

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: P182706

Luminaire Tested: **LDSQA4A18927D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182706
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: LDSQA4A18927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1657.0 lumens
Efficiency: N/A
Efficacy: 56.9 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

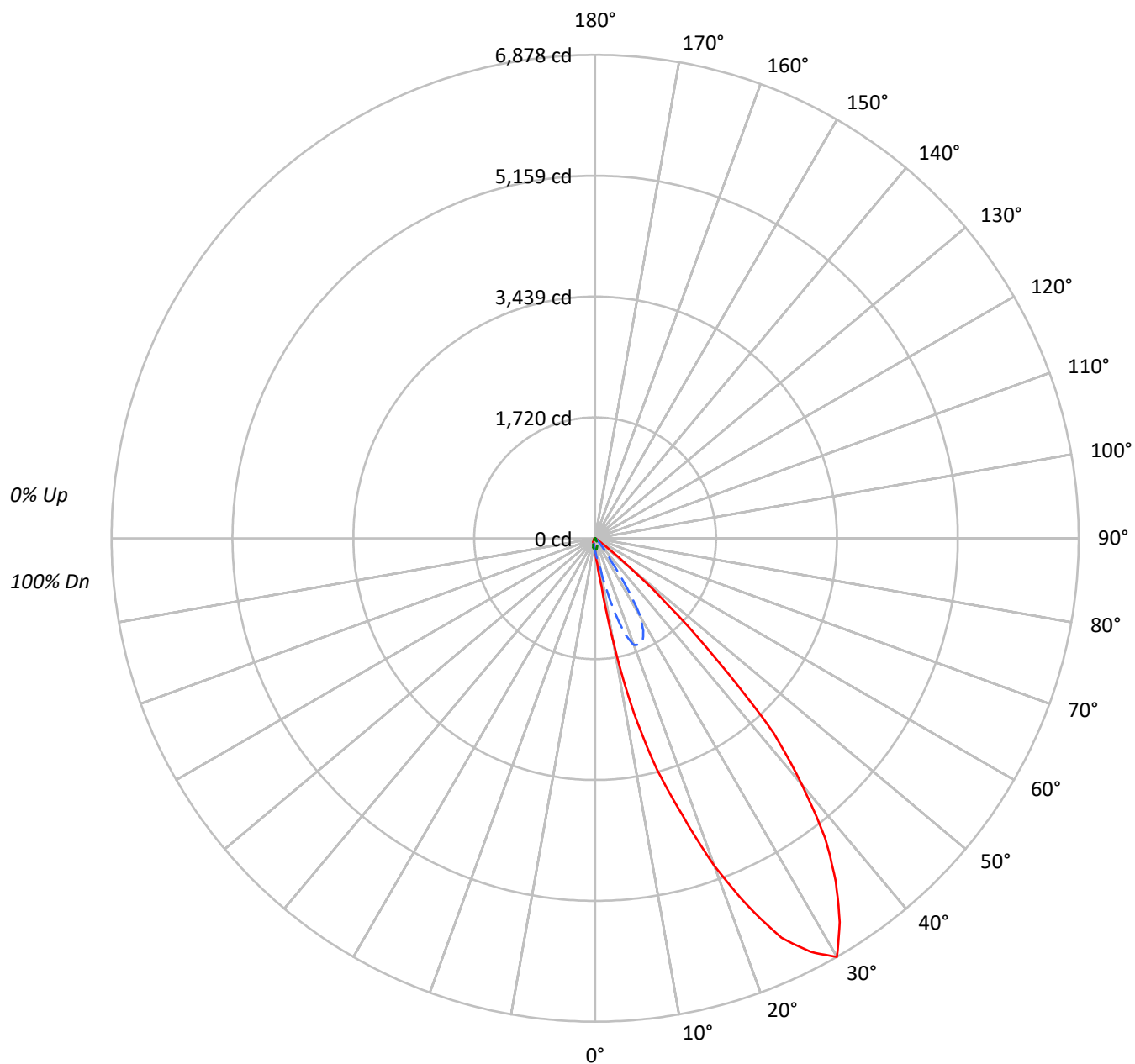
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182706

CATALOG NUMBER: LDSQA4A18927D010TE LAR25NF 4LSQA1H 30°

Luminous Intensity Polar Plot





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CATALOG NUMBER: LDSQA4A18927D010TE LAR25NF 4LSQA1H 30°

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°	16769	16769	16769
5°	37099	15861	11144
10°	148519	13772	9306
15°	342350	10952	8174
20°	511051	7773	7299
25°	670298	5184	6499
30°	769444	3266	5683
35°	705498	2093	4908
40°	578551	1366	4186
45°	335410	945	3370
50°	95054	693	2788
55°	8698	642	2331
60°	1337	736	1938
65°	344	711	1421
70°	425	878	1076
75°	561	1160	1160
80°	0	1729	837
85°	0	3446	889



TEST NUMBER: P182706

CATALOG NUMBER: LDSQA4A18927D010TE LAR25NF 4LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	24.6	1.5
10°-20°	220.4	13.3
20°-30°	536.9	32.4
30°-40°	581.9	35.1
40°-50°	263.7	15.9
50°-60°	20.4	1.2
60°-70°	4.2	0.3
70°-80°	3.1	0.2
80°-90°	2.0	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°	781.8	47.2
0°-40°	1363.7	82.3
0°-60°	1647.8	99.4
0°-90°	1657.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1657.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	173	173	173	173	173	
5°	382	282	163	123	115	69
15°	3414	1117	109	79	82	992
25°	6271	1604	48	48	61	2858
35°	5966	408	18	28	42	3669
45°	2448	52	7	15	25	1933
55°	52	7	4	9	14	118
65°	2	2	3	6	6	3
75°	2	2	3	5	3	1
85°	0	2	3	2	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182706

CATALOG NUMBER: LDSQA4A18927D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1
2.5°	259.2	254.6	256.9	250.7	246.9	243.8	245.4	243.8	233.8	231.5	223.8
5°	381.5	374.6	374.6	361.5	347.7	339.2	339.2	329.2	307.7	297.7	281.5
7.5°	683.8	669.9	658.4	617.6	564.6	534.6	526.9	484.6	430.0	395.3	354.6
10°	1509.8	1452.2	1411.4	1305.3	1163.0	1074.5	1036.8	890.7	716.9	586.1	467.6
12.5°	2539.0	2460.5	2389.0	2215.2	2010.6	1871.3	1796.7	1581.4	1243.7	1002.2	749.9
15°	3413.5	3328.9	3244.3	3032.8	2816.6	2695.9	2559.0	2273.6	1827.5	1484.5	1116.8
17.5°	4131.1	4083.4	3996.5	3686.5	3414.3	3225.8	3083.5	2710.5	2251.3	1859.8	1443.7
20°	4957.2	4839.5	4684.1	4308.0	3935.8	3699.6	3499.6	3045.1	2514.4	2064.4	1616.8
22.5°	5652.5	5568.7	5345.6	4849.5	4301.9	4100.4	3855.8	3308.9	2683.6	2151.3	1636.8
25°	6270.9	6139.4	5859.4	5269.5	4708.8	4365.7	4065.7	3452.0	2745.9	2157.5	1603.7
27.5°	6633.2	6461.7	6132.5	5489.4	4849.5	4470.3	4138.0	3476.6	2706.6	2075.9	1482.9
30°	6878.5	6537.0	6173.2	5491.8	4804.9	4417.2	4072.7	3352.7	2543.6	1889.8	1279.9
32.5°	6474.0	6276.3	5928.6	5273.3	4561.8	4183.4	3841.1	3084.3	2289.0	1613.7	890.7
35°	5965.5	5805.6	5503.3	4852.6	4197.3	3840.4	3477.3	2739.7	1957.5	1109.1	407.7
37.5°	5374.8	5249.5	4924.1	4329.6	3752.7	3403.5	3039.7	2335.1	1378.3	549.9	247.7
40°	4574.9	4468.8	4201.9	3724.2	3192.8	2860.5	2525.1	1746.7	748.4	306.9	161.5
42.5°	3760.4	3671.2	3428.1	3015.1	2548.2	2274.4	1979.0	1064.5	372.3	193.1	90.0
45°	2448.2	2336.7	2205.9	2016.7	1786.0	1617.5	1269.1	513.8	220.7	107.7	51.5
47.5°	1403.7	1329.9	1115.3	879.9	714.5	652.2	474.6	239.2	121.5	62.3	31.5
50°	630.7	583.0	489.2	398.4	288.4	225.4	191.5	120.0	60.0	33.8	21.5
52.5°	155.4	158.4	150.0	131.5	116.9	99.2	86.1	56.1	31.5	20.8	13.8
55°	51.5	52.3	47.7	45.4	41.5	38.5	35.4	25.4	19.2	18.5	6.9
57.5°	18.5	18.5	19.2	17.7	16.9	16.2	15.4	13.1	11.5	6.9	3.8
60°	6.9	6.9	6.9	7.7	7.7	7.7	8.5	7.7	5.4	3.8	3.1
62.5°	3.1	3.1	3.1	3.1	3.8	3.8	4.6	3.8	3.1	3.1	2.3
65°	1.5	1.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
67.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3	2.3
70°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3	2.3
72.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3	2.3
75°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5	2.3
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5	2.3
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5	2.3
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	2.3
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5
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: P182706

CATALOG NUMBER: LDSQA4A18927D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1
2.5°	216.1	211.5	202.3	195.4	190.0	189.2	184.6	176.9	173.8	168.4	163.8
5°	266.1	254.6	240.0	226.1	216.1	210.7	194.6	180.0	171.5	163.1	155.4
7.5°	320.0	293.8	268.4	246.1	232.3	223.8	204.6	180.8	165.4	153.1	143.1
10°	387.7	333.8	290.0	255.4	236.9	225.4	202.3	173.8	154.6	140.0	130.0
12.5°	542.3	395.3	310.0	260.0	236.9	220.7	193.1	164.6	143.1	125.4	114.6
15°	806.8	552.3	367.7	262.3	229.2	210.7	179.2	149.2	127.7	109.2	99.2
17.5°	1056.0	726.8	459.2	278.4	224.6	196.1	160.8	131.5	109.2	91.5	83.1
20°	1185.3	813.8	509.9	290.7	216.9	177.7	139.2	112.3	90.8	75.4	68.5
22.5°	1188.3	806.1	485.3	262.3	188.4	152.3	119.2	92.3	73.8	60.8	55.4
25°	1115.3	713.0	399.2	204.6	152.3	127.7	99.2	75.4	57.7	48.5	44.6
27.5°	977.6	576.9	294.6	147.7	119.2	101.5	77.7	57.7	43.8	37.7	35.4
30°	756.1	356.9	163.1	109.2	90.0	76.1	56.1	38.5	33.1	29.2	27.7
32.5°	375.3	174.6	115.4	77.7	61.5	48.5	35.4	28.5	25.4	23.1	22.3
35°	203.8	125.4	72.3	46.9	36.9	30.8	23.8	20.0	18.5	17.7	17.7
37.5°	142.3	74.6	43.8	28.5	23.1	20.8	16.9	14.6	13.8	13.8	13.8
40°	78.5	44.6	26.9	18.5	15.4	13.8	11.5	10.8	10.8	10.8	11.5
42.5°	45.4	27.7	18.5	13.1	10.8	10.0	8.5	7.7	8.5	8.5	9.2
45°	29.2	20.8	12.3	9.2	7.7	6.9	6.2	6.2	6.9	6.9	7.7
47.5°	20.8	14.6	8.5	6.2	4.6	4.6	4.6	4.6	5.4	6.2	6.9
50°	12.3	7.7	4.6	3.8	3.1	3.1	3.1	3.8	4.6	4.6	5.4
52.5°	6.9	4.6	3.1	3.1	2.3	2.3	3.1	3.1	3.8	4.6	5.4
55°	3.8	3.1	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.8	4.6
57.5°	3.1	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.8	3.8
60°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.8	3.8
62.5°	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.8
65°	2.3	2.3	2.3	3.1	2.3	3.1	3.1	3.1	3.1	3.1	3.8
67.5°	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.8
70°	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.8
72.5°	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.8
75°	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
77.5°	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
80°	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
82.5°	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
85°	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
87.5°	2.3	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1
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: P182706

CATALOG NUMBER: LDSQA4A18927D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1
2.5°	162.3	156.9	153.1	151.5	148.4	149.2	146.9	145.4	140.8	140.8	137.7
5°	150.0	143.1	138.4	136.1	133.1	132.3	130.0	127.7	123.1	122.3	120.0
7.5°	136.9	130.0	124.6	122.3	119.2	118.4	115.4	113.8	110.0	109.2	106.9
10°	123.1	115.4	110.8	108.5	105.4	105.4	103.1	101.5	98.5	98.5	96.9
12.5°	108.5	101.5	98.5	95.4	93.8	93.8	92.3	90.8	88.5	89.2	88.5
15°	93.1	87.7	84.6	83.1	82.3	82.3	81.5	80.8	79.2	80.8	79.2
17.5°	78.5	74.6	72.3	71.5	70.8	70.8	70.8	71.5	70.8	72.3	72.3
20°	64.6	61.5	60.0	60.0	59.2	60.8	60.8	62.3	62.3	64.6	65.4
22.5°	53.1	50.8	50.0	50.0	50.0	51.5	52.3	53.8	54.6	56.9	58.5
25°	42.3	41.5	41.5	41.5	42.3	43.8	45.4	46.9	47.7	50.8	51.5
27.5°	34.6	33.8	34.6	34.6	35.4	37.7	39.2	40.8	42.3	44.6	46.1
30°	27.7	27.7	28.5	29.2	30.0	31.5	33.8	35.4	36.9	39.2	40.8
32.5°	22.3	23.1	23.8	24.6	24.6	26.9	28.5	30.8	31.5	33.8	35.4
35°	18.5	19.2	20.0	20.8	20.8	23.1	24.6	26.2	27.7	29.2	30.8
37.5°	14.6	15.4	16.9	17.7	17.7	20.0	20.8	22.3	23.8	25.4	26.9
40°	12.3	13.1	14.6	14.6	15.4	16.9	17.7	19.2	20.8	22.3	23.8
42.5°	10.0	10.8	12.3	13.1	13.1	14.6	15.4	16.9	17.7	19.2	20.0
45°	9.2	9.2	10.8	10.8	11.5	12.3	13.8	14.6	15.4	16.9	17.7
47.5°	7.7	8.5	9.2	10.0	10.0	10.8	11.5	12.3	13.1	14.6	15.4
50°	6.2	6.9	8.5	8.5	8.5	10.0	10.8	11.5	11.5	12.3	13.1
52.5°	6.2	6.2	6.9	7.7	7.7	8.5	9.2	10.0	10.0	10.8	11.5
55°	5.4	5.4	6.2	6.9	6.9	7.7	8.5	8.5	9.2	9.2	10.0
57.5°	4.6	5.4	6.2	6.2	6.2	6.9	7.7	7.7	8.5	8.5	9.2
60°	4.6	5.4	5.4	6.2	6.2	6.9	6.9	6.9	7.7	7.7	7.7
62.5°	4.6	4.6	5.4	5.4	5.4	6.2	6.2	6.9	6.9	6.9	6.9
65°	4.6	4.6	5.4	5.4	5.4	6.2	6.2	6.2	6.2	6.2	6.2
67.5°	3.8	4.6	4.6	4.6	5.4	5.4	5.4	5.4	5.4	5.4	5.4
70°	3.8	3.8	4.6	4.6	4.6	5.4	5.4	5.4	5.4	5.4	5.4
72.5°	3.8	3.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
75°	3.8	3.8	3.8	3.8	3.8	4.6	4.6	4.6	4.6	3.8	3.8
77.5°	3.1	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.1
80°	3.1	3.1	3.8	3.1	3.8	3.8	3.8	3.8	3.1	3.1	3.1
82.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3
85°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3	1.5
87.5°	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3	1.5	1.5
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: P182706

CATALOG NUMBER: LDSQA4A18927D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	173.1	173.1	173.1	173.1	173.1	173.1	173.1	173.1
2.5°	136.1	137.7	136.1	137.7	133.8	135.4	136.9	133.1
5°	118.4	116.9	117.7	119.2	116.1	116.9	117.7	114.6
7.5°	106.1	106.9	105.4	106.9	104.6	105.4	106.1	103.8
10°	96.1	96.9	96.1	96.9	94.6	96.1	96.9	94.6
12.5°	86.9	88.5	87.7	89.2	86.9	88.5	90.0	86.9
15°	80.0	81.5	80.8	82.3	80.8	82.3	83.8	81.5
17.5°	73.1	74.6	74.6	76.1	75.4	76.9	78.5	76.1
20°	66.1	68.5	68.5	70.0	70.0	70.8	73.1	70.8
22.5°	60.0	62.3	62.3	63.8	63.8	65.4	66.9	65.4
25°	53.1	56.1	56.9	58.5	58.5	60.0	62.3	60.8
27.5°	48.5	50.8	51.5	53.1	53.8	55.4	56.9	55.4
30°	42.3	45.4	46.1	47.7	48.5	50.8	51.5	50.8
32.5°	37.7	40.0	40.8	42.3	43.8	45.4	46.9	46.1
35°	33.1	35.4	36.2	37.7	38.5	40.8	42.3	41.5
37.5°	29.2	31.5	32.3	33.1	33.8	36.2	37.7	36.9
40°	25.4	26.9	27.7	29.2	30.0	31.5	33.1	33.1
42.5°	22.3	23.8	24.6	25.4	26.2	27.7	29.2	28.5
45°	19.2	20.8	21.5	22.3	23.1	23.8	25.4	24.6
47.5°	16.2	17.7	18.5	19.2	20.0	20.8	22.3	21.5
50°	13.8	15.4	15.4	16.2	16.9	17.7	19.2	18.5
52.5°	12.3	13.1	13.8	13.8	14.6	15.4	16.9	16.2
55°	10.8	11.5	11.5	12.3	12.3	13.1	13.8	13.8
57.5°	9.2	10.0	10.0	10.8	10.8	11.5	12.3	12.3
60°	8.5	8.5	9.2	9.2	9.2	10.0	10.0	10.0
62.5°	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
65°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
67.5°	5.4	5.4	5.4	5.4	5.4	4.6	4.6	4.6
70°	4.6	4.6	4.6	4.6	4.6	3.8	3.8	3.8
72.5°	4.6	4.6	3.8	3.8	3.8	3.8	3.8	3.1
75°	3.8	3.8	3.8	3.8	3.1	3.1	3.1	3.1
77.5°	3.1	3.1	3.1	3.1	2.3	2.3	2.3	2.3
80°	3.1	2.3	2.3	2.3	2.3	2.3	2.3	1.5
82.5°	2.3	2.3	2.3	1.5	1.5	1.5	1.5	1.5
85°	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8
87.5°	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)