

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: P182854

Luminaire Tested: **LDSQA4A28827D010TE LAR35FL 4LSQAL1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182854
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26804)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A28827D010TE LAR35FL 4LSQAL1H 30°
Description: PORTFOLIO 4" SQUARE LENSED ADJUSTABLE, 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: 2676.2 lumens
Efficiency: N/A
Efficacy: 60.2 lumens/watt
Spacing Criteria (0/90/45): 2.46 / 0.61 / 1.2
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

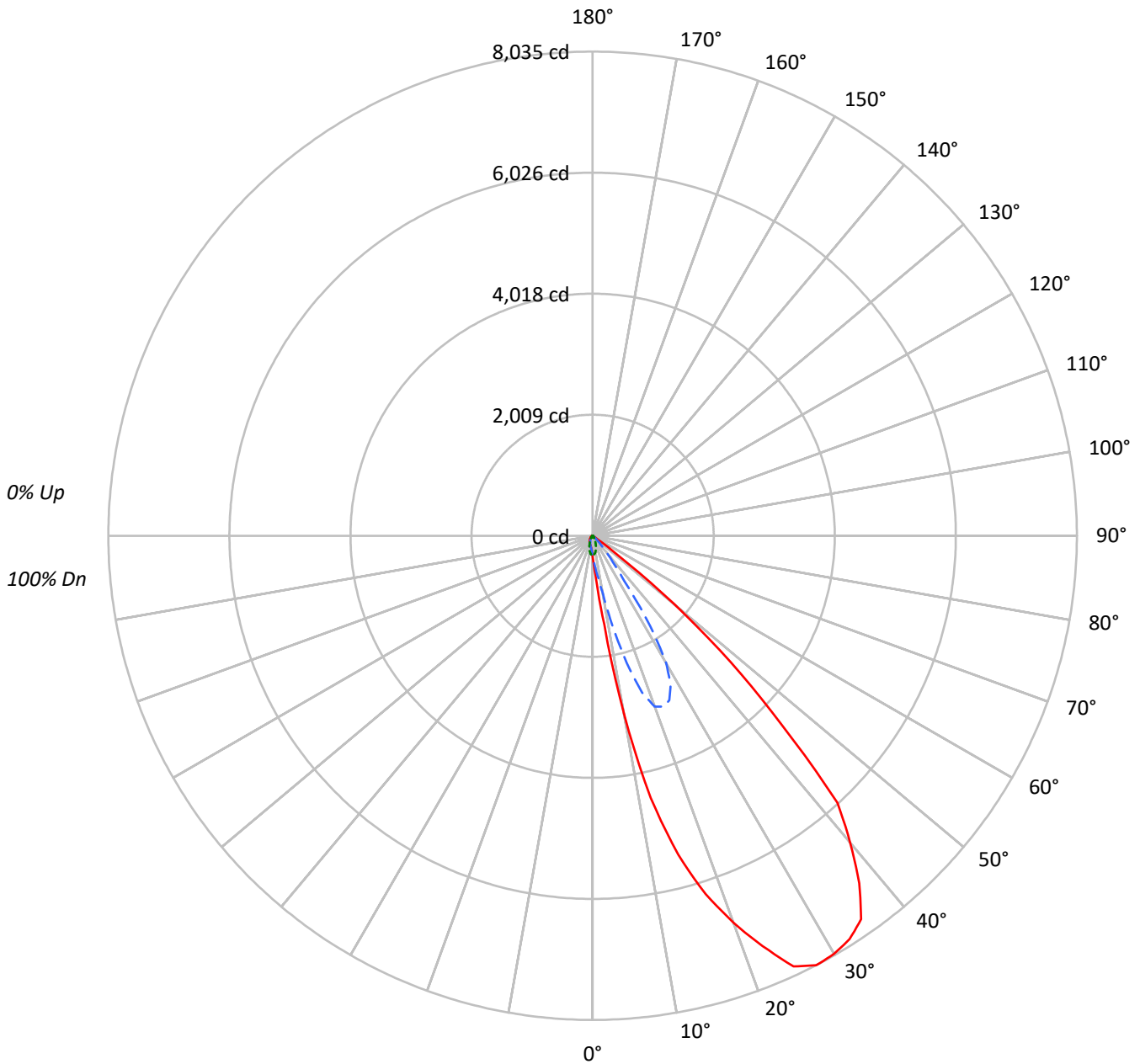
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	104	102	103	101	99	99	97	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82																			
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74																			
4	92	83	77	71	90	82	76	71	80	74	70	78	73	69	76	72	68	67																			
5	86	76	69	64	84	75	68	64	73	67	63	71	66	62	70	65	62	60																			
6	80	70	62	57	79	69	62	57	67	61	57	66	60	56	64	59	56	54																			
7	75	64	57	52	74	63	56	51	62	56	51	60	55	51	59	54	50	49																			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	32056	32056	32056
5°	75132	30253	21151
10°	296851	26589	17638
15°	549384	21292	15465
20°	704443	15495	14000
25°	842840	10988	12399
30°	896206	7226	10918
35°	918490	4364	9508
40°	840782	2833	8169
45°	606702	1987	6686
50°	264860	1582	5561
55°	18258	1334	4678
60°	3313	1279	3836
65°	1215	1215	2728
70°	1133	1501	1869
75°	973	1984	1984
80°	0	2957	2232
85°	0	5891	1445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	48.2	1.8
10°-20°	378.8	14.2
20°-30°	793.0	29.6
30°-40°	882.8	33.0
40°-50°	506.7	18.9
50°-60°	50.6	1.9
60°-70°	7.9	0.3
70°-80°	5.0	0.2
80°-90°	3.1	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°	1220.0	45.6
0°-40°	2102.8	78.6
0°-60°	2660.1	99.4
0°-90°	2676.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2676.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	331	331	331	331	331	
5°	773	533	311	227	218	142
15°	5478	2187	212	149	154	1548
25°	7885	3010	103	91	116	3571
35°	7766	919	37	53	80	4742
45°	4428	111	14	29	49	3381
55°	108	16	8	17	28	323
65°	5	4	5	10	12	7
75°	3	3	5	7	5	2
85°	0	3	5	4	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°	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9
2.5°	494.4	483.8	473.3	466.7	460.1	469.3	462.7	460.1	441.7	432.4	424.5
5°	772.6	752.8	723.8	700.1	676.3	681.6	663.1	640.7	594.6	561.6	532.6
7.5°	1491.1	1442.3	1352.6	1265.6	1178.6	1162.8	1104.8	1004.6	875.4	777.8	693.5
10°	3017.7	2870.1	2705.3	2527.3	2319.0	2261.0	2117.3	1845.7	1549.1	1210.3	965.0
12.5°	4454.8	4387.5	4193.7	3963.0	3737.6	3599.1	3450.2	3001.9	2531.3	1985.5	1529.3
15°	5477.8	5436.9	5266.9	5057.2	4814.7	4725.0	4543.1	4096.2	3501.6	2849.0	2187.2
17.5°	6235.9	6166.0	5988.0	5759.9	5472.5	5396.1	5178.5	4734.2	4117.3	3462.0	2727.7
20°	6833.1	6789.6	6558.9	6284.6	5940.6	5848.3	5593.8	5131.1	4460.0	3763.9	3016.4
22.5°	7369.7	7295.8	7012.4	6685.4	6292.6	6193.7	5910.2	5402.7	4681.5	3906.3	3067.8
25°	7885.1	7773.1	7429.0	7000.5	6539.1	6404.6	6093.5	5555.6	4763.3	3918.2	3009.8
27.5°	8035.4	7978.7	7661.0	7162.7	6628.7	6477.1	6152.8	5589.9	4732.9	3810.1	2801.5
30°	8011.7	7964.2	7699.3	7178.5	6612.9	6453.4	6123.8	5484.4	4556.3	3527.9	2433.7
32.5°	7936.6	7918.1	7597.7	7041.4	6465.3	6291.2	5935.3	5222.0	4225.4	3098.2	1778.5
35°	7766.5	7694.0	7294.5	6771.1	6217.4	6026.2	5624.1	4846.3	3789.0	2255.7	918.9
37.5°	7268.1	7211.5	6896.4	6437.6	5898.4	5653.1	5228.6	4361.2	2933.4	1282.8	549.8
40°	6648.5	6620.8	6373.0	5963.0	5386.8	5110.0	4648.6	3568.8	1790.3	729.1	362.6
42.5°	6013.1	6005.2	5740.2	5311.7	4686.8	4369.1	3890.5	2407.3	951.9	440.3	209.6
45°	4428.4	4475.8	4291.3	4034.2	3556.9	3326.2	2705.3	1240.6	548.4	243.9	110.7
47.5°	3106.1	3053.3	2726.4	2276.8	1840.4	1558.3	1178.6	586.7	292.7	127.9	63.3
50°	1757.4	1766.6	1471.3	1190.5	780.5	618.3	469.3	295.3	141.1	67.2	38.2
52.5°	458.8	479.9	414.0	356.0	303.2	246.5	199.1	127.9	67.2	39.6	25.0
55°	108.1	112.1	104.2	97.6	92.3	81.7	72.5	55.4	36.9	25.0	15.8
57.5°	38.2	39.6	38.2	38.2	36.9	35.6	33.0	29.0	22.4	15.8	10.5
60°	17.1	18.5	17.1	18.5	18.5	18.5	18.5	18.5	13.2	9.2	6.6
62.5°	7.9	7.9	7.9	7.9	9.2	9.2	10.5	10.5	7.9	6.6	5.3
65°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.0
67.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
70°	4.0	4.0	4.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	4.0
72.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
75°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
77.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	2.6	2.6	2.6
80°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.6	2.6	2.6
82.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.6	2.6	2.6
85°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	2.6	2.6
87.5°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	2.6	2.6
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°	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9
2.5°	410.0	408.7	394.2	383.6	378.4	370.5	361.2	348.0	333.5	320.4	315.1
5°	498.3	481.2	450.9	425.8	414.0	402.1	381.0	357.3	334.9	311.1	299.3
7.5°	613.0	562.9	503.6	457.5	437.7	417.9	387.6	354.6	324.3	292.7	275.5
10°	769.9	653.9	551.1	477.2	448.2	421.9	378.4	337.5	304.5	270.3	247.9
12.5°	1100.8	813.4	601.2	486.5	448.2	414.0	361.2	313.8	276.9	241.3	220.2
15°	1586.0	1098.2	710.6	495.7	439.0	395.5	334.9	283.4	243.9	212.3	192.5
17.5°	1977.5	1360.6	846.4	519.4	427.2	370.5	300.6	246.5	209.6	180.6	164.8
20°	2175.3	1471.3	908.4	523.4	398.1	330.9	259.7	208.3	175.3	150.3	137.1
22.5°	2171.3	1435.7	853.0	458.8	349.4	286.1	218.8	171.4	145.0	125.2	114.7
25°	2034.2	1270.9	711.9	366.5	282.1	237.3	178.0	138.4	117.3	102.8	93.6
27.5°	1777.2	1032.3	531.3	271.6	220.2	187.2	138.4	110.7	93.6	83.1	76.5
30°	1394.8	690.8	334.9	201.7	167.4	141.1	106.8	85.7	73.8	64.6	60.6
32.5°	768.6	359.9	225.4	147.7	122.6	102.8	79.1	62.0	54.1	47.5	46.1
35°	424.5	254.4	160.8	98.9	81.7	69.9	54.1	44.8	39.6	36.9	36.9
37.5°	300.6	163.5	96.2	62.0	52.7	46.1	36.9	31.6	30.3	29.0	29.0
40°	180.6	96.2	58.0	40.9	35.6	31.6	27.7	23.7	23.7	22.4	23.7
42.5°	98.9	58.0	39.6	29.0	25.0	23.7	19.8	18.5	18.5	18.5	19.8
45°	59.3	38.2	27.7	21.1	18.5	15.8	14.5	13.2	14.5	14.5	15.8
47.5°	38.2	27.7	18.5	13.2	11.9	10.5	9.2	10.5	10.5	11.9	13.2
50°	26.4	17.1	11.9	7.9	7.9	6.6	7.9	7.9	9.2	10.5	11.9
52.5°	17.1	11.9	7.9	6.6	5.3	5.3	5.3	6.6	7.9	9.2	10.5
55°	10.5	7.9	6.6	5.3	5.3	5.3	5.3	5.3	6.6	7.9	9.2
57.5°	7.9	6.6	5.3	4.0	4.0	4.0	5.3	5.3	6.6	6.6	7.9
60°	5.3	5.3	4.0	4.0	4.0	4.0	4.0	5.3	5.3	6.6	7.9
62.5°	5.3	5.3	4.0	4.0	4.0	4.0	5.3	5.3	5.3	6.6	6.6
65°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	6.6
67.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	6.6
70°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	6.6
72.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3
75°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3
77.5°	2.6	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3
80°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3
82.5°	2.6	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3
85°	2.6	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3	5.3
87.5°	2.6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3	5.3	5.3
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°	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9
2.5°	308.5	299.3	291.4	294.0	288.7	279.5	276.9	270.3	262.4	261.0	261.0
5°	286.1	271.6	259.7	258.4	253.1	242.6	239.9	233.4	226.8	225.4	224.1
7.5°	258.4	242.6	232.0	229.4	225.4	216.2	214.9	208.3	204.3	201.7	201.7
10°	230.7	216.2	207.0	205.7	203.0	195.1	193.8	188.5	184.6	183.3	181.9
12.5°	204.3	192.5	184.6	183.3	180.6	174.0	172.7	168.8	166.1	164.8	164.8
15°	179.3	168.8	162.2	160.8	159.5	152.9	152.9	150.3	149.0	149.0	150.3
17.5°	154.2	145.0	139.7	138.4	138.4	133.2	134.5	133.2	133.2	133.2	135.8
20°	129.2	121.3	117.3	118.7	116.0	114.7	116.0	116.0	116.0	118.7	122.6
22.5°	108.1	101.5	97.6	98.9	98.9	97.6	98.9	100.2	102.8	106.8	110.7
25°	88.3	83.1	81.7	83.1	83.1	83.1	85.7	88.3	91.0	94.9	98.9
27.5°	71.2	67.2	67.2	68.6	69.9	69.9	73.8	76.5	80.4	84.4	88.3
30°	56.7	55.4	55.4	58.0	58.0	59.3	64.6	67.2	69.9	73.8	77.8
32.5°	44.8	44.8	46.1	48.8	48.8	51.4	55.4	58.0	60.6	64.6	68.6
35°	36.9	38.2	39.6	40.9	42.2	43.5	47.5	50.1	52.7	56.7	59.3
37.5°	30.3	31.6	33.0	35.6	35.6	36.9	40.9	43.5	44.8	48.8	52.7
40°	25.0	26.4	27.7	30.3	30.3	31.6	35.6	36.9	38.2	42.2	46.1
42.5°	21.1	22.4	23.7	25.0	26.4	27.7	30.3	31.6	34.3	36.9	39.6
45°	17.1	18.5	19.8	21.1	22.4	23.7	25.0	27.7	29.0	31.6	34.3
47.5°	14.5	15.8	17.1	18.5	19.8	19.8	22.4	23.7	25.0	27.7	30.3
50°	13.2	14.5	15.8	15.8	17.1	18.5	19.8	21.1	22.4	23.7	26.4
52.5°	10.5	11.9	13.2	14.5	14.5	15.8	17.1	18.5	19.8	21.1	22.4
55°	10.5	10.5	11.9	13.2	13.2	14.5	15.8	17.1	17.1	18.5	19.8
57.5°	9.2	10.5	10.5	11.9	11.9	13.2	14.5	14.5	15.8	15.8	17.1
60°	7.9	9.2	10.5	10.5	10.5	11.9	11.9	13.2	13.2	14.5	14.5
62.5°	7.9	9.2	9.2	10.5	10.5	10.5	11.9	11.9	11.9	13.2	13.2
65°	7.9	7.9	9.2	9.2	9.2	9.2	10.5	10.5	10.5	11.9	11.9
67.5°	6.6	7.9	7.9	7.9	9.2	9.2	9.2	9.2	9.2	10.5	10.5
70°	6.6	6.6	7.9	7.9	7.9	7.9	7.9	9.2	9.2	9.2	9.2
72.5°	6.6	6.6	6.6	6.6	7.9	7.9	7.9	7.9	7.9	7.9	7.9
75°	5.3	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
77.5°	5.3	5.3	5.3	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
80°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
82.5°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.0	4.0
85°	5.3	5.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
87.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.6	2.6	2.6
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: P182854

CATALOG NUMBER: LDSQA4A28827D010TE LAR35FL 4LSQAL1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9
2.5°	255.8	253.1	251.8	255.8	250.5	253.1	251.8	253.1
5°	220.2	217.5	216.2	220.2	214.9	217.5	214.9	217.5
7.5°	197.8	196.4	195.1	197.8	193.8	196.4	195.1	196.4
10°	179.3	178.0	176.7	180.6	176.7	179.3	178.0	179.3
12.5°	163.5	163.5	162.2	164.8	162.2	164.8	163.5	164.8
15°	149.0	150.3	149.0	151.6	150.3	152.9	151.6	154.2
17.5°	137.1	138.4	138.4	142.4	141.1	145.0	143.7	145.0
20°	125.2	126.6	127.9	130.5	130.5	134.5	133.2	135.8
22.5°	113.4	116.0	116.0	120.0	120.0	123.9	123.9	125.2
25°	101.5	105.5	106.8	109.4	110.7	114.7	114.7	116.0
27.5°	92.3	94.9	96.2	100.2	101.5	105.5	105.5	108.1
30°	81.7	85.7	87.0	89.6	91.0	94.9	94.9	97.6
32.5°	72.5	75.1	77.8	80.4	81.7	85.7	85.7	88.3
35°	63.3	67.2	68.6	71.2	73.8	77.8	77.8	80.4
37.5°	55.4	59.3	60.6	63.3	65.9	69.9	69.9	72.5
40°	48.8	52.7	54.1	56.7	58.0	63.3	63.3	64.6
42.5°	43.5	46.1	47.5	50.1	51.4	54.1	54.1	56.7
45°	36.9	39.6	40.9	42.2	44.8	47.5	47.5	48.8
47.5°	31.6	34.3	35.6	36.9	38.2	40.9	40.9	43.5
50°	27.7	29.0	30.3	31.6	33.0	35.6	35.6	36.9
52.5°	23.7	25.0	26.4	27.7	29.0	30.3	31.6	33.0
55°	21.1	22.4	22.4	23.7	25.0	26.4	26.4	27.7
57.5°	18.5	19.8	19.8	19.8	21.1	22.4	22.4	23.7
60°	15.8	17.1	17.1	17.1	18.5	18.5	18.5	19.8
62.5°	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
65°	11.9	11.9	11.9	11.9	11.9	11.9	10.5	11.9
67.5°	10.5	10.5	10.5	9.2	9.2	9.2	9.2	9.2
70°	9.2	9.2	9.2	7.9	7.9	7.9	6.6	6.6
72.5°	7.9	7.9	7.9	6.6	6.6	6.6	5.3	5.3
75°	6.6	6.6	6.6	6.6	5.3	5.3	5.3	5.3
77.5°	5.3	5.3	5.3	5.3	5.3	5.3	4.0	4.0
80°	5.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0
82.5°	4.0	4.0	4.0	4.0	2.6	2.6	2.6	2.6
85°	2.6	2.6	2.6	2.6	2.6	2.6	1.3	1.3
87.5°	2.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)