

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: P182765

Luminaire Tested: **LDSQA4A28940D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182765
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: LDSQA4A28940D010TE 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: 2636.8 lumens
Efficiency: N/A
Efficacy: 59.3 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

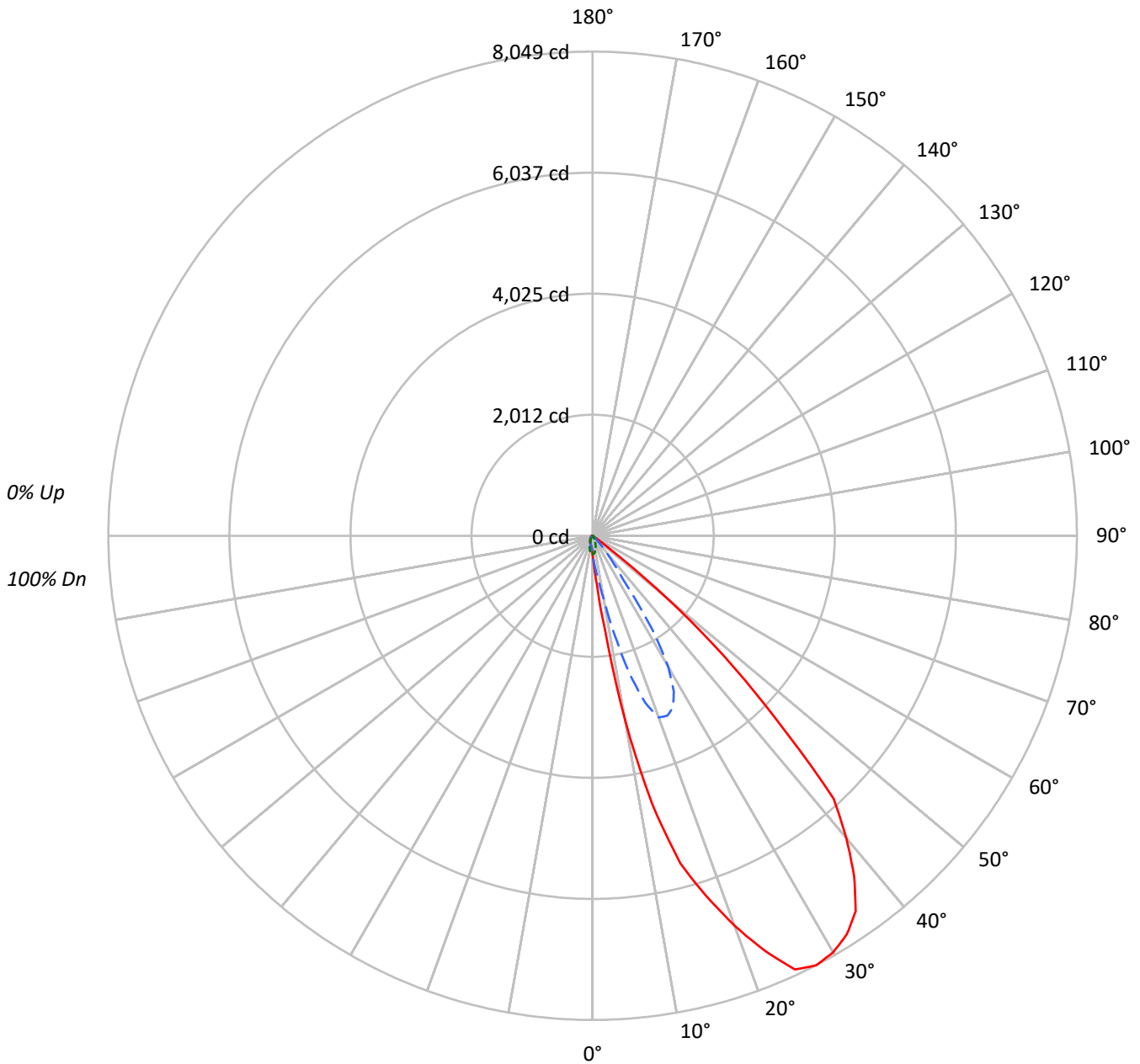
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	29809	29809	29809
5°	78380	28396	18535
10°	307298	24573	15434
15°	565742	19367	13670
20°	710906	13680	12443
25°	850333	9032	11095
30°	894203	5671	9721
35°	901425	3430	8420
40°	829476	2289	7170
45°	590152	1658	5946
50°	243866	1266	4913
55°	14069	1216	4273
60°	1628	1163	3507
65°	550	1375	2499
70°	680	1360	1699
75°	898	1797	1797
80°	0	2678	2008
85°	0	5335	2668



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	48.4	1.8
10°-20°	386.4	14.7
20°-30°	799.2	30.3
30°-40°	870.0	33.0
40°-50°	477.0	18.1
50°-60°	41.3	1.6
60°-70°	6.7	0.3
70°-80°	4.8	0.2
80°-90°	3.0	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°	1233.9	46.8
0°-40°	2103.9	79.8
0°-60°	2622.2	99.4
0°-90°	2636.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2636.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	308	308	308	308	308	
5°	806	551	292	202	191	147
15°	5641	2371	193	130	136	1575
25°	7955	3154	84	80	104	3592
35°	7622	863	29	46	71	4678
45°	4308	88	12	25	43	3288
55°	83	10	7	16	25	285
65°	2	4	6	10	11	3
75°	2	4	5	7	5	2
85°	0	2	5	4	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°	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7
2.5°	483.9	467.0	464.5	467.0	454.9	453.7	456.1	446.4	438.0	429.6	422.3
5°	806.0	771.0	760.2	745.7	709.5	697.4	695.0	656.4	619.0	584.0	551.4
7.5°	1566.2	1496.2	1458.8	1386.4	1275.4	1225.9	1199.4	1072.7	954.4	847.0	749.3
10°	3123.9	2940.5	2851.2	2714.9	2472.4	2352.9	2266.0	1947.5	1633.8	1332.1	1066.6
12.5°	4558.6	4457.2	4325.7	4253.3	3860.0	3709.1	3565.5	3123.9	2646.1	2158.6	1674.8
15°	5640.9	5492.5	5352.5	5318.8	5009.9	4833.7	4674.4	4217.1	3648.8	3028.6	2371.0
17.5°	6276.8	6170.6	6037.9	5973.9	5612.0	5469.6	5288.6	4845.8	4293.1	3675.3	2911.6
20°	6895.8	6738.9	6551.9	6455.4	6054.8	5890.7	5685.6	5219.8	4634.6	3978.2	3214.4
22.5°	7461.7	7259.0	6993.5	6843.9	6393.8	6212.9	5983.6	5479.2	4845.8	4095.2	3239.8
25°	7955.2	7771.8	7418.3	7156.4	6625.5	6411.9	6145.3	5618.0	4921.8	4085.6	3154.1
27.5°	8049.3	7926.2	7608.9	7306.0	6706.4	6468.7	6192.3	5646.9	4868.7	3951.7	2923.6
30°	7993.8	7861.1	7606.5	7297.6	6672.6	6432.5	6145.3	5523.9	4661.1	3639.1	2501.3
32.5°	7859.9	7745.2	7441.2	7115.4	6506.1	6256.3	5953.4	5235.5	4305.2	3142.0	1840.1
35°	7622.2	7449.6	7082.8	6815.0	6241.8	5984.8	5614.4	4850.6	3773.1	2258.8	862.7
37.5°	7138.3	6970.6	6706.4	6459.0	5900.3	5597.5	5206.5	4314.8	2796.9	1232.0	533.3
40°	6559.1	6414.4	6183.9	5943.8	5368.2	5019.5	4588.7	3372.5	1645.8	693.8	328.2
42.5°	5929.3	5779.7	5519.0	5239.1	4611.7	4243.7	3777.9	2182.8	867.6	409.0	178.6
45°	4307.6	4173.7	3984.2	3782.7	3419.5	3154.1	2541.1	1146.3	480.2	217.2	88.1
47.5°	2947.8	2788.5	2438.6	2015.0	1633.8	1397.3	1051.0	497.1	246.1	108.6	51.9
50°	1618.1	1449.1	1270.6	989.4	662.4	544.2	423.5	240.1	111.0	54.3	29.0
52.5°	397.0	351.1	321.0	295.6	234.1	211.2	178.6	100.1	50.7	30.2	20.5
55°	83.3	77.2	73.6	72.4	66.4	64.0	55.5	38.6	27.8	19.3	9.7
57.5°	24.1	22.9	24.1	24.1	24.1	22.9	22.9	16.9	15.7	9.7	6.0
60°	8.4	8.4	8.4	9.7	9.7	9.7	10.9	10.9	8.4	6.0	4.8
62.5°	3.6	3.6	3.6	4.8	4.8	6.0	6.0	6.0	4.8	4.8	3.6
65°	2.4	2.4	2.4	2.4	3.6	3.6	3.6	3.6	3.6	3.6	3.6
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.6
70°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.6
72.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.6
75°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.6
77.5°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	2.4	2.4	2.4	3.6
80°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	2.4	2.4	2.4	2.4
82.5°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4	2.4
85°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4	2.4
87.5°	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2	2.4	2.4	2.4
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7
2.5°	401.8	389.7	375.3	359.6	357.2	348.7	336.6	319.8	313.7	301.7	290.8
5°	504.4	471.8	438.0	407.8	398.2	384.9	363.2	333.0	313.7	292.0	273.9
7.5°	641.9	567.1	498.3	444.0	427.1	405.4	371.6	333.0	304.1	273.9	249.8
10°	825.3	673.3	555.0	467.0	439.2	410.2	365.6	318.5	284.8	249.8	224.4
12.5°	1178.9	828.9	608.1	479.0	440.4	403.0	346.3	295.6	257.0	222.0	196.7
15°	1676.0	1124.6	715.5	487.5	428.3	382.5	316.1	264.2	225.6	193.1	168.9
17.5°	2095.9	1404.5	859.1	511.6	419.9	356.0	281.1	228.0	190.6	161.7	142.4
20°	2301.0	1530.0	924.3	515.2	395.8	316.1	240.1	189.4	156.9	132.7	115.8
22.5°	2276.9	1487.8	863.9	451.3	334.2	266.7	199.1	153.2	125.5	106.2	94.1
25°	2115.2	1304.3	704.7	345.1	260.6	216.0	155.7	119.5	97.7	84.5	74.8
27.5°	1843.7	1047.3	514.0	243.7	197.9	164.1	115.8	91.7	74.8	65.2	59.1
30°	1420.2	669.7	295.6	175.0	143.6	117.0	86.9	66.4	56.7	50.7	45.9
32.5°	732.4	325.8	196.7	125.5	101.4	84.5	60.3	48.3	42.2	38.6	36.2
35°	401.8	231.7	136.3	80.8	65.2	54.3	41.0	33.8	31.4	29.0	29.0
37.5°	276.3	143.6	76.0	48.3	39.8	33.8	27.8	24.1	22.9	22.9	22.9
40°	159.3	76.0	43.4	30.2	25.3	22.9	19.3	18.1	18.1	18.1	19.3
42.5°	82.0	44.6	29.0	20.5	18.1	15.7	13.3	13.3	13.3	14.5	15.7
45°	48.3	30.2	19.3	13.3	12.1	10.9	9.7	9.7	10.9	12.1	13.3
47.5°	30.2	20.5	12.1	8.4	7.2	7.2	7.2	7.2	8.4	9.7	10.9
50°	20.5	10.9	7.2	4.8	4.8	4.8	4.8	6.0	7.2	8.4	9.7
52.5°	10.9	6.0	4.8	3.6	3.6	3.6	4.8	4.8	6.0	7.2	8.4
55°	6.0	4.8	3.6	3.6	3.6	3.6	3.6	4.8	6.0	7.2	8.4
57.5°	4.8	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	6.0	7.2
60°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	6.0	7.2
62.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	6.0	6.0
65°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	6.0	6.0
67.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	6.0
70°	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8	6.0
72.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8
75°	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8	6.0
77.5°	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8
80°	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8
82.5°	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8
85°	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8	4.8
87.5°	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8	4.8	4.8	4.8
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°	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7
2.5°	284.8	275.1	265.5	265.5	260.6	253.4	251.0	243.7	238.9	236.5	234.1
5°	260.6	246.1	232.9	231.7	225.6	217.2	213.6	206.3	201.5	199.1	197.9
7.5°	232.9	218.4	205.1	202.7	197.9	191.9	188.2	182.2	179.8	177.4	176.2
10°	206.3	191.9	182.2	179.8	176.2	171.3	167.7	164.1	161.7	160.5	160.5
12.5°	179.8	168.9	160.5	158.1	155.7	152.0	149.6	147.2	146.0	146.0	146.0
15°	155.7	146.0	138.8	138.8	136.3	133.9	133.9	131.5	130.3	131.5	132.7
17.5°	131.5	124.3	118.2	118.2	117.0	115.8	115.8	115.8	117.0	118.2	120.7
20°	108.6	102.6	100.1	100.1	98.9	100.1	100.1	101.4	102.6	106.2	109.8
22.5°	88.1	84.5	82.0	83.3	83.3	84.5	85.7	88.1	90.5	94.1	97.7
25°	71.2	68.8	67.6	68.8	70.0	71.2	73.6	76.0	79.6	83.3	88.1
27.5°	56.7	55.5	55.5	56.7	57.9	60.3	64.0	66.4	70.0	73.6	78.4
30°	45.9	44.6	45.9	48.3	49.5	51.9	54.3	57.9	61.5	65.2	70.0
32.5°	36.2	37.4	38.6	39.8	41.0	44.6	47.1	49.5	53.1	56.7	61.5
35°	30.2	31.4	32.6	33.8	35.0	37.4	39.8	42.2	45.9	49.5	54.3
37.5°	24.1	25.3	26.5	29.0	30.2	31.4	35.0	36.2	39.8	42.2	47.1
40°	20.5	21.7	22.9	24.1	25.3	27.8	30.2	31.4	33.8	37.4	41.0
42.5°	16.9	18.1	19.3	20.5	21.7	24.1	25.3	27.8	30.2	32.6	35.0
45°	14.5	15.7	16.9	18.1	19.3	20.5	21.7	24.1	25.3	27.8	30.2
47.5°	12.1	13.3	15.7	15.7	16.9	18.1	19.3	20.5	22.9	24.1	26.5
50°	10.9	12.1	13.3	14.5	14.5	15.7	16.9	18.1	19.3	20.5	22.9
52.5°	9.7	10.9	12.1	12.1	13.3	14.5	15.7	15.7	16.9	18.1	19.3
55°	8.4	9.7	10.9	10.9	12.1	13.3	13.3	14.5	15.7	15.7	16.9
57.5°	8.4	8.4	9.7	9.7	10.9	10.9	12.1	13.3	13.3	14.5	15.7
60°	7.2	8.4	8.4	9.7	9.7	10.9	10.9	12.1	12.1	13.3	13.3
62.5°	7.2	7.2	8.4	8.4	9.7	9.7	10.9	10.9	10.9	12.1	12.1
65°	7.2	7.2	8.4	8.4	8.4	9.7	9.7	9.7	9.7	10.9	10.9
67.5°	6.0	7.2	7.2	8.4	8.4	8.4	8.4	8.4	9.7	9.7	9.7
70°	6.0	7.2	7.2	7.2	7.2	8.4	8.4	8.4	8.4	8.4	8.4
72.5°	6.0	6.0	6.0	6.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2
75°	6.0	6.0	6.0	6.0	6.0	7.2	7.2	7.2	7.2	7.2	7.2
77.5°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
80°	4.8	4.8	4.8	4.8	4.8	6.0	4.8	4.8	4.8	4.8	4.8
82.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.6	3.6
85°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.6	3.6	3.6	3.6
87.5°	4.8	4.8	4.8	3.6	3.6	3.6	3.6	3.6	3.6	2.4	2.4
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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CATALOG NUMBER: LDSQA4A28940D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	307.7	307.7	307.7	307.7	307.7	307.7	307.7	307.7
2.5°	230.5	228.0	230.5	228.0	228.0	223.2	226.8	224.4
5°	194.3	191.9	194.3	193.1	190.6	189.4	191.9	190.6
7.5°	173.8	171.3	173.8	173.8	171.3	170.1	172.5	171.3
10°	158.1	156.9	158.1	158.1	156.9	155.7	158.1	156.9
12.5°	144.8	143.6	146.0	146.0	144.8	144.8	147.2	144.8
15°	132.7	132.7	135.1	135.1	135.1	135.1	137.6	136.3
17.5°	120.7	123.1	125.5	126.7	126.7	126.7	129.1	129.1
20°	111.0	113.4	115.8	117.0	118.2	118.2	120.7	120.7
22.5°	100.1	102.6	106.2	107.4	108.6	109.8	112.2	112.2
25°	90.5	92.9	96.5	97.7	100.1	101.4	103.8	103.8
27.5°	80.8	84.5	86.9	89.3	90.5	92.9	95.3	95.3
30°	72.4	76.0	78.4	80.8	82.0	84.5	86.9	86.9
32.5°	64.0	67.6	70.0	72.4	74.8	76.0	79.6	79.6
35°	56.7	59.1	62.7	64.0	66.4	68.8	71.2	71.2
37.5°	49.5	51.9	54.3	56.7	59.1	60.3	62.7	64.0
40°	43.4	45.9	48.3	49.5	51.9	54.3	55.5	56.7
42.5°	37.4	39.8	42.2	43.4	45.9	47.1	49.5	49.5
45°	32.6	35.0	36.2	37.4	39.8	41.0	43.4	43.4
47.5°	27.8	30.2	31.4	32.6	33.8	35.0	37.4	37.4
50°	24.1	25.3	26.5	27.8	29.0	31.4	32.6	32.6
52.5°	20.5	22.9	22.9	24.1	25.3	26.5	27.8	29.0
55°	18.1	19.3	20.5	20.5	21.7	22.9	24.1	25.3
57.5°	15.7	16.9	18.1	18.1	19.3	19.3	20.5	21.7
60°	14.5	14.5	15.7	15.7	15.7	16.9	16.9	18.1
62.5°	12.1	12.1	13.3	13.3	13.3	13.3	13.3	13.3
65°	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9
67.5°	9.7	9.7	9.7	9.7	8.4	8.4	8.4	8.4
70°	8.4	8.4	8.4	8.4	7.2	7.2	7.2	6.0
72.5°	7.2	7.2	7.2	7.2	6.0	6.0	4.8	4.8
75°	6.0	6.0	6.0	6.0	6.0	4.8	4.8	4.8
77.5°	6.0	4.8	4.8	4.8	4.8	4.8	4.8	3.6
80°	4.8	4.8	3.6	3.6	3.6	3.6	3.6	3.6
82.5°	3.6	3.6	3.6	3.6	2.4	2.4	2.4	2.4
85°	3.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
87.5°	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
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)