

RIPS LOGBOOK
04/05/2004 ~ 6/4/2004

α -source check.

6/1

R3PPAC_a

-820V

C: #R11#06011339

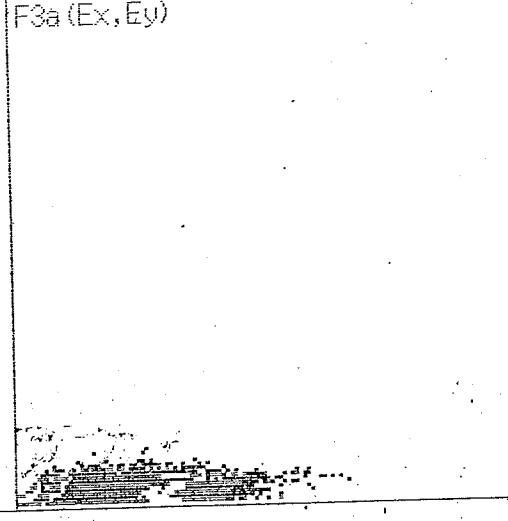
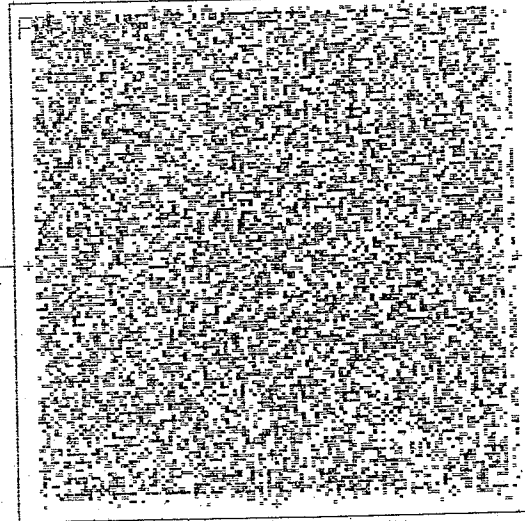
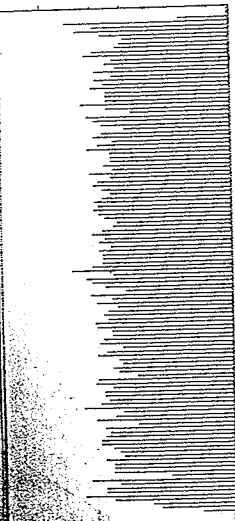
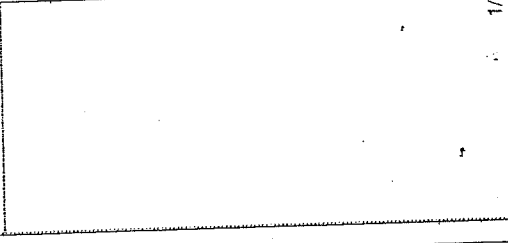
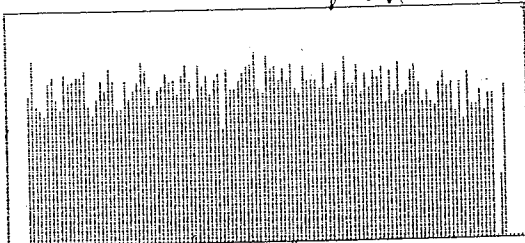
1/1

X(63 ± 4)

Y(63 ± 4)

170

04/06/01



C: #R11#06011400

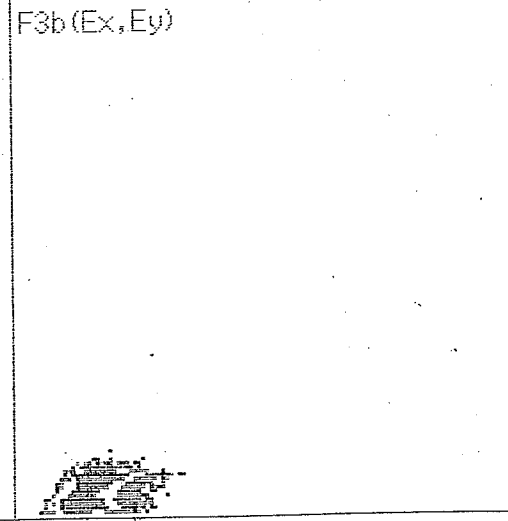
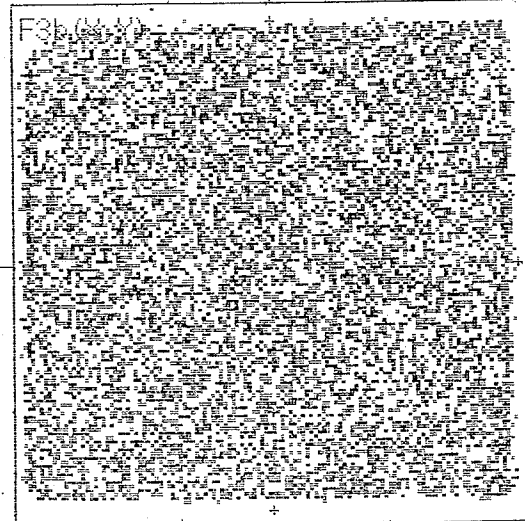
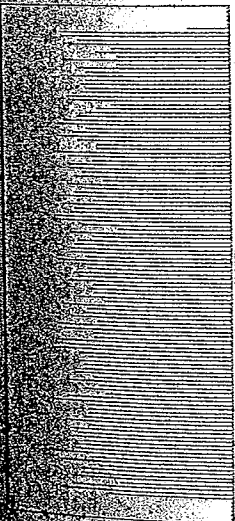
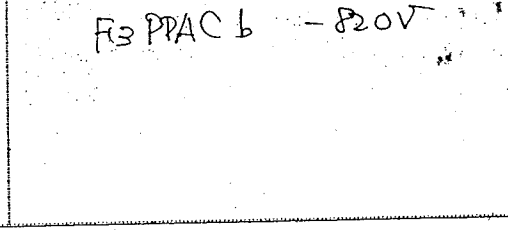
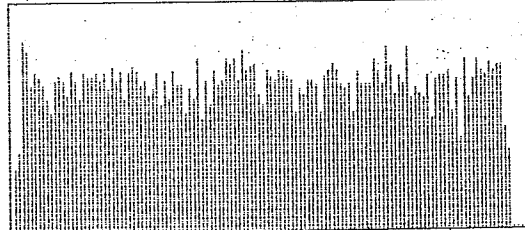
X(63 ± 4)

Y(63 ± 4)

171

04/06/01

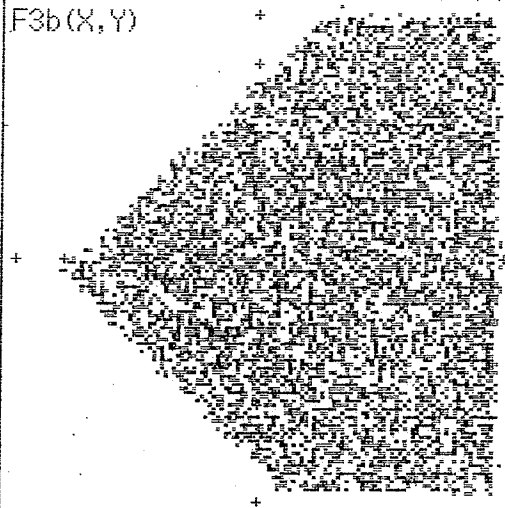
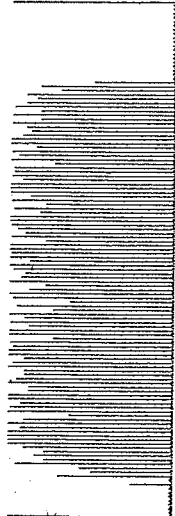
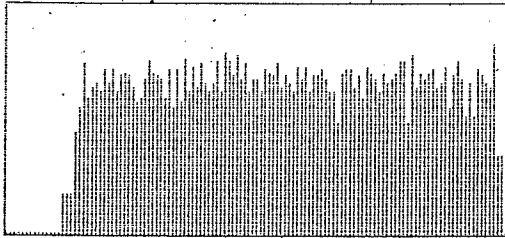
R3PPAC_b -820V



TM#D6011412

63 ± 4)
63 ± 4)

06/01



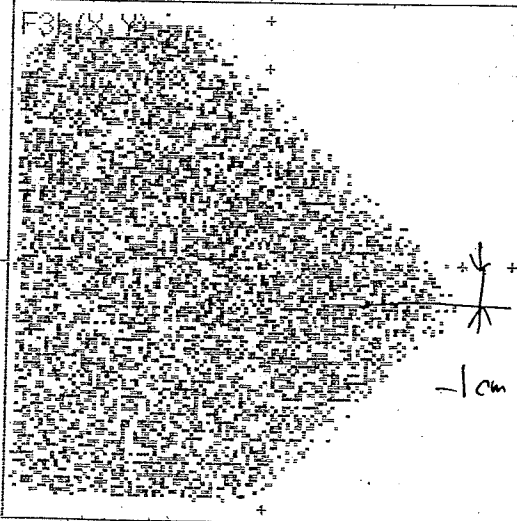
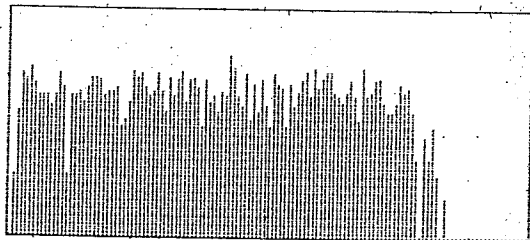
F3b(Ex, Ey)

slit
R 70 mm
L 30 mm

TM#D6011404

3 ± 4)
3 ± 4)

6/01

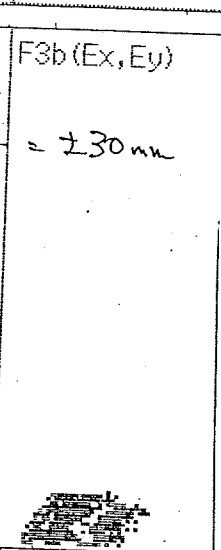
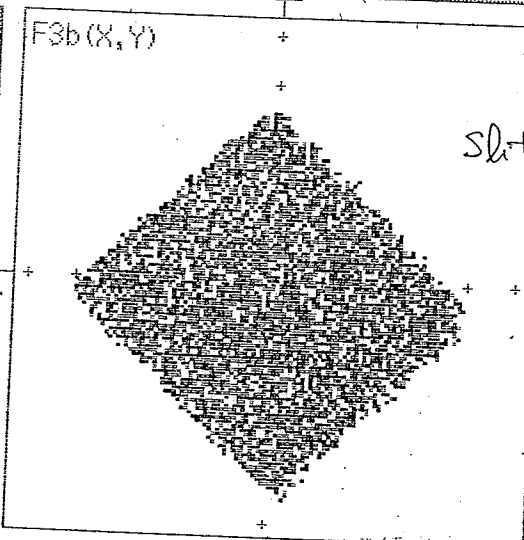
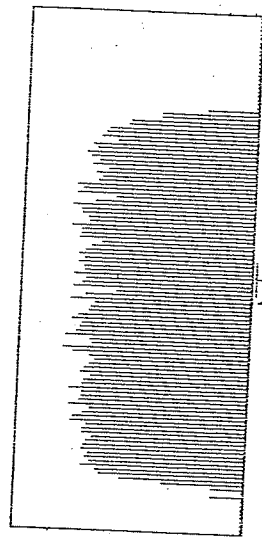
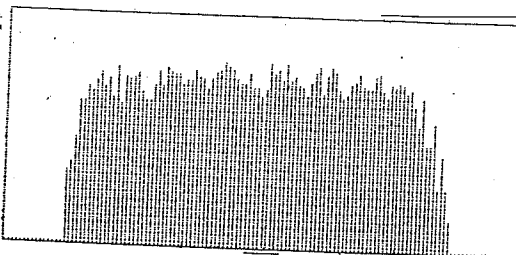


F3b(Ex, Ey)

slit
R 30 mm
L 70 mm

C:\RTM\#D6011416

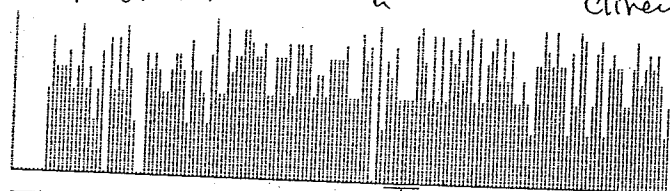
X(63 ± 4)
Y(63 ± 4)
347
04/06/01



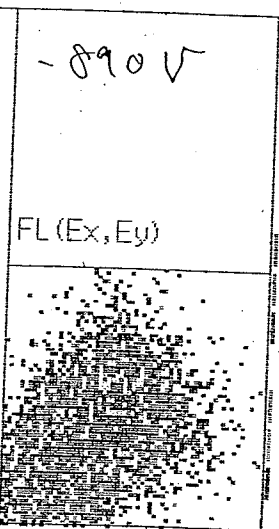
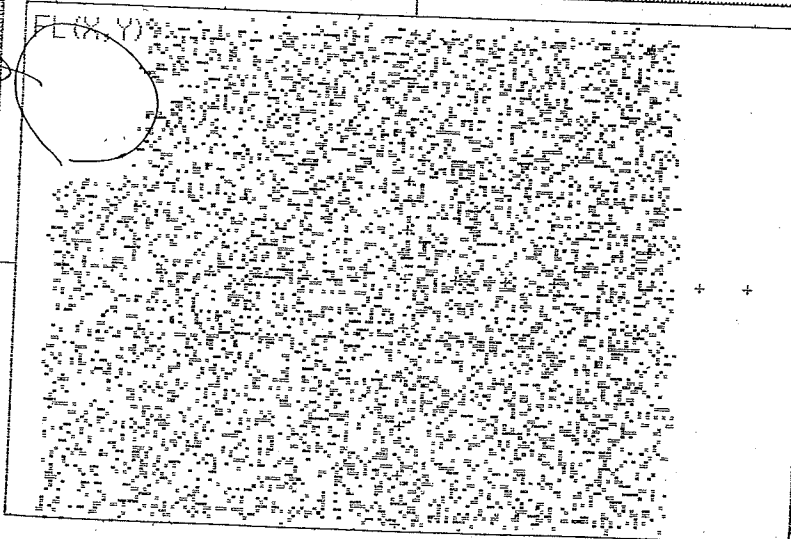
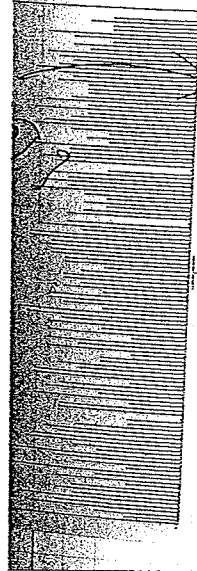
slit = ±30nm

X center of slit seems correct.
Y center " " closed..

(95 ± 4)
(63 ± 4)
06/01



F1 PRAC



-890 V

FL(Ex, Ey)

11522

↓ center = 101 ch

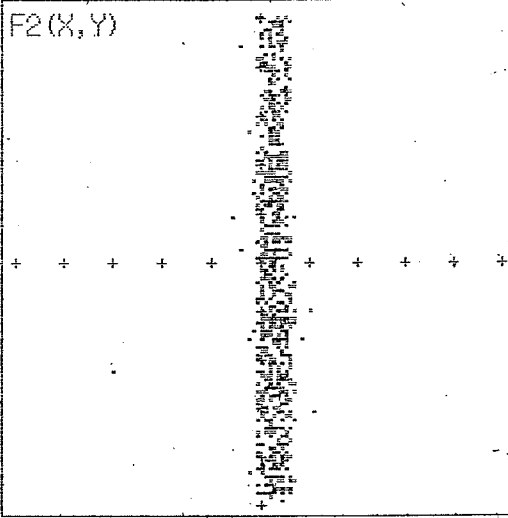
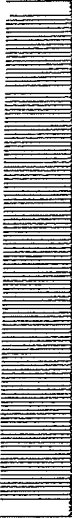
4)
4)

+ 11ch shifted ~



F2 (X, Y)

F2 (Ex, Ey)

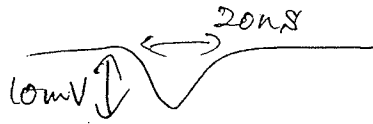


F2 PPAC
- 830 V
Slow ± 0.9 mm
刻量 ≈ 32
計測 ΦW k PPAC ΦW
DI: 1.5 mm ΦW 3
(PPAC A: 1.5 mm ZB)

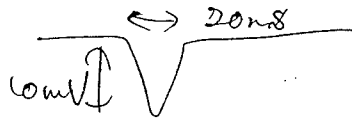
6/2

F2PL check. th @ Eb 300mV. (with α -source)

Left 1700V

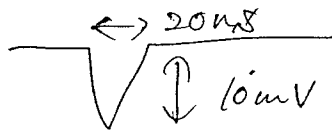


Right 1700V

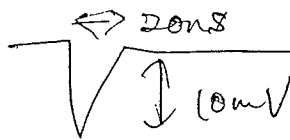


F3PL check th @ Eb 300mV (with α -source)

Left 1500V

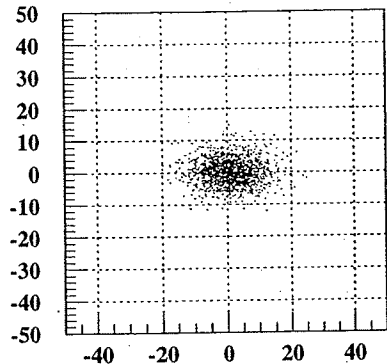


Right 1500V

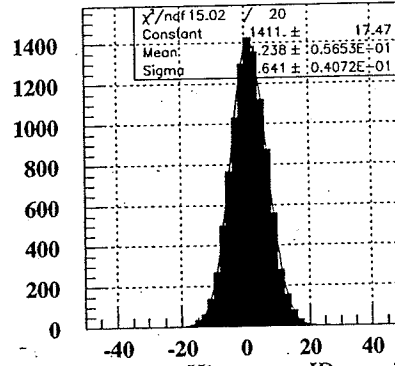


OK!

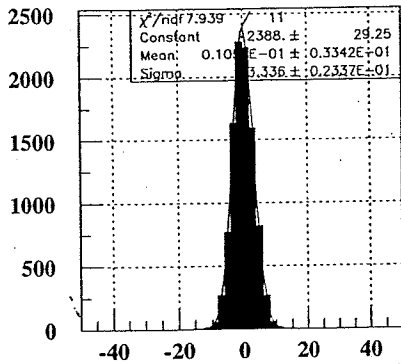
Ver. 1-1 Focus @ F3PL



Histogram ID = 5
x.mm*y.mm F3plastic



Histogram ID = 7
Prox.(x.mm*y.mm F3plastic)



Histogram ID = 9
Proy.(x.mm*y.mm F3plastic)

$2/2 = 0.8$

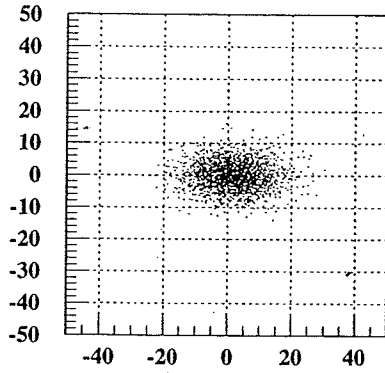
$4/4 = 1.09$

Qprm

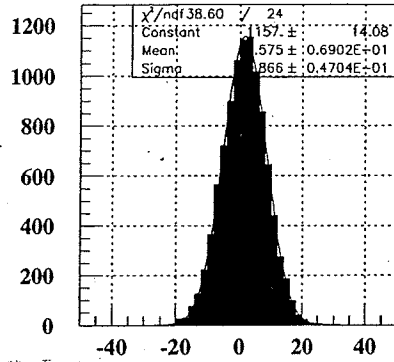
1.78055 (0.7)
1.86114 (0.7)
1.80828 (0.7)

RIPScant	
1.211385	0/0
1.497254	11
1.265796	12

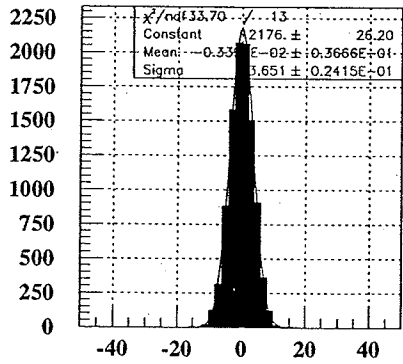
Ver. 1-2



Histogram ID = 6
x.mm*y.mm Si-Stack



Histogram ID = 8
Prox.(x.mm*y.mm Si-Stack)



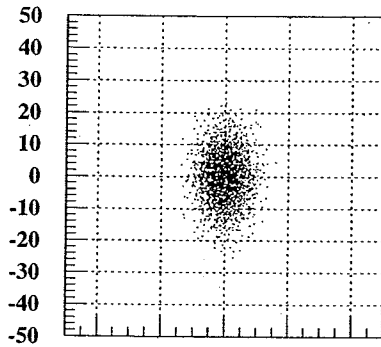
Histogram ID = 10
Proj.(x.mm*y.mm Si-Stack)

$x/x = 0.95$

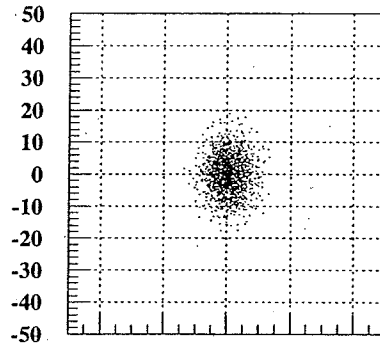
$y/y = 0.97$

お材料。

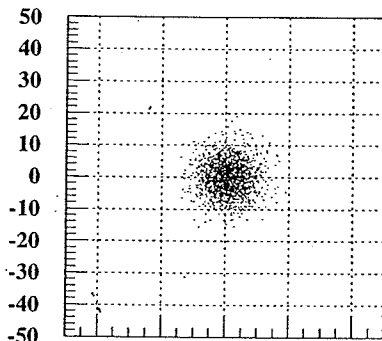
Ver.2-1 Focus @ Si-stack



Histogram ID = 3
x.mm*y.mm F3PPACa



Histogram ID = 4
x.mm*y.mm F3PPACb



Histogram ID = 5
x.mm*y.mm F3plastic

Qprm

1.75387

1.32692

1.56543

RIPS

1.227709

1.459612

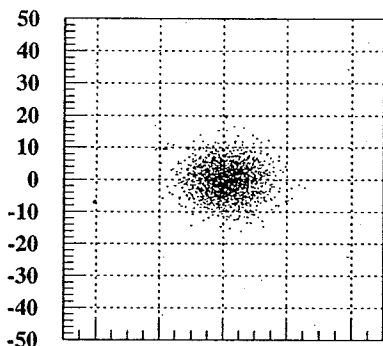
1.095801

Q10

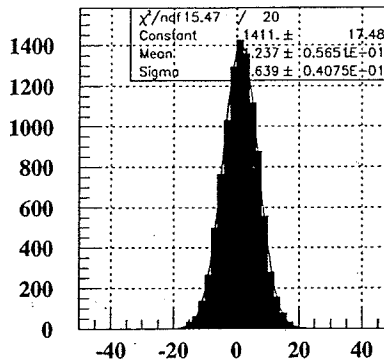
11

12

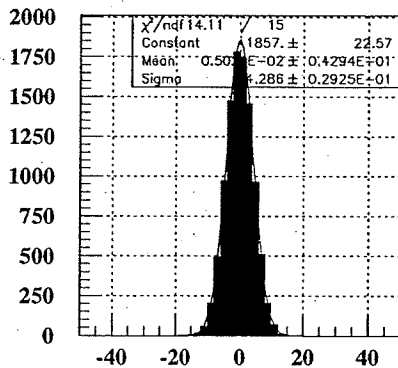
Ver.2-2



Histogram ID = 6
x.mm*y.mm Si-Stack



Histogram ID = 7
Proy.(x.mm*y.mm Si-Stack)



Histogram ID = 8
Proy.(x.mm*y.mm Si-Stack)

$(x/x) = 0.8$

$(y/y) = 1.4$

80 Kn +30

E-W

F0 スポット調整開始

$$\frac{RIPS}{D61} = \frac{18 \text{ e2A}}{38 \text{ e2A}} \sim 47\%$$

$$\frac{RIPS}{D61} = \frac{34 \text{ e2A}}{38 \text{ e2A}} \sim 89\%$$

$$\frac{33 \text{ e2A}}{35 \text{ e2A}} \sim 94\%$$

~~1.5.7A 4.1A 7.4u3~~
~~2.2e2A R~~

LINAC flutter 2~3e2A



F1 up down gate valve open
 上・下 ゲートバルブ開

F2 上流
 up "

TA-F1 (D1) 3.3274 T₂ (0.924 T)

FC, 225 ~~...~~ ⇒ out

~~Attenuator~~ Attenuator { $\frac{1}{5000}$... RRC
 $\frac{1}{100}, \frac{1}{10}, \frac{1}{2}, \frac{1}{3}$... LINAC

RIPS Magnet Control

	Cal. Curr.	Set Curr.	Read Curr.
Q1	217.32	217.3213	217.062
Q2	173.09	173.0914	170.746
Q3	164.28	164.2790	164.747
SX1	-0.15	0.1469	0.000
Q11	515.40	515.4045	519.508
SX2	-0.15	0.1469	0.000
Q4	90.26	90.2643	90.192
Q5	67.16	67.1649	67.277
Q6	59.81	59.8122	60.039
SX3	-0.15	0.1469	0.000
Q7	321.91	321.9103	321.267
SX4	-0.15	0.1469	0.000
F1-F2	3.3274	3.3274	83.189
Q8	86.23	86.2259	86.531
F1-F2	2.0000	100.87	100.8714
Q9	100.87	100.8714	100.854
Q10	0.00	0.0000	11.235
F2-F3	2.0000	0.00	0.0000
Q11	0.00	0.0000	16.848
Q12	0.00	0.0000	12.347

Mode: Focus
parameter
Bipo

exit

$D_2 = 2.7426 T_m$ (0.761 T) \leftarrow F1 PPAC: 30 kV, 50 kV, 70 kV
 F1 PPAC in full strip
 2800 S

RIPS Magnet Control

	Cal. Curr.	Set Curr.	Read Curr.
Q1	217.32	217.3213	217.173
Q2	173.09	173.0914	170.984
Q3	164.28	164.2790	164.747
SX1	-0.15	0.1469	0.000
Q11	515.40	515.4045	519.508
SX2	-0.15	0.1469	0.000
Q4	90.26	90.2643	90.192
Q5	112.77	112.7735	112.892
Q6	100.57	100.5679	100.881
SX3	-0.15	0.1469	0.000
Q7	535.66	535.6645	535.445
SX4	-0.15	0.1469	0.079
F1-F2	3.3274	137.53	137.5267
Q8	143.31	143.3086	143.797
F1-F2	3.3274	168.49	168.4888
Q9	168.49	168.4888	168.905
Q10	0.00	0.0000	11.123
F2-F3	2.0000	0.00	0.0000
Q11	0.00	0.0000	16.848
Q12	0.00	0.0000	12.347

Mode: Focus
parameter
Bipo

exit

211 mag.01

RIPS Magnet Control

	Cal. Curr.	Set. Curr.	Read Curr.
Q1	217.32	217.3213	217.173
Q2	173.09	173.0914	170.628
Q3	164.28	164.2790	164.487
SX1	-0.15	0.1469	0.000
U1	515.40	515.4045	519.508
SX2	-0.15	0.1469	0.000
Q4	90.26	90.2643	90.247
Q5	92.68	92.6802	92.653
Q6	82.61	82.6126	82.826
SX3	-0.15	0.1469	0.000
U2	441.49	441.4929	440.784
SX4	-0.15	0.1469	0.079
TR-F1	3.3274	3.3274	3.3274
Q7	113.33	113.3333	114.334
Q8	118.16	118.1602	118.407
F-F2	2.7426	2.7426	2.7426
Q9	138.70	138.6993	138.828
Q10	0.00	0.0000	10.901
F-F3	2.0000	2.0000	2.0000
Q11	0.00	0.0000	16.848
Q12	0.00	0.0000	12.347

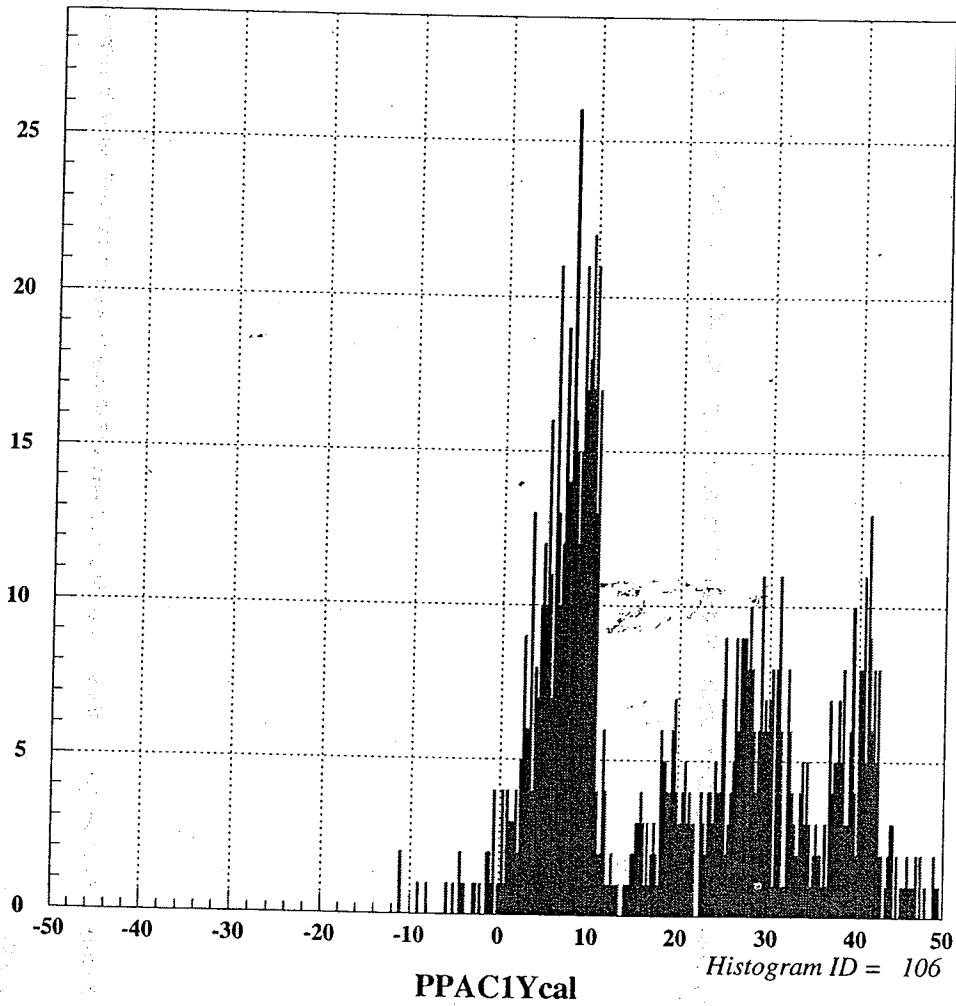
Mode: Focus
parameter
Brio
exit

Life D b1 full v 1050 eV A 1/2

~~1/2~~ The slit of Ion source is very narrow
all attenuators are put in.

1 PPAC HV = -751 V

F1 PPAC 子方向



F1 PPAC Amd T



HV = -750V

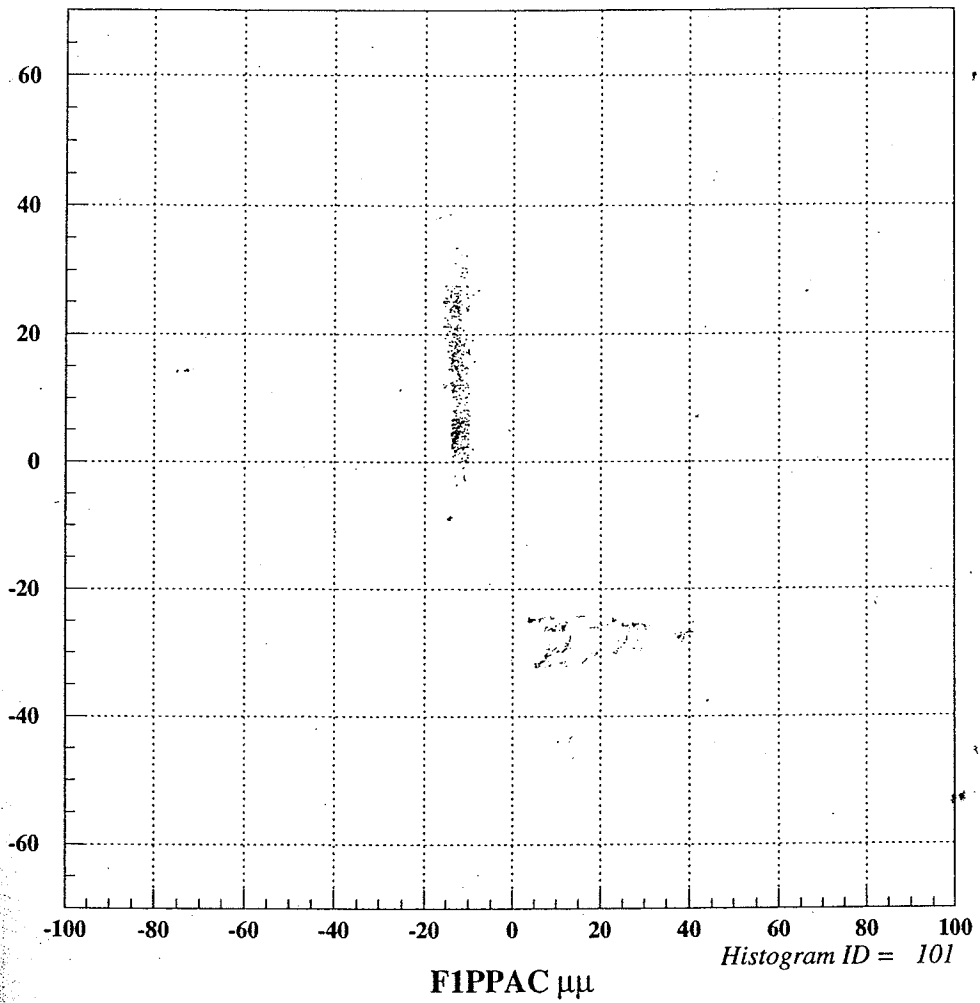


HV = -770V

44ns

Double triggering

F1 PPAC 2-d



F1 PPAC O.K.

F1 PPAC \Rightarrow out

--- no detector in F1

F2 plastic (0.1m) \Rightarrow in

set ^{set} the D1 & D2 BP = 3,3274 Tm
(0,924 T)

F2 plastic R HV read $\begin{matrix} 923,886 & (P1) \\ 924,491 & (P2) \end{matrix}$
1000 \rightarrow 1500 \rightarrow 1700 V \rightarrow 2200

L HV

1700V \rightarrow 2000 \rightarrow 2200

plastic of HV are down

\Downarrow We do not know why.

set 2100 V

\rightarrow We can not see the signals -

F2 PPAC \Rightarrow in \leftarrow First we want to see
F2 PPAC

F1 PPAC \Rightarrow in soon out.

The beam arrives to F1

but

does not arrive to F2

Check E6 room. [degrader is in ~~out~~]

Beam comes to F2.

~~because of degra~~

2222

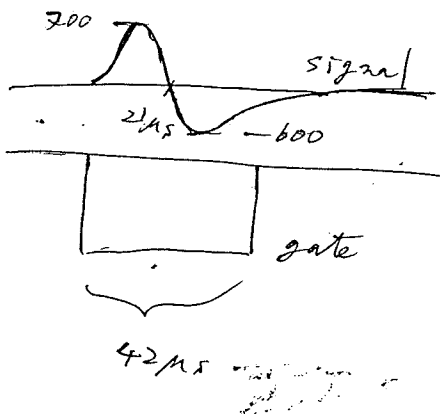
F2 SSD \Rightarrow 12

F2 SSD parameter

Gain = 500×9.62

Shaping = $\frac{6}{\text{Time}}$

F2 SSD



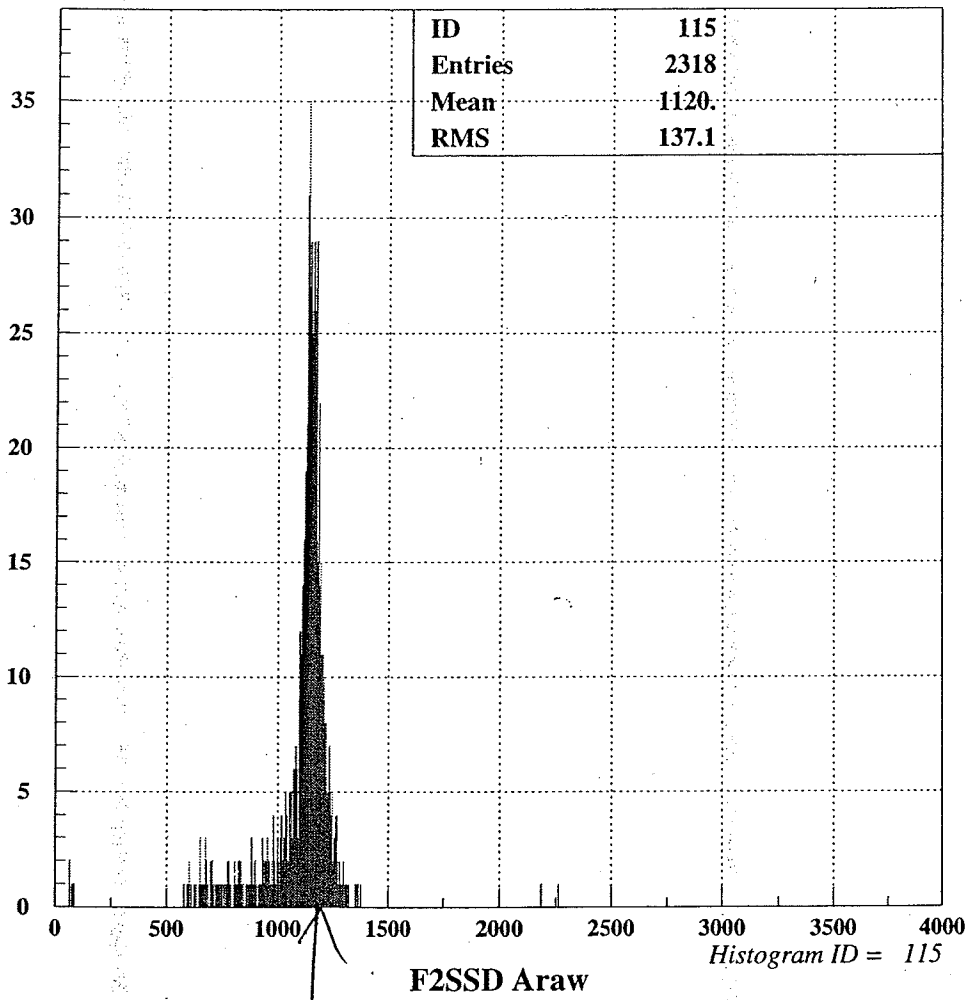
trigger is plastic
trigger rate 50 cpi

RIPS Magnet Control

	Val	Cur	Set Curr	Read Curr
Q1	217.32	217.3213	217.173	
Q2	173.09	173.0914	170.984	
Q3	164.28	164.2790	164.747	
SX1	-0.15	0.1469	0.000	
Q1	515.40	515.4045	519.508	
SX2	-0.15	0.1469	0.000	
Q4	90.26	90.2643	90.192	
Q5	112.77	112.7735	112.892	
Q6	100.57	100.5679	100.881	
SX3	-0.15	0.1469	0.000	
Q2	535.66	535.6645	535.445	
SX4	-0.15	0.1469	0.079	
TH-F1	3.3274	3.3274	137.53	137.5267
Q7	137.53	137.5267	138.974	
Q8	143.31	143.3086	143.797	
F1-F2	3.3274	3.3274	168.49	168.4888
Q9	168.49	168.4888	168.905	
Q10	0.00	0.0000	11.123	
F2-F3	2.0000	2.0000	0.00	0.0000
Q11	0.00	0.0000	16.848	
Q12	0.00	0.0000	12.347	

Mode: Focus
parameter
Rho
exit

F2 SSD



~~center~~

mean 1051

sigma 39.4

2:50

F2 gate valve (down stream) \Rightarrow open

F3 gate valve (up stream) \Rightarrow have opened already

2:54

The control panel become strange
(we cannot set the TR's BP value)



Reboot! O.K.

58

F2 PPAC \Rightarrow out

Take off the Alternator ($\frac{1}{2}$)



beam Intensity becomes ~~AA~~ X2
50 cps

We check the beam core to F2 using F2 pla



F2 plastic \Rightarrow out

The beam goes to F3

Set the TR's BP. value

~~F3~~ pla

RIPS Control Summary				2004/06/03 23:13:18	
	Parameter	Set Curr.	Read Curr.	Target	F2
Q1	1.3167	217.3213	217.173	Tgt 0.0 mm	FG Out
Q2	1.5337	173.0914	171.221	FC Out	Rgt 50.0 mm
Q3	0.7725	164.2790	164.487	Up 24.0 mm	Lft 50.0 mm
SX1	0.0000	0.1469	0.000	Down 24.0 mm	PPAC Out
Q4	0.2777	515.4045	519.508	Rgt 24.0 mm	SSD -0.1 mm
SX2	0.0000	0.1469	0.000	Lft 23.8 mm	Deg Out
Q4	0.5572	90.2643	90.192	Lgt	Pla Out
Q5	0.7942	112.7735	112.892		
Q6	0.6197	100.5675	100.663		
SX3	0.0000	0.1469	0.000		
D2	0.2777	535.6645	535.445	F1	F3
SX4	0.0000	0.1469	0.000	D1 119.9 mm	PPAC1 Out
Q7	0.6468	137.5267	138.486	Id -134.9 mm	Rgt 49.9 mm
Q8	1.1259	143.3080	143.955	Rgt 72.6 mm	Lft 50.0 mm
Q9	1.0222	168.4880	168.623	Lft 72.0 mm	PPAC2 Out
Q10	1.1110	192.9370	195.548	Mom Out	SSD Out
Q11	1.4205	211.4970	208.837	Deg Emp	Pla In
Q12	1.1106	192.8670	194.547	PPAC Out	Lgt
Bus	Brho	TA-F1	3.3274	Rot 0 deg.	
F2	3.3274	Tm	F2-F3	3.3274	Tm

F3 pla \Rightarrow 1x, soon out

23=09

LINAC down --- 0

23=21

LINAC recovered

12 minutes

23=25

F2 SSP \Rightarrow out

F2 detector

F1 detector

} all out

\leftarrow F3 plastic trigger

gain of SA for dE low \Rightarrow ~~700~~ mV
of 863 \Rightarrow 750 mV

gain .. dE high \Rightarrow 2.6 V

gain E1 \Rightarrow ~~1.19~~ V
E2 \Rightarrow 1.20 V
E3 \Rightarrow 1.0 V

Si Stack gain table

dE	863		
E1	1463		
E2	2246		
E3	816		
E4	=0		
		H _{low}	H _{high}
dE high	863	1000	3534 ^{x2.1}
low	863	2500	1413 ^{x2.5}
E1	1463	3000	1998 ^{x1.7}
E2	2246	3000	3066 ^{x1.5}
E3	816	3000	1114 ^{x2.1}
			0-530

\nwarrow E-loss dynamic range

\nwarrow H_{low}

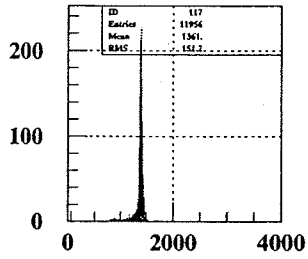
\nwarrow H_{high}

\nwarrow C_{raw}

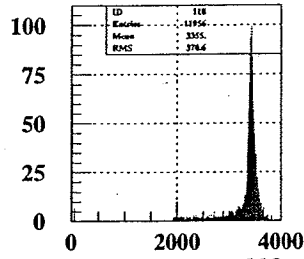
\nwarrow 10000?

Run 2

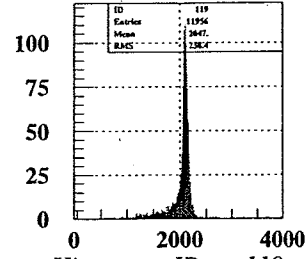
6 / 4 / 2004



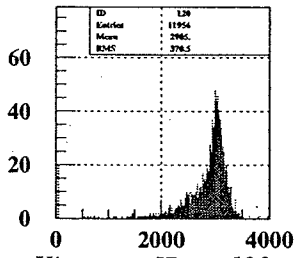
Histogram ID = 117
SSD-dElow



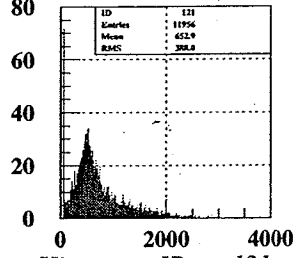
Histogram ID = 118
SSD-dEhigh



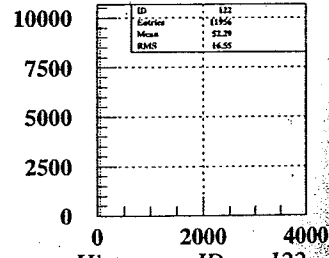
Histogram ID = 119
SSD-E1



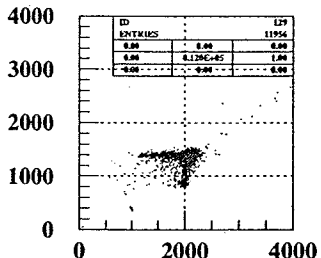
Histogram ID = 120
SSD-E2



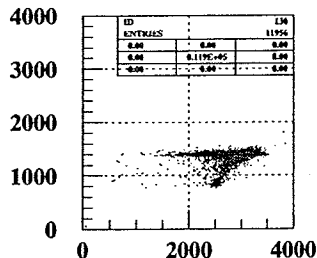
Histogram ID = 121
SSD-E3



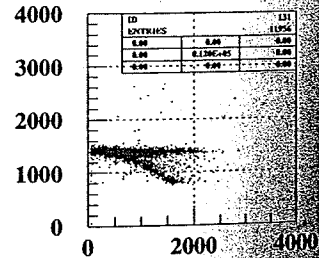
Histogram ID = 122
SSD-E4



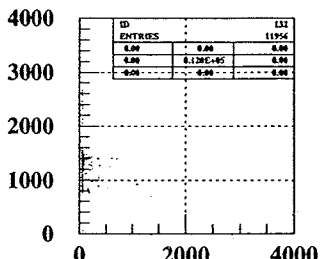
Histogram ID = 129
dElow vs E1



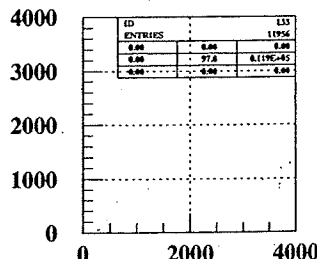
Histogram ID = 130
dElow vs E2



Histogram ID = 131
dElow vs E3



Histogram ID = 132
dElow vs E4



Histogram ID = 133
dElow vs totalE

= 08 beam stop

= 19 * New ~~set~~ Setting RIPS *

for $N = 2$ line.

$$D1 = 2.0000 T_m (0.555 T) \Rightarrow 556.442 mT$$

$$D2 = 2.0000 T_m (0.555 T) \Rightarrow 556.726 mT$$

set read

RIPS Magnet Control

	Cell	Curr	Set Curr	Read Curr	
	S01	130.22	130.2232	130.259	
	S02	103.96	103.9630	102.756	
	S03	98.69	98.6916	98.831	
	S04	-0.15	0.1469	0.000	
	S01	309.54	309.5386	311.334	
	S02	-0.15	0.1469	0.026	
	S03	53.62	53.6190	53.548	
	S04	67.16	67.1649	67.339	
Mode:					
focus	S05	59.81	59.8122	60.039	
parameter:	S06	-0.15	0.1469	0.000	
	S07	321.91	321.9103	321.003	
Brho	S08	-0.15	0.1469	0.000	
in-F1	2.0000	S09	82.61	82.6116	83.189
		S10	86.23	86.2259	86.452
in-F2	2.0000	S11	100.87	100.8714	100.948
		S12	192.94	192.9370	195.548
in-F3	3.3274	S13	211.50	211.4973	209.381
		S14	192.87	192.8674	194.547

exit

These B_p (2.0000) is maybe wrong

I calculate B_p using Xintensity code
the result is 2.031

all F1 detectors out.

F2



SSD & plastic

& PPAC

⇒ iz

~~others~~

~~out~~

$\frac{1}{100} = IS$

$\frac{1}{60} = RRC$

No signal RF ?
flow

RF signal O.K.

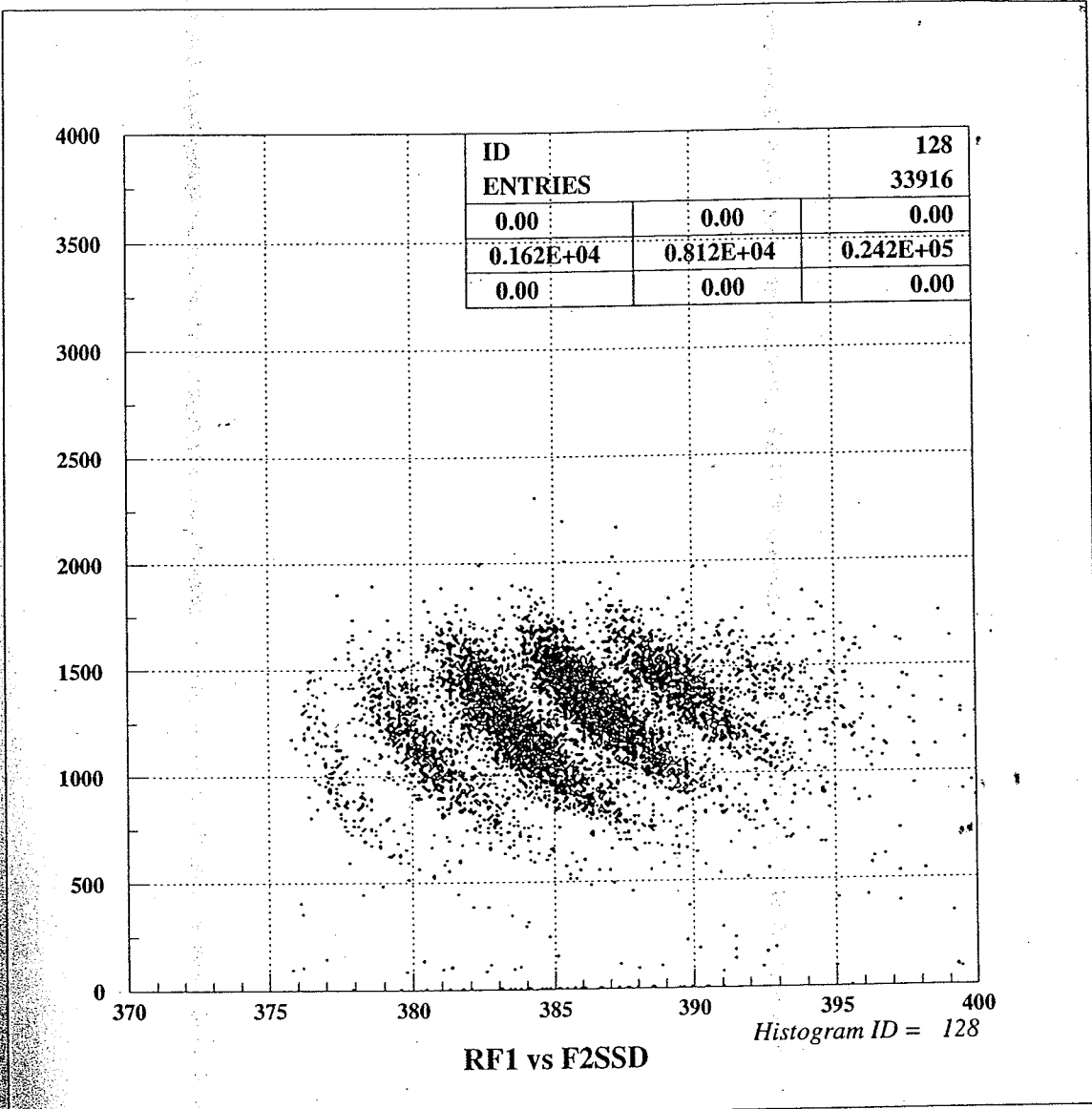
37.9 MHz

↓

$0.02638 \times 10^{-6} s$

(26.4 ns)

20



2 problems remain

- We can not see the $N=2$ line.
- lower part of this figure can not be seen, because of high threshold

X:_loc\adj

RIPS Control Summary

2004/06/04 01:38:33

Parameter	Set Curr.	Real Curr.	Target	F2
Q1	1.3167	130.223	130.259	FC Out
Q2	1.5337	103.963	102.519	Ret 50.0
Q3	0.7725	98.6916	98.398	FC Out
SX1	0.0000	0.1469	0.000	Up 24.0 mm
D1	0.2777	309.538	311.599	Down 24.0 mm
SX2	0.0000	0.1469	0.026	Ret 24.0 mm
Q4	0.5572	54.4748	54.530	Lift 23.8 mm
Q5	0.7942	67.1649	67.339	Lift
Q6	0.6197	59.8122	60.202	PPAC
SX3	0.0000	0.1469	0.021	Ret 24.0 mm
D2	0.2777	321.910	321.267	SSD -0.1
SX4	0.0000	0.1469	0.000	Deg -4.9
Q7	0.6468	82.6116	83.189	Pla In
Q8	1.1259	86.2259	86.373	F1
Q9	1.0222	100.871	100.854	DI 119.8 mm
Q10	1.1110	192.937	195.326	Id -134.9 mm
Q11	1.4205	211.497	208.837	Ret 3.0 mm
Q12	1.1106	192.867	194.436	Lift 3.0 mm
				PPAC2 Out
				Ret 49.9
				Lift 50.0
				PPAC2 In
				SSD Out
				Pla In
				Lift
Focus				Rot 0 deg
F1-F2	2.0000			
F2-F3		3.3274		

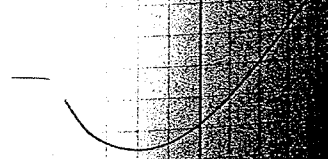
First.

D1 & D2 5% down

$D1 = 1.9000 T_m (0.5277) \Rightarrow 528.659 \text{ mT}$

$D2 = 1.9000 T_m (0.5277) \Rightarrow 528.921 \text{ mT}$

set read



RIPS Control Summary				2004/06/04 01:49:35	
Parameter	Set Curr.	Read Curr.	Target	F2	
Q1	1.3167	123.6616	123.574	FC	Out
Q2	1.5337	98.7559	97.536	Up	50.0
Q3	0.7725	93.7505	94.067	Down	50.0
SK1	0.0000	0.1469	0.000	PPAC	
Q4	0.2777	294.0296	296.257	Ret	-0.1
SK2	0.0000	0.1469	0.000	Let	50.0
Q4	0.5572	50.8583	50.767	Ret	-4.9
Q5	0.7942	63.7290	63.811	Let	
Q6	0.6197	56.7419	57.102	Ret	
SK3	0.0000	0.1469	0.000	F1	F3
Q7	0.2777	305.8071	304.873	PPAC	Out
SK4	0.0000	0.1469	0.000	Ret	49.9
Q7	0.6468	78.4746	79.692	Let	50.0
Q8	1.1259	81.9255	82.023	Ret	
Q9	1.0222	95.7775	95.873	Let	
Q10	1.1110	192.9370	195.882	PPAC	Out
Q11	1.4205	211.4970	209.652	SSD	Out
Q12	1.1106	192.8670	194.547	PPAC	Out
FOCUS	Ret	1.9000	1.9000	Ret	0
F1-F2	1.9000	3.3274		Ret	



45

D1 & D2 note 5% down.

$$D1 = 1,8000T_2(0,500T) \Rightarrow 501,153 \text{ nT}$$

$$D2 = 1,8000T_2(0,500T) \Rightarrow 501,684 \text{ nT}$$

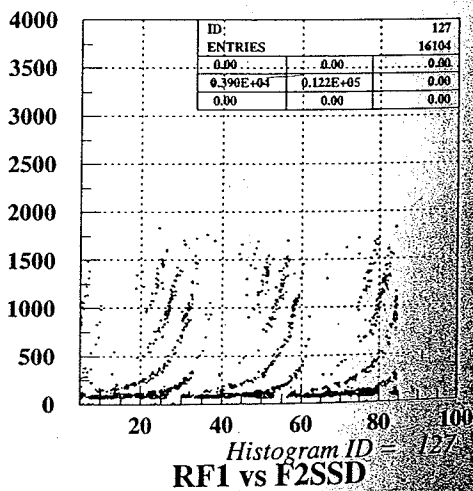
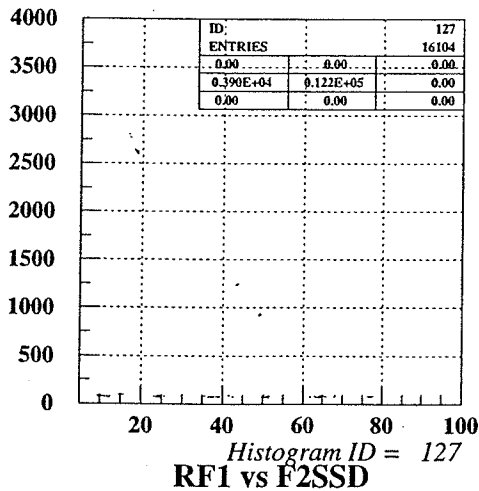
set read



next page

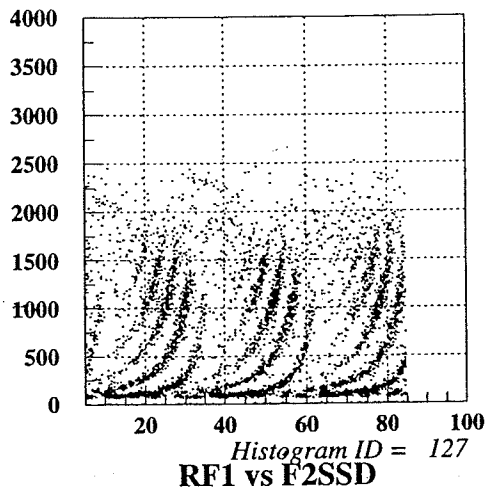
RIPS Control Summary 2004/06/04 01:57:35

Parameter	Set Curr.	Read Curr.	Target	F2
Q1	1.3167	117.1001	116.999	RC Out
Q2	1.5337	93.5481	92.315	Ret 50.0
Q3	0.7725	88.8095	89.129	Lft 50.0
SX1	0.0000	0.1469	0.000	PPAC
Q4	0.2777	278.5201	280.386	SSD -0.1
SX2	0.0000	0.1469	0.000	Des Out
Q5	0.5572	48.0977	47.986	Pla In
Q6	0.7942	60.2930	60.407	
Q7	0.6197	53.6715	53.948	
SX3	0.0000	0.1469	0.021	
Q8	0.2777	289.7031	288.744	F1
SX4	0.0000	0.1469	0.000	PPAC1 Out
Q9	0.6468	74.3375	75.138	Ret -134.9
Q10	1.1259	77.6252	77.910	Lft 50.0
Q11	1.0222	90.6835	90.703	PPAC2 Out
Q12	1.1110	192.9371	195.548	SSD Out
Q13	1.4205	211.4971	209.245	Pla In
Q14	1.1106	192.8671	194.547	Ret
Focus		Brho	1.8000	In
F1-F2	1.8000	In	F2-F3	3.3274 In



1 = 55

plastic (F2) HV = 1700 V



1 = 58

BP (D1, D2) 5% down note

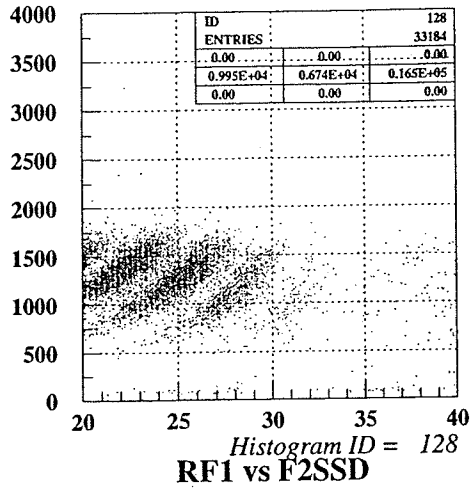
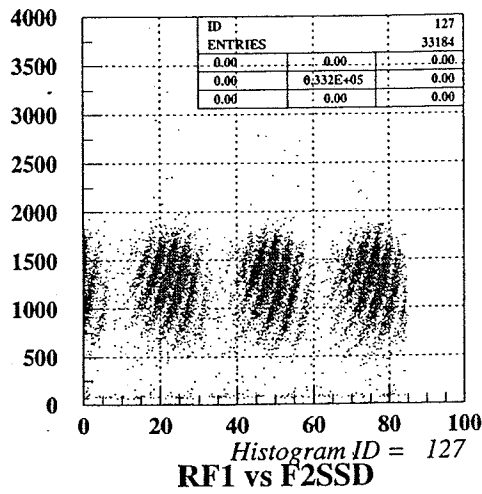
$$D1 = 1.7000 T_m(0.472 T) \Rightarrow 473.168 \text{ nT}$$

$$D2 = 1.7000 T_m(0.472 T) \Rightarrow 473.818 \text{ nT}$$

set

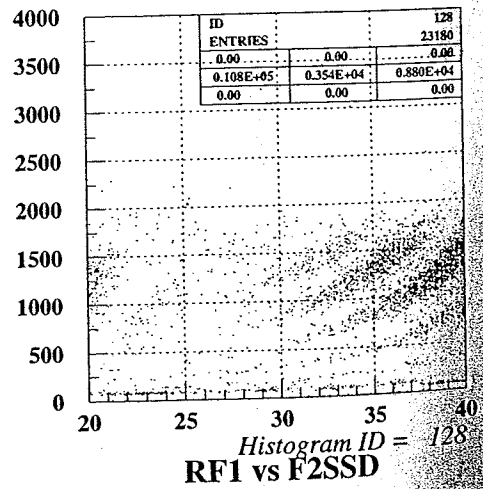
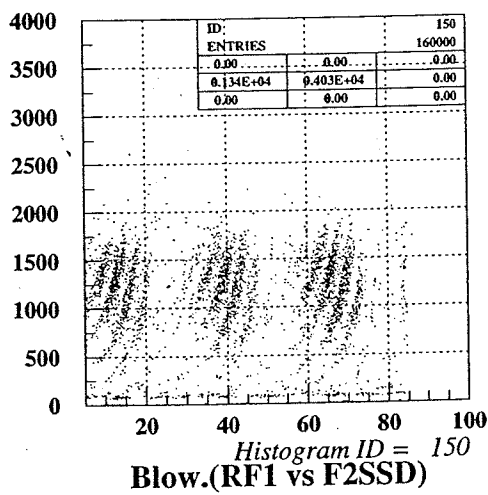
~~Max~~ ^{slit} Attenuator of I_{02} Source = $\frac{1}{100}$ ~~max~~

★ BP = 2.000 Tm



BP = 2.000 Tm. HV (F2pl) = 1900V
F2pl Trig.

★ BP = 1.900 Tm



BP = 1.900 Tm. HV (F2pl) = 1900V
F2pl Trig.

RIPS Control Summary

2004/06/04 02:12:03

Parameter	Set Curr.	Read Curr.	Target	Unit	Unit
Q1	1.3167	110.5385	110.648		
Q2	1.5337	88.3404	87.331	mm	TC out
Q3	0.7725	83.8685	84.192	mm	Rgt 50.0
SX1	0.0000	0.1469	0.000	mm	Lft 50.0
D1	0.2777	263.0117	264.780	mm	PPAG
SX2	0.0000	0.1469	0.000	mm	SSD -0.1
Q4	0.5572	45.3370	45.260	mm	mm
Q5	0.7942	56.8571	57.003	mm	Des -4.9
Q6	0.6197	50.6012	50.903	mm	mm
SX3	0.0000	0.1469	0.000	mm	mm
D2	0.2777	273.6007	272.614	mm	FL 0.0
SX4	0.0000	0.1469	0.000	mm	D1 119.8
Q7	0.6468	70.2005	70.910	mm	Ld -134.9
Q8	1.1259	73.3248	73.481	mm	Rgt 3.0
Q9	1.0222	85.5895	86.004	mm	Lft 3.0
Q10	1.1110	192.9370	195.660	mm	mm
Q11	1.4205	211.4973	208.837	mm	PPAG on
Q12	1.1106	192.8674	194.436	mm	SSD on
Focus		1.7000	1.7000	mm	Des on
F1	1.7000		3.3274	mm	PPAG on
				mm	Ref 0

2-03

Iox Source

Slit of ~~Aternator~~ \Rightarrow full open

Aternator of Iox Source \Rightarrow 100 only*

* Past experiment of RIKEN (R335 π)

86 keV : primary beam

X:\log\sd

RIPS Control Summary

2004/06/04 02:20:59

Parameter	Set Curr.	Read Curr.	Target	Unit
Q1	1.3167	117.1001	117.222	
Q2	1.5337	93.5481	92.196	
Q3	0.7725	88.8095	89.043	
SX1	0.0000	0.1469	0.000	
Q4	0.2777	278.5206	280.386	
SX2	0.0000	0.1469	0.000	
Q5	0.5572	48.0977	48.095	
Q6	0.7942	60.2930	60.407	
SX3	0.0000	0.1469	0.000	
Q7	0.2777	289.7039	288.744	
SX4	0.0000	0.1469	0.000	
Q8	0.6468	74.3375	75.138	
Q9	1.1259	77.6252	77.673	
Q10	1.0222	90.6835	90.703	
Q11	1.1110	192.9370	195.548	
Q12	1.4205	211.4973	208.701	
Q13	1.1106	192.8674	194.547	
FOCUS		1.8000	1.8000	
F2	1.8000	3.3274	3.3274	



New logbook

