4	2552.8	2385.9	2248.6	2019.9	1935.1	1822.0	1543.5	1287.8	1033.5	834.3
12.5°	4072.0	4167.6	3845.9	3734.3	3372.3	3295.6	3054.7	2599.8	2167.9	1718.4	1320.1
15°	5498.4	5526.7	5245.5	5063.8	4622.4	4522.8	4226.8	3692.5	3111.2	2484.1	1933.7
17.5°	6643.6	6756.6	6343.5	6148.4	5575.1	5415.0	5066.5	4416.5	3769.2	3084.3	2431.6
20°	7979.9	8009.5	7519.6	7144.2	6394.7	6151.1	5733.9	4927.9	4156.8	3375.0	2700.8
22.5°	9195.0	9188.3	8558.5	8028.3	7079.6	6788.9	6273.5	5318.1	4421.9	3504.1	2726.3
25°	10010.5	10032.0	9357.8	8730.8	7566.7	7173.8	6592.5	5521.3	4512.1	3500.1	2661.8
27.5°	10445.1	10423.6	9701.0	9030.8	7745.7	7305.7	6674.6	5528.0	4430.0	3362.8	2468.0
30°	10700.8	10412.9	9641.8	8946.1	7624.6	7172.5	6530.6	5315.4	4156.8	3056.0	2122.1
32.5°	10017.2	9905.5	9234.0	8495.3	7207.4	6759.3	6125.5	4863.3	3723.5	2586.4	1520.6
35°	9108.9	9112.9	8457.6	7767.3	6553.4	6163.2	5509.2	4312.9	3194.6	1797.8	734.7
37.5°	8156.2	8169.6	7546.6	6904.7	5824.1	5413.7	4801.4	3685.8	2298.4	915.1	442.7
40°	6951.8	6980.0	6443.1	5927.7	4930.6	4534.9	3988.6	2789.6	1285.1	511.4	300.1
42.5°	5680.1	5715.1	5238.7	4781.2	3933.4	3607.8	3123.3	1727.8	637.9	331.0	176.3
45°	3684.5	3785.4	3431.5	3239.0	2747.9	2554.1	2038.7	881.4	384.9	193.8	103.6
47.5°	2108.7	2110.0	1811.3	1450.6	1189.6	1034.8	808.8	401.0	224.7	109.0	63.2
50°	979.7	1003.9	795.3	662.1	473.7	401.0	329.7	216.7	118.4	63.2	39.0
52.5°	285.3	301.4	273.2	247.6	209.9	187.0	160.1	106.3	61.9	37.7	24.2
55°	100.9	107.7	100.9	94.2	84.8	76.7	68.6	51.1	35.0	22.9	16.1
57.5°	41.7	43.1	41.7	40.4	37.7	37.7	33.6	28.3	21.5	14.8	10.8
60°	18.8	20.2	18.8	20.2	18.8	18.8	18.8	20.2	13.5	9.4	8.1
62.5°	8.1	9.4	9.4	9.4	9.4	10.8	10.8	9.4	8.1	6.7	5.4
65°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
67.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
70°	4.0	4.0	4.0	4.0	4.0	4.0	2.7	2.7	4.0	4.0	4.0
72.5°	4.0	4.0	4.0	4.0	2.7	2.7	2.7	2.7	2.7	4.0	4.0
75°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.7	2.7	2.7
80°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.7	2.7	2.7
82.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.7	2.7	2.7
85°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.7	2.7	2.7
87.5°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.7	2.7	2.7
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°	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7
2.5°	380.8	368.7	349.9	337.8	332.4	324.3	318.9	305.5	300.1	289.3	285.3
5°	468.3	444.1	415.8	392.9	378.1	362.0	337.8	310.9	297.4	279.9	270.5
7.5°	567.9	515.4	465.6	425.2	406.4	384.9	353.9	312.2	286.6	263.8	250.3
10°	694.4	586.7	508.7	444.1	415.8	387.6	349.9	301.4	269.1	242.2	227.4
12.5°	990.4	707.8	547.7	454.8	418.5	383.5	336.4	286.6	249.0	218.0	201.9
15°	1425.1	989.1	652.7	464.3	409.1	366.0	312.2	262.4	223.4	192.4	176.3
17.5°	1809.9	1260.9	798.0	499.2	406.4	345.8	282.6	231.5	193.8	164.2	150.7
20°	2019.9	1403.5	894.9	520.8	394.3	314.9	249.0	200.5	164.2	138.6	126.5
22.5°	2023.9	1395.5	859.9	473.7	347.2	273.2	215.3	169.6	137.3	114.4	105.0
25°	1902.8	1244.8	717.2	372.8	283.9	231.5	180.3	141.3	111.7	94.2	86.1
27.5°	1676.7	1011.9	527.5	269.1	222.0	187.0	145.3	113.0	87.5	76.7	70.0
30°	1318.8	659.4	308.2	200.5	172.2	144.0	110.3	79.4	68.6	60.6	55.2
32.5°	707.8	320.3	215.3	148.0	122.5	100.9	72.7	57.9	49.8	44.4	43.1
35°	370.1	234.1	144.0	94.2	78.0	65.9	49.8	40.4	36.3	33.6	33.6
37.5°	265.1	146.7	91.5	60.6	51.1	41.7	35.0	29.6	26.9	26.9	26.9
40°	157.4	90.2	55.2	39.0	33.6	29.6	25.6	21.5	21.5	21.5	21.5
42.5°	95.5	56.5	39.0	26.9	24.2	21.5	18.8	17.5	16.1	16.1	17.5
45°	59.2	39.0	25.6	20.2	18.8	16.1	14.8	13.5	13.5	13.5	14.8
47.5°	37.7	28.3	18.8	13.5	12.1	10.8	9.4	9.4	10.8	10.8	12.1
50°	28.3	17.5	12.1	9.4	8.1	8.1	6.7	8.1	8.1	9.4	10.8
52.5°	16.1	10.8	8.1	6.7	6.7	5.4	5.4	6.7	6.7	8.1	9.4
55°	10.8	8.1	6.7	5.4	5.4	5.4	5.4	5.4	6.7	6.7	8.1
57.5°	8.1	6.7	5.4	5.4	5.4	4.0	5.4	5.4	5.4	6.7	8.1
60°	6.7	5.4	5.4	5.4	5.4	4.0	4.0	5.4	5.4	6.7	6.7
62.5°	5.4	5.4	5.4	5.4	5.4	4.0	5.4	5.4	5.4	5.4	6.7
65°	4.0	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	6.7
67.5°	4.0	4.0	5.4	5.4	5.4	4.0	5.4	5.4	5.4	5.4	6.7
70°	4.0	4.0	4.0	5.4	5.4	4.0	5.4	5.4	5.4	5.4	5.4
72.5°	4.0	4.0	4.0	5.4	5.4	4.0	5.4	5.4	5.4	5.4	5.4
75°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.4	5.4	5.4
77.5°	4.0	4.0	4.0	4.0	5.4	4.0	5.4	5.4	5.4	5.4	5.4
80°	4.0	4.0	4.0	4.0	4.0	4.0	5.4	5.4	5.4	5.4	5.4
82.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.4	5.4	5.4	5.4
85°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.4	5.4	5.4	5.4
87.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.4	5.4	5.4
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7
2.5°	274.5	270.5	262.4	261.1	259.7	254.3	250.3	246.3	246.3	242.2	239.5
5°	254.3	247.6	238.2	234.1	232.8	226.1	220.7	216.7	215.3	211.3	207.2
7.5°	232.8	224.7	214.0	209.9	208.6	201.9	196.5	192.4	189.7	185.7	183.0
10°	209.9	200.5	191.1	187.0	185.7	179.0	174.9	170.9	168.2	165.5	162.8
12.5°	185.7	177.6	168.2	164.2	162.8	157.4	153.4	150.7	149.4	146.7	145.3
15°	161.5	153.4	145.3	142.6	141.3	137.3	134.6	133.2	131.9	131.9	130.5
17.5°	137.3	130.5	123.8	122.5	121.1	118.4	117.1	115.7	117.1	117.1	118.4
20°	114.4	109.0	103.6	103.6	102.3	100.9	100.9	100.9	103.6	105.0	107.7
22.5°	94.2	90.2	86.1	86.1	86.1	86.1	86.1	88.8	91.5	94.2	95.5
25°	78.0	74.0	72.7	72.7	72.7	74.0	75.4	78.0	80.7	83.4	86.1
27.5°	63.2	60.6	60.6	60.6	61.9	63.2	64.6	67.3	71.3	74.0	76.7
30°	51.1	49.8	49.8	51.1	52.5	53.8	56.5	59.2	61.9	64.6	67.3
32.5°	40.4	41.7	41.7	43.1	44.4	45.8	48.4	51.1	53.8	56.5	57.9
35°	33.6	33.6	35.0	36.3	37.7	39.0	41.7	44.4	45.8	48.4	51.1
37.5°	26.9	28.3	29.6	31.0	32.3	33.6	35.0	37.7	39.0	41.7	44.4
40°	22.9	24.2	25.6	26.9	26.9	29.6	29.6	32.3	33.6	36.3	39.0
42.5°	18.8	20.2	21.5	22.9	22.9	24.2	25.6	26.9	29.6	31.0	33.6
45°	14.8	16.1	17.5	18.8	20.2	21.5	21.5	24.2	25.6	26.9	29.6
47.5°	13.5	14.8	16.1	16.1	17.5	18.8	18.8	21.5	22.9	24.2	25.6
50°	10.8	12.1	13.5	14.8	14.8	16.1	17.5	18.8	20.2	21.5	21.5
52.5°	9.4	10.8	12.1	12.1	13.5	14.8	14.8	16.1	17.5	17.5	18.8
55°	9.4	10.8	10.8	12.1	12.1	13.5	13.5	14.8	14.8	16.1	16.1
57.5°	8.1	9.4	9.4	10.8	10.8	12.1	12.1	13.5	13.5	13.5	14.8
60°	8.1	8.1	9.4	9.4	10.8	10.8	10.8	12.1	12.1	12.1	13.5
62.5°	6.7	8.1	8.1	9.4	9.4	9.4	10.8	10.8	10.8	12.1	12.1
65°	6.7	8.1	8.1	9.4	9.4	9.4	9.4	9.4	10.8	10.8	10.8
67.5°	6.7	6.7	8.1	8.1	8.1	8.1	9.4	9.4	9.4	9.4	9.4
70°	6.7	6.7	6.7	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
72.5°	5.4	6.7	6.7	6.7	6.7	8.1	8.1	8.1	8.1	8.1	6.7
75°	5.4	5.4	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
77.5°	5.4	5.4	5.4	6.7	6.7	6.7	6.7	6.7	6.7	5.4	5.4
80°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	4.0
82.5°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	4.0	4.0	4.0
85°	5.4	4.0	5.4	5.4	5.4	4.0	4.0	4.0	4.0	4.0	2.7
87.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.7	2.7
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: P182823

CATALOG NUMBER: LDSQA4A28830D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	298.7	298.7	298.7	298.7	298.7	298.7	298.7	298.7
2.5°	236.8	234.1	235.5	235.5	232.8	231.5	231.5	232.8
5°	204.5	201.9	203.2	203.2	200.5	199.2	199.2	200.5
7.5°	180.3	177.6	179.0	179.0	176.3	176.3	176.3	176.3
10°	161.5	160.1	160.1	160.1	157.4	158.8	157.4	156.1
12.5°	144.0	144.0	144.0	144.0	142.6	144.0	142.6	142.6
15°	130.5	130.5	131.9	131.9	131.9	133.2	133.2	133.2
17.5°	119.8	121.1	122.5	123.8	123.8	125.1	125.1	125.1
20°	109.0	111.7	113.0	114.4	114.4	117.1	115.7	117.1
22.5°	98.2	100.9	102.3	103.6	105.0	106.3	106.3	107.7
25°	88.8	91.5	92.9	94.2	95.5	98.2	98.2	98.2
27.5°	79.4	82.1	83.4	86.1	87.5	90.2	90.2	90.2
30°	70.0	72.7	74.0	75.4	78.0	80.7	80.7	82.1
32.5°	60.6	64.6	65.9	67.3	70.0	72.7	74.0	74.0
35°	53.8	56.5	57.9	60.6	61.9	65.9	65.9	65.9
37.5°	47.1	49.8	52.5	53.8	55.2	57.9	59.2	60.6
40°	41.7	44.4	45.8	47.1	49.8	52.5	53.8	53.8
42.5°	36.3	39.0	40.4	41.7	43.1	45.8	45.8	45.8
45°	32.3	33.6	35.0	36.3	37.7	39.0	40.4	40.4
47.5°	26.9	29.6	29.6	31.0	32.3	35.0	35.0	36.3
50°	22.9	25.6	25.6	26.9	28.3	29.6	31.0	31.0
52.5°	20.2	21.5	22.9	22.9	24.2	25.6	26.9	26.9
55°	17.5	18.8	18.8	20.2	20.2	21.5	22.9	22.9
57.5°	14.8	16.1	17.5	17.5	17.5	18.8	18.8	20.2
60°	13.5	14.8	14.8	14.8	14.8	16.1	16.1	16.1
62.5°	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
65°	10.8	10.8	10.8	10.8	9.4	9.4	9.4	9.4
67.5°	9.4	9.4	9.4	9.4	8.1	8.1	8.1	8.1
70°	8.1	8.1	8.1	8.1	6.7	6.7	6.7	5.4
72.5°	6.7	6.7	6.7	6.7	6.7	5.4	5.4	5.4
75°	6.7	5.4	5.4	5.4	5.4	5.4	4.0	4.0
77.5°	5.4	5.4	5.4	4.0	4.0	4.0	4.0	4.0
80°	4.0	4.0	4.0	4.0	4.0	2.7	2.7	2.7
82.5°	4.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7
85°	2.7	2.7	2.7	2.7	1.3	1.3	1.3	1.3
87.5°	2.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)