

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: P182718

Luminaire Tested: **LDSQA4A13827D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182718
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: LDSQA4A13827D010TE 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: 1657.2 lumens
Efficiency: N/A
Efficacy: 74.4 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

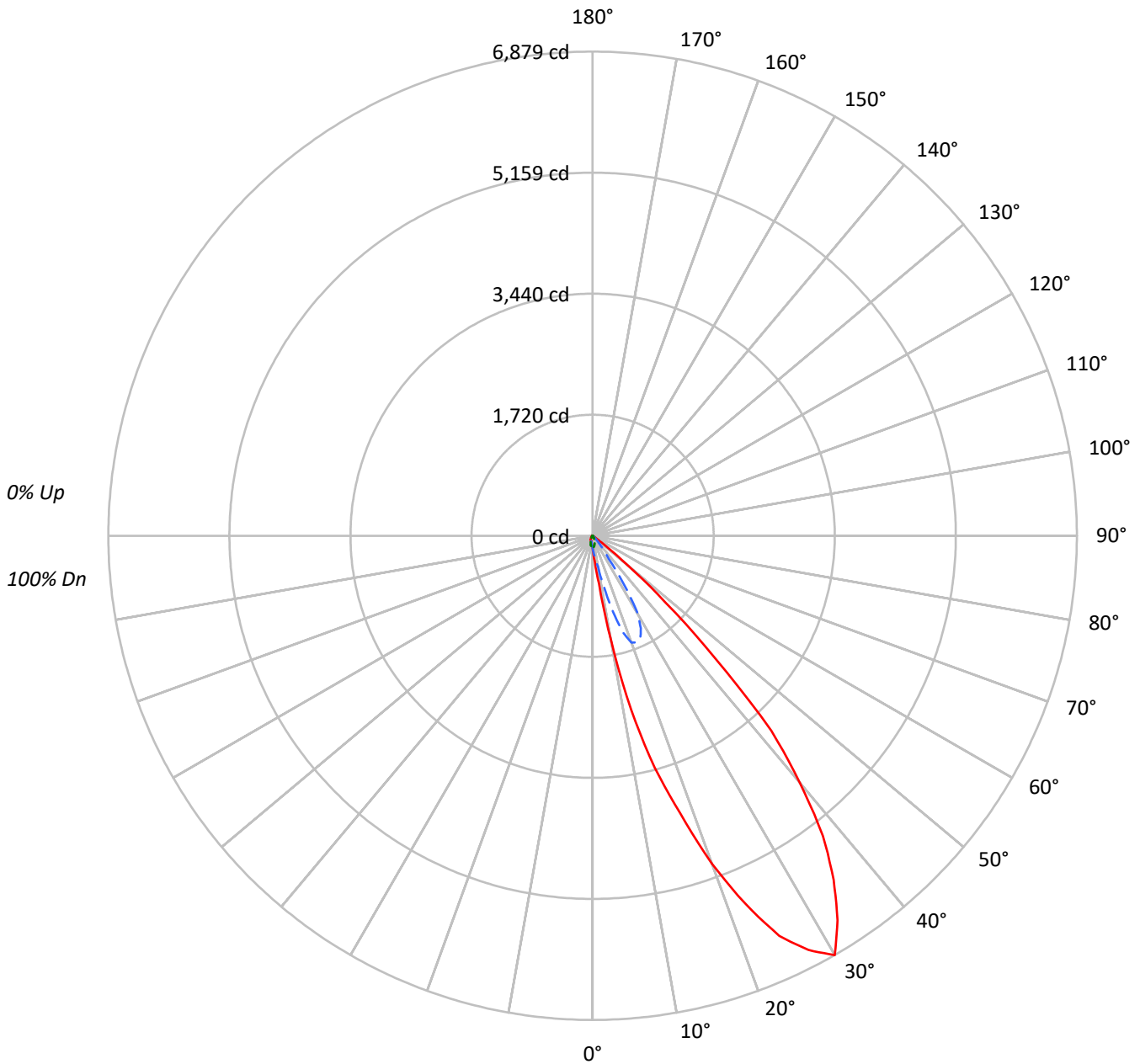
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182718

CATALOG NUMBER: LDSQA4A13827D010TE LAR25NF 4LSQA1H 30°

Luminous Intensity Polar Plot





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CATALOG NUMBER: LDSQA4A13827D010TE LAR25NF 4LSQA1H 30°

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°	16769	16769	16769
5°	37099	15861	11144
10°	148539	13772	9306
15°	342380	10952	8174
20°	511103	7773	7299
25°	670362	5184	6499
30°	769522	3266	5683
35°	705569	2093	4908
40°	578601	1366	4186
45°	335437	945	3370
50°	95069	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: P182718

CATALOG NUMBER: LDSQA4A13827D010TE 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°	781.9	47.2
0°-40°	1363.9	82.3
0°-60°	1647.9	99.4
0°-90°	1657.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1657.2	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°	6272	1604	48	48	61	2859
35°	5966	408	18	28	42	3670
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: P182718

CATALOG NUMBER: LDSQA4A13827D010TE 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	250.8	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	670.0	658.5	617.7	564.6	534.6	526.9	484.6	430.0	395.4	354.6
10°	1510.0	1452.3	1411.5	1305.4	1163.1	1074.6	1036.9	890.8	716.9	586.1	467.7
12.5°	2539.2	2460.7	2389.2	2215.4	2010.8	1871.5	1796.9	1581.5	1243.8	1002.3	750.0
15°	3413.8	3329.2	3244.6	3033.1	2816.9	2696.1	2559.2	2273.8	1827.7	1484.6	1116.9
17.5°	4131.5	4083.8	3996.9	3686.9	3414.6	3226.1	3083.8	2710.7	2251.5	1860.0	1443.8
20°	4957.7	4840.0	4684.6	4308.4	3936.1	3700.0	3500.0	3045.4	2514.6	2064.6	1616.9
22.5°	5653.0	5569.2	5346.1	4850.0	4302.3	4100.7	3856.1	3309.2	2683.8	2151.5	1636.9
25°	6271.5	6140.0	5860.0	5270.0	4709.2	4366.1	4066.1	3452.3	2746.1	2157.7	1603.8
27.5°	6633.8	6462.3	6133.0	5490.0	4850.0	4470.7	4138.4	3476.9	2706.9	2076.1	1483.1
30°	6879.2	6537.6	6173.8	5492.3	4805.3	4417.7	4073.0	3353.1	2543.8	1890.0	1280.0
32.5°	6474.6	6276.9	5929.2	5273.8	4562.3	4183.8	3841.5	3084.6	2289.2	1613.8	890.8
35°	5966.1	5806.1	5503.8	4853.0	4197.7	3840.7	3477.7	2740.0	1957.7	1109.2	407.7
37.5°	5375.3	5250.0	4924.6	4330.0	3753.0	3403.8	3040.0	2335.4	1378.5	550.0	247.7
40°	4575.3	4469.2	4202.3	3724.6	3193.1	2860.7	2525.4	1746.9	748.5	306.9	161.5
42.5°	3760.7	3671.5	3428.4	3015.4	2548.4	2274.6	1979.2	1064.6	372.3	193.1	90.0
45°	2448.4	2336.9	2206.1	2016.9	1786.1	1617.7	1269.2	513.8	220.8	107.7	51.5
47.5°	1403.8	1330.0	1115.4	880.0	714.6	652.3	474.6	239.2	121.5	62.3	31.5
50°	630.8	583.1	489.2	398.5	288.5	225.4	191.5	120.0	60.0	33.8	21.5
52.5°	155.4	158.5	150.0	131.5	116.9	99.2	86.2	56.2	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: P182718

CATALOG NUMBER: LDSQA4A13827D010TE 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°	216.2	211.5	202.3	195.4	190.0	189.2	184.6	176.9	173.8	168.5	163.8
5°	266.2	254.6	240.0	226.2	216.2	210.8	194.6	180.0	171.5	163.1	155.4
7.5°	320.0	293.8	268.5	246.2	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	395.4	310.0	260.0	236.9	220.8	193.1	164.6	143.1	125.4	114.6
15°	806.9	552.3	367.7	262.3	229.2	210.8	179.2	149.2	127.7	109.2	99.2
17.5°	1056.1	726.9	459.2	278.5	224.6	196.2	160.8	131.5	109.2	91.5	83.1
20°	1185.4	813.8	510.0	290.8	216.9	177.7	139.2	112.3	90.8	75.4	68.5
22.5°	1188.5	806.1	485.4	262.3	188.5	152.3	119.2	92.3	73.8	60.8	55.4
25°	1115.4	713.1	399.2	204.6	152.3	127.7	99.2	75.4	57.7	48.5	44.6
27.5°	977.7	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	76.2	56.2	38.5	33.1	29.2	27.7
32.5°	375.4	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: P182718

CATALOG NUMBER: LDSQA4A13827D010TE 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	148.5	149.2	146.9	145.4	140.8	140.8	137.7
5°	150.0	143.1	138.5	136.2	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	118.5	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	46.2
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: P182718

CATALOG NUMBER: LDSQA4A13827D010TE 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°	136.2	137.7	136.2	137.7	133.8	135.4	136.9	133.1
5°	118.5	116.9	117.7	119.2	116.2	116.9	117.7	114.6
7.5°	106.2	106.9	105.4	106.9	104.6	105.4	106.2	103.8
10°	96.2	96.9	96.2	96.9	94.6	96.2	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	76.2	75.4	76.9	78.5	76.2
20°	66.2	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	56.2	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	46.2	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	46.2
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)