

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: P182720

Luminaire Tested: **LDSQA4A13835D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182720
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: LDSQA4A13835D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1721.8 lumens
Efficiency: N/A
Efficacy: 77.3 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

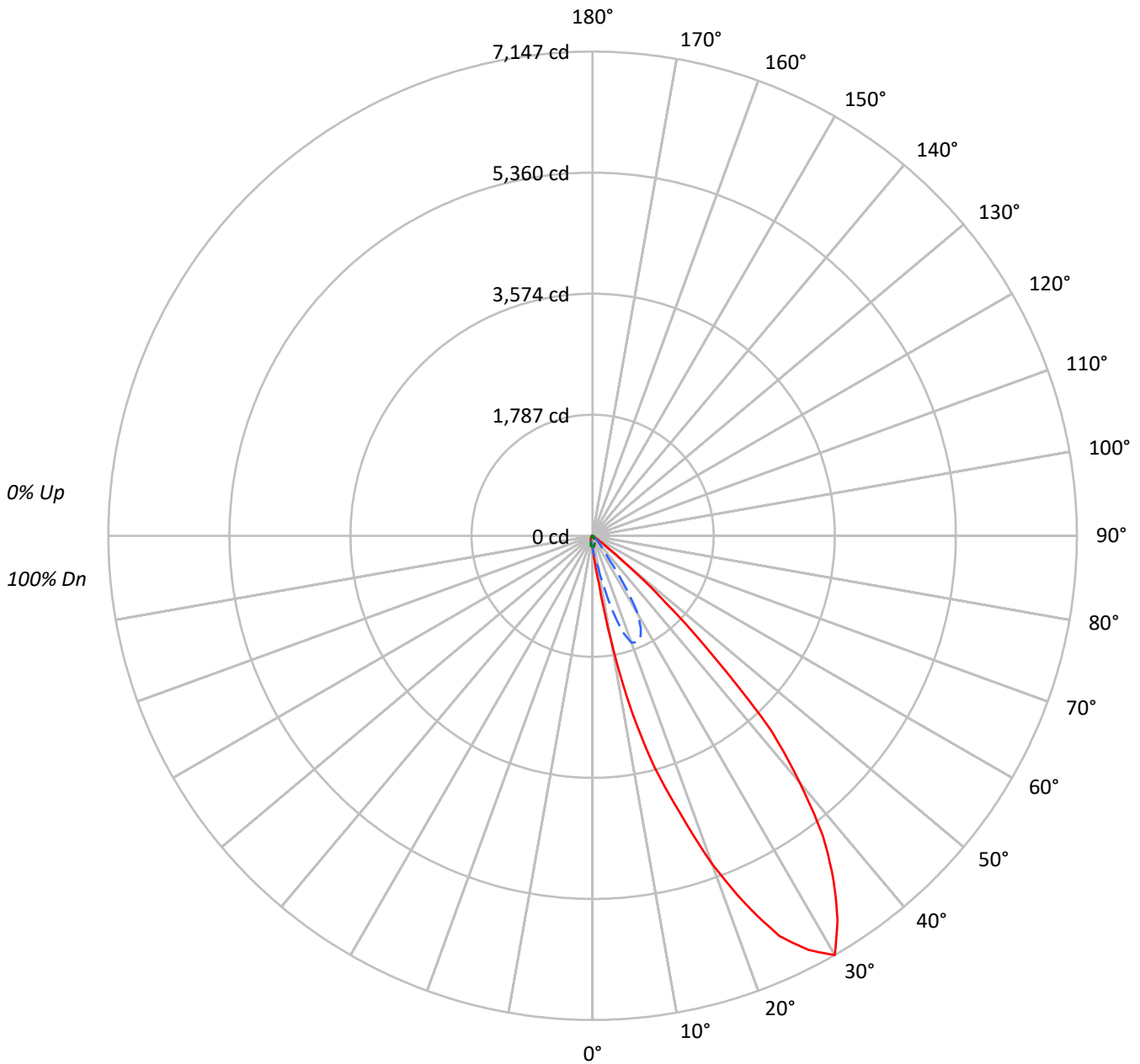
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	17418	17418	17418
5°	38548	16473	11582
10°	154323	14313	9670
15°	355719	11383	8495
20°	530999	8072	7577
25°	696465	5377	6745
30°	799490	3401	5895
35°	733042	2176	5109
40°	601137	1416	4350
45°	348507	986	3507
50°	98761	723	2894
55°	9036	676	2432
60°	1395	775	2015
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°	25.5	1.5
10°-20°	229.0	13.3
20°-30°	557.8	32.4
30°-40°	604.6	35.1
40°-50°	274.0	15.9
50°-60°	21.2	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°	812.4	47.2
0°-40°	1417.0	82.3
0°-60°	1712.1	99.4
0°-90°	1721.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1721.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	180	180	180	180	180	
5°	396	292	169	128	119	71
15°	3547	1160	114	82	85	1031
25°	6516	1666	50	50	63	2970
35°	6198	424	18	29	43	3813
45°	2544	54	7	16	26	2008
55°	54	7	4	10	14	122
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°	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8
2.5°	269.3	264.5	266.9	260.5	256.5	253.3	254.9	253.3	243.0	240.6	232.6
5°	396.4	389.2	389.2	375.6	361.2	352.4	352.4	342.0	319.7	309.3	292.5
7.5°	710.5	696.1	684.1	641.7	586.6	555.4	547.4	503.5	446.7	410.8	368.4
10°	1568.8	1508.9	1466.5	1356.2	1208.4	1116.5	1077.3	925.5	744.8	609.0	485.9
12.5°	2638.1	2556.6	2482.3	2301.6	2089.1	1944.4	1866.9	1643.1	1292.3	1041.3	779.2
15°	3546.8	3458.9	3370.9	3151.2	2926.6	2801.1	2658.9	2362.4	1898.9	1542.4	1160.4
17.5°	4292.4	4242.9	4152.5	3830.5	3547.6	3351.8	3203.9	2816.3	2339.2	1932.4	1500.1
20°	5150.7	5028.4	4867.0	4476.2	4089.4	3844.1	3636.3	3164.0	2612.5	2145.0	1679.9
22.5°	5873.2	5786.1	5554.3	5038.8	4469.8	4260.4	4006.3	3438.1	2788.3	2235.3	1700.7
25°	6515.7	6379.1	6088.2	5475.2	4892.6	4536.2	4224.5	3586.7	2853.1	2241.7	1666.3
27.5°	6892.1	6713.9	6371.9	5703.8	5038.8	4644.8	4299.6	3612.3	2812.3	2157.0	1540.8
30°	7147.1	6792.2	6414.2	5706.2	4992.5	4589.7	4231.7	3483.6	2642.9	1963.6	1329.8
32.5°	6726.7	6521.3	6160.1	5479.2	4739.9	4346.7	3991.1	3204.7	2378.4	1676.7	925.5
35°	6198.4	6032.2	5718.1	5042.0	4361.1	3990.3	3613.1	2846.7	2033.9	1152.4	423.6
37.5°	5584.7	5454.4	5116.4	4498.6	3899.2	3536.4	3158.4	2426.3	1432.1	571.4	257.3
40°	4753.5	4643.2	4365.9	3869.6	3317.4	2972.2	2623.7	1814.9	777.6	318.9	167.8
42.5°	3907.2	3814.5	3561.9	3132.8	2647.7	2363.2	2056.3	1106.1	386.8	200.6	93.5
45°	2543.8	2427.9	2292.1	2095.5	1855.7	1680.7	1318.6	533.9	229.4	111.9	53.5
47.5°	1458.5	1381.8	1158.8	914.3	742.4	677.7	493.1	248.5	126.3	64.7	32.8
50°	655.3	605.8	508.3	414.0	299.7	234.2	199.0	124.7	62.3	35.2	22.4
52.5°	161.4	164.6	155.8	136.7	121.5	103.1	89.5	58.3	32.8	21.6	14.4
55°	53.5	54.3	49.5	47.2	43.2	40.0	36.8	26.4	20.0	19.2	7.2
57.5°	19.2	19.2	20.0	18.4	17.6	16.8	16.0	13.6	12.0	7.2	4.0
60°	7.2	7.2	7.2	8.0	8.0	8.0	8.8	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°	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8
2.5°	224.6	219.8	210.2	203.0	197.4	196.6	191.8	183.8	180.6	175.0	170.2
5°	276.5	264.5	249.3	235.0	224.6	219.0	202.2	187.0	178.2	169.4	161.4
7.5°	332.5	305.3	278.9	255.7	241.4	232.6	212.6	187.8	171.8	159.0	148.6
10°	402.8	346.8	301.3	265.3	246.1	234.2	210.2	180.6	160.6	145.5	135.1
12.5°	563.4	410.8	322.1	270.1	246.1	229.4	200.6	171.0	148.6	130.3	119.1
15°	838.3	573.8	382.0	272.5	238.2	219.0	186.2	155.0	132.7	113.5	103.1
17.5°	1097.3	755.2	477.1	289.3	233.4	203.8	167.0	136.7	113.5	95.1	86.3
20°	1231.5	845.5	529.9	302.1	225.4	184.6	144.7	116.7	94.3	78.3	71.1
22.5°	1234.7	837.5	504.3	272.5	195.8	158.2	123.9	95.9	76.7	63.1	57.5
25°	1158.8	740.8	414.8	212.6	158.2	132.7	103.1	78.3	59.9	50.3	46.4
27.5°	1015.8	599.4	306.1	153.4	123.9	105.5	80.7	59.9	45.6	39.2	36.8
30°	785.6	370.8	169.4	113.5	93.5	79.1	58.3	40.0	34.4	30.4	28.8
32.5°	390.0	181.4	119.9	80.7	63.9	50.3	36.8	29.6	26.4	24.0	23.2
35°	211.8	130.3	75.1	48.8	38.4	32.0	24.8	20.8	19.2	18.4	18.4
37.5°	147.8	77.5	45.6	29.6	24.0	21.6	17.6	15.2	14.4	14.4	14.4
40°	81.5	46.4	28.0	19.2	16.0	14.4	12.0	11.2	11.2	11.2	12.0
42.5°	47.2	28.8	19.2	13.6	11.2	10.4	8.8	8.0	8.8	8.8	9.6
45°	30.4	21.6	12.8	9.6	8.0	7.2	6.4	6.4	7.2	7.2	8.0
47.5°	21.6	15.2	8.8	6.4	4.8	4.8	4.8	4.8	5.6	6.4	7.2
50°	12.8	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°	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8
2.5°	168.6	163.0	159.0	157.4	154.2	155.0	152.6	151.0	146.3	146.3	143.1
5°	155.8	148.6	143.9	141.5	138.3	137.5	135.1	132.7	127.9	127.1	124.7
7.5°	142.3	135.1	129.5	127.1	123.9	123.1	119.9	118.3	114.3	113.5	111.1
10°	127.9	119.9	115.1	112.7	109.5	109.5	107.1	105.5	102.3	102.3	100.7
12.5°	112.7	105.5	102.3	99.1	97.5	97.5	95.9	94.3	91.9	92.7	91.9
15°	96.7	91.1	87.9	86.3	85.5	85.5	84.7	83.9	82.3	83.9	82.3
17.5°	81.5	77.5	75.1	74.3	73.5	73.5	73.5	74.3	73.5	75.1	75.1
20°	67.1	63.9	62.3	62.3	61.5	63.1	63.1	64.7	64.7	67.1	67.9
22.5°	55.1	52.7	51.9	51.9	51.9	53.5	54.3	55.9	56.7	59.1	60.7
25°	44.0	43.2	43.2	43.2	44.0	45.6	47.2	48.8	49.5	52.7	53.5
27.5°	36.0	35.2	36.0	36.0	36.8	39.2	40.8	42.4	44.0	46.4	48.0
30°	28.8	28.8	29.6	30.4	31.2	32.8	35.2	36.8	38.4	40.8	42.4
32.5°	23.2	24.0	24.8	25.6	25.6	28.0	29.6	32.0	32.8	35.2	36.8
35°	19.2	20.0	20.8	21.6	21.6	24.0	25.6	27.2	28.8	30.4	32.0
37.5°	15.2	16.0	17.6	18.4	18.4	20.8	21.6	23.2	24.8	26.4	28.0
40°	12.8	13.6	15.2	15.2	16.0	17.6	18.4	20.0	21.6	23.2	24.8
42.5°	10.4	11.2	12.8	13.6	13.6	15.2	16.0	17.6	18.4	20.0	20.8
45°	9.6	9.6	11.2	11.2	12.0	12.8	14.4	15.2	16.0	17.6	18.4
47.5°	8.0	8.8	9.6	10.4	10.4	11.2	12.0	12.8	13.6	15.2	16.0
50°	6.4	7.2	8.8	8.8	8.8	10.4	11.2	12.0	12.0	12.8	13.6
52.5°	6.4	6.4	7.2	8.0	8.0	8.8	9.6	10.4	10.4	11.2	12.0
55°	5.6	5.6	6.4	7.2	7.2	8.0	8.8	8.8	9.6	9.6	10.4
57.5°	4.8	5.6	6.4	6.4	6.4	7.2	8.0	8.0	8.8	8.8	9.6
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: P182720

CATALOG NUMBER: LDSQA4A13835D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	179.8	179.8	179.8	179.8	179.8	179.8	179.8	179.8
2.5°	141.5	143.1	141.5	143.1	139.1	140.7	142.3	138.3
5°	123.1	121.5	122.3	123.9	120.7	121.5	122.3	119.1
7.5°	110.3	111.1	109.5	111.1	108.7	109.5	110.3	107.9
10°	99.9	100.7	99.9	100.7	98.3	99.9	100.7	98.3
12.5°	90.3	91.9	91.1	92.7	90.3	91.9	93.5	90.3
15°	83.1	84.7	83.9	85.5	83.9	85.5	87.1	84.7
17.5°	75.9	77.5	77.5	79.1	78.3	79.9	81.5	79.1
20°	68.7	71.1	71.1	72.7	72.7	73.5	75.9	73.5
22.5°	62.3	64.7	64.7	66.3	66.3	67.9	69.5	67.9
25°	55.1	58.3	59.1	60.7	60.7	62.3	64.7	63.1
27.5°	50.3	52.7	53.5	55.1	55.9	57.5	59.1	57.5
30°	44.0	47.2	48.0	49.5	50.3	52.7	53.5	52.7
32.5°	39.2	41.6	42.4	44.0	45.6	47.2	48.8	48.0
35°	34.4	36.8	37.6	39.2	40.0	42.4	44.0	43.2
37.5°	30.4	32.8	33.6	34.4	35.2	37.6	39.2	38.4
40°	26.4	28.0	28.8	30.4	31.2	32.8	34.4	34.4
42.5°	23.2	24.8	25.6	26.4	27.2	28.8	30.4	29.6
45°	20.0	21.6	22.4	23.2	24.0	24.8	26.4	25.6
47.5°	16.8	18.4	19.2	20.0	20.8	21.6	23.2	22.4
50°	14.4	16.0	16.0	16.8	17.6	18.4	20.0	19.2
52.5°	12.8	13.6	14.4	14.4	15.2	16.0	17.6	16.8
55°	11.2	12.0	12.0	12.8	12.8	13.6	14.4	14.4
57.5°	9.6	10.4	10.4	11.2	11.2	12.0	12.8	12.8
60°	8.8	8.8	9.6	9.6	9.6	10.4	10.4	10.4
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)