

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: P182761

Luminaire Tested: **LDSQA4A28840D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182761
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: LDSQA4A28840D010TE 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: 3138.4 lumens
Efficiency: N/A
Efficacy: 70.5 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

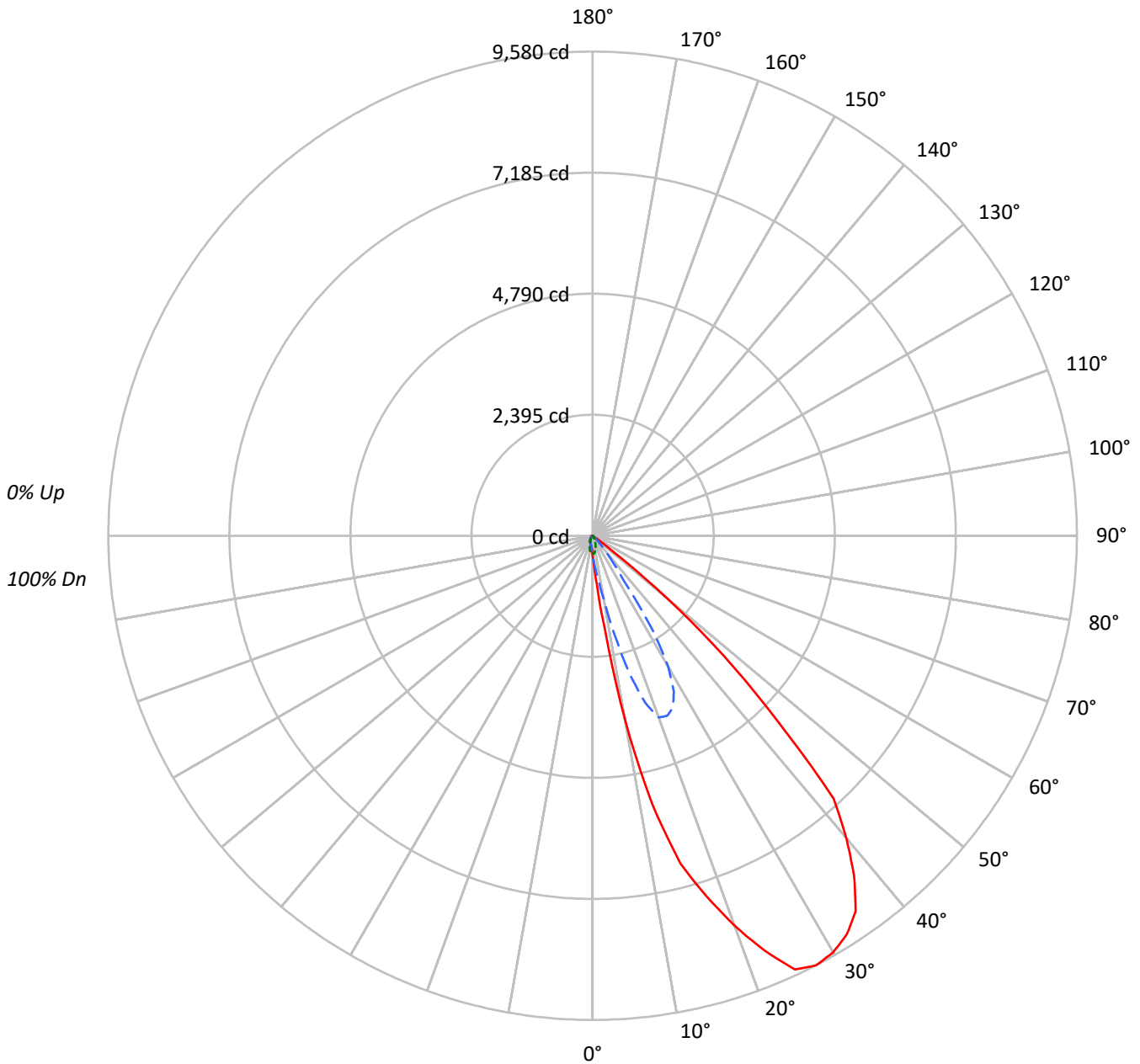
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	112	109	106	104	110	107	105	102	103	101	99	99	98	96	96	94	93	91					91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83					83			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74					74			
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67					67			
5	86	76	69	64	85	75	69	64	74	68	63	72	67	63	70	66	62	60					60			
6	81	70	63	58	79	69	62	58	68	62	57	66	61	57	65	60	56	55					55			
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49					49			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45					45			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41					41			
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	39	37					37			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	35476	35476	35476
5°	93288	33793	22065
10°	365759	29245	18366
15°	673356	23047	16278
20°	846133	16289	14804
25°	1012079	10742	13201
30°	1064301	6745	11567
35°	1072894	4080	10017
40°	987263	2719	8536
45°	702412	1973	7083
50°	290255	1522	5848
55°	16738	1453	5101
60°	1957	1395	4166
65°	665	1650	2957
70°	821	1614	2039
75°	1085	2133	2133
80°	0	3180	2399
85°	0	6336	3223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	57.6	1.8
10°-20°	459.9	14.7
20°-30°	951.2	30.3
30°-40°	1035.5	33.0
40°-50°	567.8	18.1
50°-60°	49.1	1.6
60°-70°	8.0	0.3
70°-80°	5.8	0.2
80°-90°	3.6	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°	1468.6	46.8
0°-40°	2504.1	79.8
0°-60°	3121.0	99.4
0°-90°	3138.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3138.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	366	366	366	366	366	
5°	959	656	348	240	227	175
15°	6714	2822	230	155	162	1875
25°	9468	3754	100	95	124	4276
35°	9072	1027	34	55	85	5568
45°	5127	105	14	30	52	3913
55°	99	12	9	19	30	339
65°	3	4	7	12	13	4
75°	3	4	6	9	6	2
85°	0	3	6	4	3	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°	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2
2.5°	575.9	555.8	552.9	555.8	541.4	540.0	542.9	531.4	521.3	511.3	502.6
5°	959.3	917.7	904.8	887.5	844.4	830.1	827.2	781.3	736.7	695.1	656.3
7.5°	1864.1	1780.8	1736.3	1650.1	1518.0	1459.1	1427.5	1276.7	1136.0	1008.2	891.8
10°	3718.2	3499.9	3393.6	3231.3	2942.6	2800.5	2697.1	2317.9	1944.5	1585.5	1269.5
12.5°	5425.7	5305.1	5148.5	5062.4	4594.2	4414.7	4243.8	3718.2	3149.4	2569.2	1993.4
15°	6713.9	6537.3	6370.7	6330.5	5962.8	5753.2	5563.6	5019.3	4342.9	3604.7	2822.0
17.5°	7470.8	7344.4	7186.4	7110.3	6679.5	6510.0	6294.6	5767.5	5109.8	4374.5	3465.4
20°	8207.5	8020.8	7798.2	7683.3	7206.5	7011.2	6767.1	6212.7	5516.2	4734.9	3825.9
22.5°	8881.1	8639.8	8323.8	8145.8	7610.1	7394.7	7121.8	6521.5	5767.5	4874.2	3856.0
25°	9468.4	9250.1	8829.4	8517.7	7885.8	7631.6	7314.2	6686.6	5858.0	4862.8	3754.1
27.5°	9580.5	9434.0	9056.3	8695.8	7982.0	7699.1	7370.2	6721.1	5794.8	4703.3	3479.8
30°	9514.4	9356.4	9053.4	8685.7	7941.8	7656.0	7314.2	6574.6	5547.8	4331.4	2977.1
32.5°	9355.0	9218.6	8856.6	8468.9	7743.6	7446.4	7085.9	6231.4	5124.1	3739.7	2190.1
35°	9072.1	8866.7	8430.1	8111.3	7429.1	7123.2	6682.3	5773.3	4490.8	2688.4	1026.8
37.5°	8496.2	8296.6	7982.0	7687.6	7022.7	6662.2	6196.9	5135.6	3329.0	1466.3	634.8
40°	7806.8	7634.5	7360.2	7074.4	6389.4	5974.3	5461.6	4014.0	1958.9	825.8	390.6
42.5°	7057.2	6879.1	6568.9	6235.7	5488.9	5050.9	4496.5	2598.0	1032.6	486.8	212.5
45°	5127.0	4967.6	4742.1	4502.3	4070.0	3754.1	3024.5	1364.3	571.6	258.5	104.8
47.5°	3508.5	3318.9	2902.4	2398.3	1944.5	1663.0	1250.9	591.7	293.0	129.3	61.8
50°	1925.9	1724.8	1512.3	1177.6	788.4	647.7	504.1	285.8	132.1	64.6	34.5
52.5°	472.5	417.9	382.0	351.9	278.6	251.3	212.5	119.2	60.3	35.9	24.4
55°	99.1	91.9	87.6	86.2	79.0	76.1	66.1	46.0	33.0	23.0	11.5
57.5°	28.7	27.3	28.7	28.7	28.7	27.3	27.3	20.1	18.7	11.5	7.2
60°	10.1	10.1	10.1	11.5	11.5	11.5	12.9	12.9	10.1	7.2	5.7
62.5°	4.3	4.3	4.3	5.7	5.7	7.2	7.2	7.2	5.7	5.7	4.3
65°	2.9	2.9	2.9	2.9	4.3	4.3	4.3	4.3	4.3	4.3	4.3
67.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	4.3
70°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	4.3
72.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	4.3
75°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	4.3
77.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.9	2.9	2.9	4.3
80°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.9	2.9	2.9	2.9
82.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.9	2.9	2.9
85°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.9	2.9	2.9
87.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.9	2.9	2.9
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°	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2
2.5°	478.2	463.9	446.6	428.0	425.1	415.0	400.7	380.6	373.4	359.0	346.1
5°	600.3	561.5	521.3	485.4	473.9	458.1	432.3	396.4	373.4	347.5	326.0
7.5°	764.0	675.0	593.1	528.5	508.4	482.5	442.3	396.4	361.9	326.0	297.3
10°	982.3	801.4	660.6	555.8	522.8	488.3	435.1	379.1	338.9	297.3	267.1
12.5°	1403.1	986.6	723.8	570.1	524.2	479.7	412.2	351.9	305.9	264.2	234.1
15°	1994.8	1338.5	851.6	580.2	509.8	455.3	376.3	314.5	268.6	229.8	201.1
17.5°	2494.6	1671.7	1022.5	608.9	499.8	423.7	334.6	271.4	226.9	192.4	169.5
20°	2738.7	1821.0	1100.1	613.2	471.1	376.3	285.8	225.5	186.7	158.0	137.9
22.5°	2710.0	1770.8	1028.3	537.1	397.8	317.4	237.0	182.4	149.4	126.4	112.0
25°	2517.5	1552.5	838.7	410.7	310.2	257.1	185.3	142.2	116.3	100.5	89.0
27.5°	2194.4	1246.6	611.8	290.1	235.5	195.3	137.9	109.1	89.0	77.6	70.4
30°	1690.3	797.1	351.9	208.2	170.9	139.3	103.4	79.0	67.5	60.3	54.6
32.5°	871.7	387.8	234.1	149.4	120.6	100.5	71.8	57.4	50.3	46.0	43.1
35°	478.2	275.7	162.3	96.2	77.6	64.6	48.8	40.2	37.3	34.5	34.5
37.5°	328.9	170.9	90.5	57.4	47.4	40.2	33.0	28.7	27.3	27.3	27.3
40°	189.6	90.5	51.7	35.9	30.2	27.3	23.0	21.5	21.5	21.5	23.0
42.5°	97.7	53.1	34.5	24.4	21.5	18.7	15.8	15.8	15.8	17.2	18.7
45°	57.4	35.9	23.0	15.8	14.4	12.9	11.5	11.5	12.9	14.4	15.8
47.5°	35.9	24.4	14.4	10.1	8.6	8.6	8.6	8.6	10.1	11.5	12.9
50°	24.4	12.9	8.6	5.7	5.7	5.7	5.7	7.2	8.6	10.1	11.5
52.5°	12.9	7.2	5.7	4.3	4.3	4.3	5.7	5.7	7.2	8.6	10.1
55°	7.2	5.7	4.3	4.3	4.3	4.3	4.3	5.7	7.2	8.6	10.1
57.5°	5.7	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	7.2	8.6
60°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	7.2	8.6
62.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	7.2	7.2
65°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	7.2	7.2
67.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	7.2
70°	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7	7.2
72.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7
75°	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7	7.2
77.5°	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7
80°	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7
82.5°	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7
85°	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7	5.7
87.5°	4.3	4.3	4.3	4.3	4.3	4.3	5.7	5.7	5.7	5.7	5.7
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2
2.5°	338.9	327.4	315.9	315.9	310.2	301.6	298.7	290.1	284.4	281.5	278.6
5°	310.2	293.0	277.2	275.7	268.6	258.5	254.2	245.6	239.8	237.0	235.5
7.5°	277.2	259.9	244.1	241.3	235.5	228.3	224.0	216.9	214.0	211.1	209.7
10°	245.6	228.3	216.9	214.0	209.7	203.9	199.6	195.3	192.4	191.0	191.0
12.5°	214.0	201.1	191.0	188.1	185.3	181.0	178.1	175.2	173.8	173.8	173.8
15°	185.3	173.8	165.2	165.2	162.3	159.4	159.4	156.5	155.1	156.5	158.0
17.5°	156.5	147.9	140.7	140.7	139.3	137.9	137.9	137.9	139.3	140.7	143.6
20°	129.3	122.1	119.2	119.2	117.8	119.2	119.2	120.6	122.1	126.4	130.7
22.5°	104.8	100.5	97.7	99.1	99.1	100.5	102.0	104.8	107.7	112.0	116.3
25°	84.7	81.9	80.4	81.9	83.3	84.7	87.6	90.5	94.8	99.1	104.8
27.5°	67.5	66.1	66.1	67.5	68.9	71.8	76.1	79.0	83.3	87.6	93.3
30°	54.6	53.1	54.6	57.4	58.9	61.8	64.6	68.9	73.2	77.6	83.3
32.5°	43.1	44.5	46.0	47.4	48.8	53.1	56.0	58.9	63.2	67.5	73.2
35°	35.9	37.3	38.8	40.2	41.6	44.5	47.4	50.3	54.6	58.9	64.6
37.5°	28.7	30.2	31.6	34.5	35.9	37.3	41.6	43.1	47.4	50.3	56.0
40°	24.4	25.9	27.3	28.7	30.2	33.0	35.9	37.3	40.2	44.5	48.8
42.5°	20.1	21.5	23.0	24.4	25.9	28.7	30.2	33.0	35.9	38.8	41.6
45°	17.2	18.7	20.1	21.5	23.0	24.4	25.9	28.7	30.2	33.0	35.9
47.5°	14.4	15.8	18.7	18.7	20.1	21.5	23.0	24.4	27.3	28.7	31.6
50°	12.9	14.4	15.8	17.2	17.2	18.7	20.1	21.5	23.0	24.4	27.3
52.5°	11.5	12.9	14.4	14.4	15.8	17.2	18.7	18.7	20.1	21.5	23.0
55°	10.1	11.5	12.9	12.9	14.4	15.8	15.8	17.2	18.7	18.7	20.1
57.5°	10.1	10.1	11.5	11.5	12.9	12.9	14.4	15.8	15.8	17.2	18.7
60°	8.6	10.1	10.1	11.5	11.5	12.9	12.9	14.4	14.4	15.8	15.8
62.5°	8.6	8.6	10.1	10.1	11.5	11.5	12.9	12.9	12.9	14.4	14.4
65°	8.6	8.6	10.1	10.1	10.1	11.5	11.5	11.5	11.5	12.9	12.9
67.5°	7.2	8.6	8.6	10.1	10.1	10.1	10.1	10.1	11.5	11.5	11.5
70°	7.2	8.6	8.6	8.6	8.6	10.1	10.1	10.1	10.1	10.1	10.1
72.5°	7.2	7.2	7.2	7.2	8.6	8.6	8.6	8.6	8.6	8.6	8.6
75°	7.2	7.2	7.2	7.2	7.2	8.6	8.6	8.6	8.6	8.6	8.6
77.5°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
80°	5.7	5.7	5.7	5.7	5.7	7.2	5.7	5.7	5.7	5.7	5.7
82.5°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	4.3	4.3
85°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	4.3	4.3	4.3	4.3
87.5°	5.7	5.7	5.7	4.3	4.3	4.3	4.3	4.3	4.3	2.9	2.9
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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CATALOG NUMBER: LDSQA4A28840D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	366.2	366.2	366.2	366.2	366.2	366.2	366.2	366.2
2.5°	274.3	271.4	274.3	271.4	271.4	265.7	270.0	267.1
5°	231.2	228.3	231.2	229.8	226.9	225.5	228.3	226.9
7.5°	206.8	203.9	206.8	206.8	203.9	202.5	205.4	203.9
10°	188.1	186.7	188.1	188.1	186.7	185.3	188.1	186.7
12.5°	172.3	170.9	173.8	173.8	172.3	172.3	175.2	172.3
15°	158.0	158.0	160.8	160.8	160.8	160.8	163.7	162.3
17.5°	143.6	146.5	149.4	150.8	150.8	150.8	153.7	153.7
20°	132.1	135.0	137.9	139.3	140.7	140.7	143.6	143.6
22.5°	119.2	122.1	126.4	127.8	129.3	130.7	133.6	133.6
25°	107.7	110.6	114.9	116.3	119.2	120.6	123.5	123.5
27.5°	96.2	100.5	103.4	106.3	107.7	110.6	113.5	113.5
30°	86.2	90.5	93.3	96.2	97.7	100.5	103.4	103.4
32.5°	76.1	80.4	83.3	86.2	89.0	90.5	94.8	94.8
35°	67.5	70.4	74.7	76.1	79.0	81.9	84.7	84.7
37.5°	58.9	61.8	64.6	67.5	70.4	71.8	74.7	76.1
40°	51.7	54.6	57.4	58.9	61.8	64.6	66.1	67.5
42.5°	44.5	47.4	50.3	51.7	54.6	56.0	58.9	58.9
45°	38.8	41.6	43.1	44.5	47.4	48.8	51.7	51.7
47.5°	33.0	35.9	37.3	38.8	40.2	41.6	44.5	44.5
50°	28.7	30.2	31.6	33.0	34.5	37.3	38.8	38.8
52.5°	24.4	27.3	27.3	28.7	30.2	31.6	33.0	34.5
55°	21.5	23.0	24.4	24.4	25.9	27.3	28.7	30.2
57.5°	18.7	20.1	21.5	21.5	23.0	23.0	24.4	25.9
60°	17.2	17.2	18.7	18.7	18.7	20.1	20.1	21.5
62.5°	14.4	14.4	15.8	15.8	15.8	15.8	15.8	15.8
65°	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
67.5°	11.5	11.5	11.5	11.5	10.1	10.1	10.1	10.1
70°	10.1	10.1	10.1	10.1	8.6	8.6	8.6	7.2
72.5°	8.6	8.6	8.6	8.6	7.2	7.2	5.7	5.7
75°	7.2	7.2	7.2	7.2	7.2	5.7	5.7	5.7
77.5°	7.2	5.7	5.7	5.7	5.7	5.7	5.7	4.3
80°	5.7	5.7	4.3	4.3	4.3	4.3	4.3	4.3
82.5°	4.3	4.3	4.3	4.3	2.9	2.9	2.9	2.9
85°	4.3	2.9	2.9	2.9	2.9	2.9	2.9	2.9
87.5°	2.9	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)