

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: P182753

Luminaire Tested: **LDSQA4A13840D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182753
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: LDSQA4A13840D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1839.2 lumens
Efficiency: N/A
Efficacy: 82.6 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

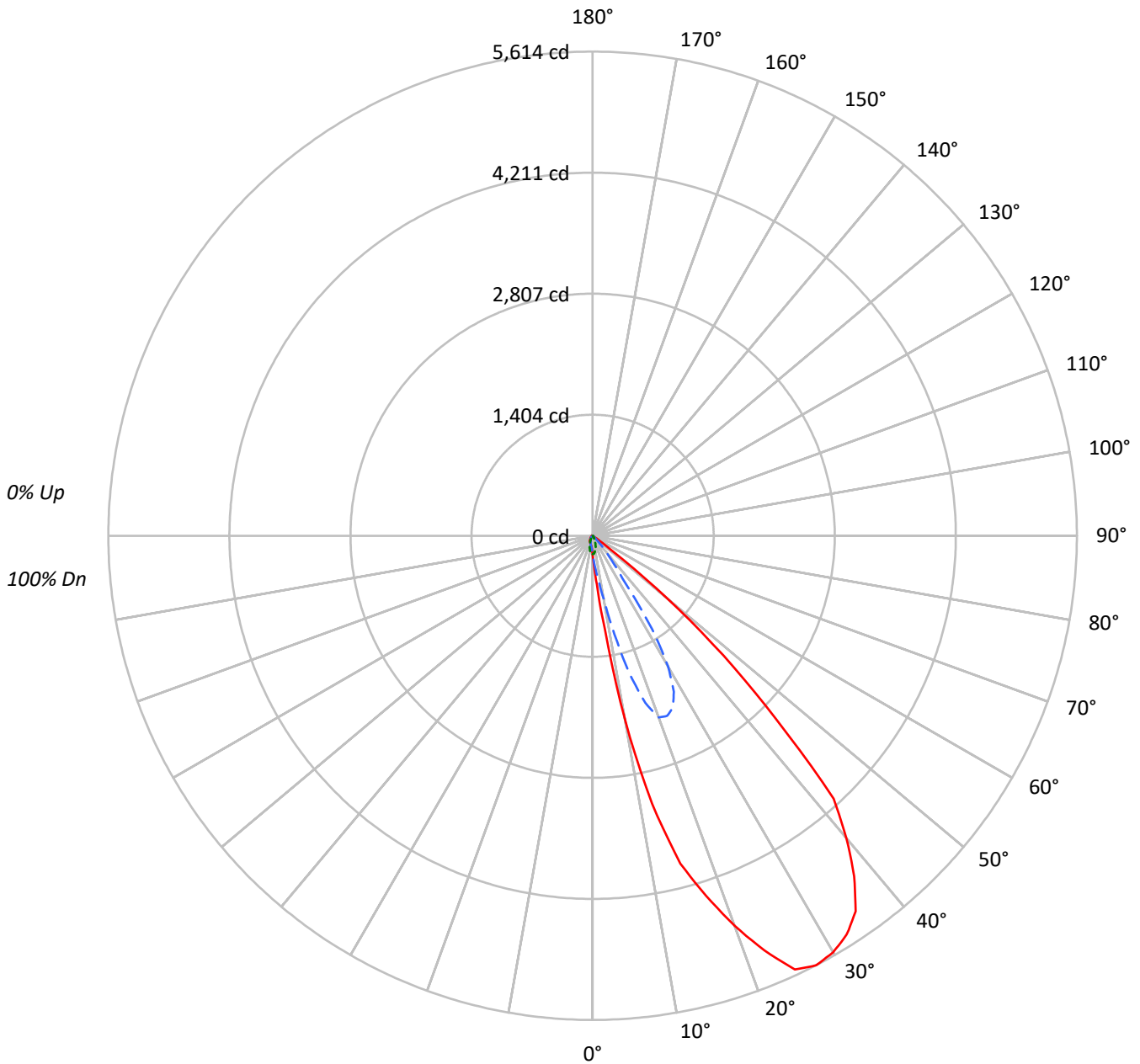
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	20789	20789	20789
5°	54671	19809	12934
10°	214348	17136	10762
15°	394612	13509	9538
20°	495865	9546	8680
25°	593112	6296	7739
30°	623721	3949	6779
35°	628746	2389	5878
40°	578576	1593	5008
45°	411638	1151	4151
50°	170093	889	3421
55°	9813	844	2989
60°	1143	814	2441
65°	390	963	1742
70°	482	963	1190
75°	636	1273	1273
80°	0	1897	1395
85°	0	3779	1890



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.7	1.8
10°-20°	269.5	14.7
20°-30°	557.4	30.3
30°-40°	606.8	33.0
40°-50°	332.7	18.1
50°-60°	28.8	1.6
60°-70°	4.7	0.3
70°-80°	3.4	0.2
80°-90°	2.1	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°	860.7	46.8
0°-40°	1467.5	79.8
0°-60°	1829.0	99.4
0°-90°	1839.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1839.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	215	215	215	215	215	
5°	562	385	204	141	133	103
15°	3935	1654	135	91	95	1099
25°	5549	2200	59	56	72	2506
35°	5316	602	20	32	50	3263
45°	3005	61	8	18	30	2293
55°	58	7	5	11	18	198
65°	2	2	4	7	8	2
75°	2	2	3	5	3	1
85°	0	2	3	2	2	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°	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6
2.5°	337.5	325.7	324.0	325.7	317.3	316.5	318.1	311.4	305.5	299.6	294.6
5°	562.2	537.8	530.2	520.1	494.9	486.5	484.8	457.8	431.8	407.3	384.6
7.5°	1092.4	1043.6	1017.5	967.0	889.6	855.1	836.6	748.2	665.7	590.8	522.6
10°	2179.0	2051.0	1988.8	1893.7	1724.5	1641.2	1580.6	1358.4	1139.6	929.2	744.0
12.5°	3179.7	3109.0	3017.2	2966.7	2692.4	2587.1	2487.0	2179.0	1845.7	1505.7	1168.2
15°	3934.6	3831.1	3733.4	3709.9	3494.4	3371.5	3260.4	2941.5	2545.1	2112.5	1653.8
17.5°	4378.1	4304.1	4211.5	4166.9	3914.4	3815.1	3688.8	3380.0	2994.5	2563.6	2030.8
20°	4809.9	4700.5	4570.0	4502.7	4223.3	4108.8	3965.7	3640.9	3232.7	2774.8	2242.1
22.5°	5204.6	5063.2	4878.0	4773.7	4459.8	4333.5	4173.6	3821.8	3380.0	2856.5	2259.8
25°	5548.8	5420.9	5174.3	4991.7	4621.4	4472.4	4286.4	3918.6	3433.0	2849.7	2200.0
27.5°	5614.5	5528.6	5307.3	5096.0	4677.7	4511.9	4319.2	3938.8	3395.9	2756.3	2039.3
30°	5575.8	5483.2	5305.6	5090.1	4654.2	4486.7	4286.4	3853.0	3251.2	2538.3	1744.7
32.5°	5482.3	5402.4	5190.3	4963.1	4538.0	4363.8	4152.6	3651.8	3002.9	2191.6	1283.5
35°	5316.5	5196.2	4940.3	4753.5	4353.7	4174.5	3916.1	3383.3	2631.8	1575.5	601.8
37.5°	4979.0	4862.1	4677.7	4505.2	4115.5	3904.3	3631.6	3009.6	1950.9	859.3	372.0
40°	4575.1	4474.1	4313.3	4145.8	3744.4	3501.2	3200.7	2352.3	1148.0	483.9	228.9
42.5°	4135.7	4031.4	3849.6	3654.3	3216.7	2960.0	2635.1	1522.5	605.1	285.3	124.6
45°	3004.6	2911.2	2779.0	2638.5	2385.2	2200.0	1772.5	799.5	335.0	151.5	61.4
47.5°	2056.1	1945.0	1700.9	1405.5	1139.6	974.6	733.1	346.7	171.7	75.7	36.2
50°	1128.6	1010.8	886.2	690.1	462.1	379.6	295.4	167.5	77.4	37.9	20.2
52.5°	276.9	244.9	223.9	206.2	163.3	147.3	124.6	69.9	35.3	21.0	14.3
55°	58.1	53.9	51.3	50.5	46.3	44.6	38.7	26.9	19.4	13.5	6.7
57.5°	16.8	16.0	16.8	16.8	16.8	16.0	16.0	11.8	10.9	6.7	4.2
60°	5.9	5.9	5.9	6.7	6.7	6.7	7.6	7.6	5.9	4.2	3.4
62.5°	2.5	2.5	2.5	3.4	3.4	4.2	4.2	4.2	3.4	3.4	2.5
65°	1.7	1.7	1.7	1.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5
67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.5
70°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.5
72.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.5
75°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.5
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	1.7	1.7	2.5
80°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	1.7	1.7	1.7
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.7	1.7	1.7
85°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.7	1.7	1.7
87.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6
2.5°	280.3	271.8	261.7	250.8	249.1	243.2	234.8	223.0	218.8	210.4	202.8
5°	351.8	329.1	305.5	284.5	277.7	268.5	253.3	232.3	218.8	203.7	191.0
7.5°	447.7	395.6	347.6	309.7	297.9	282.8	259.2	232.3	212.1	191.0	174.2
10°	575.7	469.6	387.1	325.7	306.4	286.2	255.0	222.2	198.6	174.2	156.5
12.5°	822.3	578.2	424.2	334.1	307.2	281.1	241.5	206.2	179.3	154.9	137.2
15°	1169.0	784.4	499.1	340.0	298.8	266.8	220.5	184.3	157.4	134.7	117.8
17.5°	1461.9	979.6	599.2	356.8	292.9	248.3	196.1	159.1	133.0	112.8	99.3
20°	1605.0	1067.2	644.7	359.4	276.1	220.5	167.5	132.1	109.4	92.6	80.8
22.5°	1588.1	1037.7	602.6	314.8	233.1	186.0	138.9	106.9	87.5	74.1	65.6
25°	1475.4	909.8	491.5	240.7	181.8	150.7	108.6	83.3	68.2	58.9	52.2
27.5°	1286.0	730.5	358.5	170.0	138.0	114.5	80.8	64.0	52.2	45.4	41.2
30°	990.6	467.1	206.2	122.0	100.2	81.6	60.6	46.3	39.6	35.3	32.0
32.5°	510.9	227.2	137.2	87.5	70.7	58.9	42.1	33.7	29.5	26.9	25.2
35°	280.3	161.6	95.1	56.4	45.4	37.9	28.6	23.6	21.9	20.2	20.2
37.5°	192.7	100.2	53.0	33.7	27.8	23.6	19.4	16.8	16.0	16.0	16.0
40°	111.1	53.0	30.3	21.0	17.7	16.0	13.5	12.6	12.6	12.6	13.5
42.5°	57.2	31.1	20.2	14.3	12.6	10.9	9.3	9.3	9.3	10.1	10.9
45°	33.7	21.0	13.5	9.3	8.4	7.6	6.7	6.7	7.6	8.4	9.3
47.5°	21.0	14.3	8.4	5.9	5.0	5.0	5.0	5.0	5.9	6.7	7.6
50°	14.3	7.6	5.0	3.4	3.4	3.4	3.4	4.2	5.0	5.9	6.7
52.5°	7.6	4.2	3.4	2.5	2.5	2.5	3.4	3.4	4.2	5.0	5.9
55°	4.2	3.4	2.5	2.5	2.5	2.5	2.5	3.4	4.2	5.0	5.9
57.5°	3.4	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	4.2	5.0
60°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	4.2	5.0
62.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	4.2	4.2
65°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	4.2	4.2
67.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	4.2
70°	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	4.2
72.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4
75°	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	4.2
77.5°	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4
80°	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4
82.5°	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4
85°	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
87.5°	2.5	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4
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°	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6
2.5°	198.6	191.9	185.2	185.2	181.8	176.7	175.1	170.0	166.6	165.0	163.3
5°	181.8	171.7	162.4	161.6	157.4	151.5	149.0	143.9	140.6	138.9	138.0
7.5°	162.4	152.3	143.1	141.4	138.0	133.8	131.3	127.1	125.4	123.7	122.9
10°	143.9	133.8	127.1	125.4	122.9	119.5	117.0	114.5	112.8	111.9	111.9
12.5°	125.4	117.8	111.9	110.3	108.6	106.0	104.4	102.7	101.8	101.8	101.8
15°	108.6	101.8	96.8	96.8	95.1	93.4	93.4	91.7	90.9	91.7	92.6
17.5°	91.7	86.7	82.5	82.5	81.6	80.8	80.8	80.8	81.6	82.5	84.2
20°	75.7	71.5	69.9	69.9	69.0	69.9	69.9	70.7	71.5	74.1	76.6
22.5°	61.4	58.9	57.2	58.1	58.1	58.9	59.8	61.4	63.1	65.6	68.2
25°	49.7	48.0	47.1	48.0	48.8	49.7	51.3	53.0	55.5	58.1	61.4
27.5°	39.6	38.7	38.7	39.6	40.4	42.1	44.6	46.3	48.8	51.3	54.7
30°	32.0	31.1	32.0	33.7	34.5	36.2	37.9	40.4	42.9	45.4	48.8
32.5°	25.2	26.1	26.9	27.8	28.6	31.1	32.8	34.5	37.0	39.6	42.9
35°	21.0	21.9	22.7	23.6	24.4	26.1	27.8	29.5	32.0	34.5	37.9
37.5°	16.8	17.7	18.5	20.2	21.0	21.9	24.4	25.2	27.8	29.5	32.8
40°	14.3	15.1	16.0	16.8	17.7	19.4	21.0	21.9	23.6	26.1	28.6
42.5°	11.8	12.6	13.5	14.3	15.1	16.8	17.7	19.4	21.0	22.7	24.4
45°	10.1	10.9	11.8	12.6	13.5	14.3	15.1	16.8	17.7	19.4	21.0
47.5°	8.4	9.3	10.9	10.9	11.8	12.6	13.5	14.3	16.0	16.8	18.5
50°	7.6	8.4	9.3	10.1	10.1	10.9	11.8	12.6	13.5	14.3	16.0
52.5°	6.7	7.6	8.4	8.4	9.3	10.1	10.9	10.9	11.8	12.6	13.5
55°	5.9	6.7	7.6	7.6	8.4	9.3	9.3	10.1	10.9	10.9	11.8
57.5°	5.9	5.9	6.7	6.7	7.6	7.6	8.4	9.3	9.3	10.1	10.9
60°	5.0	5.9	5.9	6.7	6.7	7.6	7.6	8.4	8.4	9.3	9.3
62.5°	5.0	5.0	5.9	5.9	6.7	6.7	7.6	7.6	7.6	8.4	8.4
65°	5.0	5.0	5.9	5.9	5.9	6.7	6.7	6.7	6.7	7.6	7.6
67.5°	4.2	5.0	5.0	5.9	5.9	5.9	5.9	5.9	6.7	6.7	6.7
70°	4.2	5.0	5.0	5.0	5.0	5.9	5.9	5.9	5.9	5.9	5.9
72.5°	4.2	4.2	4.2	4.2	5.0	5.0	5.0	5.0	5.0	5.0	5.0
75°	4.2	4.2	4.2	4.2	4.2	5.0	5.0	5.0	5.0	5.0	5.0
77.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
80°	3.4	3.4	3.4	3.4	3.4	4.2	3.4	3.4	3.4	3.4	3.4
82.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	2.5	2.5
85°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	2.5	2.5	2.5	2.5
87.5°	3.4	3.4	3.4	2.5	2.5	2.5	2.5	2.5	2.5	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: P182753

CATALOG NUMBER: LDSQA4A13840D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	214.6	214.6	214.6	214.6	214.6	214.6	214.6	214.6
2.5°	160.8	159.1	160.8	159.1	159.1	155.7	158.2	156.5
5°	135.5	133.8	135.5	134.7	133.0	132.1	133.8	133.0
7.5°	121.2	119.5	121.2	121.2	119.5	118.7	120.4	119.5
10°	110.3	109.4	110.3	110.3	109.4	108.6	110.3	109.4
12.5°	101.0	100.2	101.8	101.8	101.0	101.0	102.7	101.0
15°	92.6	92.6	94.3	94.3	94.3	94.3	95.9	95.1
17.5°	84.2	85.8	87.5	88.4	88.4	88.4	90.1	90.1
20°	77.4	79.1	80.8	81.6	82.5	82.5	84.2	84.2
22.5°	69.9	71.5	74.1	74.9	75.7	76.6	78.3	78.3
25°	63.1	64.8	67.3	68.2	69.9	70.7	72.4	72.4
27.5°	56.4	58.9	60.6	62.3	63.1	64.8	66.5	66.5
30°	50.5	53.0	54.7	56.4	57.2	58.9	60.6	60.6
32.5°	44.6	47.1	48.8	50.5	52.2	53.0	55.5	55.5
35°	39.6	41.2	43.8	44.6	46.3	48.0	49.7	49.7
37.5°	34.5	36.2	37.9	39.6	41.2	42.1	43.8	44.6
40°	30.3	32.0	33.7	34.5	36.2	37.9	38.7	39.6
42.5°	26.1	27.8	29.5	30.3	32.0	32.8	34.5	34.5
45°	22.7	24.4	25.2	26.1	27.8	28.6	30.3	30.3
47.5°	19.4	21.0	21.9	22.7	23.6	24.4	26.1	26.1
50°	16.8	17.7	18.5	19.4	20.2	21.9	22.7	22.7
52.5°	14.3	16.0	16.0	16.8	17.7	18.5	19.4	20.2
55°	12.6	13.5	14.3	14.3	15.1	16.0	16.8	17.7
57.5°	10.9	11.8	12.6	12.6	13.5	13.5	14.3	15.1
60°	10.1	10.1	10.9	10.9	10.9	11.8	11.8	12.6
62.5°	8.4	8.4	9.3	9.3	9.3	9.3	9.3	9.3
65°	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
67.5°	6.7	6.7	6.7	6.7	5.9	5.9	5.9	5.9
70°	5.9	5.9	5.9	5.9	5.0	5.0	5.0	4.2
72.5°	5.0	5.0	5.0	5.0	4.2	4.2	3.4	3.4
75°	4.2	4.2	4.2	4.2	4.2	3.4	3.4	3.4
77.5°	4.2	3.4	3.4	3.4	3.4	3.4	3.4	2.5
80°	3.4	3.4	2.5	2.5	2.5	2.5	2.5	2.5
82.5°	2.5	2.5	2.5	2.5	1.7	1.7	1.7	1.7
85°	2.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7
87.5°	1.7	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)