

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: P182736

Luminaire Tested: **LDSQA4A18835D010TE LAR35FL 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182736
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: LDSQA4A18835D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2185.0 lumens
Efficiency: N/A
Efficacy: 75.0 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

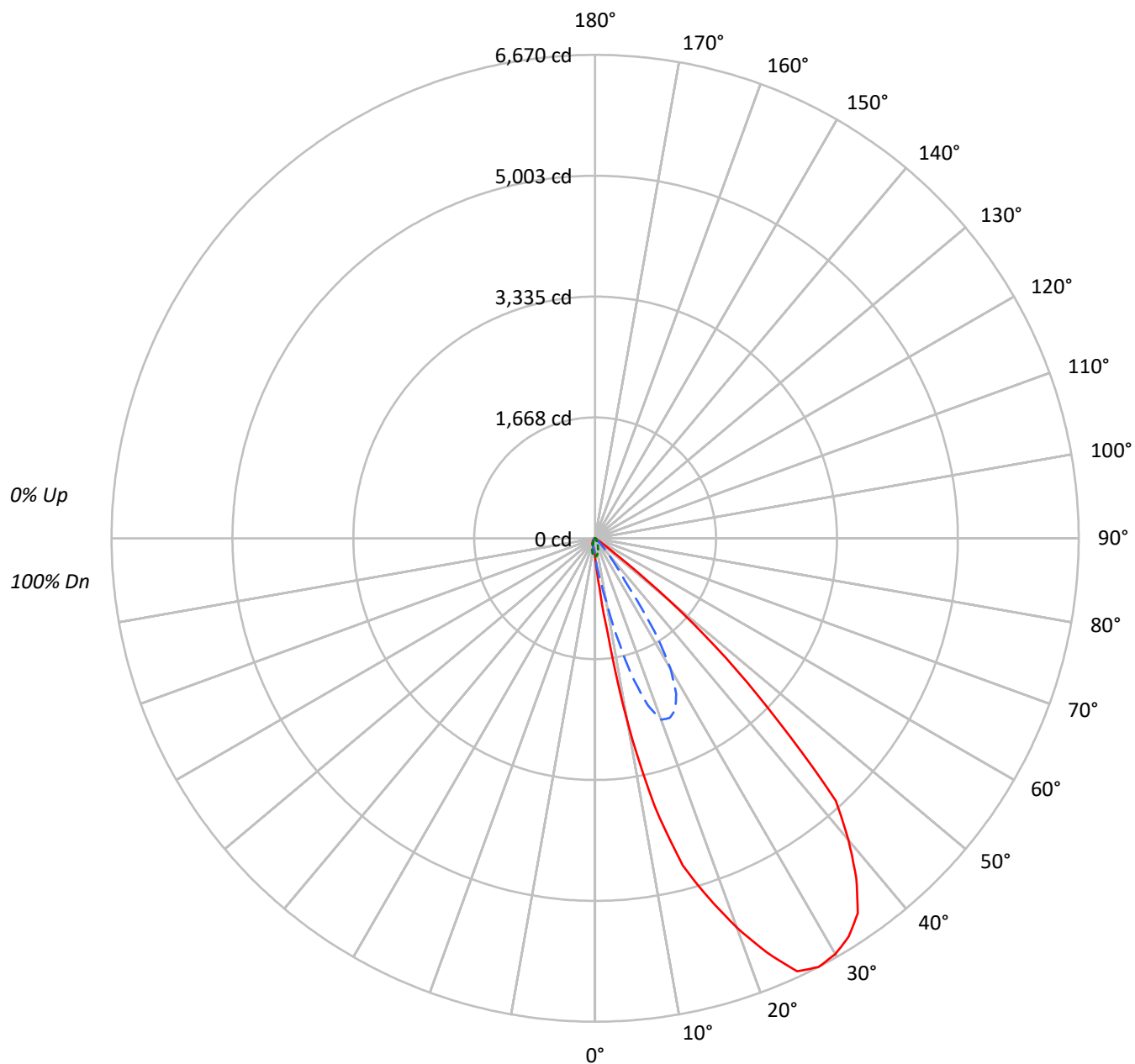
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
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°	24703	24703	24703
5°	64950	23533	15365
10°	254640	20363	12788
15°	468799	16047	11333
20°	589082	11340	10309
25°	704620	7482	9193
30°	740975	4698	8054
35°	746950	2838	6978
40°	687346	1897	5944
45°	489031	1370	4932
50°	202074	1055	4069
55°	11654	1013	3547
60°	1356	969	2906
65°	458	1146	2063
70°	566	1133	1416
75°	749	1497	1497
80°	0	2232	1674
85°	0	4446	2223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.1	1.8
10°-20°	320.2	14.7
20°-30°	662.2	30.3
30°-40°	720.9	33.0
40°-50°	395.3	18.1
50°-60°	34.2	1.6
60°-70°	5.6	0.3
70°-80°	4.0	0.2
80°-90°	2.5	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°	1022.5	46.8
0°-40°	1743.4	79.8
0°-60°	2172.9	99.4
0°-90°	2185.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2185.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	255	255	255	255	255	
5°	668	457	242	167	158	122
15°	4674	1965	160	108	113	1305
25°	6592	2614	70	66	86	2977
35°	6316	715	24	38	59	3876
45°	3570	73	10	21	36	2724
55°	69	8	6	13	21	236
65°	2	3	5	8	9	3
75°	2	3	4	6	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°	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0
2.5°	400.9	386.9	384.9	386.9	376.9	375.9	377.9	369.9	362.9	355.9	349.9
5°	667.9	638.9	629.9	617.9	587.9	577.9	575.9	543.9	512.9	483.9	456.9
7.5°	1297.8	1239.8	1208.8	1148.8	1056.8	1015.8	993.9	888.9	790.9	701.9	620.9
10°	2588.6	2436.6	2362.6	2249.7	2048.7	1949.7	1877.7	1613.8	1353.8	1103.8	883.9
12.5°	3777.4	3693.4	3584.5	3524.5	3198.5	3073.5	2954.6	2588.6	2192.7	1788.7	1387.8
15°	4674.3	4551.3	4435.3	4407.3	4151.4	4005.4	3873.4	3494.5	3023.5	2509.6	1964.7
17.5°	5201.2	5113.2	5003.2	4950.3	4650.3	4532.3	4382.3	4015.4	3557.5	3045.5	2412.6
20°	5714.1	5584.2	5429.2	5349.2	5017.2	4881.3	4711.3	4325.3	3840.4	3296.5	2663.6
22.5°	6183.1	6015.1	5795.1	5671.1	5298.2	5148.2	4958.3	4540.3	4015.4	3393.5	2684.6
25°	6592.0	6440.0	6147.1	5930.1	5490.2	5313.2	5092.2	4655.3	4078.4	3385.5	2613.6
27.5°	6670.0	6568.0	6305.0	6054.1	5557.2	5360.2	5131.2	4679.3	4034.4	3274.5	2422.6
30°	6624.0	6514.0	6303.0	6047.1	5529.2	5330.2	5092.2	4577.3	3862.4	3015.5	2072.7
32.5°	6513.0	6418.0	6166.1	5896.1	5391.2	5184.2	4933.3	4338.3	3567.5	2603.6	1524.8
35°	6316.0	6173.1	5869.1	5647.1	5172.2	4959.3	4652.3	4019.4	3126.5	1871.7	714.9
37.5°	5915.1	5776.1	5557.2	5352.2	4889.3	4638.3	4314.3	3575.5	2317.7	1020.8	441.9
40°	5435.2	5315.2	5124.2	4925.3	4448.3	4159.4	3802.4	2794.6	1363.8	574.9	272.0
42.5°	4913.3	4789.3	4573.3	4341.3	3821.4	3516.5	3130.5	1808.7	718.9	338.9	148.0
45°	3569.5	3458.5	3301.5	3134.5	2833.6	2613.6	2105.7	949.9	397.9	180.0	73.0
47.5°	2442.6	2310.7	2020.7	1669.7	1353.8	1157.8	870.9	411.9	204.0	90.0	43.0
50°	1340.8	1200.8	1052.8	819.9	548.9	450.9	350.9	199.0	92.0	45.0	24.0
52.5°	329.0	291.0	266.0	245.0	194.0	175.0	148.0	83.0	42.0	25.0	17.0
55°	69.0	64.0	61.0	60.0	55.0	53.0	46.0	32.0	23.0	16.0	8.0
57.5°	20.0	19.0	20.0	20.0	20.0	19.0	19.0	14.0	13.0	8.0	5.0
60°	7.0	7.0	7.0	8.0	8.0	8.0	9.0	9.0	7.0	5.0	4.0
62.5°	3.0	3.0	3.0	4.0	4.0	5.0	5.0	5.0	4.0	4.0	3.0
65°	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0
72.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0
77.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0
80°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0
82.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
85°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
87.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
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°	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0
2.5°	332.9	323.0	311.0	298.0	296.0	289.0	279.0	265.0	260.0	250.0	241.0
5°	417.9	390.9	362.9	337.9	330.0	319.0	301.0	276.0	260.0	242.0	227.0
7.5°	531.9	469.9	412.9	367.9	353.9	335.9	308.0	276.0	252.0	227.0	207.0
10°	683.9	557.9	459.9	386.9	363.9	339.9	303.0	264.0	236.0	207.0	186.0
12.5°	976.9	686.9	503.9	396.9	364.9	333.9	287.0	245.0	213.0	184.0	163.0
15°	1388.8	931.9	592.9	403.9	354.9	317.0	262.0	219.0	187.0	160.0	140.0
17.5°	1736.7	1163.8	711.9	423.9	347.9	295.0	233.0	189.0	158.0	134.0	118.0
20°	1906.7	1267.8	765.9	426.9	328.0	262.0	199.0	157.0	130.0	110.0	96.0
22.5°	1886.7	1232.8	715.9	373.9	277.0	221.0	165.0	127.0	104.0	88.0	78.0
25°	1752.7	1080.8	583.9	286.0	216.0	179.0	129.0	99.0	81.0	70.0	62.0
27.5°	1527.8	867.9	425.9	202.0	164.0	136.0	96.0	76.0	62.0	54.0	49.0
30°	1176.8	554.9	245.0	145.0	119.0	97.0	72.0	55.0	47.0	42.0	38.0
32.5°	606.9	270.0	163.0	104.0	84.0	70.0	50.0	40.0	35.0	32.0	30.0
35°	332.9	192.0	113.0	67.0	54.0	45.0	34.0	28.0	26.0	24.0	24.0
37.5°	229.0	119.0	63.0	40.0	33.0	28.0	23.0	20.0	19.0	19.0	19.0
40°	132.0	63.0	36.0	25.0	21.0	19.0	16.0	15.0	15.0	15.0	16.0
42.5°	68.0	37.0	24.0	17.0	15.0	13.0	11.0	11.0	11.0	12.0	13.0
45°	40.0	25.0	16.0	11.0	10.0	9.0	8.0	8.0	9.0	10.0	11.0
47.5°	25.0	17.0	10.0	7.0	6.0	6.0	6.0	6.0	7.0	8.0	9.0
50°	17.0	9.0	6.0	4.0	4.0	4.0	4.0	5.0	6.0	7.0	8.0
52.5°	9.0	5.0	4.0	3.0	3.0	3.0	4.0	4.0	5.0	6.0	7.0
55°	5.0	4.0	3.0	3.0	3.0	3.0	3.0	4.0	5.0	6.0	7.0
57.5°	4.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	5.0	6.0
60°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	5.0	6.0
62.5°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	5.0	5.0
65°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	5.0	5.0
67.5°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	5.0
70°	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	5.0
72.5°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
75°	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	5.0
77.5°	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0
80°	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0
82.5°	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0
85°	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
87.5°	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0
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°	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0
2.5°	236.0	228.0	220.0	220.0	216.0	210.0	208.0	202.0	198.0	196.0	194.0
5°	216.0	204.0	193.0	192.0	187.0	180.0	177.0	171.0	167.0	165.0	164.0
7.5°	193.0	181.0	170.0	168.0	164.0	159.0	156.0	151.0	149.0	147.0	146.0
10°	171.0	159.0	151.0	149.0	146.0	142.0	139.0	136.0	134.0	133.0	133.0
12.5°	149.0	140.0	133.0	131.0	129.0	126.0	124.0	122.0	121.0	121.0	121.0
15°	129.0	121.0	115.0	115.0	113.0	111.0	111.0	109.0	108.0	109.0	110.0
17.5°	109.0	103.0	98.0	98.0	97.0	96.0	96.0	96.0	97.0	98.0	100.0
20°	90.0	85.0	83.0	83.0	82.0	83.0	83.0	84.0	85.0	88.0	91.0
22.5°	73.0	70.0	68.0	69.0	69.0	70.0	71.0	73.0	75.0	78.0	81.0
25°	59.0	57.0	56.0	57.0	58.0	59.0	61.0	63.0	66.0	69.0	73.0
27.5°	47.0	46.0	46.0	47.0	48.0	50.0	53.0	55.0	58.0	61.0	65.0
30°	38.0	37.0	38.0	40.0	41.0	43.0	45.0	48.0	51.0	54.0	58.0
32.5°	30.0	31.0	32.0	33.0	34.0	37.0	39.0	41.0	44.0	47.0	51.0
35°	25.0	26.0	27.0	28.0	29.0	31.0	33.0	35.0	38.0	41.0	45.0
37.5°	20.0	21.0	22.0	24.0	25.0	26.0	29.0	30.0	33.0	35.0	39.0
40°	17.0	18.0	19.0	20.0	21.0	23.0	25.0	26.0	28.0	31.0	34.0
42.5°	14.0	15.0	16.0	17.0	18.0	20.0	21.0	23.0	25.0	27.0	29.0
45°	12.0	13.0	14.0	15.0	16.0	17.0	18.0	20.0	21.0	23.0	25.0
47.5°	10.0	11.0	13.0	13.0	14.0	15.0	16.0	17.0	19.0	20.0	22.0
50°	9.0	10.0	11.0	12.0	12.0	13.0	14.0	15.0	16.0	17.0	19.0
52.5°	8.0	9.0	10.0	10.0	11.0	12.0	13.0	13.0	14.0	15.0	16.0
55°	7.0	8.0	9.0	9.0	10.0	11.0	11.0	12.0	13.0	13.0	14.0
57.5°	7.0	7.0	8.0	8.0	9.0	9.0	10.0	11.0	11.0	12.0	13.0
60°	6.0	7.0	7.0	8.0	8.0	9.0	9.0	10.0	10.0	11.0	11.0
62.5°	6.0	6.0	7.0	7.0	8.0	8.0	9.0	9.0	9.0	10.0	10.0
65°	6.0	6.0	7.0	7.0	7.0	8.0	8.0	8.0	8.0	9.0	9.0
67.5°	5.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0
70°	5.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
72.5°	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
75°	5.0	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0
77.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
80°	4.0	4.0	4.0	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0
82.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0
85°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0
87.5°	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
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: LDSQA4A18835D010TE LAR35FL 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	255.0	255.0	255.0	255.0	255.0	255.0	255.0	255.0
2.5°	191.0	189.0	191.0	189.0	189.0	185.0	188.0	186.0
5°	161.0	159.0	161.0	160.0	158.0	157.0	159.0	158.0
7.5°	144.0	142.0	144.0	144.0	142.0	141.0	143.0	142.0
10°	131.0	130.0	131.0	131.0	130.0	129.0	131.0	130.0
12.5°	120.0	119.0	121.0	121.0	120.0	120.0	122.0	120.0
15°	110.0	110.0	112.0	112.0	112.0	112.0	114.0	113.0
17.5°	100.0	102.0	104.0	105.0	105.0	105.0	107.0	107.0
20°	92.0	94.0	96.0	97.0	98.0	98.0	100.0	100.0
22.5°	83.0	85.0	88.0	89.0	90.0	91.0	93.0	93.0
25°	75.0	77.0	80.0	81.0	83.0	84.0	86.0	86.0
27.5°	67.0	70.0	72.0	74.0	75.0	77.0	79.0	79.0
30°	60.0	63.0	65.0	67.0	68.0	70.0	72.0	72.0
32.5°	53.0	56.0	58.0	60.0	62.0	63.0	66.0	66.0
35°	47.0	49.0	52.0	53.0	55.0	57.0	59.0	59.0
37.5°	41.0	43.0	45.0	47.0	49.0	50.0	52.0	53.0
40°	36.0	38.0	40.0	41.0	43.0	45.0	46.0	47.0
42.5°	31.0	33.0	35.0	36.0	38.0	39.0	41.0	41.0
45°	27.0	29.0	30.0	31.0	33.0	34.0	36.0	36.0
47.5°	23.0	25.0	26.0	27.0	28.0	29.0	31.0	31.0
50°	20.0	21.0	22.0	23.0	24.0	26.0	27.0	27.0
52.5°	17.0	19.0	19.0	20.0	21.0	22.0	23.0	24.0
55°	15.0	16.0	17.0	17.0	18.0	19.0	20.0	21.0
57.5°	13.0	14.0	15.0	15.0	16.0	16.0	17.0	18.0
60°	12.0	12.0	13.0	13.0	13.0	14.0	14.0	15.0
62.5°	10.0	10.0	11.0	11.0	11.0	11.0	11.0	11.0
65°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
67.5°	8.0	8.0	8.0	8.0	7.0	7.0	7.0	7.0
70°	7.0	7.0	7.0	7.0	6.0	6.0	6.0	5.0
72.5°	6.0	6.0	6.0	6.0	5.0	5.0	4.0	4.0
75°	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0
77.5°	5.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0
80°	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
82.5°	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0
85°	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
87.5°	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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)