

Fig. A4.1. To calculations of dose rate from LAr End Cap.

Table A4.1

Equivalent dose rate from LAr EC calorimeter for T= 100 d, t= 5 d

R/Z, cm	dR/dZ	340	340- 350	350- 365	365- 380	380- 405	405- 430	430- 480	480- 530	530- 580	580- 605	605- 630	630- 645	645- 660	660- 670	670
		0	10	15	15	25	25	50	50	50	25	25	15	15	10	0
0- 5	5	15.5	15.6	16.6	17.9	19.4	21.8	26.5	36.3	54.1	83.1	119.1	155.4	208.9	283.1	317.5
5- 10	5	14.6	14.7	15.5	16.7	18.2	20.6	25	34.4	51.5	78	109	143.1	181.9	232.8	253.6
10- 20	10	13.8	14.2	15	16	17.6	19.8	24.2	33.4	50.5	73.9	97.8	128.2	161.1	198	210.7
20- 30	10	13.1	13.4	14.2	15.1	16.5	18.6	22.8	31.4	47.6	67.2	88.5	113.2	137.3	163.6	173.2
30- 45	15	11.9	12.1	12.8	13.5	14.8	16.6	20.1	27.9	41.1	56.9	75.1	94.7	115.8	138.6	145.5
45- 60	15	10.5	10.7	11.2	12	13	14.6	17.9	24.7	35.8	50.5	64.2	79.2	93.4	109.1	113.1
60- 75	15	9.6	9.7	10.1	10.7	11.6	13.2	16.4	22.6	32.3	43.2	54.1	63.4	71.3	78.5	79.5
75- 95	20	8.5	8.6	9	9.5	10.4	12	15.1	20.2	27.6	36.7	42.2	46.9	49.9	50.7	49.9
95- 115	20	7.5	7.7	8.1	8.7	9.8	11.3	13.6	17.2	23.9	27.9	31.3	31.8	32.3	30.9	29.8
115- 125	10	7.1	7.3	7.8	8.4	9.4	10.5	12.3	15.7	20.6	22.7	24.8	23.3	23.6	21.5	20.3
125- 150	25	6.9	7	7.5	8	8.8	9.6	10.9	14.2	16.5	18.6	17.9	16.8	16.5	14.5	13.7
150- 175	25	6.6	6.7	7	7.3	7.8	8.3	9.6	11.4	12.3	12.8	11.3	10.5	10.1	8.3	8
175- 200	25	6.1	6.2	6.3	6.5	6.8	7.1	7.9	9	9.2	8.6	6.9	6.5	5.9	4.5	4.1
200- 225	25	5.5	5.5	5.5	5.5	5.4	5.7	6.8	7.1	6.7	5.7	4.2	4.2	3.1	2	1.8

Table A4.1 (continuation)

Equivalent dose rate from LAr EC calorimeter for T= 100 d, t= 100 d

R/Z, cm	dR/dZ	340	340- 350	350- 365	365- 380	380- 405	405- 430	430- 480	480- 530	530- 580	580- 605	605- 630	630- 645	645- 660	660- 670	670
		0	10	15	15	25	25	50	50	50	25	25	15	15	10	0
0- 5	5	3.1	3.3	3.5	3.7	4	4.7	5.9	8.4	13.3	20.7	30.5	43.8	61.1	85	94.6
5- 10	5	2.9	2.9	3.2	3.4	3.7	4.3	5.4	7.7	12.2	18.9	27.6	38.9	52.6	69.2	74.5
10- 20	10	2.8	2.8	3	3.3	3.6	4.2	5.2	7.4	11.4	17.3	24.1	33.1	44.8	59.4	64.5
20- 30	10	2.7	2.8	2.9	3.1	3.5	3.9	4.9	6.9	10.4	15	20.6	27.7	35.7	47.2	52.2
30- 45	15	2.5	2.5	2.7	2.9	3.1	3.6	4.4	5.9	8.7	12.3	16.5	21.4	27	33.7	35.9
45- 60	15	2.3	2.3	2.4	2.5	2.8	3.1	3.7	4.9	7.1	10.2	13.5	16.6	19.8	23.1	23.7
60- 75	15	2	2	2.1	2.2	2.4	2.6	3.1	4.2	6.3	8.8	10.8	12.8	14.5	15.8	15.8
75- 95	20	1.7	1.7	1.7	1.8	2	2.1	2.6	3.8	5.5	7.1	8.4	9.2	10	10.2	9.9
95- 115	20	1.3	1.3	1.4	1.4	1.7	1.9	2.6	3.4	4.5	5.5	6.2	6.2	6.7	6.4	5.9
115- 125	10	1.2	1.2	1.3	1.4	1.7	2	2.5	3	3.9	4.6	4.9	4.7	5	4.4	4.2
125- 150	25	1.2	1.2	1.3	1.5	1.7	1.9	2.2	2.5	3.2	3.6	3.6	3.4	3.7	3.1	2.9
150- 175	25	1.3	1.3	1.4	1.5	1.6	1.6	1.7	2.1	2.4	2.6	2.3	2.3	2.4	1.8	1.7
175- 200	25	1.3	1.3	1.3	1.2	1.2	1.2	1.4	1.8	1.8	1.8	1.4	1.6	1.5	1.1	0.9
200- 225	25	1	0.9	0.9	0.9	0.9	1	1.4	1.4	1.4	1.2	0.9	1.2	0.9	0.5	0.4

Table A4.1 (continuation)

Equivalent dose rate from LAr EC calorimeter for T= 10 y, t= 5 d

R/Z, cm	dR\dZ	340	340- 350	350- 365	365- 380	380- 405	405- 430	430- 480	480- 530	530- 580	580- 605	605- 630	630- 645	645- 660	660- 670	670
		0	10	15	15	25	25	50	50	50	25	25	15	15	10	0
0- 5	5	22.9	23.6	24.9	26.6	29.2	32.8	40	55.8	84.5	128.5	186.4	251.1	339.4	458.4	506.6
5- 10	5	21.7	22.1	23.3	24.9	27.4	30.8	37.8	52.9	80.3	121.7	173.4	234.4	305.8	391.1	418.7
10- 20	10	20.7	21.1	22.4	23.9	26.3	29.6	36.3	50.8	77.6	115.3	158	212.8	275.5	351.4	375.8
20- 30	10	19.5	19.9	21.1	22.6	24.7	27.9	34.1	47.6	73	105.5	143	188.4	238.4	303.9	329.8
30- 45	15	17.8	18.1	19.1	20.4	22.3	25	30.6	42.8	64.3	91.4	122.4	158.6	198.7	245.3	257.8
45- 60	15	16.1	16.3	17.1	18.1	19.8	22.3	27.4	38.3	56.5	80.5	104.6	130.1	156.2	183.4	192.3
60- 75	15	14.4	14.8	15.5	16.4	17.8	20.1	25.1	35	51	69.9	87.6	103.5	117.3	129.7	129.7
75- 95	20	12.9	13.1	13.7	14.5	15.9	18.2	23.2	31.5	44.3	58.5	68.7	76.3	82.4	84.6	82.8
95- 115	20	11.3	11.4	12.2	13.1	14.8	17.2	21.1	27.4	37.8	45.6	51	52.4	54.6	52.2	50
115- 125	10	10.6	10.8	11.7	12.8	14.4	16.4	19.5	24.9	32.7	37.3	40.4	39	40.5	36.7	34.7
125- 150	25	10.4	10.6	11.5	12.5	13.7	15.3	17.5	22.1	26.7	30.3	29.7	28.4	29	25.3	23.8
150- 175	25	10.4	10.6	11.1	11.7	12.4	13.2	14.7	18.2	20.1	21.3	18.9	18.3	18.2	14.8	13.9
175- 200	25	9.8	9.8	10.1	10.3	10.5	10.8	12.4	14.7	15.1	14.9	11.7	12.1	11	8	7.4
200- 225	25	8.4	8.4	8.4	8.2	8.3	8.9	11	11.4	11.4	9.8	7.3	8.1	6.1	3.7	3.3

Table A4.1 (continuation)

Equivalent dose rate from LAr EC calorimeter for T= 10 y, t= 100 d

R/Z, cm	dR/dZ	340	340- 350	350- 365	365- 380	380- 405	405- 430	430- 480	480- 530	530- 580	580- 605	605- 630	630- 645	645- 660	660- 670	670
		0	10	15	15	25	25	50	50	50	25	25	15	15	10	0
0- 5	5	10.1	10.3	10.9	11.8	12.8	14.6	18.1	26	40.7	62	90.9	130.9	179.8	239.5	261.4
5- 10	5	9.4	9.5	10.1	10.9	12	13.5	17	24.4	38.2	58.6	85.4	121.1	165.1	211.1	222.4
10- 20	10	9	9.1	9.6	10.4	11.5	12.9	16.2	23.1	36	55	78.5	109.7	149	198.3	213.1
20- 30	10	8.5	8.7	9.2	9.8	10.8	12.3	15.1	21.4	33.3	50.1	70.5	96.5	128.4	178.1	201.7
30- 45	15	7.9	8	8.5	9	9.9	11.2	13.8	19.4	29.9	43.9	60.1	80.1	103.2	132.6	142.4
45- 60	15	7.2	7.3	7.7	8.2	9	10.1	12.4	17.3	26.2	38.1	50.8	64.2	77.7	91.6	94.2
60- 75	15	6.6	6.7	7	7.4	8	9	11.1	15.6	23.5	33.4	41.7	50.1	57.4	63.5	63.5
75- 95	20	5.7	5.8	6.1	6.4	6.9	7.9	10.1	14.3	20.8	27.2	33	36.4	40.2	41.7	40.6
95- 115	20	4.8	4.9	5.2	5.5	6.3	7.4	9.6	12.7	17.3	21.8	24.4	25.3	27.3	26.3	24.8
115- 125	10	4.5	4.6	4.9	5.4	6.3	7.4	9.1	11.4	15.1	18	19.4	19.2	20.7	18.8	17.4
125- 150	25	4.5	4.6	5.1	5.5	6.3	7.1	8.1	9.9	12.8	14.3	14.6	14.1	15.3	13	12.2
150- 175	25	4.8	4.9	5.2	5.5	5.8	6	6.4	8.4	9.7	10.6	9.4	9.6	9.9	7.7	7.3
175- 200	25	4.7	4.7	4.7	4.6	4.6	4.6	5.6	7.2	7.3	7.6	6	6.8	6.2	4.3	4
200- 225	25	3.7	3.6	3.6	3.5	3.5	4	5.3	5.4	5.8	5	3.8	4.8	3.6	2.1	1.9

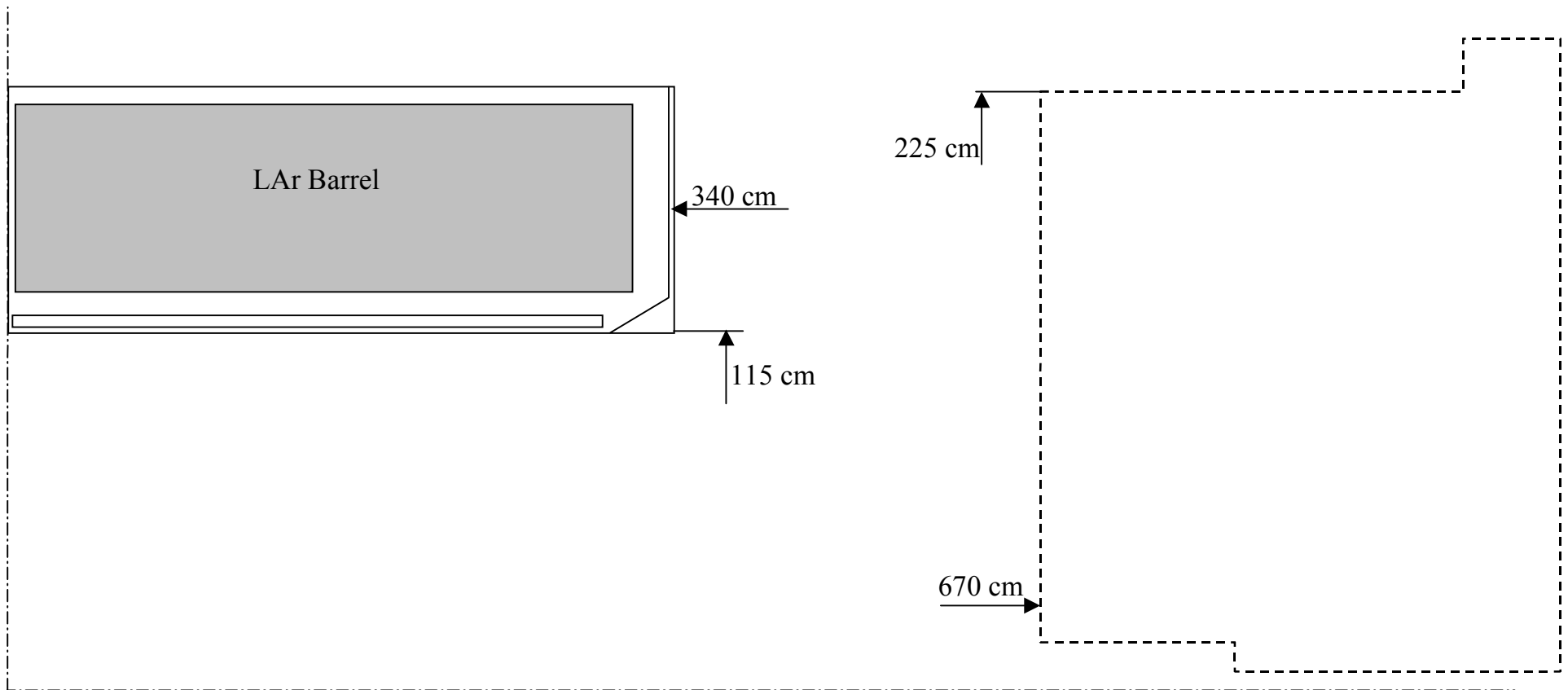


Fig. A4.2. To calculations of dose rate from LAr Barrel.

Table A4.2

Equivalent dose rate from LAr Barrel calorimeter for T= 100 d, t= 5d

R/Z, cm	dR/dZ	340	340- 350	350- 365	365- 380	380- 405	405- 430	430- 480	480- 530	530- 580	580- 605	605- 630	630- 645	645- 660	660- 670	670
		0	10	15	15	25	25	50	50	50	25	25	15	15	10	0
0- 5	5	8.1	7.1	5.8	6.1	6.3	4.1	4.4	3	1.7	1.7					
5- 10	5	8.1	7.1	5.9	6.2	6.3	4.1	4.4	3	1.7	1.7					
10- 20	10	8.1	7.2	5.9	6.1	6.2	4.2	4.4	3	2	1.7					
20- 30	10	8.1	7.3	6	6.2	6	4.6	4.1	3	2.2	1.7					
30- 45	15	8	7.3	6.4	6.2	5.6	5.1	3.9	3.1	2.4	1.6					
45- 60	15	7.8	7.4	6.6	5.9	5.5	5.4	3.7	3.3	2.4	1.5					
60- 75	15	7.8	7.6	6.7	5.8	5.7	5	3.9	3.2	2.4	1.5					
75- 95	20	7.9	7.7	6.8	6.1	5.3	4.9	4	3	2.5	1.5					
95- 115	20	8	7.9	7	5.9	5.2	4.8	3.8	2.8	2.3	1.5					
115- 125	10	8.5	7.9	7.1	6	5.1	4.4	3.8	2.8	2.3	1.6					
125- 150	25	9	7.8	7.1	6	5	4.4	3.7	2.7	2.1	1.6					
150- 175	25	8.5	7.4	6.7	5.7	4.8	3.9	3.4	2.6	2	1.4					
175- 200	25	7.2	6.2	5.9	5.3	4.4	3.8	3.3	2.5	1.9	1.3					
200- 225	25	6	5.1	4.8	4.5	3.7	3.2	2.7	2.2	1.7	1.2					

Table A4.2 (continuation)

Equivalent dose rate induced by high-energy hadrons from calorimeter for T= 100 d, t= 100 d

R/Z, cm	dR\dZ	340	340- 350	350- 365	365- 380	380- 405	405- 430	430- 480	480- 530	530- 580	580- 605	605- 630	630- 645	645- 660	660- 670	670
		0	10	15	15	25	25	50	50	50	25	25	15	15	10	0
0- 5	5	2.2	2	1.8	1.9	1.6	1.3	1.2	0.9	0.5	0.4					
5- 10	5	2.2	2	1.8	1.9	1.6	1.3	1.2	0.9	0.5	0.4					
10- 20	10	2.2	2	1.9	1.8	1.6	1.3	1.2	0.9	0.5	0.4					
20- 30	10	2.2	2	2	1.8	1.6	1.4	1.2	0.9	0.7	0.4					
30- 45	15	2.3	2.1	1.9	1.8	1.6	1.5	1.1	0.9	0.7	0.4					
45- 60	15	2.3	2.2	2	1.8	1.6	1.5	1.1	0.9	0.7	0.4					
60- 75	15	2.3	2.2	2	1.8	1.6	1.4	1.2	0.8	0.7	0.4					
75- 95	20	2.3	2.3	2.1	1.7	1.5	1.4	1.2	0.8	0.7	0.4					
95- 115	20	2.3	2.2	2	1.7	1.5	1.3	1.1	0.8	0.7	0.4					
115- 125	10	2.5	2.3	2	1.7	1.4	1.2	1.1	0.8	0.6	0.4					
125- 150	25	2.7	2.2	2	1.7	1.4	1.2	1	0.7	0.6	0.4					
150- 175	25	2.3	2	1.8	1.6	1.3	1.1	1	0.7	0.6	0.4					
175- 200	25	2	1.8	1.6	1.5	1.2	1.1	0.9	0.7	0.6	0.4					
200- 225	25	1.9	1.5	1.4	1.3	1.1	0.9	0.8	0.6	0.5	0.3					

Table A4.2 (continuation)

Equivalent dose rate induced by high-energy hadrons from calorimeter for T= 10 y, t= 5 d

R/Z, cm	dR/dZ	340	340- 350	350- 365	365- 380	380- 405	405- 430	430- 480	480- 530	530- 580	580- 605	605- 630	630- 645	645- 660	660- 670	670
		0	10	15	15	25	25	50	50	50	25	25	15	15	10	0
0- 5	5	14.2	12.4	10.8	11.1	10.6	7.8	7.5	5.5	3.4	2.8					
5- 10	5	14.1	12.5	10.8	11	10.6	7.8	7.5	5.5	3.4	2.8					
10- 20	10	14.1	12.7	11	11	10.4	7.9	7.5	5.5	3.6	2.8					
20- 30	10	14.1	12.6	11.2	10.9	10.3	8.3	7.3	5.5	3.9	2.8					
30- 45	15	14	12.8	11.5	10.9	9.9	8.9	7.1	5.5	4.2	2.7					
45- 60	15	13.9	13	11.9	10.8	9.8	9.2	6.9	5.7	4.3	2.8					
60- 75	15	14	13.4	12.4	10.6	10	9	7	5.5	4.4	2.9					
75- 95	20	14.3	13.9	12.4	10.9	9.6	8.7	7.1	5.2	4.3	2.8					
95- 115	20	14.4	14.3	12.7	10.8	9.3	8.5	6.6	5.1	4.1	2.8					
115- 125	10	15.8	14.5	12.7	10.7	9.2	7.8	6.6	4.9	3.9	2.7					
125- 150	25	16.8	14.3	12.7	10.8	9	7.7	6.5	4.6	3.7	2.8					
150- 175	25	15.3	13	12	10.2	8.4	7.1	5.9	4.7	3.7	2.7					
175- 200	25	13	11.2	10.7	9.6	8.1	6.9	5.8	4.4	3.3	2.4					
200- 225	25	11.4	9.7	9.1	8.3	7	5.8	4.9	3.9	3.1	2.1					

Table A4.2 (continuation)

Equivalent dose rate induced by high-energy hadrons from calorimeter for T= 10 y, t= 100 d

R/Z, cm	dR/dZ	340	340- 350	350- 365	365- 380	380- 405	405- 430	430- 480	480- 530	530- 580	580- 605	605- 630	630- 645	645- 660	660- 670	670
		0	10	15	15	25	25	50	50	50	25	25	15	15	10	0
0- 5	5	7.4	7.3	6.9	6.4	6.2	5.6	4.7	4.1	3.1	2	1.4				
5- 10	5	7.4	7.3	6.9	6.4	6.3	5.6	4.7	4.1	3.1	2.1	1.4				
10- 20	10	7.4	7.4	7	6.5	6.2	5.5	4.7	4.1	3.1	2.1	1.4				
20- 30	10	7.4	7.4	7.1	6.6	6.1	5.5	4.8	4	3.1	2.2	1.4				
30- 45	15	7.3	7.5	7.2	6.7	6	5.5	5	3.9	3.1	2.3	1.5				
45- 60	15	7.1	7.6	7.3	6.8	6.1	5.5	5	3.9	3	2.3	1.6				
60- 75	15	7.1	7.7	7.6	7	6.1	5.5	5	4	3	2.4	1.6				
75- 95	20	7.2	8.1	7.9	7.1	6.3	5.4	4.9	3.9	2.9	2.4	1.6				
95- 115	20	7.2	8.2	8.1	7.4	6.2	5.3	4.7	3.7	2.9	2.3	1.5				
115- 125	10	7.6	9.3	8.3	7.2	6.1	5.2	4.3	3.7	2.7	2.1	1.5				
125- 150	25	8	9.8	8.3	7.2	6.1	4.9	4.2	3.6	2.5	2.1	1.5				
150- 175	25	7.4	8.4	7.2	6.6	5.7	4.7	3.9	3.3	2.6	2.2	1.5				
175- 200	25	5.9	7.3	6.3	6	5.4	4.5	3.8	3.2	2.5	1.9	1.3				
200- 225	25	4.5	6.8	5.8	5.3	4.8	4	3.3	2.7	2.2	1.7	1.2				