I. Merhasin 3/3/97

Internal Report

Additional Magnets for electron beam correction in Tandem FEL:

attempting to improve situation

Present situation (Fig.1): Magnets Positions see in Table 1.

there is additional correcting permanent magnet pair befor the wiggler

input angle of electron beam should be about 7 mrad

Fig.1

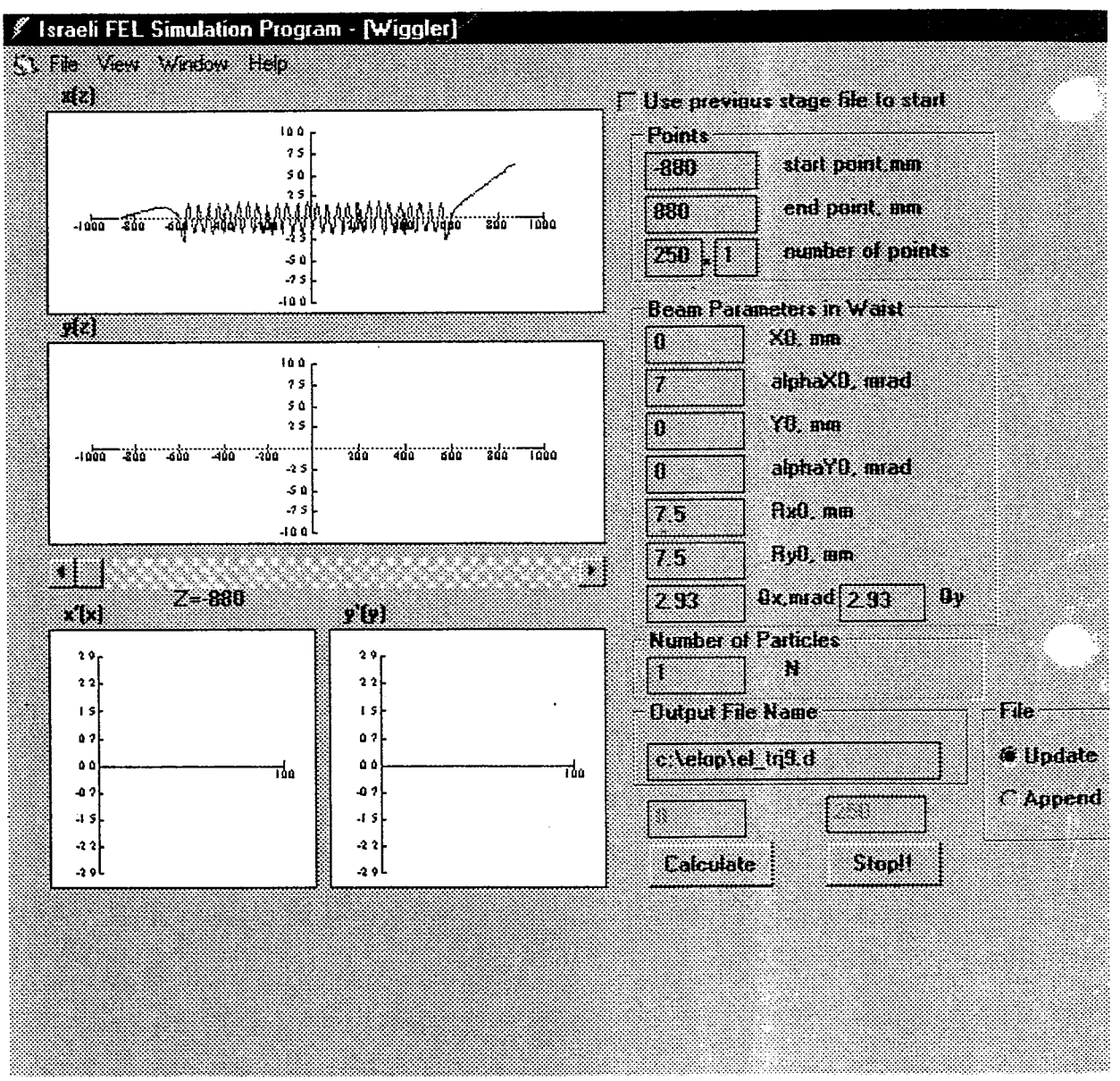
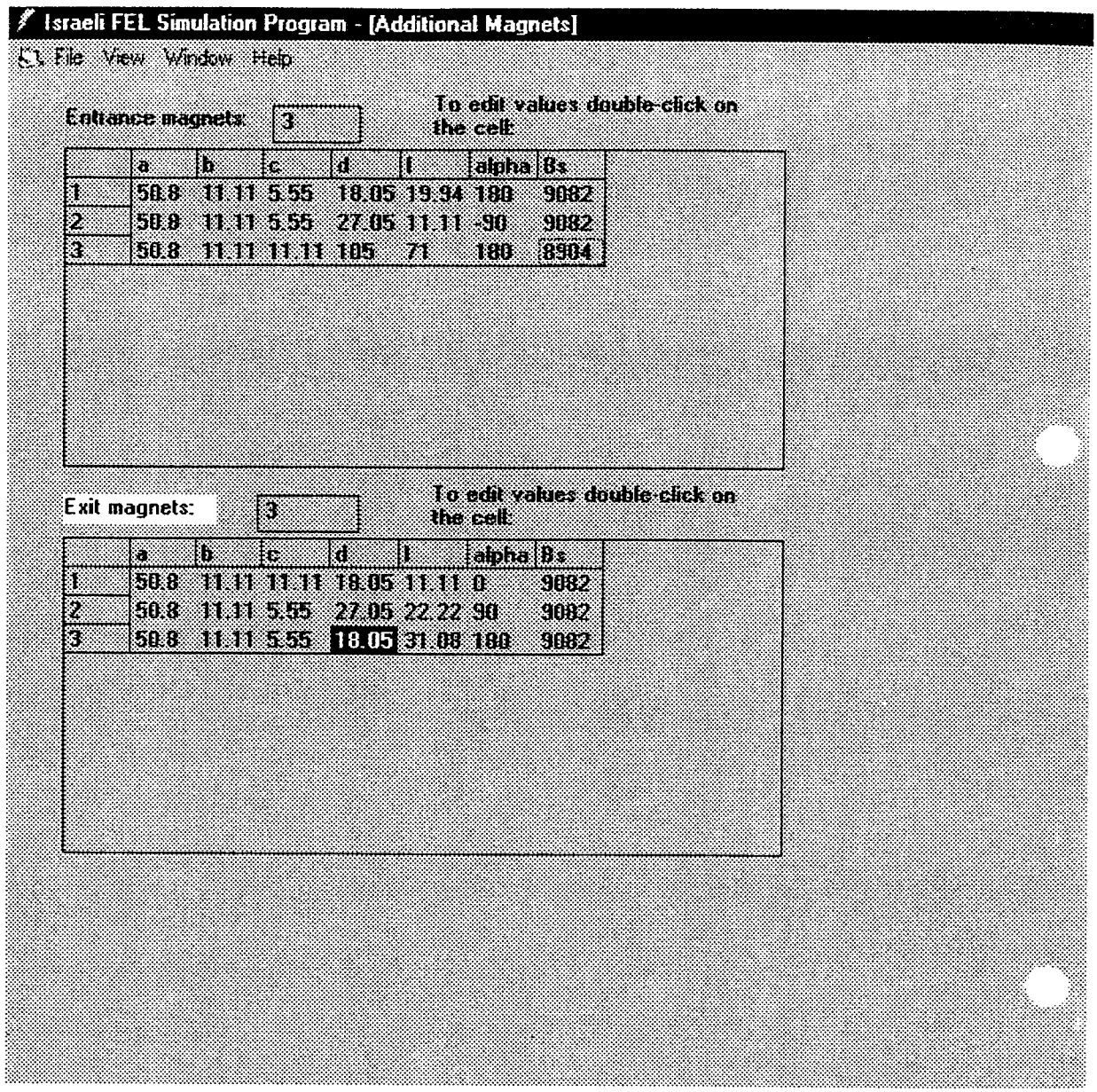


Table 1. Additional Magnets



	a	b	c	d	l	alpha	Bs
1	50.8	11.11	5.55	18.05	19.94	180	9082
2	50.8	11.11	5.55	27.05	11.11	-90	9082
3	50.8	11.11	11.11	105	71	180	8904

	a	b	c	d	l	alpha	Bs
1	50.8	11.11	11.11	18.05	11.11	0	9082
2	50.8	11.11	5.55	27.05	22.22	90	9082
3	50.8	11.11	5.55	18.05	31.08	180	9082

Whithout additional correction magnets the situation will look like this one:

Fig. 2

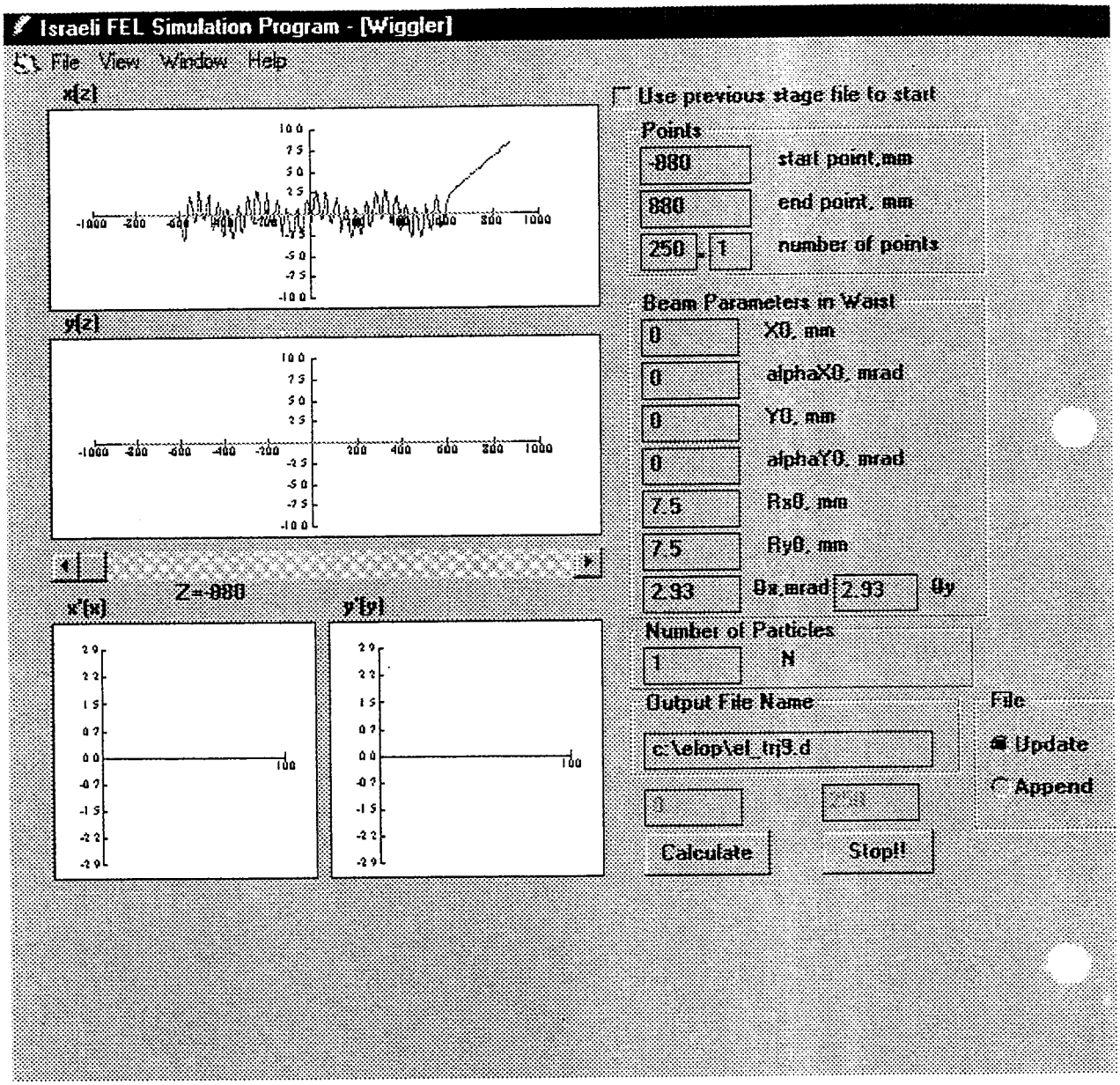
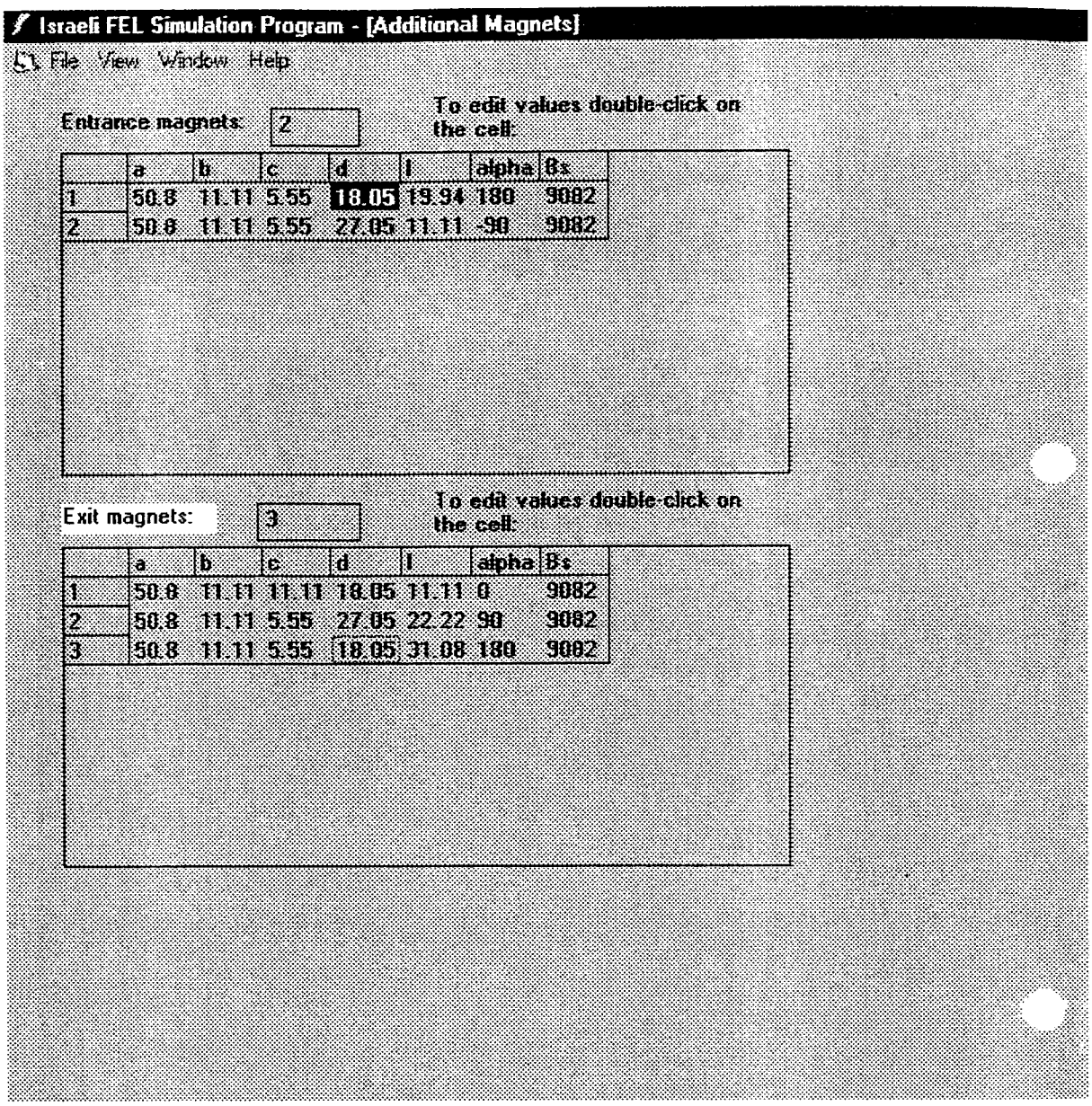


Table 2. Additional magnets for situation in Fig. 2



	a	b	c	d	l	alpha	Bs
1	50.8	11.11	5.55	18.05	19.94	180	9082
2	50.8	11.11	5.55	27.05	11.11	-90	9082

	a	b	c	d	l	alpha	Bs
1	50.8	11.11	11.11	18.05	11.11	0	9082
2	50.8	11.11	5.55	27.05	22.22	90	9082
3	50.8	11.11	5.55	18.05	31.08	180	9082

It is possible to improve situation by placing first additional magnets pair more close to wiggler axis:

Fig. 3

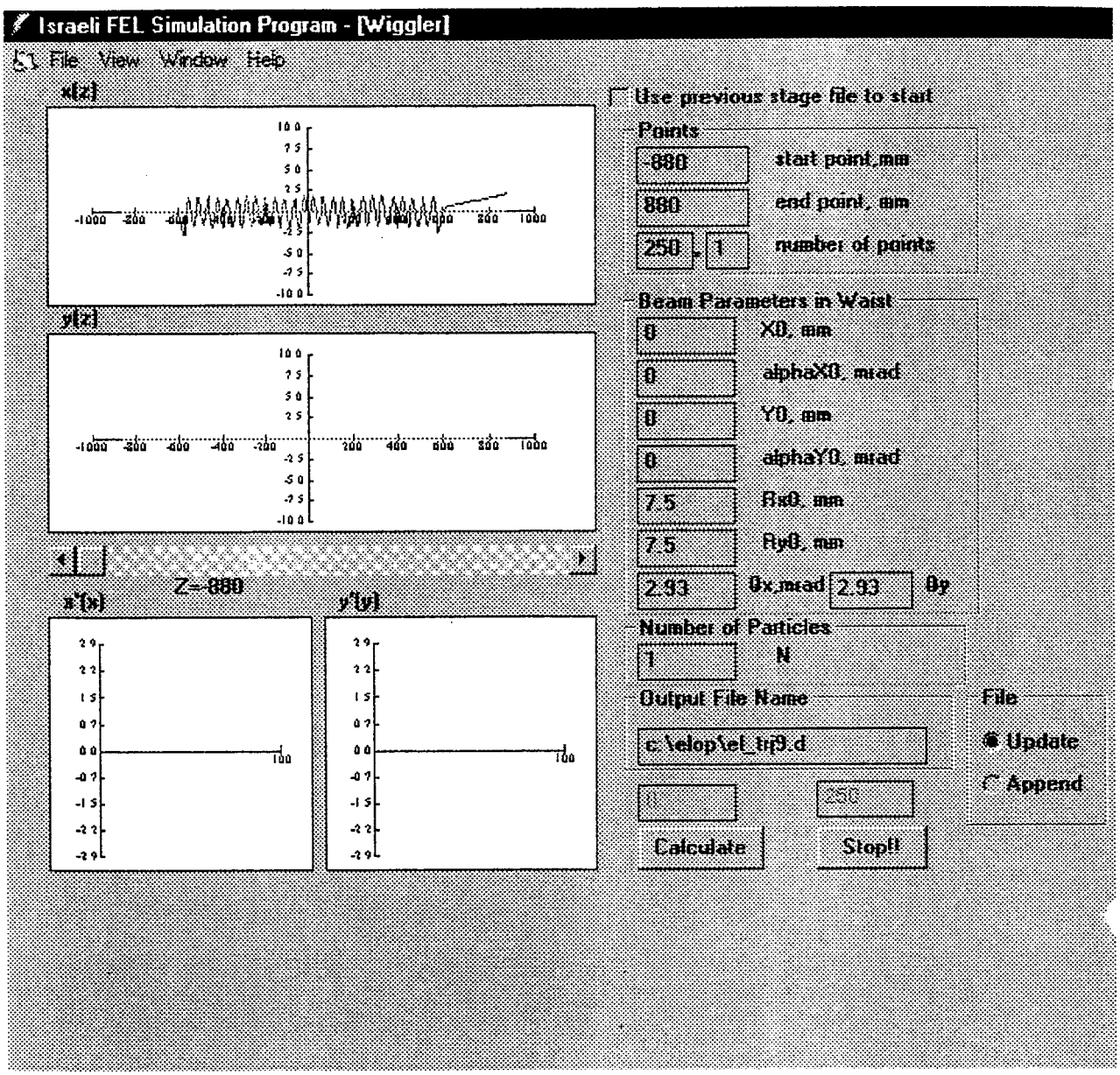
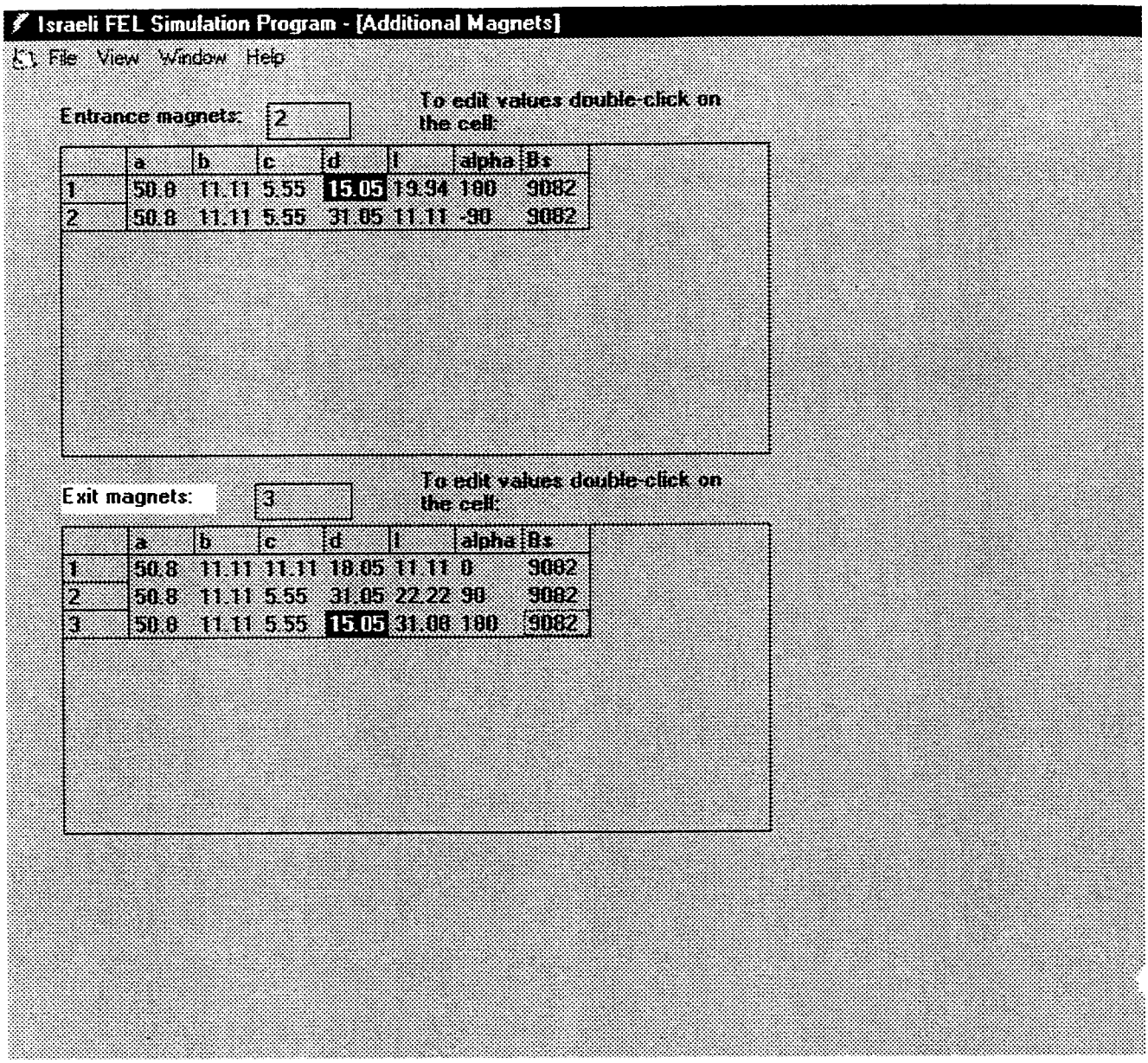


Table 3. Additional Magnets positions for situation in Fig. 3



	a	b	c	d	l	alpha	Bs
1	50.8	11.11	5.55	15.05	19.94	180	9082
2	50.8	11.11	5.55	31.05	11.11	-90	9082

	a	b	c	d	l	alpha	Bs
1	50.8	11.11	11.11	18.05	11.11	0	9082
2	50.8	11.11	5.55	31.05	22.22	90	9082
3	50.8	11.11	5.55	15.05	31.08	180	9082

Final results are concentrated in the following table:

Table 4. Final Results

Add.Corr. Magnets	Additional Magn. Position		Input Angle	Fig.No
	d1(1) mm	d1(2) mm	mrad	
present	18.05	27.05	7	1
not present	18.05	27.05	0	2
not present	15.05	31.05	0	3