

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: P182741

Luminaire Tested: **LDSQA4A18940D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182741
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: LDSQA4A18940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1925.1 lumens
Efficiency: N/A
Efficacy: 66.1 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

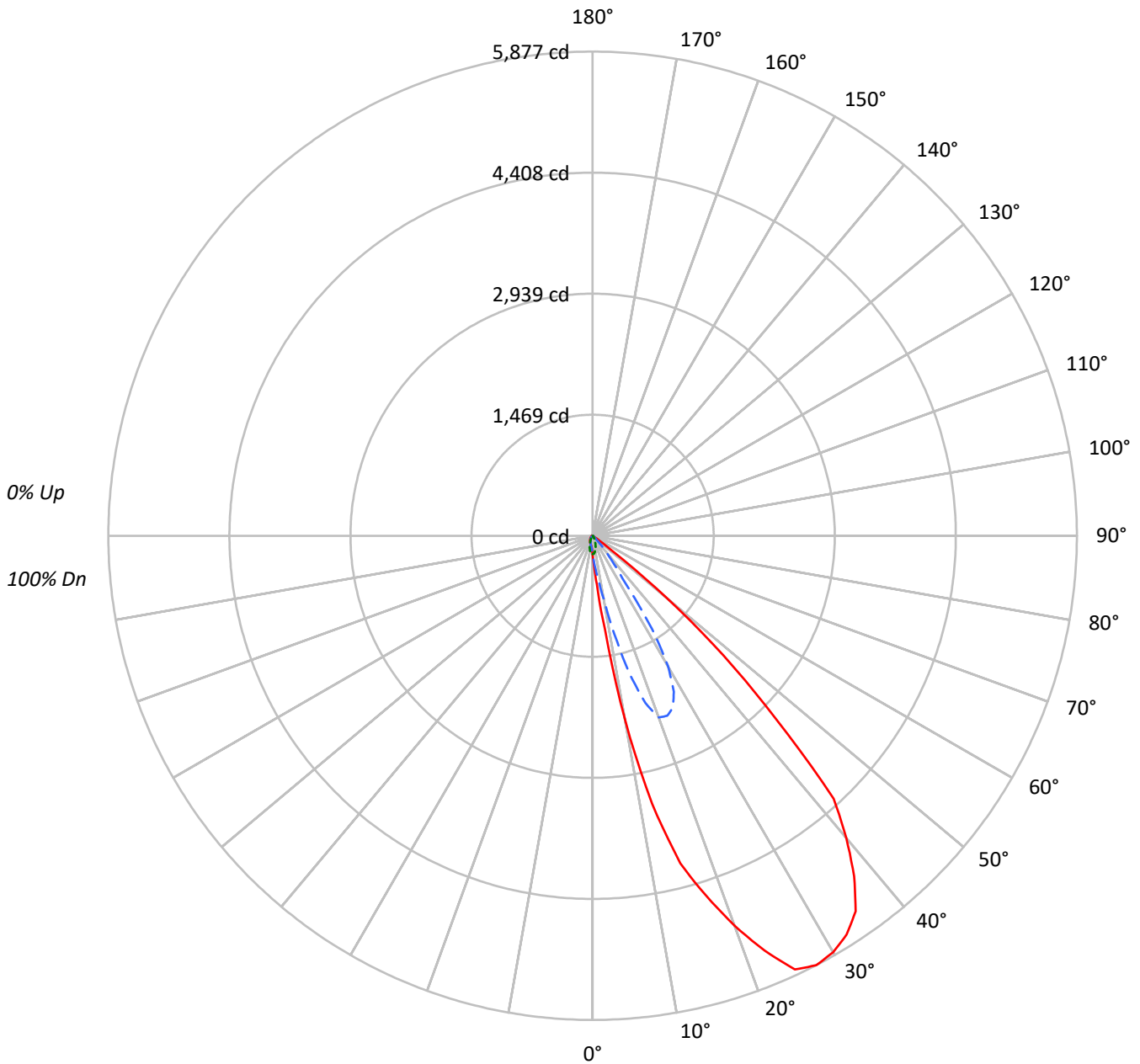
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	21758	21758	21758
5°	57229	20733	13537
10°	224362	17943	11263
15°	413056	14141	9979
20°	519030	9990	9082
25°	620829	6595	8102
30°	652861	4139	7092
35°	658134	2495	6150
40°	605613	1669	5236
45°	430873	1206	4343
50°	178050	934	3587
55°	10269	895	3125
60°	1201	853	2558
65°	413	1009	1811
70°	510	991	1246
75°	674	1310	1310
80°	0	1953	1450
85°	0	3890	2001



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.3	1.8
10°-20°	282.1	14.7
20°-30°	583.5	30.3
30°-40°	635.2	33.0
40°-50°	348.3	18.1
50°-60°	30.1	1.6
60°-70°	4.9	0.3
70°-80°	3.5	0.2
80°-90°	2.2	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°	900.9	46.8
0°-40°	1536.1	79.8
0°-60°	1914.5	99.4
0°-90°	1925.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1925.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	225	225	225	225	225	
5°	588	403	213	147	139	107
15°	4118	1731	141	95	100	1150
25°	5808	2303	62	58	76	2623
35°	5565	630	21	34	52	3415
45°	3145	64	9	18	32	2400
55°	61	7	5	12	18	208
65°	2	3	4	7	8	3
75°	2	3	4	5	4	1
85°	0	2	4	3	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°	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6
2.5°	353.3	340.9	339.2	340.9	332.1	331.2	333.0	326.0	319.8	313.6	308.3
5°	588.5	562.9	555.0	544.4	518.0	509.2	507.4	479.2	451.9	426.4	402.6
7.5°	1143.5	1092.4	1065.1	1012.2	931.2	895.0	875.7	783.2	696.8	618.4	547.1
10°	2280.8	2146.9	2081.7	1982.1	1805.1	1717.9	1654.4	1421.9	1192.8	972.6	778.8
12.5°	3328.2	3254.2	3158.2	3105.4	2818.2	2708.0	2603.2	2280.8	1931.9	1576.0	1222.8
15°	4118.5	4010.1	3907.9	3883.2	3657.7	3529.1	3412.8	3078.9	2664.0	2211.2	1731.1
17.5°	4582.7	4505.2	4408.3	4361.6	4097.3	3993.4	3861.2	3537.9	3134.4	2683.4	2125.7
20°	5034.6	4920.1	4783.6	4713.1	4420.6	4300.8	4151.0	3811.0	3383.7	2904.5	2346.9
22.5°	5447.8	5299.8	5106.0	4996.8	4668.2	4536.0	4368.6	4000.4	3537.9	2990.0	2365.4
25°	5808.1	5674.2	5416.1	5224.9	4837.3	4681.4	4486.7	4101.7	3593.4	2982.9	2302.8
27.5°	5876.8	5787.0	5555.3	5334.2	4896.3	4722.8	4521.1	4122.9	3554.6	2885.1	2134.5
30°	5836.3	5739.4	5553.5	5328.0	4871.7	4696.4	4486.7	4033.0	3403.1	2657.0	1826.2
32.5°	5738.5	5654.8	5432.8	5195.0	4750.1	4567.7	4346.6	3822.5	3143.2	2294.0	1343.5
35°	5565.0	5439.0	5171.2	4975.6	4557.2	4369.5	4099.1	3541.4	2754.7	1649.1	629.9
37.5°	5211.7	5089.3	4896.3	4715.7	4307.9	4086.7	3801.3	3150.3	2042.0	899.5	389.4
40°	4788.9	4683.1	4514.9	4339.6	3919.4	3664.8	3350.3	2462.3	1201.6	506.5	239.6
42.5°	4329.0	4219.8	4029.5	3825.1	3367.0	3098.3	2758.3	1593.6	633.4	298.6	130.4
45°	3145.0	3047.2	2908.9	2761.8	2496.6	2302.8	1855.3	836.9	350.6	158.6	64.3
47.5°	2152.2	2035.9	1780.4	1471.2	1192.8	1020.1	767.3	363.0	179.7	79.3	37.9
50°	1181.4	1058.0	927.6	722.4	483.6	397.3	309.2	175.3	81.0	39.6	21.1
52.5°	289.8	256.4	234.3	215.8	170.9	154.2	130.4	73.1	37.0	22.0	15.0
55°	60.8	56.4	53.7	52.9	48.5	46.7	40.5	28.2	20.3	14.1	7.0
57.5°	17.6	16.7	17.6	17.6	17.6	16.7	16.7	12.3	11.5	7.0	4.4
60°	6.2	6.2	6.2	7.0	7.0	7.0	7.9	7.9	6.2	4.4	3.5
62.5°	2.6	2.6	2.6	3.5	3.5	4.4	4.4	4.4	3.5	3.5	2.6
65°	1.8	1.8	1.8	1.8	2.6	2.6	2.6	2.6	2.6	2.6	2.6
67.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6
70°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6
72.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6
75°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.6
77.5°	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	1.8	1.8	2.6
80°	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8
82.5°	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	1.8	1.8	1.8
85°	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	1.8	1.8	1.8
87.5°	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6
2.5°	293.4	284.5	274.0	262.5	260.8	254.6	245.8	233.5	229.0	220.2	212.3
5°	368.2	344.5	319.8	297.8	290.7	281.0	265.2	243.1	229.0	213.2	200.0
7.5°	468.7	414.0	363.8	324.2	311.9	296.0	271.3	243.1	222.0	200.0	182.4
10°	602.6	491.6	405.2	340.9	320.7	299.5	266.9	232.6	207.9	182.4	163.9
12.5°	860.7	605.2	444.0	349.7	321.5	294.2	252.8	215.8	187.6	162.1	143.6
15°	1223.6	821.0	522.4	355.9	312.7	279.3	230.8	192.9	164.7	141.0	123.3
17.5°	1530.2	1025.4	627.2	373.5	306.6	259.9	205.3	166.5	139.2	118.0	104.0
20°	1680.0	1117.0	674.8	376.2	289.0	230.8	175.3	138.3	114.5	96.9	84.6
22.5°	1662.4	1086.2	630.8	329.5	244.0	194.7	145.4	111.9	91.6	77.5	68.7
25°	1544.3	952.3	514.5	252.0	190.3	157.7	113.6	87.2	71.4	61.7	54.6
27.5°	1346.1	764.7	375.3	178.0	144.5	119.8	84.6	67.0	54.6	47.6	43.2
30°	1036.9	488.9	215.8	127.7	104.8	85.5	63.4	48.5	41.4	37.0	33.5
32.5°	534.7	237.9	143.6	91.6	74.0	61.7	44.0	35.2	30.8	28.2	26.4
35°	293.4	169.1	99.5	59.0	47.6	39.6	30.0	24.7	22.9	21.1	21.1
37.5°	201.7	104.8	55.5	35.2	29.1	24.7	20.3	17.6	16.7	16.7	16.7
40°	116.3	55.5	31.7	22.0	18.5	16.7	14.1	13.2	13.2	13.2	14.1
42.5°	59.9	32.6	21.1	15.0	13.2	11.5	9.7	9.7	9.7	10.6	11.5
45°	35.2	22.0	14.1	9.7	8.8	7.9	7.0	7.0	7.9	8.8	9.7
47.5°	22.0	15.0	8.8	6.2	5.3	5.3	5.3	5.3	6.2	7.0	7.9
50°	15.0	7.9	5.3	3.5	3.5	3.5	3.5	4.4	5.3	6.2	7.0
52.5°	7.9	4.4	3.5	2.6	2.6	2.6	3.5	3.5	4.4	5.3	6.2
55°	4.4	3.5	2.6	2.6	2.6	2.6	2.6	3.5	4.4	5.3	6.2
57.5°	3.5	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	4.4	5.3
60°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	4.4	5.3
62.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	4.4	4.4
65°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	4.4	4.4
67.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	3.5	4.4
70°	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	3.5	3.5	4.4
72.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	3.5	3.5
75°	2.6	2.6	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	4.4
77.5°	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5
80°	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5
82.5°	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5
85°	2.6	2.6	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	3.5
87.5°	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5
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°	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6
2.5°	207.9	200.9	193.8	193.8	190.3	185.0	183.2	178.0	174.4	172.7	170.9
5°	190.3	179.7	170.0	169.1	164.7	158.6	155.9	150.6	147.1	145.4	144.5
7.5°	170.0	159.5	149.8	148.0	144.5	140.1	137.4	133.0	131.3	129.5	128.6
10°	150.6	140.1	133.0	131.3	128.6	125.1	122.5	119.8	118.0	117.2	117.2
12.5°	131.3	123.3	117.2	115.4	113.6	111.0	109.2	107.5	106.6	106.6	106.6
15°	113.6	106.6	101.3	101.3	99.5	97.8	97.8	96.0	95.1	96.0	96.9
17.5°	96.0	90.7	86.3	86.3	85.5	84.6	84.6	84.6	85.5	86.3	88.1
20°	79.3	74.9	73.1	73.1	72.2	73.1	73.1	74.0	74.9	77.5	80.2
22.5°	64.3	61.7	59.9	60.8	60.8	61.7	62.5	64.3	66.1	68.7	71.4
25°	52.0	50.2	49.3	50.2	51.1	52.0	53.7	55.5	58.1	60.8	64.3
27.5°	41.4	40.5	40.5	41.4	42.3	44.0	46.7	48.5	51.1	53.7	57.3
30°	33.5	32.6	33.5	35.2	36.1	37.9	39.6	42.3	44.9	47.6	51.1
32.5°	26.4	27.3	28.2	29.1	30.0	32.6	34.4	36.1	38.8	41.4	44.9
35°	22.0	22.9	23.8	24.7	25.5	27.3	29.1	30.8	33.5	36.1	39.6
37.5°	17.6	18.5	19.4	21.1	22.0	22.9	25.5	26.4	29.1	30.8	34.4
40°	15.0	15.9	16.7	17.6	18.5	20.3	22.0	22.9	24.7	27.3	30.0
42.5°	12.3	13.2	14.1	15.0	15.9	17.6	18.5	20.3	22.0	23.8	25.5
45°	10.6	11.5	12.3	13.2	14.1	15.0	15.9	17.6	18.5	20.3	22.0
47.5°	8.8	9.7	11.5	11.5	12.3	13.2	14.1	15.0	16.7	17.6	19.4
50°	7.9	8.8	9.7	10.6	10.6	11.5	12.3	13.2	14.1	15.0	16.7
52.5°	7.0	7.9	8.8	8.8	9.7	10.6	11.5	11.5	12.3	13.2	14.1
55°	6.2	7.0	7.9	7.9	8.8	9.7	9.7	10.6	11.5	11.5	12.3
57.5°	6.2	6.2	7.0	7.0	7.9	7.9	8.8	9.7	9.7	10.6	11.5
60°	5.3	6.2	6.2	7.0	7.0	7.9	7.9	8.8	8.8	9.7	9.7
62.5°	5.3	5.3	6.2	6.2	7.0	7.0	7.9	7.9	7.9	8.8	8.8
65°	5.3	5.3	6.2	6.2	6.2	7.0	7.0	7.0	7.0	7.9	7.9
67.5°	4.4	5.3	5.3	6.2	6.2	6.2	6.2	6.2	7.0	7.0	7.0
70°	4.4	5.3	5.3	5.3	5.3	6.2	6.2	6.2	6.2	6.2	6.2
72.5°	4.4	4.4	4.4	4.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3
75°	4.4	4.4	4.4	4.4	4.4	5.3	5.3	5.3	5.3	5.3	5.3
77.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
80°	3.5	3.5	3.5	3.5	3.5	4.4	3.5	3.5	3.5	3.5	3.5
82.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.6	2.6
85°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.6	2.6	2.6	2.6
87.5°	3.5	3.5	3.5	2.6	2.6	2.6	2.6	2.6	2.6	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



TEST NUMBER: P182741

CATALOG NUMBER: LDSQA4A18940D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6
2.5°	168.3	166.5	168.3	166.5	166.5	163.0	165.6	163.9
5°	141.8	140.1	141.8	141.0	139.2	138.3	140.1	139.2
7.5°	126.9	125.1	126.9	126.9	125.1	124.2	126.0	125.1
10°	115.4	114.5	115.4	115.4	114.5	113.6	115.4	114.5
12.5°	105.7	104.8	106.6	106.6	105.7	105.7	107.5	105.7
15°	96.9	96.9	98.7	98.7	98.7	98.7	100.4	99.5
17.5°	88.1	89.9	91.6	92.5	92.5	92.5	94.3	94.3
20°	81.0	82.8	84.6	85.5	86.3	86.3	88.1	88.1
22.5°	73.1	74.9	77.5	78.4	79.3	80.2	81.9	81.9
25°	66.1	67.8	70.5	71.4	73.1	74.0	75.8	75.8
27.5°	59.0	61.7	63.4	65.2	66.1	67.8	69.6	69.6
30°	52.9	55.5	57.3	59.0	59.9	61.7	63.4	63.4
32.5°	46.7	49.3	51.1	52.9	54.6	55.5	58.1	58.1
35°	41.4	43.2	45.8	46.7	48.5	50.2	52.0	52.0
37.5°	36.1	37.9	39.6	41.4	43.2	44.0	45.8	46.7
40°	31.7	33.5	35.2	36.1	37.9	39.6	40.5	41.4
42.5°	27.3	29.1	30.8	31.7	33.5	34.4	36.1	36.1
45°	23.8	25.5	26.4	27.3	29.1	30.0	31.7	31.7
47.5°	20.3	22.0	22.9	23.8	24.7	25.5	27.3	27.3
50°	17.6	18.5	19.4	20.3	21.1	22.9	23.8	23.8
52.5°	15.0	16.7	16.7	17.6	18.5	19.4	20.3	21.1
55°	13.2	14.1	15.0	15.0	15.9	16.7	17.6	18.5
57.5°	11.5	12.3	13.2	13.2	14.1	14.1	15.0	15.9
60°	10.6	10.6	11.5	11.5	11.5	12.3	12.3	13.2
62.5°	8.8	8.8	9.7	9.7	9.7	9.7	9.7	9.7
65°	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
67.5°	7.0	7.0	7.0	7.0	6.2	6.2	6.2	6.2
70°	6.2	6.2	6.2	6.2	5.3	5.3	5.3	4.4
72.5°	5.3	5.3	5.3	5.3	4.4	4.4	3.5	3.5
75°	4.4	4.4	4.4	4.4	4.4	3.5	3.5	3.5
77.5°	4.4	3.5	3.5	3.5	3.5	3.5	3.5	2.6
80°	3.5	3.5	2.6	2.6	2.6	2.6	2.6	2.6
82.5°	2.6	2.6	2.6	2.6	1.8	1.8	1.8	1.8
85°	2.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8
87.5°	1.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
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)