

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: P182709

Luminaire Tested: **LDSQA4A18940D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182709
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: LDSQA4A18940D010TE 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 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1889.9 lumens
Efficiency: N/A
Efficacy: 64.9 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

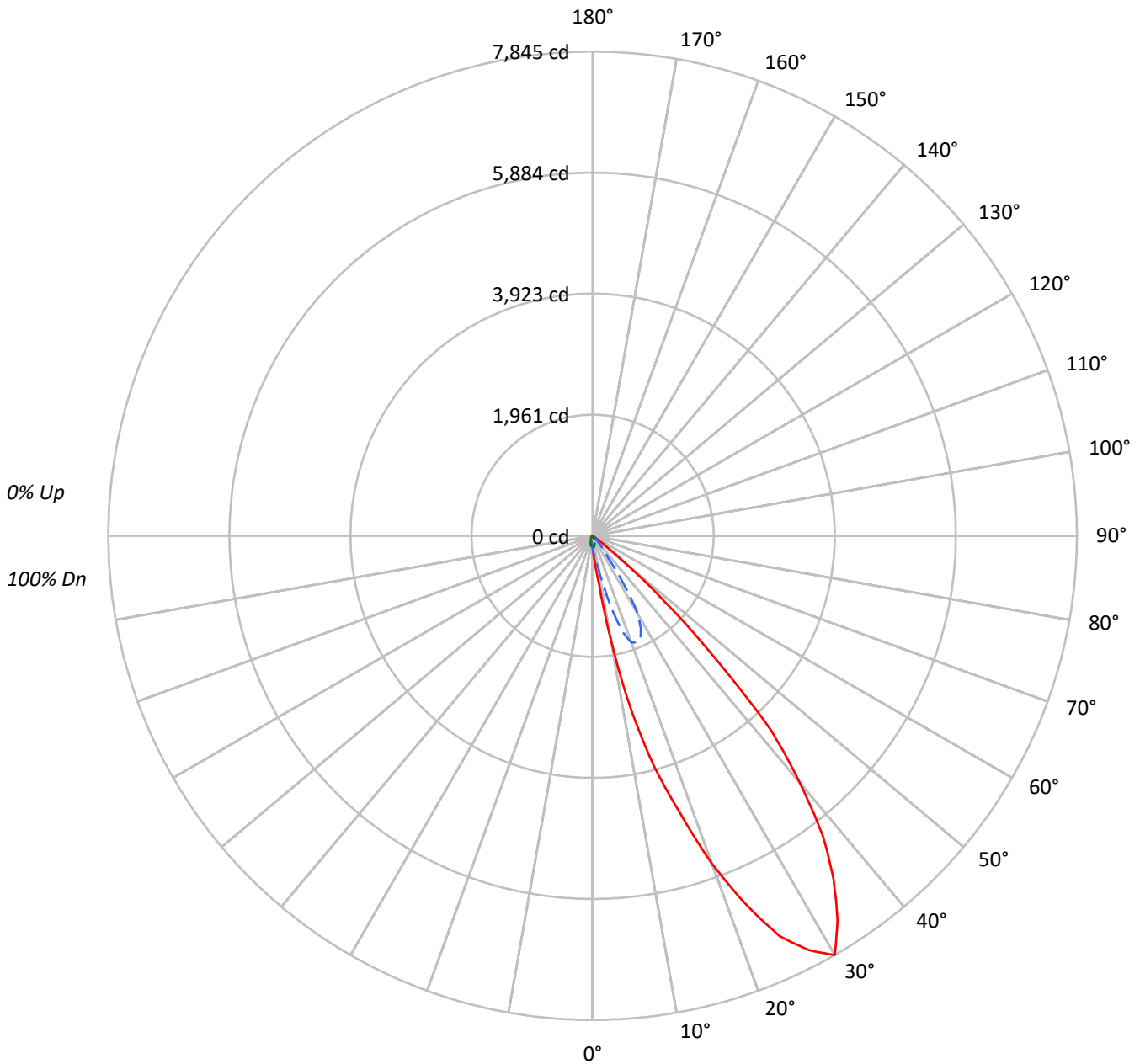
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	19123	19123	19123
5°	42312	18088	12710
10°	169403	15710	10614
15°	390470	12496	9327
20°	582876	8866	8320
25°	764511	5911	7407
30°	877592	3725	6477
35°	804662	2389	5606
40°	659866	1555	4768
45°	382552	1082	3850
50°	108407	799	3180
55°	9931	743	2669
60°	1531	853	2209
65°	413	802	1605
70°	510	991	1246
75°	674	1310	1310
80°	0	1953	1004
85°	0	3890	1000



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	28.0	1.5
10°-20°	251.3	13.3
20°-30°	612.3	32.4
30°-40°	663.7	35.1
40°-50°	300.7	15.9
50°-60°	23.3	1.2
60°-70°	4.8	0.3
70°-80°	3.5	0.2
80°-90°	2.2	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°	891.7	47.2
0°-40°	1555.4	82.3
0°-60°	1879.4	99.4
0°-90°	1889.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1889.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	197	197	197	197	197	
5°	435	321	186	140	131	78
15°	3893	1274	125	90	93	1131
25°	7152	1829	55	54	69	3260
35°	6804	465	20	32	47	4185
45°	2792	59	8	18	28	2204
55°	59	8	4	10	16	134
65°	2	3	4	7	7	3
75°	2	3	4	5	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°	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4
2.5°	295.6	290.4	293.0	286.0	281.6	278.1	279.8	278.1	266.7	264.1	255.3
5°	435.1	427.2	427.2	412.3	396.5	386.9	386.9	375.5	350.9	339.5	321.1
7.5°	779.9	764.1	750.9	704.4	643.9	609.7	600.9	552.7	490.4	450.9	404.4
10°	1722.1	1656.3	1609.8	1488.7	1326.4	1225.5	1182.5	1015.9	817.6	668.5	533.4
12.5°	2895.8	2806.3	2724.8	2526.5	2293.1	2134.4	2049.3	1803.6	1418.5	1143.1	855.3
15°	3893.3	3796.8	3700.3	3459.0	3212.5	3074.8	2918.6	2593.2	2084.4	1693.1	1273.8
17.5°	4711.7	4657.3	4558.2	4204.7	3894.1	3679.2	3516.9	3091.4	2567.7	2121.2	1646.6
20°	5653.9	5519.7	5342.5	4913.5	4488.9	4219.6	3991.5	3473.1	2867.7	2354.6	1844.0
22.5°	6446.9	6351.3	6096.9	5531.1	4906.5	4676.6	4397.7	3773.9	3060.7	2453.7	1866.8
25°	7152.3	7002.2	6682.9	6010.1	5370.6	4979.3	4637.2	3937.1	3131.8	2460.7	1829.1
27.5°	7565.4	7369.8	6994.4	6261.0	5531.1	5098.6	4719.6	3965.2	3087.1	2367.7	1691.3
30°	7845.3	7455.8	7040.8	6263.6	5480.2	5038.1	4645.1	3824.0	2901.1	2155.4	1459.8
32.5°	7383.9	7158.4	6761.9	6014.5	5203.0	4771.4	4381.0	3517.8	2610.7	1840.5	1015.9
35°	6804.0	6621.5	6276.8	5534.6	4787.2	4380.1	3966.1	3124.8	2232.6	1265.0	464.9
37.5°	6130.3	5987.3	5616.2	4938.1	4280.1	3881.9	3466.9	2663.3	1572.0	627.2	282.5
40°	5217.9	5096.8	4792.4	4247.7	3641.5	3262.5	2880.0	1992.2	853.6	350.0	184.2
42.5°	4288.9	4187.1	3909.9	3438.8	2906.3	2594.0	2257.2	1214.1	424.6	220.2	102.6
45°	2792.3	2665.1	2516.0	2300.2	2037.0	1844.9	1447.5	586.0	251.8	122.8	58.8
47.5°	1601.0	1516.8	1272.0	1003.6	815.0	743.9	541.3	272.8	138.6	71.1	36.0
50°	719.3	665.0	557.9	454.4	329.0	257.0	218.4	136.9	68.4	38.6	24.6
52.5°	177.2	180.7	171.1	150.0	133.3	113.2	98.3	64.0	36.0	23.7	15.8
55°	58.8	59.7	54.4	51.8	47.4	43.9	40.4	28.9	21.9	21.1	7.9
57.5°	21.1	21.1	21.9	20.2	19.3	18.4	17.5	14.9	13.2	7.9	4.4
60°	7.9	7.9	7.9	8.8	8.8	8.8	9.6	8.8	6.1	4.4	3.5
62.5°	3.5	3.5	3.5	3.5	4.4	4.4	5.3	4.4	3.5	3.5	2.6
65°	1.8	1.8	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
67.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6	2.6
70°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6	2.6
72.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6	2.6
75°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6
77.5°	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	1.8	1.8	2.6
80°	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	1.8	1.8	2.6
82.5°	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	1.8	1.8	2.6
85°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	1.8	2.6
87.5°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	1.8	1.8
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4
2.5°	246.5	241.2	230.7	222.8	216.7	215.8	210.5	201.8	198.3	192.1	186.9
5°	303.5	290.4	273.7	257.9	246.5	240.4	221.9	205.3	195.6	186.0	177.2
7.5°	364.9	335.1	306.2	280.7	264.9	255.3	233.3	206.2	188.6	174.6	163.2
10°	442.1	380.7	330.7	291.2	270.2	257.0	230.7	198.3	176.3	159.7	148.3
12.5°	618.5	450.9	353.5	296.5	270.2	251.8	220.2	187.7	163.2	143.0	130.7
15°	920.2	629.9	419.3	299.1	261.4	240.4	204.4	170.2	145.6	124.6	113.2
17.5°	1204.5	829.0	523.7	317.6	256.2	223.7	183.3	150.0	124.6	104.4	94.7
20°	1351.8	928.1	581.6	331.6	247.4	202.6	158.8	128.1	103.5	86.0	78.1
22.5°	1355.4	919.4	553.5	299.1	214.9	173.7	136.0	105.3	84.2	69.3	63.2
25°	1272.0	813.2	455.3	233.3	173.7	145.6	113.2	86.0	65.8	55.3	50.9
27.5°	1115.0	657.9	336.0	168.4	136.0	115.8	88.6	65.8	50.0	43.0	40.4
30°	862.3	407.0	186.0	124.6	102.6	86.8	64.0	43.9	37.7	33.3	31.6
32.5°	428.1	199.1	131.6	88.6	70.2	55.3	40.4	32.5	28.9	26.3	25.4
35°	232.5	143.0	82.5	53.5	42.1	35.1	27.2	22.8	21.1	20.2	20.2
37.5°	162.3	85.1	50.0	32.5	26.3	23.7	19.3	16.7	15.8	15.8	15.8
40°	89.5	50.9	30.7	21.1	17.5	15.8	13.2	12.3	12.3	12.3	13.2
42.5°	51.8	31.6	21.1	14.9	12.3	11.4	9.6	8.8	9.6	9.6	10.5
45°	33.3	23.7	14.0	10.5	8.8	7.9	7.0	7.0	7.9	7.9	8.8
47.5°	23.7	16.7	9.6	7.0	5.3	5.3	5.3	5.3	6.1	7.0	7.9
50°	14.0	8.8	5.3	4.4	3.5	3.5	3.5	4.4	5.3	5.3	6.1
52.5°	7.9	5.3	3.5	3.5	2.6	2.6	3.5	3.5	4.4	5.3	6.1
55°	4.4	3.5	2.6	2.6	2.6	2.6	2.6	3.5	3.5	4.4	5.3
57.5°	3.5	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	4.4	4.4
60°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	4.4	4.4
62.5°	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	3.5	3.5	4.4
65°	2.6	2.6	2.6	3.5	2.6	3.5	3.5	3.5	3.5	3.5	4.4
67.5°	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.4
70°	2.6	2.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.4
72.5°	2.6	2.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.4
75°	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
77.5°	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
80°	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
82.5°	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
85°	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
87.5°	2.6	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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°	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4
2.5°	185.1	179.0	174.6	172.8	169.3	170.2	167.6	165.8	160.5	160.5	157.0
5°	171.1	163.2	157.9	155.3	151.8	150.9	148.3	145.6	140.4	139.5	136.9
7.5°	156.2	148.3	142.1	139.5	136.0	135.1	131.6	129.8	125.4	124.6	121.9
10°	140.4	131.6	126.3	123.7	120.2	120.2	117.6	115.8	112.3	112.3	110.5
12.5°	123.7	115.8	112.3	108.8	107.0	107.0	105.3	103.5	100.9	101.8	100.9
15°	106.1	100.0	96.5	94.7	93.9	93.9	93.0	92.1	90.4	92.1	90.4
17.5°	89.5	85.1	82.5	81.6	80.7	80.7	80.7	81.6	80.7	82.5	82.5
20°	73.7	70.2	68.4	68.4	67.5	69.3	69.3	71.1	71.1	73.7	74.6
22.5°	60.5	57.9	57.0	57.0	57.0	58.8	59.7	61.4	62.3	64.9	66.7
25°	48.2	47.4	47.4	47.4	48.2	50.0	51.8	53.5	54.4	57.9	58.8
27.5°	39.5	38.6	39.5	39.5	40.4	43.0	44.7	46.5	48.2	50.9	52.6
30°	31.6	31.6	32.5	33.3	34.2	36.0	38.6	40.4	42.1	44.7	46.5
32.5°	25.4	26.3	27.2	28.1	28.1	30.7	32.5	35.1	36.0	38.6	40.4
35°	21.1	21.9	22.8	23.7	23.7	26.3	28.1	29.8	31.6	33.3	35.1
37.5°	16.7	17.5	19.3	20.2	20.2	22.8	23.7	25.4	27.2	28.9	30.7
40°	14.0	14.9	16.7	16.7	17.5	19.3	20.2	21.9	23.7	25.4	27.2
42.5°	11.4	12.3	14.0	14.9	14.9	16.7	17.5	19.3	20.2	21.9	22.8
45°	10.5	10.5	12.3	12.3	13.2	14.0	15.8	16.7	17.5	19.3	20.2
47.5°	8.8	9.6	10.5	11.4	11.4	12.3	13.2	14.0	14.9	16.7	17.5
50°	7.0	7.9	9.6	9.6	9.6	11.4	12.3	13.2	13.2	14.0	14.9
52.5°	7.0	7.0	7.9	8.8	8.8	9.6	10.5	11.4	11.4	12.3	13.2
55°	6.1	6.1	7.0	7.9	7.9	8.8	9.6	9.6	10.5	10.5	11.4
57.5°	5.3	6.1	7.0	7.0	7.0	7.9	8.8	8.8	9.6	9.6	10.5
60°	5.3	6.1	6.1	7.0	7.0	7.9	7.9	7.9	8.8	8.8	8.8
62.5°	5.3	5.3	6.1	6.1	6.1	7.0	7.0	7.9	7.9	7.9	7.9
65°	5.3	5.3	6.1	6.1	6.1	7.0	7.0	7.0	7.0	7.0	7.0
67.5°	4.4	5.3	5.3	5.3	6.1	6.1	6.1	6.1	6.1	6.1	6.1
70°	4.4	4.4	5.3	5.3	5.3	6.1	6.1	6.1	6.1	6.1	6.1
72.5°	4.4	4.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
75°	4.4	4.4	4.4	4.4	4.4	5.3	5.3	5.3	5.3	4.4	4.4
77.5°	3.5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.5
80°	3.5	3.5	4.4	3.5	4.4	4.4	4.4	4.4	3.5	3.5	3.5
82.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.6	2.6
85°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.6	2.6	2.6	1.8
87.5°	3.5	3.5	3.5	3.5	3.5	3.5	2.6	2.6	2.6	1.8	1.8
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: P182709

CATALOG NUMBER: LDSQA4A18940D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	197.4	197.4	197.4	197.4	197.4	197.4	197.4	197.4
2.5°	155.3	157.0	155.3	157.0	152.6	154.4	156.2	151.8
5°	135.1	133.3	134.2	136.0	132.5	133.3	134.2	130.7
7.5°	121.1	121.9	120.2	121.9	119.3	120.2	121.1	118.4
10°	109.7	110.5	109.7	110.5	107.9	109.7	110.5	107.9
12.5°	99.1	100.9	100.0	101.8	99.1	100.9	102.6	99.1
15°	91.2	93.0	92.1	93.9	92.1	93.9	95.6	93.0
17.5°	83.3	85.1	85.1	86.8	86.0	87.7	89.5	86.8
20°	75.4	78.1	78.1	79.8	79.8	80.7	83.3	80.7
22.5°	68.4	71.1	71.1	72.8	72.8	74.6	76.3	74.6
25°	60.5	64.0	64.9	66.7	66.7	68.4	71.1	69.3
27.5°	55.3	57.9	58.8	60.5	61.4	63.2	64.9	63.2
30°	48.2	51.8	52.6	54.4	55.3	57.9	58.8	57.9
32.5°	43.0	45.6	46.5	48.2	50.0	51.8	53.5	52.6
35°	37.7	40.4	41.2	43.0	43.9	46.5	48.2	47.4
37.5°	33.3	36.0	36.8	37.7	38.6	41.2	43.0	42.1
40°	28.9	30.7	31.6	33.3	34.2	36.0	37.7	37.7
42.5°	25.4	27.2	28.1	28.9	29.8	31.6	33.3	32.5
45°	21.9	23.7	24.6	25.4	26.3	27.2	28.9	28.1
47.5°	18.4	20.2	21.1	21.9	22.8	23.7	25.4	24.6
50°	15.8	17.5	17.5	18.4	19.3	20.2	21.9	21.1
52.5°	14.0	14.9	15.8	15.8	16.7	17.5	19.3	18.4
55°	12.3	13.2	13.2	14.0	14.0	14.9	15.8	15.8
57.5°	10.5	11.4	11.4	12.3	12.3	13.2	14.0	14.0
60°	9.6	9.6	10.5	10.5	10.5	11.4	11.4	11.4
62.5°	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
65°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
67.5°	6.1	6.1	6.1	6.1	6.1	5.3	5.3	5.3
70°	5.3	5.3	5.3	5.3	5.3	4.4	4.4	4.4
72.5°	5.3	5.3	4.4	4.4	4.4	4.4	4.4	3.5
75°	4.4	4.4	4.4	4.4	3.5	3.5	3.5	3.5
77.5°	3.5	3.5	3.5	3.5	2.6	2.6	2.6	2.6
80°	3.5	2.6	2.6	2.6	2.6	2.6	2.6	1.8
82.5°	2.6	2.6	2.6	1.8	1.8	1.8	1.8	1.8
85°	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9
87.5°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
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)