

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: P182747

Luminaire Tested: **LDSQA4A09930D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182747
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: LDSQA4A09930D010TE LAR35FL 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 35° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 957.3 lumens
Efficiency: N/A
Efficacy: 69.2 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

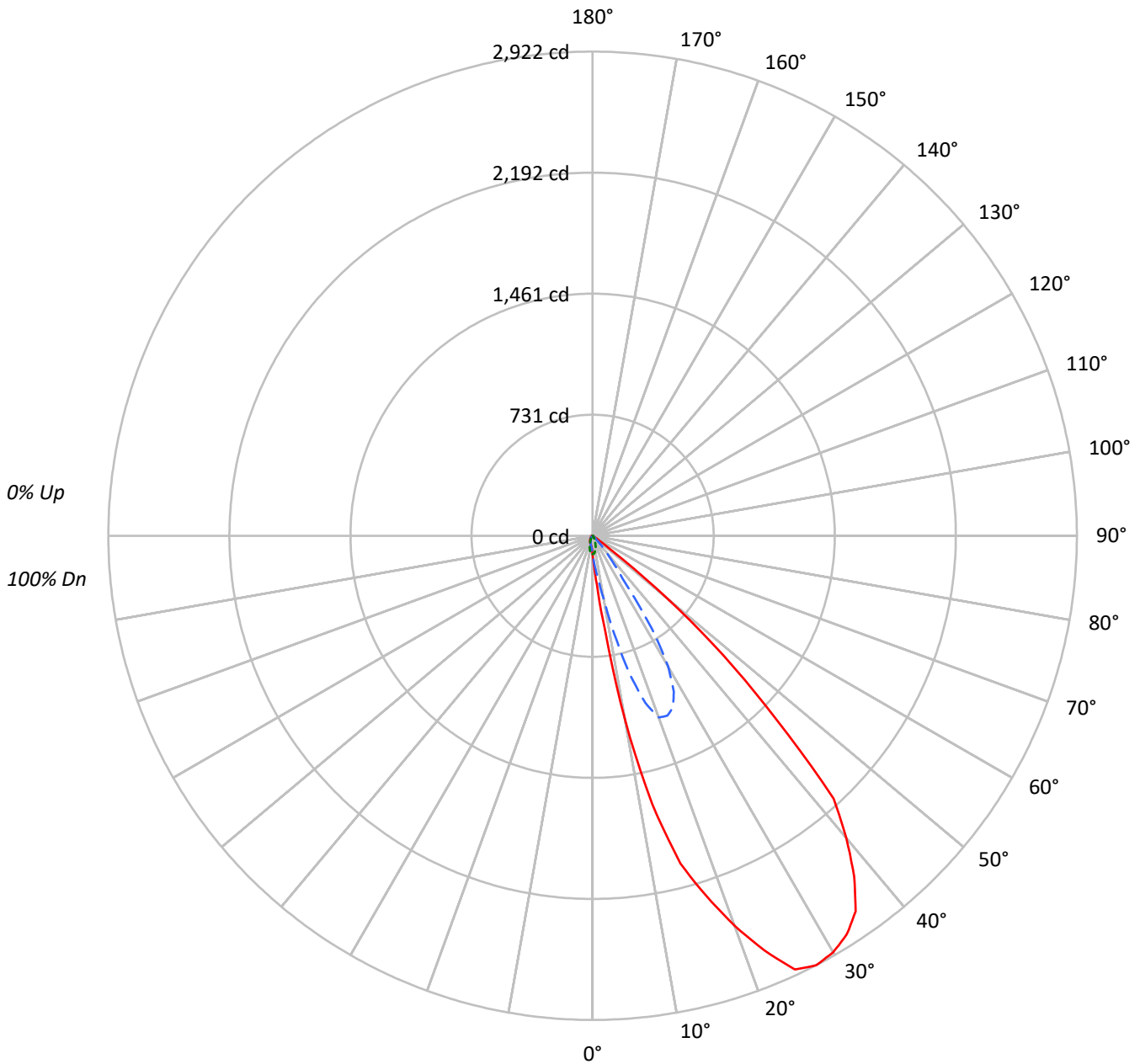
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	10821	10821	10821
5°	28454	10308	6729
10°	111551	8922	5597
15°	205380	7031	4964
20°	258072	4969	4515
25°	308688	3282	4030
30°	324613	2058	3524
35°	327234	1242	3051
40°	301118	835	2605
45°	214231	603	2165
50°	88528	467	1778
55°	5101	439	1554
60°	601	426	1279
65°	206	504	894
70°	255	510	623
75°	337	674	674
80°	0	1004	725
85°	0	2001	1000



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	17.6	1.8
10°-20°	140.3	14.7
20°-30°	290.1	30.3
30°-40°	315.8	33.0
40°-50°	173.2	18.1
50°-60°	15.0	1.6
60°-70°	2.4	0.3
70°-80°	1.8	0.2
80°-90°	1.1	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°	447.9	46.8
0°-40°	763.8	79.8
0°-60°	951.9	99.4
0°-90°	957.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	957.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	112	112	112	112	112	
5°	293	200	106	73	69	53
15°	2048	861	70	47	50	572
25°	2888	1145	31	29	38	1304
35°	2767	313	10	17	26	1698
45°	1564	32	4	9	16	1194
55°	30	4	3	6	9	103
65°	1	1	2	4	4	1
75°	1	1	2	3	2	1
85°	0	1	2	1	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°	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7
2.5°	175.6	169.5	168.6	169.5	165.1	164.7	165.6	162.1	159.0	155.9	153.3
5°	292.6	279.9	276.0	270.7	257.6	253.2	252.3	238.3	224.7	212.0	200.2
7.5°	568.6	543.1	529.6	503.3	463.0	445.0	435.4	389.4	346.5	307.5	272.0
10°	1134.0	1067.5	1035.1	985.6	897.5	854.1	822.6	707.0	593.1	483.6	387.2
12.5°	1654.9	1618.1	1570.3	1544.0	1401.2	1346.5	1294.4	1134.0	960.6	783.6	608.0
15°	2047.8	1993.9	1943.1	1930.8	1818.7	1754.7	1696.9	1530.9	1324.6	1099.4	860.7
17.5°	2278.6	2240.1	2191.9	2168.7	2037.2	1985.6	1919.9	1759.1	1558.5	1334.2	1057.0
20°	2503.3	2446.4	2378.5	2343.4	2198.0	2138.4	2064.0	1894.9	1682.4	1444.2	1166.9
22.5°	2708.7	2635.2	2538.8	2484.5	2321.1	2255.4	2172.2	1989.1	1759.1	1486.7	1176.1
25°	2887.9	2821.3	2693.0	2597.9	2405.2	2327.7	2230.9	2039.4	1786.7	1483.1	1145.0
27.5°	2922.1	2877.4	2762.2	2652.2	2434.5	2348.2	2247.9	2050.0	1767.4	1434.5	1061.3
30°	2901.9	2853.7	2761.3	2649.2	2422.3	2335.1	2230.9	2005.3	1692.1	1321.1	908.0
32.5°	2853.3	2811.7	2701.3	2583.0	2361.8	2271.2	2161.2	1900.6	1562.9	1140.6	668.0
35°	2767.0	2704.4	2571.2	2474.0	2265.9	2172.6	2038.1	1760.9	1369.7	820.0	313.2
37.5°	2591.3	2530.5	2434.5	2344.7	2141.9	2032.0	1890.1	1566.4	1015.3	447.2	193.6
40°	2381.1	2328.5	2244.9	2157.7	1948.8	1822.2	1665.8	1224.3	597.5	251.9	119.1
42.5°	2152.4	2098.1	2003.5	1901.9	1674.1	1540.5	1371.5	792.4	314.9	148.5	64.8
45°	1563.7	1515.1	1446.4	1373.2	1241.4	1145.0	922.5	416.1	174.3	78.8	32.0
47.5°	1070.1	1012.3	885.2	731.5	593.1	507.2	381.5	180.5	89.4	39.4	18.8
50°	587.4	526.1	461.2	359.2	240.5	197.5	153.7	87.2	40.3	19.7	10.5
52.5°	144.1	127.5	116.5	107.3	85.0	76.7	64.8	36.4	18.4	11.0	7.4
55°	30.2	28.0	26.7	26.3	24.1	23.2	20.1	14.0	10.1	7.0	3.5
57.5°	8.8	8.3	8.8	8.8	8.8	8.3	8.3	6.1	5.7	3.5	2.2
60°	3.1	3.1	3.1	3.5	3.5	3.5	3.9	3.9	3.1	2.2	1.8
62.5°	1.3	1.3	1.3	1.8	1.8	2.2	2.2	2.2	1.8	1.8	1.3
65°	0.9	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3
67.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3
77.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9	1.3
80°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9
85°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9
87.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	0.9	0.9
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°	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7
2.5°	145.9	141.5	136.2	130.5	129.7	126.6	122.2	116.1	113.9	109.5	105.6
5°	183.1	171.3	159.0	148.1	144.5	139.7	131.8	120.9	113.9	106.0	99.4
7.5°	233.0	205.9	180.9	161.2	155.1	147.2	134.9	120.9	110.4	99.4	90.7
10°	299.6	244.4	201.5	169.5	159.4	148.9	132.7	115.6	103.4	90.7	81.5
12.5°	427.9	300.9	220.8	173.9	159.9	146.3	125.7	107.3	93.3	80.6	71.4
15°	608.4	408.2	259.7	177.0	155.5	138.9	114.8	95.9	81.9	70.1	61.3
17.5°	760.8	509.9	311.9	185.7	152.4	129.2	102.1	82.8	69.2	58.7	51.7
20°	835.3	555.4	335.5	187.0	143.7	114.8	87.2	68.8	56.9	48.2	42.1
22.5°	826.6	540.1	313.6	163.8	121.3	96.8	72.3	55.6	45.6	38.5	34.2
25°	767.9	473.5	255.8	125.3	94.6	78.4	56.5	43.4	35.5	30.7	27.2
27.5°	669.3	380.2	186.6	88.5	71.8	59.6	42.1	33.3	27.2	23.7	21.5
30°	515.6	243.1	107.3	63.5	52.1	42.5	31.5	24.1	20.6	18.4	16.6
32.5°	265.9	118.3	71.4	45.6	36.8	30.7	21.9	17.5	15.3	14.0	13.1
35°	145.9	84.1	49.5	29.3	23.7	19.7	14.9	12.3	11.4	10.5	10.5
37.5°	100.3	52.1	27.6	17.5	14.5	12.3	10.1	8.8	8.3	8.3	8.3
40°	57.8	27.6	15.8	11.0	9.2	8.3	7.0	6.6	6.6	6.6	7.0
42.5°	29.8	16.2	10.5	7.4	6.6	5.7	4.8	4.8	4.8	5.3	5.7
45°	17.5	11.0	7.0	4.8	4.4	3.9	3.5	3.5	3.9	4.4	4.8
47.5°	11.0	7.4	4.4	3.1	2.6	2.6	2.6	2.6	3.1	3.5	3.9
50°	7.4	3.9	2.6	1.8	1.8	1.8	1.8	2.2	2.6	3.1	3.5
52.5°	3.9	2.2	1.8	1.3	1.3	1.3	1.8	1.8	2.2	2.6	3.1
55°	2.2	1.8	1.3	1.3	1.3	1.3	1.3	1.8	2.2	2.6	3.1
57.5°	1.8	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2	2.6
60°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2	2.6
62.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2	2.2
65°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	2.2	2.2
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	2.2
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	2.2
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8
75°	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8	2.2
77.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8
85°	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.8
87.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8
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°	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7
2.5°	103.4	99.9	96.4	96.4	94.6	92.0	91.1	88.5	86.7	85.9	85.0
5°	94.6	89.4	84.5	84.1	81.9	78.8	77.5	74.9	73.1	72.3	71.8
7.5°	84.5	79.3	74.5	73.6	71.8	69.6	68.3	66.1	65.3	64.4	64.0
10°	74.9	69.6	66.1	65.3	64.0	62.2	60.9	59.6	58.7	58.3	58.3
12.5°	65.3	61.3	58.3	57.4	56.5	55.2	54.3	53.4	53.0	53.0	53.0
15°	56.5	53.0	50.4	50.4	49.5	48.6	48.6	47.7	47.3	47.7	48.2
17.5°	47.7	45.1	42.9	42.9	42.5	42.1	42.1	42.1	42.5	42.9	43.8
20°	39.4	37.2	36.4	36.4	35.9	36.4	36.4	36.8	37.2	38.5	39.9
22.5°	32.0	30.7	29.8	30.2	30.2	30.7	31.1	32.0	32.9	34.2	35.5
25°	25.8	25.0	24.5	25.0	25.4	25.8	26.7	27.6	28.9	30.2	32.0
27.5°	20.6	20.1	20.1	20.6	21.0	21.9	23.2	24.1	25.4	26.7	28.5
30°	16.6	16.2	16.6	17.5	18.0	18.8	19.7	21.0	22.3	23.7	25.4
32.5°	13.1	13.6	14.0	14.5	14.9	16.2	17.1	18.0	19.3	20.6	22.3
35°	11.0	11.4	11.8	12.3	12.7	13.6	14.5	15.3	16.6	18.0	19.7
37.5°	8.8	9.2	9.6	10.5	11.0	11.4	12.7	13.1	14.5	15.3	17.1
40°	7.4	7.9	8.3	8.8	9.2	10.1	11.0	11.4	12.3	13.6	14.9
42.5°	6.1	6.6	7.0	7.4	7.9	8.8	9.2	10.1	11.0	11.8	12.7
45°	5.3	5.7	6.1	6.6	7.0	7.4	7.9	8.8	9.2	10.1	11.0
47.5°	4.4	4.8	5.7	5.7	6.1	6.6	7.0	7.4	8.3	8.8	9.6
50°	3.9	4.4	4.8	5.3	5.3	5.7	6.1	6.6	7.0	7.4	8.3
52.5°	3.5	3.9	4.4	4.4	4.8	5.3	5.7	5.7	6.1	6.6	7.0
55°	3.1	3.5	3.9	3.9	4.4	4.8	4.8	5.3	5.7	5.7	6.1
57.5°	3.1	3.1	3.5	3.5	3.9	3.9	4.4	4.8	4.8	5.3	5.7
60°	2.6	3.1	3.1	3.5	3.5	3.9	3.9	4.4	4.4	4.8	4.8
62.5°	2.6	2.6	3.1	3.1	3.5	3.5	3.9	3.9	3.9	4.4	4.4
65°	2.6	2.6	3.1	3.1	3.1	3.5	3.5	3.5	3.5	3.9	3.9
67.5°	2.2	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.5	3.5	3.5
70°	2.2	2.6	2.6	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.1
72.5°	2.2	2.2	2.2	2.2	2.6	2.6	2.6	2.6	2.6	2.6	2.6
75°	2.2	2.2	2.2	2.2	2.2	2.6	2.6	2.6	2.6	2.6	2.6
77.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
80°	1.8	1.8	1.8	1.8	1.8	2.2	1.8	1.8	1.8	1.8	1.8
82.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3	1.3
85°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.3	1.3	1.3	1.3
87.5°	1.8	1.8	1.8	1.3	1.3	1.3	1.3	1.3	1.3	0.9	0.9
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: P182747

CATALOG NUMBER: LDSQA4A09930D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	111.7	111.7	111.7	111.7	111.7	111.7	111.7	111.7
2.5°	83.7	82.8	83.7	82.8	82.8	81.0	82.3	81.5
5°	70.5	69.6	70.5	70.1	69.2	68.8	69.6	69.2
7.5°	63.1	62.2	63.1	63.1	62.2	61.8	62.6	62.2
10°	57.4	56.9	57.4	57.4	56.9	56.5	57.4	56.9
12.5°	52.6	52.1	53.0	53.0	52.6	52.6	53.4	52.6
15°	48.2	48.2	49.1	49.1	49.1	49.1	49.9	49.5
17.5°	43.8	44.7	45.6	46.0	46.0	46.0	46.9	46.9
20°	40.3	41.2	42.1	42.5	42.9	42.9	43.8	43.8
22.5°	36.4	37.2	38.5	39.0	39.4	39.9	40.7	40.7
25°	32.9	33.7	35.0	35.5	36.4	36.8	37.7	37.7
27.5°	29.3	30.7	31.5	32.4	32.9	33.7	34.6	34.6
30°	26.3	27.6	28.5	29.3	29.8	30.7	31.5	31.5
32.5°	23.2	24.5	25.4	26.3	27.2	27.6	28.9	28.9
35°	20.6	21.5	22.8	23.2	24.1	25.0	25.8	25.8
37.5°	18.0	18.8	19.7	20.6	21.5	21.9	22.8	23.2
40°	15.8	16.6	17.5	18.0	18.8	19.7	20.1	20.6
42.5°	13.6	14.5	15.3	15.8	16.6	17.1	18.0	18.0
45°	11.8	12.7	13.1	13.6	14.5	14.9	15.8	15.8
47.5°	10.1	11.0	11.4	11.8	12.3	12.7	13.6	13.6
50°	8.8	9.2	9.6	10.1	10.5	11.4	11.8	11.8
52.5°	7.4	8.3	8.3	8.8	9.2	9.6	10.1	10.5
55°	6.6	7.0	7.4	7.4	7.9	8.3	8.8	9.2
57.5°	5.7	6.1	6.6	6.6	7.0	7.0	7.4	7.9
60°	5.3	5.3	5.7	5.7	5.7	6.1	6.1	6.6
62.5°	4.4	4.4	4.8	4.8	4.8	4.8	4.8	4.8
65°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
67.5°	3.5	3.5	3.5	3.5	3.1	3.1	3.1	3.1
70°	3.1	3.1	3.1	3.1	2.6	2.6	2.6	2.2
72.5°	2.6	2.6	2.6	2.6	2.2	2.2	1.8	1.8
75°	2.2	2.2	2.2	2.2	2.2	1.8	1.8	1.8
77.5°	2.2	1.8	1.8	1.8	1.8	1.8	1.8	1.3
80°	1.8	1.8	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9
85°	1.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9
87.5°	0.9	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)