

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: P182810

Luminaire Tested: **LDSQA4A09927D010TE LAR25NF 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182810
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: LDSQA4A09927D010TE LAR25NF 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, 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: 834.1 lumens
Efficiency: N/A
Efficacy: 60.3 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

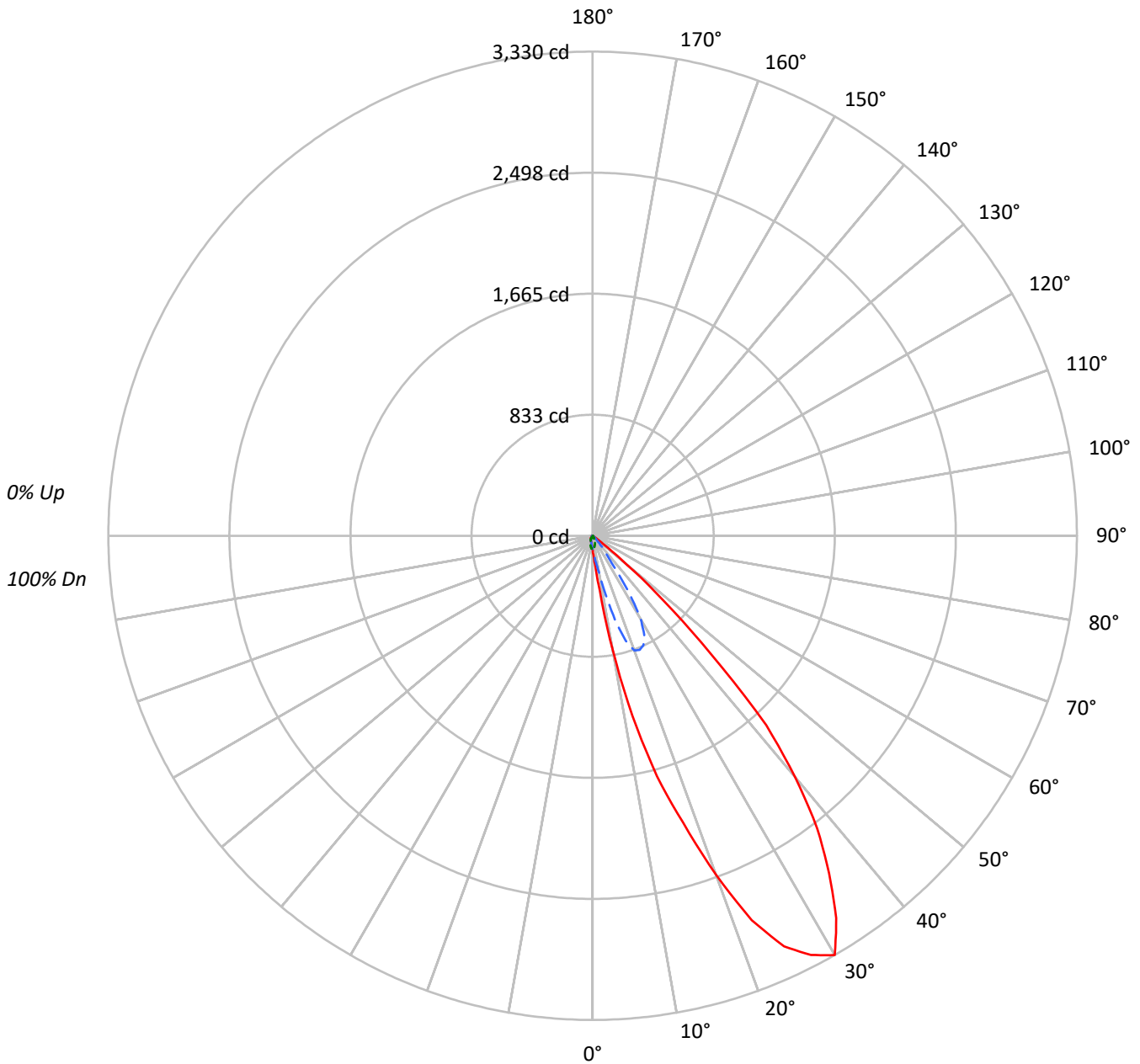
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182810

CATALOG NUMBER: LDSQA4A09927D010TE LAR25NF 4LSQAL1H 30°

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°	9009	9009	9009
5°	20159	8470	6068
10°	79050	7417	4781
15°	171611	6008	4162
20°	256010	4443	3753
25°	332984	3132	3271
30°	372512	2103	2852
35°	335240	1242	2424
40°	273588	847	2125
45°	157087	575	1726
50°	45952	437	1447
55°	5303	355	1199
60°	1143	407	969
65°	390	390	665
70°	368	482	482
75°	299	636	487
80°	0	948	446
85°	0	1890	445



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CATALOG NUMBER: LDSQA4A09927D010TE LAR25NF 4LSQAL1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.3	1.6
10°-20°	114.2	13.7
20°-30°	272.4	32.7
30°-40°	287.5	34.5
40°-50°	130.4	15.6
50°-60°	11.4	1.4
60°-70°	2.4	0.3
70°-80°	1.6	0.2
80°-90°	1.0	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°	399.9	47.9
0°-40°	687.3	82.4
0°-60°	829.1	99.4
0°-90°	834.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	834.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	93	93	93	93	93	
5°	207	152	87	67	62	37
15°	1711	602	60	41	42	498
25°	3115	828	29	25	31	1415
35°	2835	229	10	14	20	1751
45°	1147	32	4	8	13	909
55°	31	5	2	5	7	63
65°	2	2	2	3	3	2
75°	1	1	2	2	1	1
85°	0	1	2	1	0	0
90°	0	0	0	0	0	



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CATALOG NUMBER: LDSQA4A09927D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0
2.5°	138.2	139.0	135.3	135.7	131.9	133.6	132.3	129.0	126.5	122.3	120.6
5°	207.3	208.5	200.2	197.7	188.9	188.9	185.1	176.3	168.3	158.7	152.0
7.5°	379.0	384.0	358.9	340.0	312.4	305.7	292.7	262.6	237.9	212.7	193.9
10°	803.6	794.4	742.5	699.8	628.6	602.2	567.0	480.3	400.8	321.6	259.6
12.5°	1267.2	1296.9	1196.8	1162.1	1049.4	1025.6	950.6	809.1	674.6	534.8	410.8
15°	1711.1	1719.9	1632.4	1575.8	1438.5	1407.5	1315.4	1149.1	968.2	773.1	601.8
17.5°	2067.5	2102.6	1974.1	1913.4	1735.0	1685.1	1576.7	1374.4	1173.0	959.8	756.7
20°	2483.3	2492.5	2340.1	2223.3	1990.0	1914.2	1784.4	1533.5	1293.6	1050.3	840.5
22.5°	2861.5	2859.4	2663.4	2498.4	2203.2	2112.7	1952.3	1655.0	1376.1	1090.5	848.4
25°	3115.2	3121.9	2912.1	2717.0	2354.7	2232.5	2051.6	1718.2	1404.1	1089.2	828.3
27.5°	3250.5	3243.8	3018.9	2810.4	2410.4	2273.5	2077.1	1720.3	1378.6	1046.5	768.0
30°	3330.1	3240.4	3000.5	2784.0	2372.8	2232.0	2032.3	1654.1	1293.6	951.0	660.4
32.5°	3117.3	3082.6	2873.6	2643.7	2242.9	2103.5	1906.2	1513.4	1158.7	804.9	473.2
35°	2834.7	2835.9	2632.0	2417.1	2039.4	1918.0	1714.4	1342.2	994.2	559.5	228.6
37.5°	2538.2	2542.4	2348.5	2148.7	1812.4	1684.7	1494.2	1147.0	715.3	284.8	137.8
40°	2163.4	2172.2	2005.1	1844.7	1534.4	1411.3	1241.2	868.1	399.9	159.1	93.4
42.5°	1767.6	1778.5	1630.3	1487.9	1224.1	1122.7	972.0	537.7	198.5	103.0	54.9
45°	1146.6	1178.0	1067.9	1008.0	855.1	794.8	634.4	274.3	119.8	60.3	32.2
47.5°	656.2	656.6	563.7	451.4	370.2	322.0	251.7	124.8	69.9	33.9	19.7
50°	304.9	312.4	247.5	206.0	147.4	124.8	102.6	67.4	36.9	19.7	12.1
52.5°	88.8	93.8	85.0	77.1	65.3	58.2	49.8	33.1	19.3	11.7	7.5
55°	31.4	33.5	31.4	29.3	26.4	23.9	21.4	15.9	10.9	7.1	5.0
57.5°	13.0	13.4	13.0	12.6	11.7	11.7	10.5	8.8	6.7	4.6	3.4
60°	5.9	6.3	5.9	6.3	5.9	5.9	5.9	6.3	4.2	2.9	2.5
62.5°	2.5	2.9	2.9	2.9	2.9	3.4	3.4	2.9	2.5	2.1	1.7
65°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	1.3	1.3	1.3	0.8	0.8	1.3	1.3	1.3
72.5°	1.3	1.3	1.3	1.3	0.8	0.8	0.8	0.8	0.8	1.3	1.3
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.8	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	0.8	0.8
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: P182810

CATALOG NUMBER: LDSQA4A09927D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0
2.5°	118.5	114.7	108.9	105.1	103.4	100.9	99.2	95.1	93.4	90.0	88.8
5°	145.7	138.2	129.4	122.3	117.7	112.6	105.1	96.7	92.5	87.1	84.2
7.5°	176.7	160.4	144.9	132.3	126.5	119.8	110.1	97.2	89.2	82.1	77.9
10°	216.1	182.6	158.3	138.2	129.4	120.6	108.9	93.8	83.8	75.4	70.8
12.5°	308.2	220.3	170.4	141.5	130.2	119.3	104.7	89.2	77.5	67.8	62.8
15°	443.5	307.8	203.1	144.5	127.3	113.9	97.2	81.7	69.5	59.9	54.9
17.5°	563.2	392.4	248.3	155.4	126.5	107.6	87.9	72.0	60.3	51.1	46.9
20°	628.6	436.8	278.5	162.1	122.7	98.0	77.5	62.4	51.1	43.1	39.4
22.5°	629.8	434.3	267.6	147.4	108.0	85.0	67.0	52.8	42.7	35.6	32.7
25°	592.1	387.4	223.2	116.0	88.4	72.0	56.1	44.0	34.8	29.3	26.8
27.5°	521.8	314.9	164.2	83.8	69.1	58.2	45.2	35.2	27.2	23.9	21.8
30°	410.4	205.2	95.9	62.4	53.6	44.8	34.3	24.7	21.4	18.8	17.2
32.5°	220.3	99.7	67.0	46.1	38.1	31.4	22.6	18.0	15.5	13.8	13.4
35°	115.2	72.9	44.8	29.3	24.3	20.5	15.5	12.6	11.3	10.5	10.5
37.5°	82.5	45.6	28.5	18.8	15.9	13.0	10.9	9.2	8.4	8.4	8.4
40°	49.0	28.1	17.2	12.1	10.5	9.2	8.0	6.7	6.7	6.7	6.7
42.5°	29.7	17.6	12.1	8.4	7.5	6.7	5.9	5.4	5.0	5.0	5.4
45°	18.4	12.1	8.0	6.3	5.9	5.0	4.6	4.2	4.2	4.2	4.6
47.5°	11.7	8.8	5.9	4.2	3.8	3.4	2.9	2.9	3.4	3.4	3.8
50°	8.8	5.4	3.8	2.9	2.5	2.5	2.1	2.5	2.5	2.9	3.4
52.5°	5.0	3.4	2.5	2.1	2.1	1.7	1.7	2.1	2.1	2.5	2.9
55°	3.4	2.5	2.1	1.7	1.7	1.7	1.7	1.7	2.1	2.1	2.5
57.5°	2.5	2.1	1.7	1.7	1.7	1.3	1.7	1.7	1.7	2.1	2.5
60°	2.1	1.7	1.7	1.7	1.7	1.3	1.3	1.7	1.7	2.1	2.1
62.5°	1.7	1.7	1.7	1.7	1.7	1.3	1.7	1.7	1.7	1.7	2.1
65°	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.1
67.5°	1.3	1.3	1.7	1.7	1.7	1.3	1.7	1.7	1.7	1.7	2.1
70°	1.3	1.3	1.3	1.7	1.7	1.3	1.7	1.7	1.7	1.7	1.7
72.5°	1.3	1.3	1.3	1.7	1.7	1.3	1.7	1.7	1.7	1.7	1.7
75°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7
77.5°	1.3	1.3	1.3	1.3	1.7	1.3	1.7	1.7	1.7	1.7	1.7
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7	1.7
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7
85°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7	1.7
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.7	1.7	1.7
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: P182810

CATALOG NUMBER: LDSQA4A09927D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0
2.5°	85.4	84.2	81.7	81.2	80.8	79.1	77.9	76.6	76.6	75.4	74.5
5°	79.1	77.1	74.1	72.9	72.4	70.4	68.7	67.4	67.0	65.7	64.5
7.5°	72.4	69.9	66.6	65.3	64.9	62.8	61.1	59.9	59.0	57.8	57.0
10°	65.3	62.4	59.5	58.2	57.8	55.7	54.4	53.2	52.3	51.5	50.7
12.5°	57.8	55.3	52.3	51.1	50.7	49.0	47.7	46.9	46.5	45.6	45.2
15°	50.3	47.7	45.2	44.4	44.0	42.7	41.9	41.5	41.0	41.0	40.6
17.5°	42.7	40.6	38.5	38.1	37.7	36.9	36.4	36.0	36.4	36.4	36.9
20°	35.6	33.9	32.2	32.2	31.8	31.4	31.4	31.4	32.2	32.7	33.5
22.5°	29.3	28.1	26.8	26.8	26.8	26.8	26.8	27.6	28.5	29.3	29.7
25°	24.3	23.0	22.6	22.6	22.6	23.0	23.5	24.3	25.1	26.0	26.8
27.5°	19.7	18.8	18.8	18.8	19.3	19.7	20.1	20.9	22.2	23.0	23.9
30°	15.9	15.5	15.5	15.9	16.3	16.8	17.6	18.4	19.3	20.1	20.9
32.5°	12.6	13.0	13.0	13.4	13.8	14.2	15.1	15.9	16.8	17.6	18.0
35°	10.5	10.5	10.9	11.3	11.7	12.1	13.0	13.8	14.2	15.1	15.9
37.5°	8.4	8.8	9.2	9.6	10.1	10.5	10.9	11.7	12.1	13.0	13.8
40°	7.1	7.5	8.0	8.4	8.4	9.2	9.2	10.1	10.5	11.3	12.1
42.5°	5.9	6.3	6.7	7.1	7.1	7.5	8.0	8.4	9.2	9.6	10.5
45°	4.6	5.0	5.4	5.9	6.3	6.7	6.7	7.5	8.0	8.4	9.2
47.5°	4.2	4.6	5.0	5.0	5.4	5.9	5.9	6.7	7.1	7.5	8.0
50°	3.4	3.8	4.2	4.6	4.6	5.0	5.4	5.9	6.3	6.7	6.7
52.5°	2.9	3.4	3.8	3.8	4.2	4.6	4.6	5.0	5.4	5.4	5.9
55°	2.9	3.4	3.4	3.8	3.8	4.2	4.2	4.6	4.6	5.0	5.0
57.5°	2.5	2.9	2.9	3.4	3.4	3.8	3.8	4.2	4.2	4.2	4.6
60°	2.5	2.5	2.9	2.9	3.4	3.4	3.4	3.8	3.8	3.8	4.2
62.5°	2.1	2.5	2.5	2.9	2.9	2.9	3.4	3.4	3.4	3.8	3.8
65°	2.1	2.5	2.5	2.9	2.9	2.9	2.9	2.9	3.4	3.4	3.4
67.5°	2.1	2.1	2.5	2.5	2.5	2.5	2.9	2.9	2.9	2.9	2.9
70°	2.1	2.1	2.1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
72.5°	1.7	2.1	2.1	2.1	2.1	2.5	2.5	2.5	2.5	2.5	2.1
75°	1.7	1.7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	1.7	1.7	1.7	2.1	2.1	2.1	2.1	2.1	2.1	1.7	1.7
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3
82.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3
85°	1.7	1.3	1.7	1.7	1.7	1.3	1.3	1.3	1.3	1.3	0.8
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.8	0.8
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: P182810

CATALOG NUMBER: LDSQA4A09927D010TE LAR25NF 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0
2.5°	73.7	72.9	73.3	73.3	72.4	72.0	72.0	72.4
5°	63.7	62.8	63.2	63.2	62.4	62.0	62.0	62.4
7.5°	56.1	55.3	55.7	55.7	54.9	54.9	54.9	54.9
10°	50.3	49.8	49.8	49.8	49.0	49.4	49.0	48.6
12.5°	44.8	44.8	44.8	44.8	44.4	44.8	44.4	44.4
15°	40.6	40.6	41.0	41.0	41.0	41.5	41.5	41.5
17.5°	37.3	37.7	38.1	38.5	38.5	38.9	38.9	38.9
20°	33.9	34.8	35.2	35.6	35.6	36.4	36.0	36.4
22.5°	30.6	31.4	31.8	32.2	32.7	33.1	33.1	33.5
25°	27.6	28.5	28.9	29.3	29.7	30.6	30.6	30.6
27.5°	24.7	25.5	26.0	26.8	27.2	28.1	28.1	28.1
30°	21.8	22.6	23.0	23.5	24.3	25.1	25.1	25.5
32.5°	18.8	20.1	20.5	20.9	21.8	22.6	23.0	23.0
35°	16.8	17.6	18.0	18.8	19.3	20.5	20.5	20.5
37.5°	14.7	15.5	16.3	16.8	17.2	18.0	18.4	18.8
40°	13.0	13.8	14.2	14.7	15.5	16.3	16.8	16.8
42.5°	11.3	12.1	12.6	13.0	13.4	14.2	14.2	14.2
45°	10.1	10.5	10.9	11.3	11.7	12.1	12.6	12.6
47.5°	8.4	9.2	9.2	9.6	10.1	10.9	10.9	11.3
50°	7.1	8.0	8.0	8.4	8.8	9.2	9.6	9.6
52.5°	6.3	6.7	7.1	7.1	7.5	8.0	8.4	8.4
55°	5.4	5.9	5.9	6.3	6.3	6.7	7.1	7.1
57.5°	4.6	5.0	5.4	5.4	5.4	5.9	5.9	6.3
60°	4.2	4.6	4.6	4.6	4.6	5.0	5.0	5.0
62.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
65°	3.4	3.4	3.4	3.4	2.9	2.9	2.9	2.9
67.5°	2.9	2.9	2.9	2.9	2.5	2.5	2.5	2.5
70°	2.5	2.5	2.5	2.5	2.1	2.1	2.1	1.7
72.5°	2.1	2.1	2.1	2.1	2.1	1.7	1.7	1.7
75°	2.1	1.7	1.7	1.7	1.7	1.7	1.3	1.3
77.5°	1.7	1.7	1.7	1.3	1.3	1.3	1.3	1.3
80°	1.3	1.3	1.3	1.3	1.3	0.8	0.8	0.8
82.5°	1.3	0.8	0.8	0.8	0.8	0.8	0.8	0.8
85°	0.8	0.8	0.8	0.8	0.4	0.4	0.4	0.4
87.5°	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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)