

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: P182707

Luminaire Tested: **LDSQA4A18930D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182707
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: LDSQA4A18930D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1733.7 lumens
Efficiency: N/A
Efficacy: 59.5 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

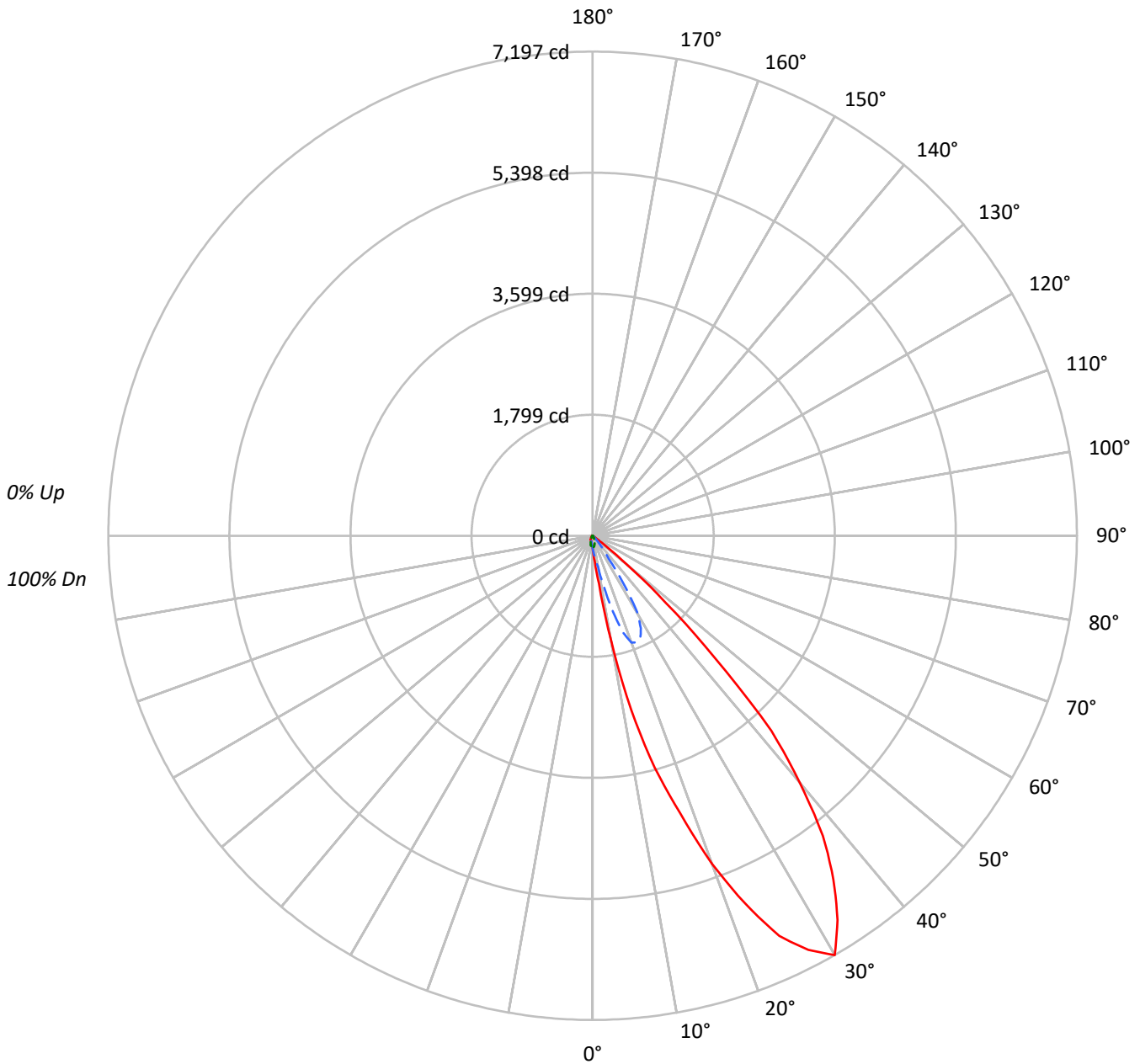
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									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	85	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°	17544	17544	17544
5°	38820	16590	11660
10°	155395	14411	9739
15°	358196	11463	8555
20°	534711	8134	7629
25°	701328	5419	6798
30°	805060	3423	5940
35°	738163	2188	5144
40°	605335	1429	4376
45°	350932	986	3535
50°	99454	723	2909
55°	9104	676	2449
60°	1395	775	2034
65°	367	734	1467
70°	453	906	1133
75°	599	1198	1198
80°	0	1785	893
85°	0	3557	889



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.7	1.5
10°-20°	230.6	13.3
20°-30°	561.7	32.4
30°-40°	608.8	35.1
40°-50°	275.9	15.9
50°-60°	21.3	1.2
60°-70°	4.4	0.3
70°-80°	3.2	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°	818.0	47.2
0°-40°	1426.8	82.3
0°-60°	1724.0	99.4
0°-90°	1733.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1733.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	181	181	181	181	181	
5°	399	294	171	129	120	72
15°	3572	1168	114	83	85	1038
25°	6561	1678	51	50	64	2991
35°	6242	426	18	29	44	3839
45°	2562	54	7	16	26	2022
55°	54	7	4	10	14	123
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	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1
2.5°	271.2	266.4	268.8	262.4	258.3	255.1	256.7	255.1	244.6	242.2	234.2
5°	399.2	391.9	391.9	378.2	363.8	354.9	354.9	344.4	321.9	311.4	294.5
7.5°	715.4	700.9	688.9	646.2	590.7	559.3	551.3	507.0	449.9	413.6	371.0
10°	1579.7	1519.4	1476.7	1365.7	1216.8	1124.2	1084.8	931.9	750.0	613.2	489.3
12.5°	2656.5	2574.4	2499.6	2317.7	2103.6	1958.0	1879.9	1654.6	1301.3	1048.6	784.6
15°	3571.5	3483.0	3394.5	3173.2	2947.0	2820.7	2677.4	2378.9	1912.1	1553.2	1168.5
17.5°	4322.4	4272.5	4181.5	3857.2	3572.3	3375.2	3226.3	2836.0	2355.5	1945.9	1510.5
20°	5186.7	5063.5	4901.0	4507.4	4117.9	3870.9	3661.6	3186.0	2630.8	2160.0	1691.6
22.5°	5914.2	5826.4	5593.1	5074.0	4501.0	4290.2	4034.3	3462.1	2807.8	2250.9	1712.5
25°	6561.2	6423.6	6130.6	5513.4	4926.7	4567.8	4253.9	3611.8	2873.0	2257.3	1677.9
27.5°	6940.2	6760.8	6416.3	5743.6	5074.0	4677.3	4329.6	3637.5	2831.9	2172.0	1551.6
30°	7196.9	6839.6	6459.0	5746.0	5027.3	4621.7	4261.2	3507.9	2661.3	1977.3	1339.1
32.5°	6773.6	6566.8	6203.1	5517.4	4773.0	4377.1	4019.0	3227.1	2395.0	1688.4	931.9
35°	6241.7	6074.3	5758.0	5077.2	4391.6	4018.2	3638.3	2866.5	2048.1	1160.5	426.5
37.5°	5623.6	5492.5	5152.1	4530.0	3926.4	3561.1	3180.4	2443.2	1442.1	575.4	259.1
40°	4786.7	4675.6	4396.4	3896.6	3340.5	2992.9	2642.0	1827.6	783.0	321.1	169.0
42.5°	3934.5	3841.1	3586.8	3154.7	2666.2	2379.7	2070.6	1113.8	389.5	202.0	94.2
45°	2561.5	2444.9	2308.0	2110.1	1868.6	1692.4	1327.9	537.6	231.0	112.7	53.9
47.5°	1468.7	1391.4	1166.9	920.6	747.6	682.4	496.5	250.3	127.2	65.2	33.0
50°	659.9	610.0	511.8	416.9	301.8	235.8	200.4	125.5	62.8	35.4	22.5
52.5°	162.6	165.8	156.9	137.6	122.3	103.8	90.1	58.7	33.0	21.7	14.5
55°	53.9	54.7	49.9	47.5	43.5	40.2	37.0	26.6	20.1	19.3	7.2
57.5°	19.3	19.3	20.1	18.5	17.7	16.9	16.1	13.7	12.1	7.2	4.0
60°	7.2	7.2	7.2	8.0	8.0	8.0	8.9	8.0	5.6	4.0	3.2
62.5°	3.2	3.2	3.2	3.2	4.0	4.0	4.8	4.0	3.2	3.2	2.4
65°	1.6	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	2.4
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
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°	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1
2.5°	226.1	221.3	211.7	204.4	198.8	198.0	193.1	185.1	181.9	176.2	171.4
5°	278.4	266.4	251.1	236.6	226.1	220.5	203.6	188.3	179.5	170.6	162.6
7.5°	334.8	307.4	280.9	257.5	243.0	234.2	214.1	189.1	173.0	160.1	149.7
10°	405.6	349.3	303.4	267.2	247.9	235.8	211.7	181.9	161.8	146.5	136.0
12.5°	567.4	413.6	324.3	272.0	247.9	231.0	202.0	172.2	149.7	131.2	119.9
15°	844.2	577.8	384.7	274.4	239.8	220.5	187.5	156.1	133.6	114.3	103.8
17.5°	1104.9	760.5	480.4	291.3	235.0	205.2	168.2	137.6	114.3	95.8	86.9
20°	1240.1	851.4	533.6	304.2	226.9	185.9	145.7	117.5	95.0	78.9	71.6
22.5°	1243.4	843.4	507.8	274.4	197.2	159.3	124.7	96.6	77.3	63.6	57.9
25°	1166.9	746.0	417.7	214.1	159.3	133.6	103.8	78.9	60.4	50.7	46.7
27.5°	1022.8	603.6	308.2	154.5	124.7	106.2	81.3	60.4	45.9	39.4	37.0
30°	791.1	373.4	170.6	114.3	94.2	79.7	58.7	40.2	34.6	30.6	29.0
32.5°	392.7	182.7	120.7	81.3	64.4	50.7	37.0	29.8	26.6	24.1	23.3
35°	213.3	131.2	75.6	49.1	38.6	32.2	24.9	20.9	19.3	18.5	18.5
37.5°	148.9	78.1	45.9	29.8	24.1	21.7	17.7	15.3	14.5	14.5	14.5
40°	82.1	46.7	28.2	19.3	16.1	14.5	12.1	11.3	11.3	11.3	12.1
42.5°	47.5	29.0	19.3	13.7	11.3	10.5	8.9	8.0	8.9	8.9	9.7
45°	30.6	21.7	12.9	9.7	8.0	7.2	6.4	6.4	7.2	7.2	8.0
47.5°	21.7	15.3	8.9	6.4	4.8	4.8	4.8	4.8	5.6	6.4	7.2
50°	12.9	8.0	4.8	4.0	3.2	3.2	3.2	4.0	4.8	4.8	5.6
52.5°	7.2	4.8	3.2	3.2	2.4	2.4	3.2	3.2	4.0	4.8	5.6
55°	4.0	3.2	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.8
57.5°	3.2	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.0
60°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	4.0	4.0
62.5°	2.4	2.4	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	4.0
65°	2.4	2.4	2.4	3.2	2.4	3.2	3.2	3.2	3.2	3.2	4.0
67.5°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.0
70°	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.0
72.5°	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.0
75°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
77.5°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
80°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
82.5°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
85°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
87.5°	2.4	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2
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°	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1
2.5°	169.8	164.2	160.1	158.5	155.3	156.1	153.7	152.1	147.3	147.3	144.1
5°	156.9	149.7	144.9	142.4	139.2	138.4	136.0	133.6	128.8	128.0	125.5
7.5°	143.2	136.0	130.4	128.0	124.7	123.9	120.7	119.1	115.1	114.3	111.9
10°	128.8	120.7	115.9	113.5	110.3	110.3	107.8	106.2	103.0	103.0	101.4
12.5°	113.5	106.2	103.0	99.8	98.2	98.2	96.6	95.0	92.5	93.4	92.5
15°	97.4	91.7	88.5	86.9	86.1	86.1	85.3	84.5	82.9	84.5	82.9
17.5°	82.1	78.1	75.6	74.8	74.0	74.0	74.0	74.8	74.0	75.6	75.6
20°	67.6	64.4	62.8	62.8	62.0	63.6	63.6	65.2	65.2	67.6	68.4
22.5°	55.5	53.1	52.3	52.3	52.3	53.9	54.7	56.3	57.1	59.6	61.2
25°	44.3	43.5	43.5	43.5	44.3	45.9	47.5	49.1	49.9	53.1	53.9
27.5°	36.2	35.4	36.2	36.2	37.0	39.4	41.0	42.7	44.3	46.7	48.3
30°	29.0	29.0	29.8	30.6	31.4	33.0	35.4	37.0	38.6	41.0	42.7
32.5°	23.3	24.1	24.9	25.8	25.8	28.2	29.8	32.2	33.0	35.4	37.0
35°	19.3	20.1	20.9	21.7	21.7	24.1	25.8	27.4	29.0	30.6	32.2
37.5°	15.3	16.1	17.7	18.5	18.5	20.9	21.7	23.3	24.9	26.6	28.2
40°	12.9	13.7	15.3	15.3	16.1	17.7	18.5	20.1	21.7	23.3	24.9
42.5°	10.5	11.3	12.9	13.7	13.7	15.3	16.1	17.7	18.5	20.1	20.9
45°	9.7	9.7	11.3	11.3	12.1	12.9	14.5	15.3	16.1	17.7	18.5
47.5°	8.0	8.9	9.7	10.5	10.5	11.3	12.1	12.9	13.7	15.3	16.1
50°	6.4	7.2	8.9	8.9	8.9	10.5	11.3	12.1	12.1	12.9	13.7
52.5°	6.4	6.4	7.2	8.0	8.0	8.9	9.7	10.5	10.5	11.3	12.1
55°	5.6	5.6	6.4	7.2	7.2	8.0	8.9	8.9	9.7	9.7	10.5
57.5°	4.8	5.6	6.4	6.4	6.4	7.2	8.0	8.0	8.9	8.9	9.7
60°	4.8	5.6	5.6	6.4	6.4	7.2	7.2	7.2	8.0	8.0	8.0
62.5°	4.8	4.8	5.6	5.6	5.6	6.4	6.4	7.2	7.2	7.2	7.2
65°	4.8	4.8	5.6	5.6	5.6	6.4	6.4	6.4	6.4	6.4	6.4
67.5°	4.0	4.8	4.8	4.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6
70°	4.0	4.0	4.8	4.8	4.8	5.6	5.6	5.6	5.6	5.6	5.6
72.5°	4.0	4.0	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
75°	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.8	4.8	4.0	4.0
77.5°	3.2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.2
80°	3.2	3.2	4.0	3.2	4.0	4.0	4.0	4.0	3.2	3.2	3.2
82.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4
85°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4	1.6
87.5°	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4	1.6	1.6
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: P182707

CATALOG NUMBER: LDSQA4A18930D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	181.1	181.1	181.1	181.1	181.1	181.1	181.1	181.1
2.5°	142.4	144.1	142.4	144.1	140.0	141.6	143.2	139.2
5°	123.9	122.3	123.1	124.7	121.5	122.3	123.1	119.9
7.5°	111.1	111.9	110.3	111.9	109.4	110.3	111.1	108.6
10°	100.6	101.4	100.6	101.4	99.0	100.6	101.4	99.0
12.5°	90.9	92.5	91.7	93.4	90.9	92.5	94.2	90.9
15°	83.7	85.3	84.5	86.1	84.5	86.1	87.7	85.3
17.5°	76.5	78.1	78.1	79.7	78.9	80.5	82.1	79.7
20°	69.2	71.6	71.6	73.2	73.2	74.0	76.5	74.0
22.5°	62.8	65.2	65.2	66.8	66.8	68.4	70.0	68.4
25°	55.5	58.7	59.6	61.2	61.2	62.8	65.2	63.6
27.5°	50.7	53.1	53.9	55.5	56.3	57.9	59.6	57.9
30°	44.3	47.5	48.3	49.9	50.7	53.1	53.9	53.1
32.5°	39.4	41.8	42.7	44.3	45.9	47.5	49.1	48.3
35°	34.6	37.0	37.8	39.4	40.2	42.7	44.3	43.5
37.5°	30.6	33.0	33.8	34.6	35.4	37.8	39.4	38.6
40°	26.6	28.2	29.0	30.6	31.4	33.0	34.6	34.6
42.5°	23.3	24.9	25.8	26.6	27.4	29.0	30.6	29.8
45°	20.1	21.7	22.5	23.3	24.1	24.9	26.6	25.8
47.5°	16.9	18.5	19.3	20.1	20.9	21.7	23.3	22.5
50°	14.5	16.1	16.1	16.9	17.7	18.5	20.1	19.3
52.5°	12.9	13.7	14.5	14.5	15.3	16.1	17.7	16.9
55°	11.3	12.1	12.1	12.9	12.9	13.7	14.5	14.5
57.5°	9.7	10.5	10.5	11.3	11.3	12.1	12.9	12.9
60°	8.9	8.9	9.7	9.7	9.7	10.5	10.5	10.5
62.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
65°	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
67.5°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.8
70°	4.8	4.8	4.8	4.8	4.8	4.0	4.0	4.0
72.5°	4.8	4.8	4.0	4.0	4.0	4.0	4.0	3.2
75°	4.0	4.0	4.0	4.0	3.2	3.2	3.2	3.2
77.5°	3.2	3.2	3.2	3.2	2.4	2.4	2.4	2.4
80°	3.2	2.4	2.4	2.4	2.4	2.4	2.4	1.6
82.5°	2.4	2.4	2.4	1.6	1.6	1.6	1.6	1.6
85°	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
87.5°	1.6	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)