

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: P182742

Luminaire Tested: **LDSQA4A09827D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182742
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26801)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A09827D010TE LAR35FL 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1139.9 lumens
Efficiency: N/A
Efficacy: 82.4 lumens/watt
Spacing Criteria (0/90/45): 2.46 / 0.59 / 1.2
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

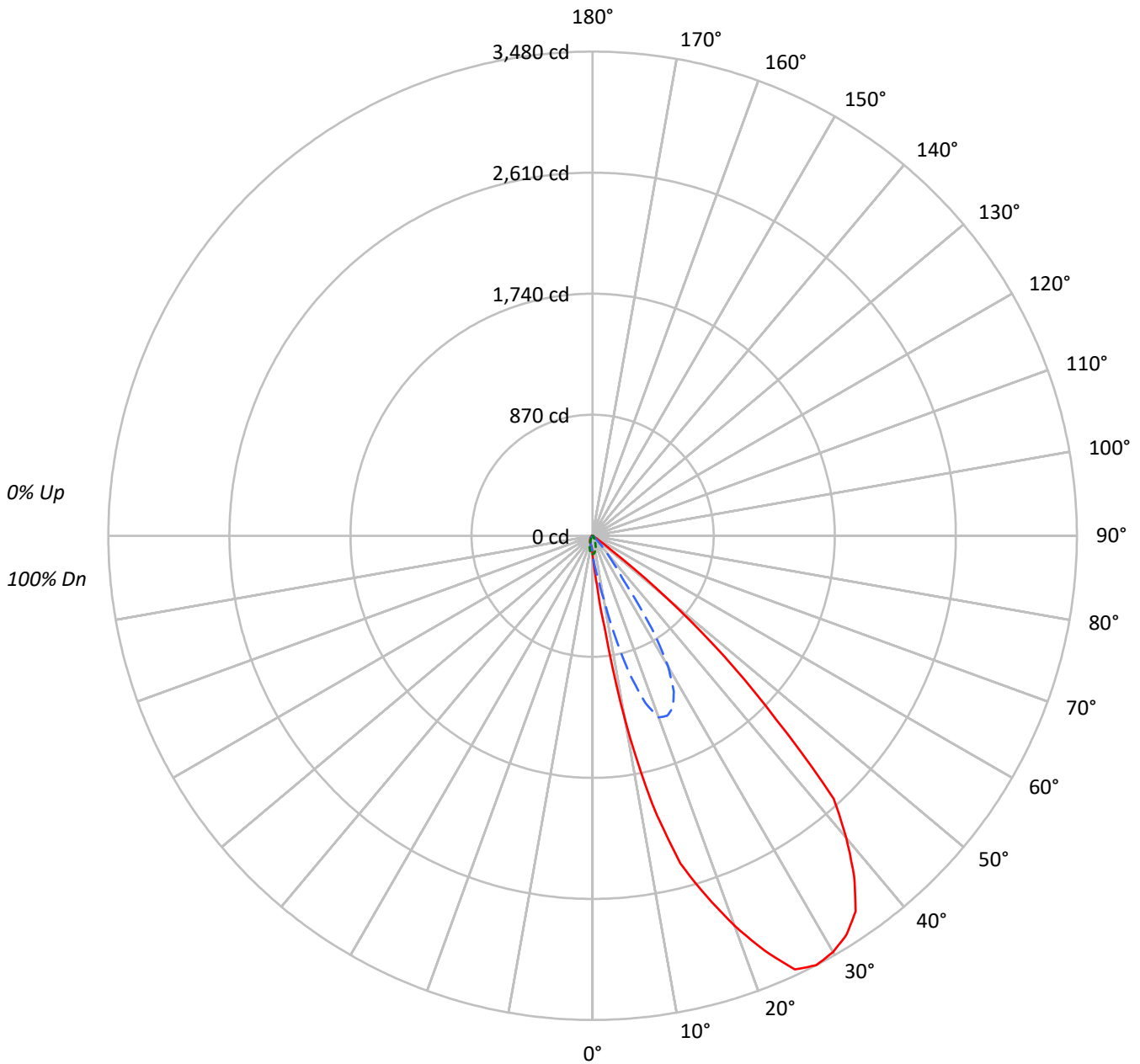
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P182742

CATALOG NUMBER: LDSQA4A09827D010TE LAR35FL 4LSQA1H 30°

Luminous Intensity Polar Plot





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CATALOG NUMBER: LDSQA4A09827D010TE LAR35FL 4LSQA1H 30°

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	112	109	106	104	110	107	105	102	103	101	99	99	98	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83																			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74																			
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67																			
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	60																			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55																			
7	75	64	57	52	74	64	57	52	62	56	52	61	55	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	39	37																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	12884	12884	12884
5°	33880	12272	8013
10°	132849	10624	6669
15°	244564	8374	5907
20°	307319	5918	5381
25°	367595	3901	4799
30°	386562	2450	4206
35°	389677	1478	3643
40°	358583	986	3098
45°	255126	712	2576
50°	105423	558	2125
55°	6080	524	1858
60°	717	504	1511
65°	229	596	1077
70°	283	595	736
75°	374	786	786
80°	0	1172	893
85°	0	2334	1112



TEST NUMBER: P182742

CATALOG NUMBER: LDSQA4A09827D010TE LAR35FL 4LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	20.9	1.8
10°-20°	167.0	14.7
20°-30°	345.5	30.3
30°-40°	376.1	33.0
40°-50°	206.2	18.1
50°-60°	17.9	1.6
60°-70°	2.9	0.3
70°-80°	2.1	0.2
80°-90°	1.3	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°	533.4	46.8
0°-40°	909.5	79.8
0°-60°	1133.6	99.4
0°-90°	1139.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1139.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	133	133	133	133	133	
5°	348	238	126	87	82	64
15°	2438	1025	84	56	59	681
25°	3439	1364	36	34	45	1553
35°	3295	373	12	20	31	2022
45°	1862	38	5	11	19	1421
55°	36	4	3	7	11	123
65°	1	2	3	4	5	1
75°	1	2	2	3	2	1
85°	0	1	2	2	1	0
90°	0	0	0	0	0	



TEST NUMBER: P182742

CATALOG NUMBER: LDSQA4A09827D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0
2.5°	209.2	201.9	200.8	201.9	196.6	196.1	197.2	193.0	189.3	185.7	182.6
5°	348.4	333.3	328.6	322.4	306.7	301.5	300.4	283.8	267.6	252.5	238.4
7.5°	677.1	646.8	630.6	599.3	551.3	530.0	518.5	463.7	412.6	366.2	323.9
10°	1350.5	1271.2	1232.6	1173.6	1068.8	1017.1	979.6	841.9	706.3	575.9	461.1
12.5°	1970.7	1926.8	1870.0	1838.7	1668.6	1603.4	1541.4	1350.5	1143.9	933.2	724.0
15°	2438.5	2374.4	2313.9	2299.3	2165.7	2089.6	2020.7	1823.0	1577.4	1309.2	1025.0
17.5°	2713.4	2667.5	2610.1	2582.5	2426.0	2364.5	2286.2	2094.8	1855.9	1588.8	1258.7
20°	2981.0	2913.2	2832.4	2790.6	2617.5	2546.5	2457.8	2256.5	2003.5	1719.8	1389.6
22.5°	3225.7	3138.0	3023.3	2958.6	2764.0	2685.8	2586.7	2368.6	2094.8	1770.4	1400.5
25°	3439.0	3359.7	3206.9	3093.7	2864.2	2771.8	2656.6	2428.6	2127.7	1766.2	1363.5
27.5°	3479.7	3426.5	3289.3	3158.4	2899.1	2796.4	2676.9	2441.1	2104.7	1708.3	1263.9
30°	3455.7	3398.3	3288.2	3154.7	2884.5	2780.7	2656.6	2387.9	2015.0	1573.2	1081.3
32.5°	3397.8	3348.2	3216.8	3075.9	2812.5	2704.6	2573.6	2263.3	1861.1	1358.3	795.5
35°	3295.0	3220.4	3061.9	2946.1	2698.3	2587.2	2427.1	2096.9	1631.1	976.5	373.0
37.5°	3085.9	3013.4	2899.1	2792.2	2550.7	2419.8	2250.8	1865.3	1209.1	532.6	230.6
40°	2835.5	2772.9	2673.3	2569.5	2320.7	2169.9	1983.7	1457.9	711.5	299.9	141.9
42.5°	2563.2	2498.5	2385.9	2264.8	1993.6	1834.5	1633.2	943.6	375.0	176.8	77.2
45°	1862.2	1804.3	1722.4	1635.3	1478.2	1363.5	1098.5	495.5	207.6	93.9	38.1
47.5°	1274.3	1205.4	1054.2	871.1	706.3	604.0	454.3	214.9	106.4	46.9	22.4
50°	699.5	626.5	549.3	427.7	286.4	235.2	183.1	103.8	48.0	23.5	12.5
52.5°	171.6	151.8	138.7	127.8	101.2	91.3	77.2	43.3	21.9	13.0	8.9
55°	36.0	33.4	31.8	31.3	28.7	27.6	24.0	16.7	12.0	8.3	4.2
57.5°	10.4	9.9	10.4	10.4	10.4	9.9	9.9	7.3	6.8	4.2	2.6
60°	3.7	3.7	3.7	4.2	4.2	4.2	4.7	4.7	3.7	2.6	2.1
62.5°	1.6	1.6	1.6	2.1	2.1	2.6	2.6	2.6	2.1	2.1	1.6
65°	1.0	1.0	1.0	1.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6
67.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.6
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.6
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.6
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.6
77.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.6
80°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0
85°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0
87.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0
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: P182742

CATALOG NUMBER: LDSQA4A09827D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0
2.5°	173.7	168.5	162.2	155.4	154.4	150.7	145.5	138.2	135.6	130.4	125.7
5°	218.0	204.0	189.3	176.3	172.1	166.4	157.0	144.0	135.6	126.2	118.4
7.5°	277.5	245.2	215.4	192.0	184.7	175.3	160.7	144.0	131.4	118.4	108.0
10°	356.8	291.1	239.9	201.9	189.9	177.3	158.0	137.7	123.1	108.0	97.0
12.5°	509.6	358.3	262.9	207.1	190.4	174.2	149.7	127.8	111.1	96.0	85.0
15°	724.5	486.1	309.3	210.7	185.2	165.4	136.7	114.2	97.5	83.5	73.0
17.5°	906.0	607.2	371.4	221.2	181.5	153.9	121.5	98.6	82.4	69.9	61.6
20°	994.7	661.4	399.6	222.7	171.1	136.7	103.8	81.9	67.8	57.4	50.1
22.5°	984.3	643.1	373.5	195.1	144.5	115.3	86.1	66.2	54.2	45.9	40.7
25°	914.4	563.9	304.6	149.2	112.7	93.4	67.3	51.6	42.3	36.5	32.3
27.5°	797.0	452.8	222.2	105.4	85.5	70.9	50.1	39.6	32.3	28.2	25.6
30°	613.9	289.5	127.8	75.6	62.1	50.6	37.6	28.7	24.5	21.9	19.8
32.5°	316.6	140.8	85.0	54.2	43.8	36.5	26.1	20.9	18.3	16.7	15.6
35°	173.7	100.1	58.9	34.9	28.2	23.5	17.7	14.6	13.6	12.5	12.5
37.5°	119.4	62.1	32.9	20.9	17.2	14.6	12.0	10.4	9.9	9.9	9.9
40°	68.9	32.9	18.8	13.0	11.0	9.9	8.3	7.8	7.8	7.8	8.3
42.5°	35.5	19.3	12.5	8.9	7.8	6.8	5.7	5.7	5.7	6.3	6.8
45°	20.9	13.0	8.3	5.7	5.2	4.7	4.2	4.2	4.7	5.2	5.7
47.5°	13.0	8.9	5.2	3.7	3.1	3.1	3.1	3.1	3.7	4.2	4.7
50°	8.9	4.7	3.1	2.1	2.1	2.1	2.1	2.6	3.1	3.7	4.2
52.5°	4.7	2.6	2.1	1.6	1.6	1.6	2.1	2.1	2.6	3.1	3.7
55°	2.6	2.1	1.6	1.6	1.6	1.6	1.6	2.1	2.6	3.1	3.7
57.5°	2.1	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.6	3.1
60°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.6	3.1
62.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.6	2.6
65°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.6	2.6
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.6
70°	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.6
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.1
75°	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.1	2.6
77.5°	1.6	1.6	1.6	1.6	1.6	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	2.1	2.1	2.1	2.1	2.1
85°	1.6	1.6	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.1	2.1
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	2.1	2.1	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



TEST NUMBER: P182742

CATALOG NUMBER: LDSQA4A09827D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0
2.5°	123.1	118.9	114.8	114.8	112.7	109.5	108.5	105.4	103.3	102.2	101.2
5°	112.7	106.4	100.7	100.1	97.5	93.9	92.3	89.2	87.1	86.1	85.5
7.5°	100.7	94.4	88.7	87.6	85.5	82.9	81.4	78.8	77.7	76.7	76.2
10°	89.2	82.9	78.8	77.7	76.2	74.1	72.5	70.9	69.9	69.4	69.4
12.5°	77.7	73.0	69.4	68.3	67.3	65.7	64.7	63.6	63.1	63.1	63.1
15°	67.3	63.1	60.0	60.0	58.9	57.9	57.9	56.9	56.3	56.9	57.4
17.5°	56.9	53.7	51.1	51.1	50.6	50.1	50.1	50.1	50.6	51.1	52.2
20°	46.9	44.3	43.3	43.3	42.8	43.3	43.3	43.8	44.3	45.9	47.5
22.5°	38.1	36.5	35.5	36.0	36.0	36.5	37.0	38.1	39.1	40.7	42.3
25°	30.8	29.7	29.2	29.7	30.3	30.8	31.8	32.9	34.4	36.0	38.1
27.5°	24.5	24.0	24.0	24.5	25.0	26.1	27.6	28.7	30.3	31.8	33.9
30°	19.8	19.3	19.8	20.9	21.4	22.4	23.5	25.0	26.6	28.2	30.3
32.5°	15.6	16.2	16.7	17.2	17.7	19.3	20.3	21.4	23.0	24.5	26.6
35°	13.0	13.6	14.1	14.6	15.1	16.2	17.2	18.3	19.8	21.4	23.5
37.5°	10.4	11.0	11.5	12.5	13.0	13.6	15.1	15.6	17.2	18.3	20.3
40°	8.9	9.4	9.9	10.4	11.0	12.0	13.0	13.6	14.6	16.2	17.7
42.5°	7.3	7.8	8.3	8.9	9.4	10.4	11.0	12.0	13.0	14.1	15.1
45°	6.3	6.8	7.3	7.8	8.3	8.9	9.4	10.4	11.0	12.0	13.0
47.5°	5.2	5.7	6.8	6.8	7.3	7.8	8.3	8.9	9.9	10.4	11.5
50°	4.7	5.2	5.7	6.3	6.3	6.8	7.3	7.8	8.3	8.9	9.9
52.5°	4.2	4.7	5.2	5.2	5.7	6.3	6.8	6.8	7.3	7.8	8.3
55°	3.7	4.2	4.7	4.7	5.2	5.7	5.7	6.3	6.8	6.8	7.3
57.5°	3.7	3.7	4.2	4.2	4.7	4.7	5.2	5.7	5.7	6.3	6.8
60°	3.1	3.7	3.7	4.2	4.2	4.7	4.7	5.2	5.2	5.7	5.7
62.5°	3.1	3.1	3.7	3.7	4.2	4.2	4.7	4.7	4.7	5.2	5.2
65°	3.1	3.1	3.7	3.7	3.7	4.2	4.2	4.2	4.2	4.7	4.7
67.5°	2.6	3.1	3.1	3.7	3.7	3.7	3.7	3.7	4.2	4.2	4.2
70°	2.6	3.1	3.1	3.1	3.1	3.7	3.7	3.7	3.7	3.7	3.7
72.5°	2.6	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.1	3.1
75°	2.6	2.6	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.1
77.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
80°	2.1	2.1	2.1	2.1	2.1	2.6	2.1	2.1	2.1	2.1	2.1
82.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.6	1.6
85°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.6	1.6	1.6	1.6
87.5°	2.1	2.1	2.1	1.6	1.6	1.6	1.6	1.6	1.6	1.0	1.0
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: P182742

CATALOG NUMBER: LDSQA4A09827D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	133.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0
2.5°	99.6	98.6	99.6	98.6	98.6	96.5	98.1	97.0
5°	84.0	82.9	84.0	83.5	82.4	81.9	82.9	82.4
7.5°	75.1	74.1	75.1	75.1	74.1	73.5	74.6	74.1
10°	68.3	67.8	68.3	68.3	67.8	67.3	68.3	67.8
12.5°	62.6	62.1	63.1	63.1	62.6	62.6	63.6	62.6
15°	57.4	57.4	58.4	58.4	58.4	58.4	59.5	58.9
17.5°	52.2	53.2	54.2	54.8	54.8	54.8	55.8	55.8
20°	48.0	49.0	50.1	50.6	51.1	51.1	52.2	52.2
22.5°	43.3	44.3	45.9	46.4	46.9	47.5	48.5	48.5
25°	39.1	40.2	41.7	42.3	43.3	43.8	44.9	44.9
27.5°	34.9	36.5	37.6	38.6	39.1	40.2	41.2	41.2
30°	31.3	32.9	33.9	34.9	35.5	36.5	37.6	37.6
32.5°	27.6	29.2	30.3	31.3	32.3	32.9	34.4	34.4
35°	24.5	25.6	27.1	27.6	28.7	29.7	30.8	30.8
37.5°	21.4	22.4	23.5	24.5	25.6	26.1	27.1	27.6
40°	18.8	19.8	20.9	21.4	22.4	23.5	24.0	24.5
42.5°	16.2	17.2	18.3	18.8	19.8	20.3	21.4	21.4
45°	14.1	15.1	15.6	16.2	17.2	17.7	18.8	18.8
47.5°	12.0	13.0	13.6	14.1	14.6	15.1	16.2	16.2
50°	10.4	11.0	11.5	12.0	12.5	13.6	14.1	14.1
52.5°	8.9	9.9	9.9	10.4	11.0	11.5	12.0	12.5
55°	7.8	8.3	8.9	8.9	9.4	9.9	10.4	11.0
57.5°	6.8	7.3	7.8	7.8	8.3	8.3	8.9	9.4
60°	6.3	6.3	6.8	6.8	6.8	7.3	7.3	7.8
62.5°	5.2	5.2	5.7	5.7	5.7	5.7	5.7	5.7
65°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
67.5°	4.2	4.2	4.2	4.2	3.7	3.7	3.7	3.7
70°	3.7	3.7	3.7	3.7	3.1	3.1	3.1	2.6
72.5°	3.1	3.1	3.1	3.1	2.6	2.6	2.1	2.1
75°	2.6	2.6	2.6	2.6	2.6	2.1	2.1	2.1
77.5°	2.6	2.1	2.1	2.1	2.1	2.1	2.1	1.6
80°	2.1	2.1	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0
85°	1.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0
87.5°	1.0	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)