

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: P182807

Luminaire Tested: **LDSQA4A09830D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P182807  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26803)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQA4A09830D010TE LAR25NF 4LSQAL1H 30°  
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1060.6 lumens  
Efficiency: N/A  
Efficacy: 76.6 lumens/watt  
Spacing Criteria (0/90/45): 2.36 / 0.61 / 1.19  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

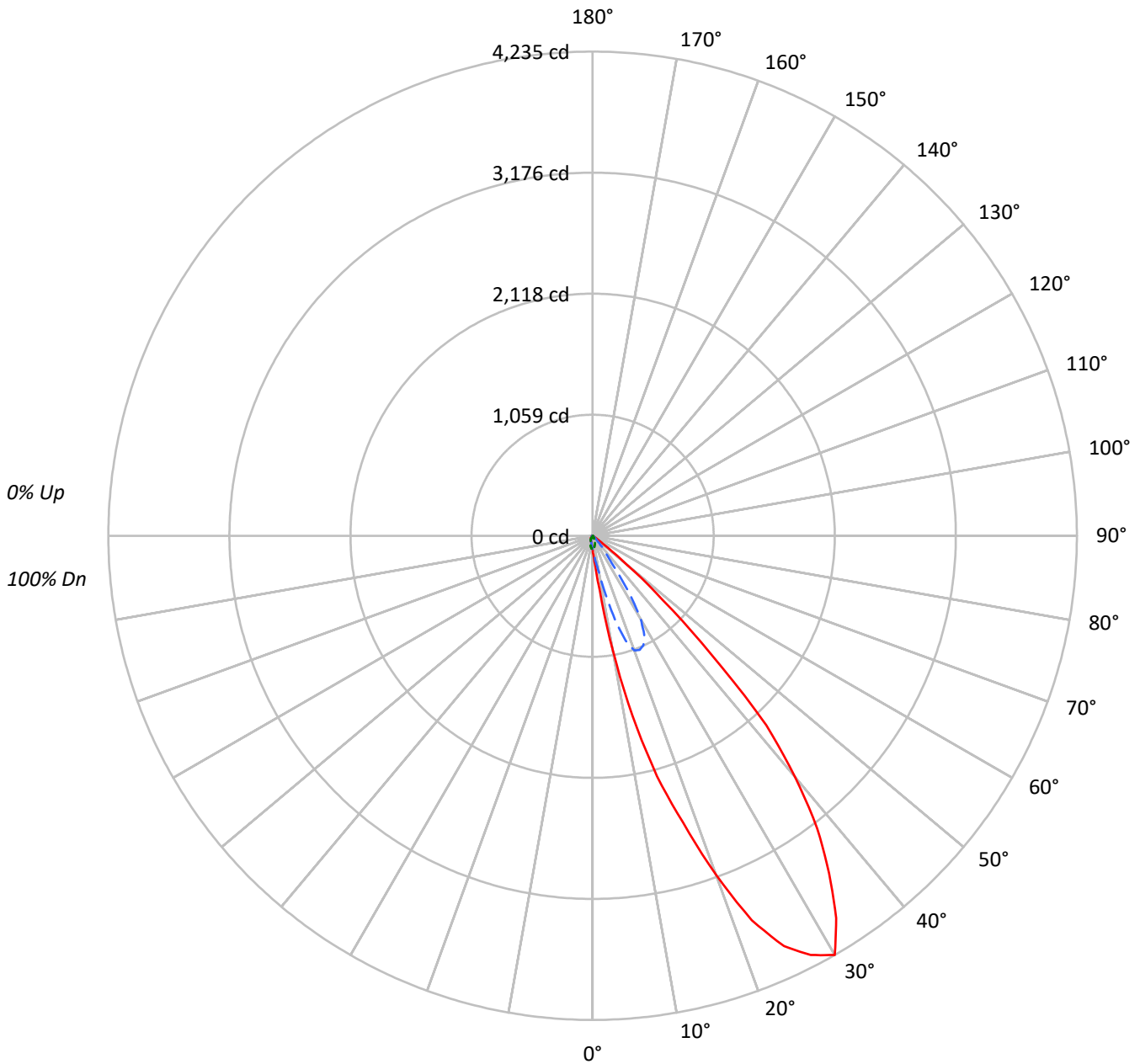
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	83	76	72	80	75	71	78	74	70	76	72	69	67																			
5	87	77	70	65	85	76	69	64	74	68	64	72	67	63	70	66	63	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	57	55																			
7	76	65	57	52	74	64	57	52	62	56	52	61	56	52	60	55	51	50																			
8	71	59	52	47	69	59	52	47	58	51	47	57	51	47	55	50	47	45																			
9	66	55	48	43	65	54	48	43	53	47	43	52	47	43	51	46	42	41																			
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	37																			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	11451	11451	11451
5°	25634	10775	7712
10°	100524	9434	6079
15°	218227	7632	5285
20°	325546	5649	4773
25°	423435	3987	4158
30°	473691	2685	3636
35°	426291	1573	3087
40°	347897	1075	2694
45°	199750	726	2192
50°	58431	558	1839
55°	6739	456	1537
60°	1453	523	1240
65°	481	481	848
70°	453	595	595
75°	412	786	599
80°	0	1172	614
85°	0	2334	556



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	16.9	1.6
10°-20°	145.2	13.7
20°-30°	346.4	32.7
30°-40°	365.5	34.5
40°-50°	165.8	15.6
50°-60°	14.5	1.4
60°-70°	3.0	0.3
70°-80°	2.0	0.2
80°-90°	1.2	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°	508.5	47.9
0°-40°	874.0	82.4
0°-60°	1054.3	99.4
0°-90°	1060.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1060.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	118	118	118	118	118	
5°	264	193	111	85	79	47
15°	2176	765	76	52	53	633
25°	3961	1053	37	32	39	1800
35°	3605	291	13	18	26	2226
45°	1458	41	5	10	16	1156
55°	40	6	3	6	9	80
65°	2	2	2	4	4	3
75°	1	1	2	3	2	1
85°	0	1	2	2	0	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°	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2
2.5°	175.7	176.8	172.0	172.5	167.7	169.9	168.3	164.0	160.8	155.5	153.4
5°	263.6	265.2	254.5	251.3	240.2	240.2	235.4	224.2	214.1	201.8	193.3
7.5°	481.9	488.3	456.4	432.4	397.3	388.7	372.2	333.9	302.5	270.5	246.6
10°	1021.9	1010.2	944.1	889.8	799.3	765.8	721.0	610.8	509.6	409.0	330.2
12.5°	1611.4	1649.2	1521.9	1477.7	1334.5	1304.1	1208.8	1028.8	857.9	680.0	522.4
15°	2175.9	2187.0	2075.7	2003.9	1829.2	1789.8	1672.6	1461.2	1231.2	983.0	765.2
17.5°	2629.0	2673.8	2510.3	2433.1	2206.2	2142.8	2004.9	1747.7	1491.6	1220.5	962.3
20°	3157.8	3169.5	2975.7	2827.1	2530.5	2434.1	2269.0	1950.1	1644.9	1335.5	1068.8
22.5°	3638.7	3636.0	3386.8	3177.0	2801.6	2686.5	2482.6	2104.5	1749.8	1386.7	1078.9
25°	3961.4	3969.9	3703.1	3455.0	2994.3	2838.8	2608.8	2184.9	1785.5	1385.1	1053.3
27.5°	4133.4	4124.9	3838.9	3573.7	3065.2	2891.0	2641.3	2187.6	1753.0	1330.8	976.6
30°	4234.6	4120.6	3815.5	3540.2	3017.2	2838.3	2584.3	2103.4	1644.9	1209.3	839.8
32.5°	3964.0	3919.8	3654.1	3361.8	2852.1	2674.8	2424.0	1924.5	1473.5	1023.5	601.7
35°	3604.6	3606.2	3346.9	3073.7	2593.3	2438.9	2180.1	1706.7	1264.2	711.4	290.8
37.5°	3227.6	3232.9	2986.3	2732.3	2304.7	2142.3	1900.0	1458.6	909.5	362.1	175.2
40°	2751.0	2762.2	2549.7	2345.7	1951.1	1794.6	1578.4	1103.9	508.6	202.4	118.8
42.5°	2247.7	2261.6	2073.1	1892.0	1556.5	1427.7	1236.0	683.7	252.4	131.0	69.8
45°	1458.0	1498.0	1357.9	1281.8	1087.4	1010.7	806.8	348.8	152.3	76.7	41.0
47.5°	834.4	835.0	716.8	574.1	470.7	409.5	320.0	158.7	88.9	43.1	25.0
50°	387.7	397.3	314.7	262.0	187.4	158.7	130.5	85.7	46.9	25.0	15.4
52.5°	112.9	119.3	108.1	98.0	83.1	74.0	63.4	42.1	24.5	14.9	9.6
55°	39.9	42.6	39.9	37.3	33.5	30.4	27.2	20.2	13.8	9.1	6.4
57.5°	16.5	17.0	16.5	16.0	14.9	14.9	13.3	11.2	8.5	5.9	4.3
60°	7.5	8.0	7.5	8.0	7.5	7.5	7.5	8.0	5.3	3.7	3.2
62.5°	3.2	3.7	3.7	3.7	3.7	4.3	4.3	3.7	3.2	2.7	2.1
65°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.1	1.6	1.6	1.6
72.5°	1.6	1.6	1.6	1.6	1.1	1.1	1.1	1.1	1.1	1.6	1.6
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1	1.1
80°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.1	1.1
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°	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2
2.5°	150.7	145.9	138.5	133.7	131.5	128.3	126.2	120.9	118.8	114.5	112.9
5°	185.3	175.7	164.5	155.5	149.6	143.2	133.7	123.0	117.7	110.8	107.0
7.5°	224.7	204.0	184.2	168.3	160.8	152.3	140.1	123.5	113.4	104.4	99.0
10°	274.8	232.2	201.3	175.7	164.5	153.4	138.5	119.3	106.5	95.9	90.0
12.5°	391.9	280.1	216.7	180.0	165.6	151.8	133.1	113.4	98.5	86.3	79.9
15°	563.9	391.4	258.3	183.7	161.9	144.8	123.5	103.8	88.4	76.1	69.8
17.5°	716.2	499.0	315.8	197.6	160.8	136.9	111.8	91.6	76.7	65.0	59.6
20°	799.3	555.4	354.1	206.1	156.0	124.6	98.5	79.3	65.0	54.8	50.1
22.5°	800.9	552.2	340.3	187.4	137.4	108.1	85.2	67.1	54.3	45.3	41.5
25°	753.0	492.6	283.8	147.5	112.4	91.6	71.4	55.9	44.2	37.3	34.1
27.5°	663.5	400.5	208.7	106.5	87.9	74.0	57.5	44.7	34.6	30.4	27.7
30°	521.9	260.9	121.9	79.3	68.2	57.0	43.7	31.4	27.2	24.0	21.8
32.5°	280.1	126.7	85.2	58.6	48.5	39.9	28.8	22.9	19.7	17.6	17.0
35°	146.4	92.7	57.0	37.3	30.9	26.1	19.7	16.0	14.4	13.3	13.3
37.5°	104.9	58.0	36.2	24.0	20.2	16.5	13.8	11.7	10.7	10.7	10.7
40°	62.3	35.7	21.8	15.4	13.3	11.7	10.1	8.5	8.5	8.5	8.5
42.5°	37.8	22.4	15.4	10.7	9.6	8.5	7.5	6.9	6.4	6.4	6.9
45°	23.4	15.4	10.1	8.0	7.5	6.4	5.9	5.3	5.3	5.3	5.9
47.5°	14.9	11.2	7.5	5.3	4.8	4.3	3.7	3.7	4.3	4.3	4.8
50°	11.2	6.9	4.8	3.7	3.2	3.2	2.7	3.2	3.2	3.7	4.3
52.5°	6.4	4.3	3.2	2.7	2.7	2.1	2.1	2.7	2.7	3.2	3.7
55°	4.3	3.2	2.7	2.1	2.1	2.1	2.1	2.1	2.7	2.7	3.2
57.5°	3.2	2.7	2.1	2.1	2.1	1.6	2.1	2.1	2.1	2.7	3.2
60°	2.7	2.1	2.1	2.1	2.1	1.6	1.6	2.1	2.1	2.7	2.7
62.5°	2.1	2.1	2.1	2.1	2.1	1.6	2.1	2.1	2.1	2.1	2.7
65°	1.6	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.7
67.5°	1.6	1.6	2.1	2.1	2.1	1.6	2.1	2.1	2.1	2.1	2.7
70°	1.6	1.6	1.6	2.1	2.1	1.6	2.1	2.1	2.1	2.1	2.1
72.5°	1.6	1.6	1.6	2.1	2.1	1.6	2.1	2.1	2.1	2.1	2.1
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.1
77.5°	1.6	1.6	1.6	1.6	2.1	1.6	2.1	2.1	2.1	2.1	2.1
80°	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.1
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.1
85°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.1
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.1
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°	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2
2.5°	108.6	107.0	103.8	103.3	102.8	100.6	99.0	97.5	97.5	95.9	94.8
5°	100.6	98.0	94.3	92.7	92.1	89.5	87.3	85.7	85.2	83.6	82.0
7.5°	92.1	88.9	84.7	83.1	82.5	79.9	77.7	76.1	75.1	73.5	72.4
10°	83.1	79.3	75.6	74.0	73.5	70.8	69.2	67.6	66.6	65.5	64.4
12.5°	73.5	70.3	66.6	65.0	64.4	62.3	60.7	59.6	59.1	58.0	57.5
15°	63.9	60.7	57.5	56.4	55.9	54.3	53.3	52.7	52.2	52.2	51.7
17.5°	54.3	51.7	49.0	48.5	47.9	46.9	46.3	45.8	46.3	46.3	46.9
20°	45.3	43.1	41.0	41.0	40.5	39.9	39.9	39.9	41.0	41.5	42.6
22.5°	37.3	35.7	34.1	34.1	34.1	34.1	34.1	35.1	36.2	37.3	37.8
25°	30.9	29.3	28.8	28.8	28.8	29.3	29.8	30.9	32.0	33.0	34.1
27.5°	25.0	24.0	24.0	24.0	24.5	25.0	25.6	26.6	28.2	29.3	30.4
30°	20.2	19.7	19.7	20.2	20.8	21.3	22.4	23.4	24.5	25.6	26.6
32.5°	16.0	16.5	16.5	17.0	17.6	18.1	19.2	20.2	21.3	22.4	22.9
35°	13.3	13.3	13.8	14.4	14.9	15.4	16.5	17.6	18.1	19.2	20.2
37.5°	10.7	11.2	11.7	12.2	12.8	13.3	13.8	14.9	15.4	16.5	17.6
40°	9.1	9.6	10.1	10.7	10.7	11.7	11.7	12.8	13.3	14.4	15.4
42.5°	7.5	8.0	8.5	9.1	9.1	9.6	10.1	10.7	11.7	12.2	13.3
45°	5.9	6.4	6.9	7.5	8.0	8.5	8.5	9.6	10.1	10.7	11.7
47.5°	5.3	5.9	6.4	6.4	6.9	7.5	7.5	8.5	9.1	9.6	10.1
50°	4.3	4.8	5.3	5.9	5.9	6.4	6.9	7.5	8.0	8.5	8.5
52.5°	3.7	4.3	4.8	4.8	5.3	5.9	5.9	6.4	6.9	6.9	7.5
55°	3.7	4.3	4.3	4.8	4.8	5.3	5.3	5.9	5.9	6.4	6.4
57.5°	3.2	3.7	3.7	4.3	4.3	4.8	4.8	5.3	5.3	5.3	5.9
60°	3.2	3.2	3.7	3.7	4.3	4.3	4.3	4.8	4.8	4.8	5.3
62.5°	2.7	3.2	3.2	3.7	3.7	3.7	4.3	4.3	4.3	4.8	4.8
65°	2.7	3.2	3.2	3.7	3.7	3.7	3.7	3.7	4.3	4.3	4.3
67.5°	2.7	2.7	3.2	3.2	3.2	3.2	3.7	3.7	3.7	3.7	3.7
70°	2.7	2.7	2.7	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
72.5°	2.1	2.7	2.7	2.7	2.7	3.2	3.2	3.2	3.2	3.2	2.7
75°	2.1	2.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	2.1	2.1	2.1	2.7	2.7	2.7	2.7	2.7	2.7	2.1	2.1
80°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.6
82.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.6	1.6	1.6
85°	2.1	1.6	2.1	2.1	2.1	1.6	1.6	1.6	1.6	1.6	1.1
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.1
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: P182807

CATALOG NUMBER: LDSQA4A09830D010TE LAR25NF 4LSQAL1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	118.2	118.2	118.2	118.2	118.2	118.2	118.2	118.2
2.5°	93.7	92.7	93.2	93.2	92.1	91.6	91.6	92.1
5°	80.9	79.9	80.4	80.4	79.3	78.8	78.8	79.3
7.5°	71.4	70.3	70.8	70.8	69.8	69.8	69.8	69.8
10°	63.9	63.4	63.4	63.4	62.3	62.8	62.3	61.8
12.5°	57.0	57.0	57.0	57.0	56.4	57.0	56.4	56.4
15°	51.7	51.7	52.2	52.2	52.2	52.7	52.7	52.7
17.5°	47.4	47.9	48.5	49.0	49.0	49.5	49.5	49.5
20°	43.1	44.2	44.7	45.3	45.3	46.3	45.8	46.3
22.5°	38.9	39.9	40.5	41.0	41.5	42.1	42.1	42.6
25°	35.1	36.2	36.7	37.3	37.8	38.9	38.9	38.9
27.5°	31.4	32.5	33.0	34.1	34.6	35.7	35.7	35.7
30°	27.7	28.8	29.3	29.8	30.9	32.0	32.0	32.5
32.5°	24.0	25.6	26.1	26.6	27.7	28.8	29.3	29.3
35°	21.3	22.4	22.9	24.0	24.5	26.1	26.1	26.1
37.5°	18.6	19.7	20.8	21.3	21.8	22.9	23.4	24.0
40°	16.5	17.6	18.1	18.6	19.7	20.8	21.3	21.3
42.5°	14.4	15.4	16.0	16.5	17.0	18.1	18.1	18.1
45°	12.8	13.3	13.8	14.4	14.9	15.4	16.0	16.0
47.5°	10.7	11.7	11.7	12.2	12.8	13.8	13.8	14.4
50°	9.1	10.1	10.1	10.7	11.2	11.7	12.2	12.2
52.5°	8.0	8.5	9.1	9.1	9.6	10.1	10.7	10.7
55°	6.9	7.5	7.5	8.0	8.0	8.5	9.1	9.1
57.5°	5.9	6.4	6.9	6.9	6.9	7.5	7.5	8.0
60°	5.3	5.9	5.9	5.9	5.9	6.4	6.4	6.4
62.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
65°	4.3	4.3	4.3	4.3	3.7	3.7	3.7	3.7
67.5°	3.7	3.7	3.7	3.7	3.2	3.2	3.2	3.2
70°	3.2	3.2	3.2	3.2	2.7	2.7	2.7	2.1
72.5°	2.7	2.7	2.7	2.7	2.7	2.1	2.1	2.1
75°	2.7	2.1	2.1	2.1	2.1	2.1	1.6	1.6
77.5°	2.1	2.1	2.1	1.6	1.6	1.6	1.6	1.6
80°	1.6	1.6	1.6	1.6	1.6	1.1	1.1	1.1
82.5°	1.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1
85°	1.1	1.1	1.1	1.1	0.5	0.5	0.5	0.5
87.5°	1.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)