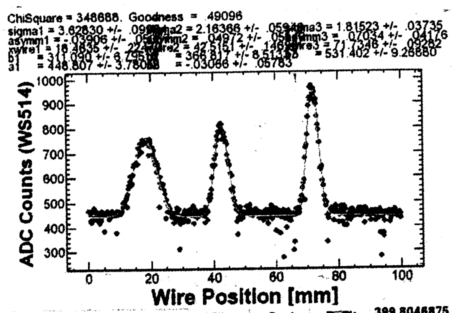
11 5セクター LER Matching

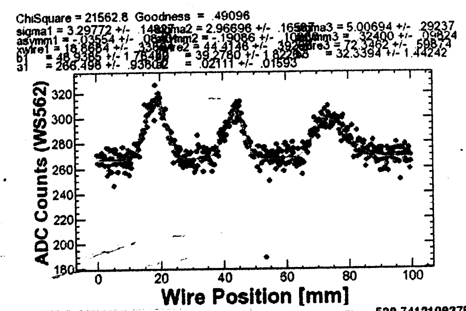
File Edit Control Window 09/25/2009 11:16:07 Help

Wire A



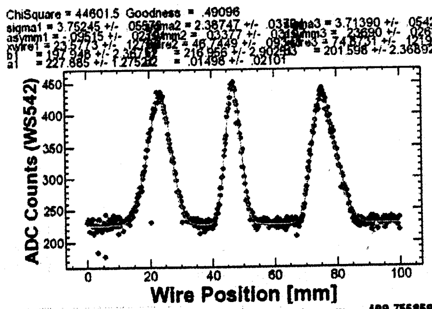
File: WS2009_9_25_11_7_28.datA File Pref ReFit 399.8046875 V 2828

Wire C



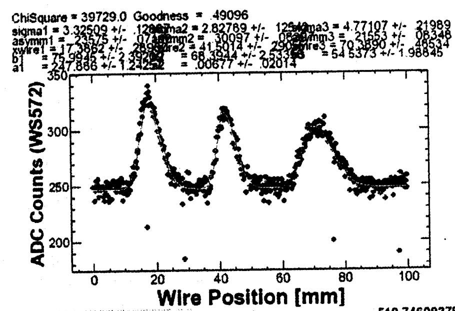
File: WS2009_9_25_11_10_11.datC File Pref ReFit 529.7412109375 V 2441 Help

Wire B



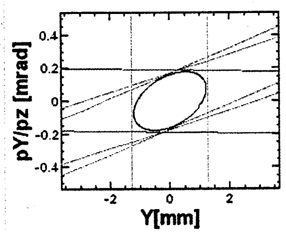
File: WS2009_9_25_11_8_5.datB File Pref ReFit 499.755859375 V 2524

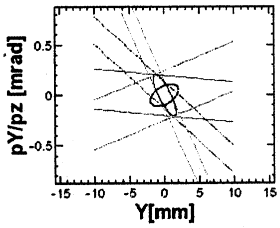
Wire D

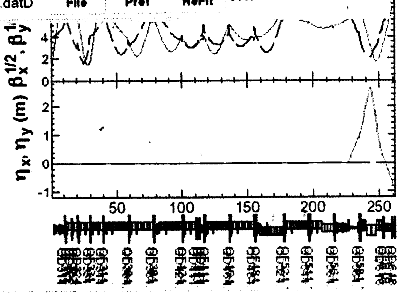


File: WS2009_9_25_11_10_47.datD File Pref ReFit 519.74609375 V 2346

13.685
1.421
9542E-7
330.336
3.475
7913E-7
623.132





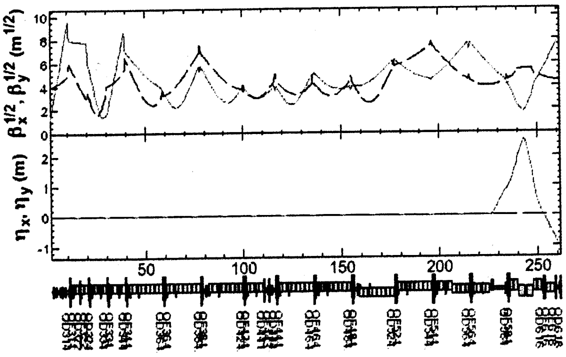


Wire Selection
3-wire:ABC 3-wire:ABD 3-wire:ACD 3-wire:BCD
• 4-wire:ABCD
✓ NonLinearFit Err(meas), n: 0 Err(opt) (%): 0

Window
Optics Calculate Matching

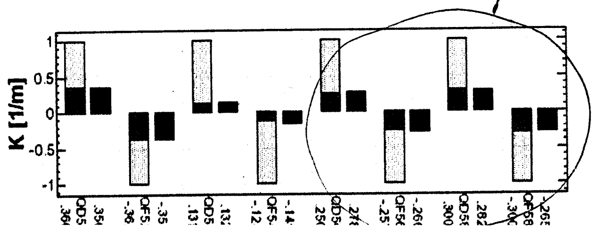
Matching Residual = 9.6007E-29

Matching Conditions		
QD544 QF584: β_x <	60.00	59.26788
QD544 QF584: β_y <	60.00	59.99998



Q{F・D}564 |K1| < 0.30
〃 584 〃 < 0.30

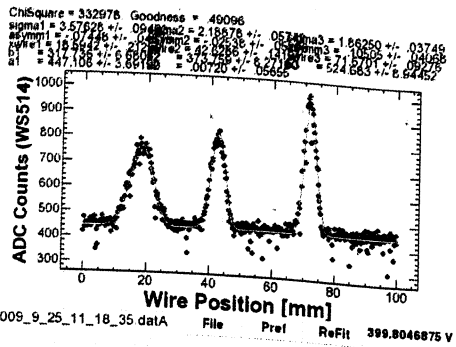
Strength of Free Qmag (QX*)



Matching Calculation
Calc Matching
Recover Calculation
Reset Calculation
Q-mag Set
Q-mag Read&Write
Read Q-Mag from File
Save Q-Mag to File

File Edit Control Window

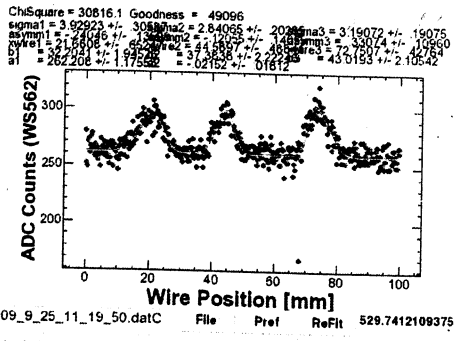
Wire A



File: WS2009_9_25_11_18_35.datA File Pref ReFit 399.8046875 V 2829

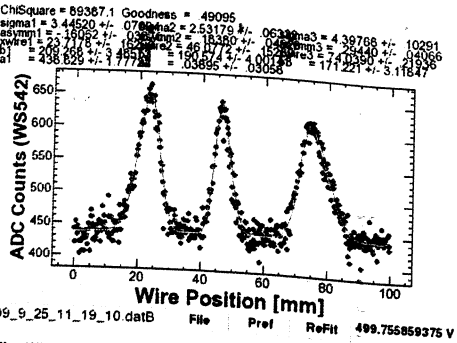
Wire C

Help



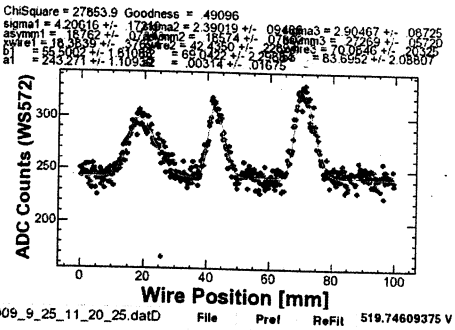
File: WS2009_9_25_11_19_50.datC File Pref ReFit 529.7412109375 V 2442

Wire B



File: WS2009_9_25_11_19_10.datB File Pref ReFit 499.755859375 V 2525

Wire D



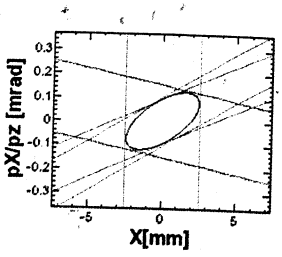
File: WS2009_9_25_11_20_25.datD File Pref ReFit 519.74609375 V 2347

File Edit Window

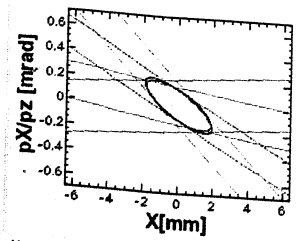
Wire Scan | Optics Calculate | Matching

09/25/2009 11:21:21 Help

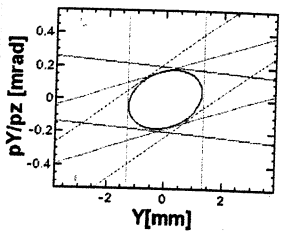
X phase space at Wire A



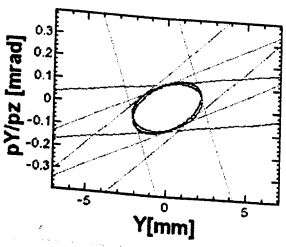
X phase space at Matching Point



Y phase space at Wire A



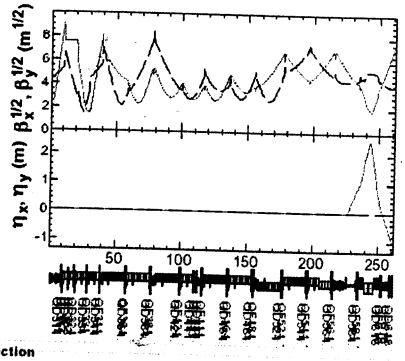
Y phase space at Matching Point



Results of Measurement

β_x @BM611P [m] :	14.919	β_y @BM611P [m] :	21.477
α_x @BM611P :	1.166	α_y @BM611P :	-.370
ϵ_x [m] :	2.3252E-7	ϵ_y [m] :	2.2084E-7
γ_x [π.mm.mrad] :	1582.880	γ_y [π.mm.mrad] :	1503.364
Bmag x :	1.020	Bmag y :	1.021
ϵBmag x :	2.3720E-7	ϵBmag y :	2.2547E-7
$\gamma\epsilon$Bmag x :	1614.717	$\gamma\epsilon$Bmag y :	1534.866

Optics Plot



Wire Selection

3-wire:ABC 3-wire:ABD 3-wire:ACD 3-wire:BCD

4-wire:ABCD

NonLinearFit Err(meas), n: 0 Err(opt) (%): 0

13

9/25

15:23 ~ 15:41

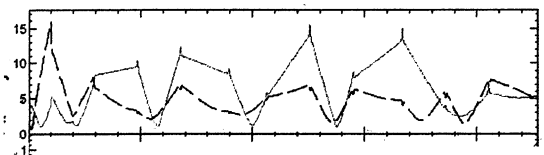
AR 5079 - Matching 1/2

09/25/2009 15:37:06

Calculate Matching

Matching Residual = 5.9887E-29

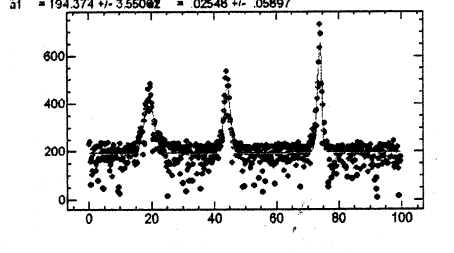
Matching Conditions
QD544 QF584: β_x < 60.00 43.13943
QD544 QF584: β_y < 60.00 58.58948



File Edit Control Window

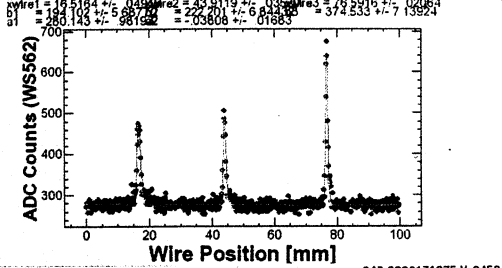
09/25/2009 15:41:47 Help

Wire A



File: /AR/data/Raw/WS2009_9_25_15 File Pref ReFit 419.794921875 V 2839

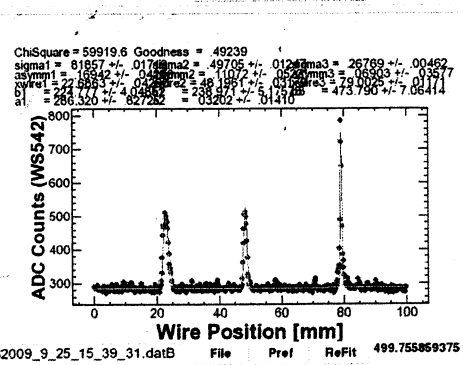
Wire C



File: WS2009_9_25_15_40_16.datC File Pref ReFit 649.6826171875 V 2450

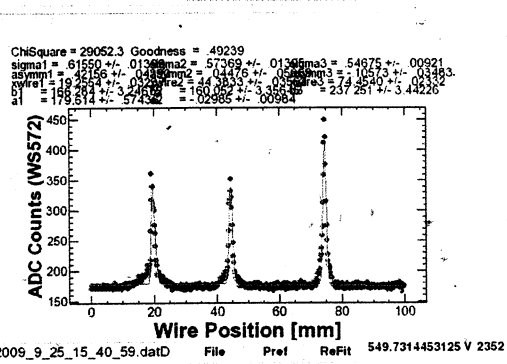
K [1/m]

Wire B



File: WS2009_9_25_15_39_31.datB File Pref ReFit 499.755859375 V 2537

Wire D



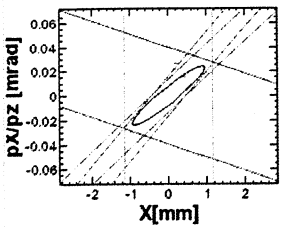
File: WS2009_9_25_15_40_59.datD File Pref ReFit 549.7314453125 V 2352

File Edit Window

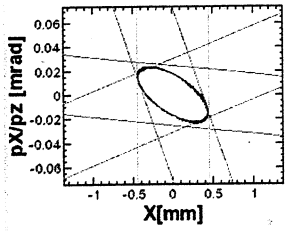
09/25/2009 15:41:58 Help

Wire Scan Optics Calculate Matching

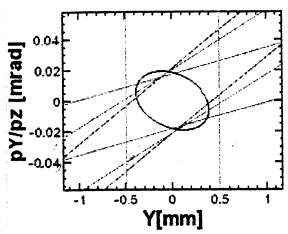
X phase space at Wire A



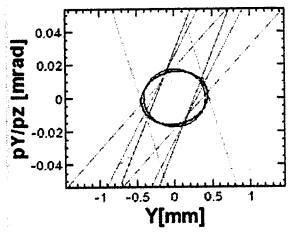
X phase space at Matching Point



Y phase space at Wire A



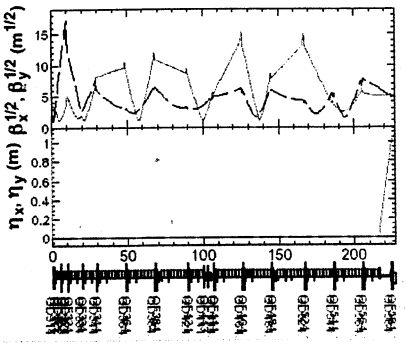
Y phase space at Matching Point



Results of Measurement

β_x @BM611E [m] :	24.840	β_y @BM611E [m] :	23.703
α_x @BM611E :	.807	α_y @BM611E :	.010
ε_x [m] :	7.5782E-9	ε_y [m] :	7.1212E-9
$\gamma\varepsilon_x$ [π.mm.mrad] :	44.491	$\gamma\varepsilon_y$ [π.mm.mrad] :	41.808
Bmag x :	1.004	Bmag y :	1.017
εBmag x :	7.6107E-9	εBmag y :	7.2451E-9
$\gamma\varepsilon$Bmag x :	44.681	$\gamma\varepsilon$Bmag y :	42.535

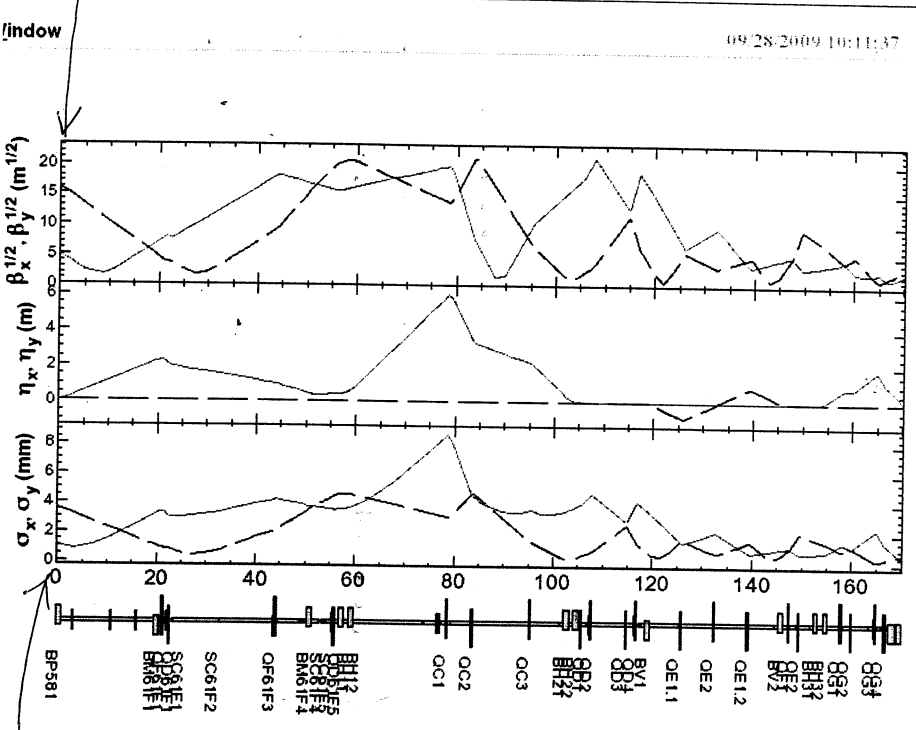
Optics Plot



Wire Selection
3-wire:ABC 3-wire:ABD 3-wire:ACD 3-wire:BCD
• 4-wire:ABCD
NonLinearFit Err(meas), n: 0 Err(opt) (%): 0

'09/9/28

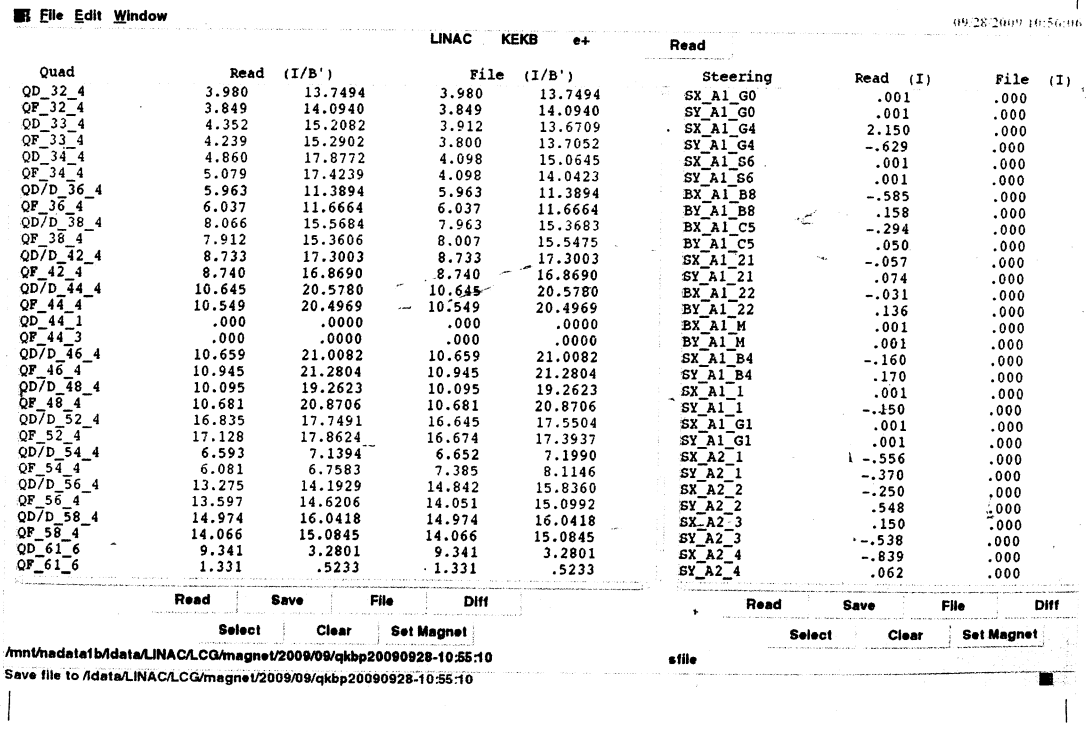
BT
PF入り口でMatchするように、5セクターQMを動かすことにする



BP581で、$\{\alpha x, \beta x, \alpha y, \beta y\} = \{2.69, 24.699, 6.105, 251.72\}$

"/users/iida/sad/kekb/bt/pf/v4-0+0.sad"
PF

右川、大西氏によるQMの設定 test

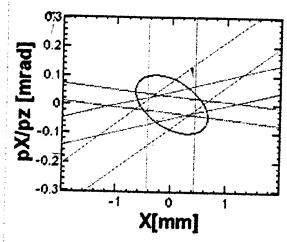


File Edit Window

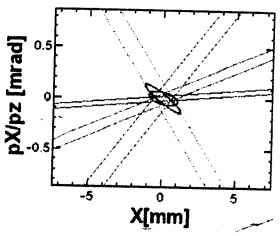
Wire Scan | Optics Calculate | Matching

09/28/2009 11:19:53 Help

X phase space at Wire A



X phase space at Matching Point

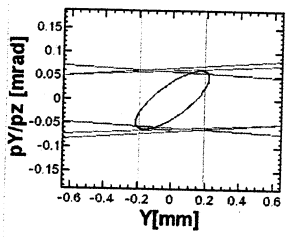


Results of Measurement

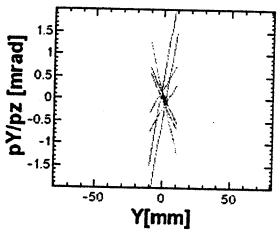
β_x @BP581 [m] :	16.146	β_y @BP581 [m] :	110.168
α_x @BP581 :	.562	α_y @BP581 :	14.883
ε_x [m] :	5.9862E-8	ε_y [m] :	8.4467E-9
$\gamma\varepsilon_x$ [π.mm.mrad] :	292.868	$\gamma\varepsilon_y$ [π.mm.mrad] :	41.325
Bmag x :	2.187	Bmag y :	171.701
εBmag x :	1.3092E-7	εBmag y :	1.4503E-6
γεBmag x :	640.529	γεBmag y :	7095.457

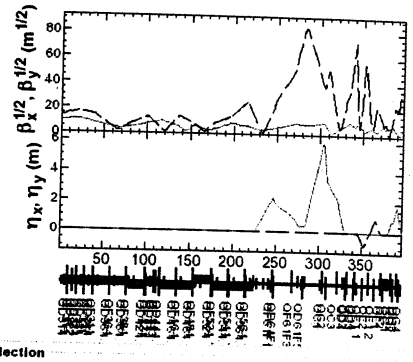
Optics Plot

Y phase space at Wire A



Y phase space at Matching Point





Wire Selection

3-wire:ABC | 3-wire:ABD | 3-wire:ACD | 3-wire:BCD

Window

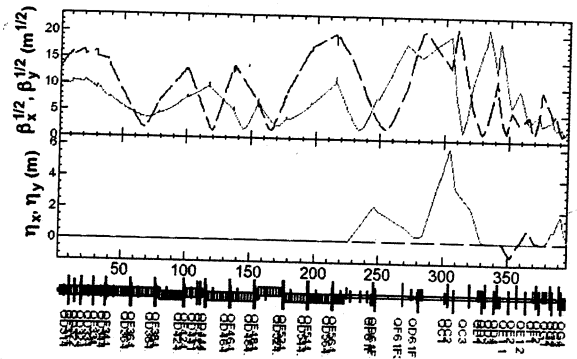
09/28/2009 11:20:03

Optics Calculate | Matching

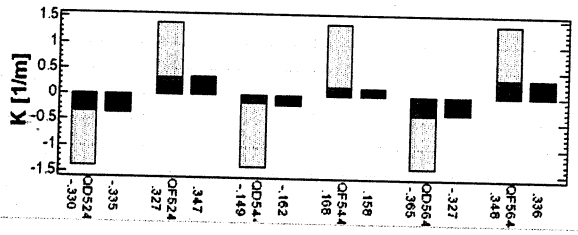
Matching Residual = 2.9454E-28

Matching Conditions

QD544 BP581: β_x <	200.00	137.766
QD544 BP581: β_y <	400.00	392.03



Strength of Free Qmag (QX*)



Matching Calculation

Calc Matching

Recover Calculation

Reset Calculation

Q-mag Set

Q-mag Read&Write

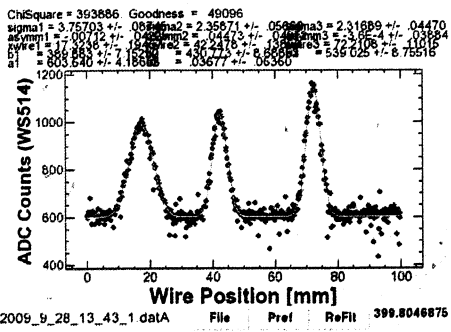
Read Q-Mag from File

Save Q-Mag to File

Matching set 前で、LER の Bmag { x = 1.469 / y = 1.062

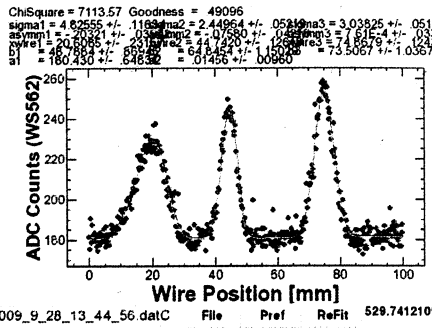
File Edit Control Window

Wire A



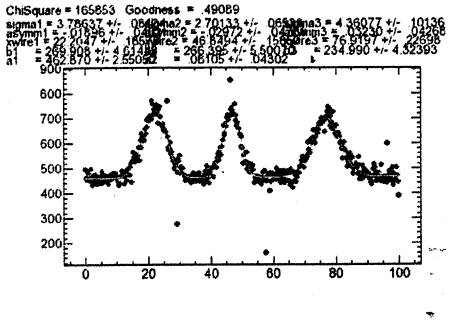
File: WS2009_9_28_13_43_1.datA File Pref ReFit 399.8046875 V 2856

Wire C



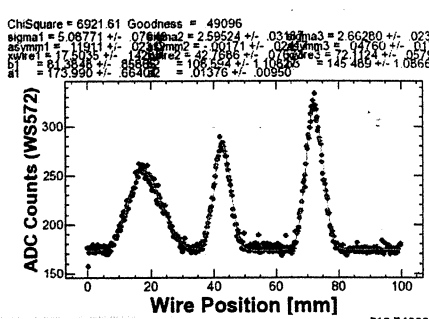
File: WS2009_9_28_13_44_56.datC File Pref ReFit 529.7412109375 V 2473

Wire B



File: WS2009_9_28_13_43_59.datB File Pref ReFit 499.755859375 V 2556

Wire D

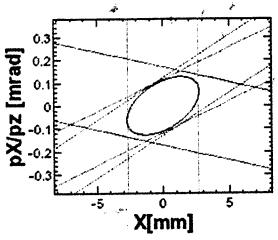


File: WS2009_9_28_13_45_56.datD File Pref ReFit 519.74609375 V 2372

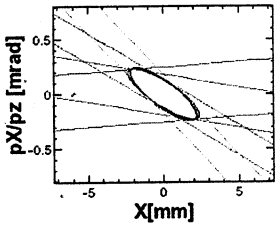
File Edit Window 09/28/2009 13:46:57 Help

Wire Scan | Optics Calculate | Matching

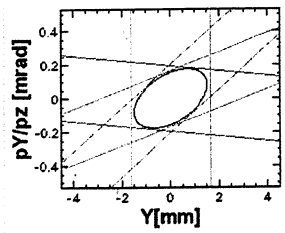
X phase space at Wire A



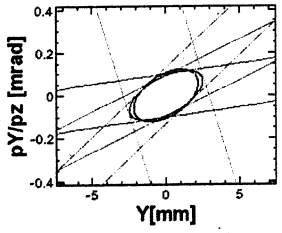
X phase space at Matching Point



Y phase space at Wire A



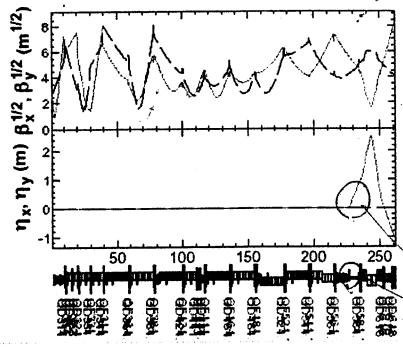
Y phase space at Matching Point



Results of Measurement

β_x @BM611P [m] :	18.517	β_y @BM611P [m] :	26.477
α_x @BM611P :	1.513	α_y @BM611P :	-.723
ε_x [m] :	3.0111E-7	ε_y [m] :	2.3309E-7
$\gamma\varepsilon_x$ [π.mm.mrad] :	2049.797	$\gamma\varepsilon_y$ [π.mm.mrad] :	1586.733
Bmag x :	1.022	Bmag y :	1.033
εBmag x :	3.0766E-7	εBmag y :	2.4072E-7
γεBmag x :	2094.376	γεBmag y :	1638.728

Optics Plot



Wire Selection

3-wire:ABC 3-wire:ABD 3-wire:ACD 3-wire:BCD

4-wire:ABCD

NonLinearFit Err(meas), no n: 0 Err(opt) (%): 0

'Calculate Optics' Save All Parameters

All informations are SAVEd to /data1/KEKB/Wire/LINAC/sector5/KEKBp/data/MatchResult/WSL5p_2009_9_28_13_46_36

BPS81に ANGLEが 入ってしまって いた!!

ERR セクター再測定で Bmag ~ 1

〈方針〉この状態で IPでMatchingし、ERRを再測定する

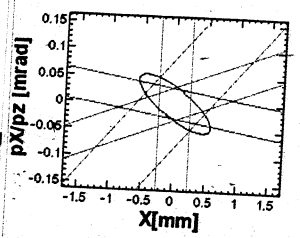
17

File Edit Window

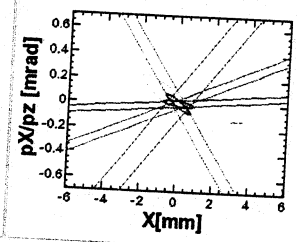
Wire Scan | Optics Calculate | Matching

09/28/2009 14:27:53

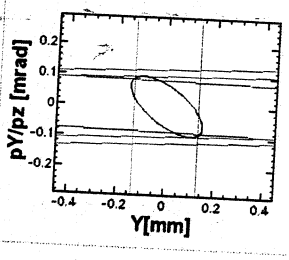
X phase space at Wire A



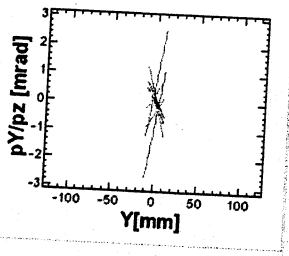
X phase space at Matching Point



Y phase space at Wire A



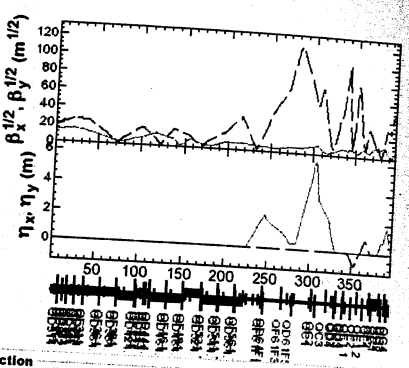
Y phase space at Matching Point



Results of Measurement

β_x @BP581 [m] :	36.935	β_y @BP581 [m] :	276
α_x @BP581 :	.830	α_y @BP581 :	34
ε_x [m] :	1.8483E-8	ε_y [m] :	1.8564
$\gamma\varepsilon_x$ [π.mm.mrad] :	90.424	$\gamma\varepsilon_y$ [π.mm.mrad] :	51
Bmag x :	4.490	Bmag y :	337
εBmag x :	8.2993E-8	εBmag y :	3.5688
γεBmag x :	406.033	γεBmag y :	17400

Optics Plot



Wire Selection

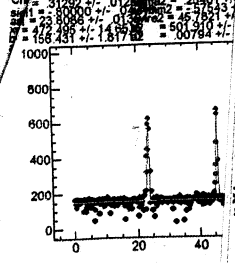
- 3-wire:ABC
- 3-wire:ABD
- 3-wire:ACD
- 3-wire:BCD
- 4-wire:ABCD
- NonLinearFit
- Err(meas), no
- n: 0
- Err(opt) (%): 0

Q-mag Read&Write

Read Q-Mag from File

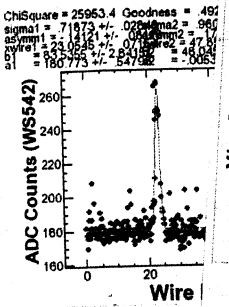
Save Q-Mag to File

Wire A



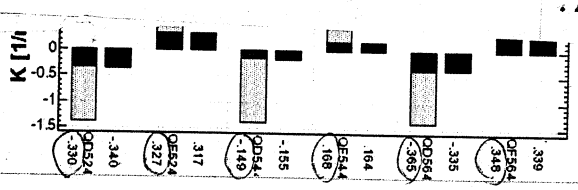
File: /PF/data/Raw/WS2009_9_28_14_

Wire B



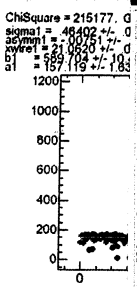
File: WS2009_9_28_14_23_32.datB

Select Matching zone on kcg-mars.kek.jp:0.0



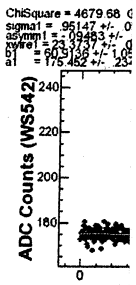
The Calculation for Q-Mag values are RECOVERed to the before matching.

Wire A



File: WS2009_9_28_14_37_29

Wire B



File: WS2009_9_28_14_36_42

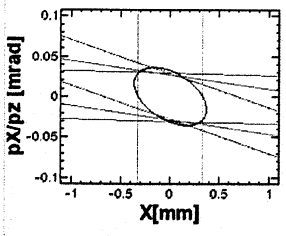
Select Matching zone on kcg-mars.

File Edit Window

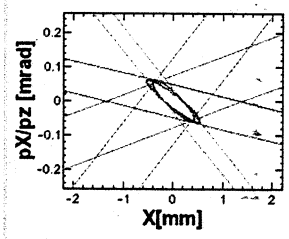
09/28/2009 14:39:12 Help

Wire Scan | Optics Calculate | Matching

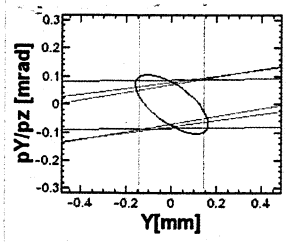
X phase space at Wire A



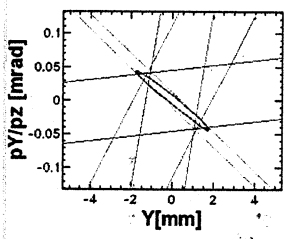
X phase space at Matching Point



Y phase space at Wire A



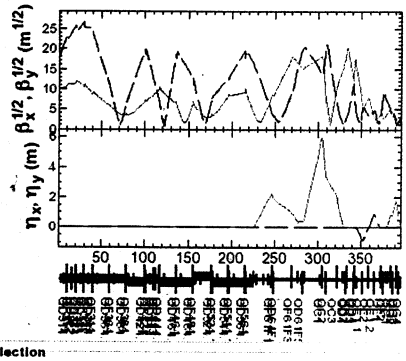
Y phase space at Matching Point



Results of Measurement

β_x @BP581 [m] :	14.954	β_y @BP581 [m] :	251.720
α_x @BP581 :	1.923	α_y @BP581 :	6.105
ε_x [m] :	1.1740E-8	ε_y [m] :	1.2585E-8
$\gamma\varepsilon_x$ [π.mm.mrad] :	57.436	$\gamma\varepsilon_y$ [π.mm.mrad] :	61.572
Bmag x :	1.200	Bmag y :	1.000
εBmag x :	1.4090E-8	εBmag y :	1.2585E-8
γεBmag x :	68.935	γεBmag y :	61.572

Optics Plot



Wire Selection

- 3-wire:ABC
- 3-wire:ABD
- 3-wire:ACD
- 3-wire:BCD
- 4-wire:ABCD
- NonLinearFit
- Err(meas), no
- n: 0
- Err(opt) (%): 0

Recover Calculation

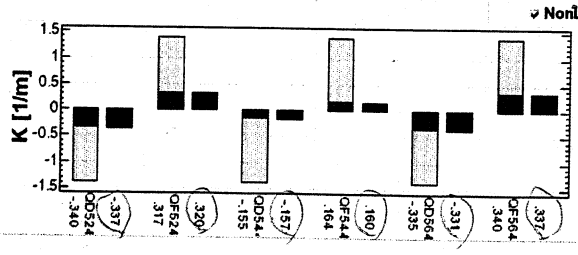
Reset Calculation

Q-mag Set

Q-mag Read&Write

Read Q-Mag from File

Save Q-Mag to File

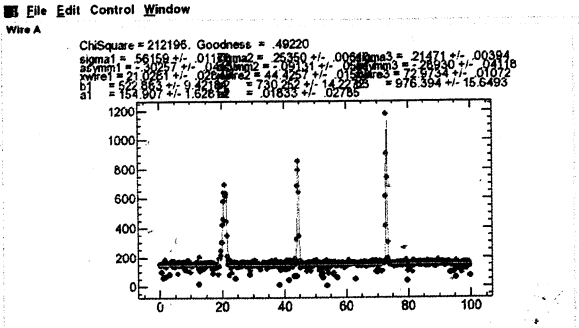


○から○へ
K値で変更。
あるの大きくは
変えていない。

File Edit Control Window

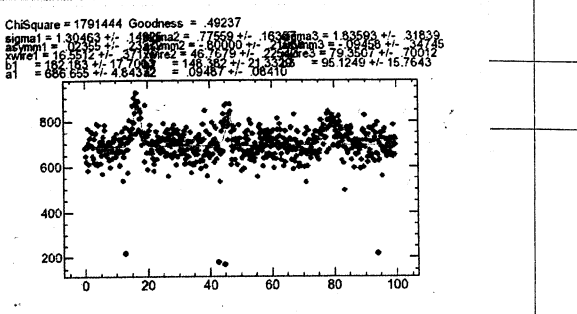
09/28/2009 14:50:56 Help

Wire A



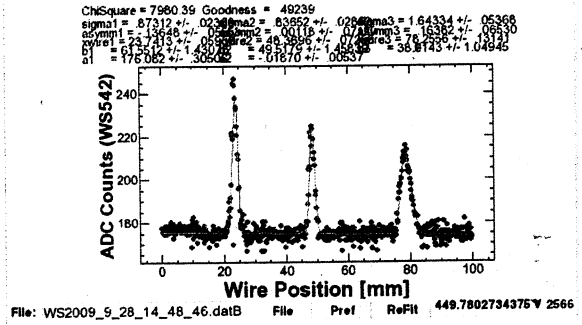
File: WS2009_9_28_14_49_33.datA File Pref ReFit 379.814453125 V 2862

Wire C



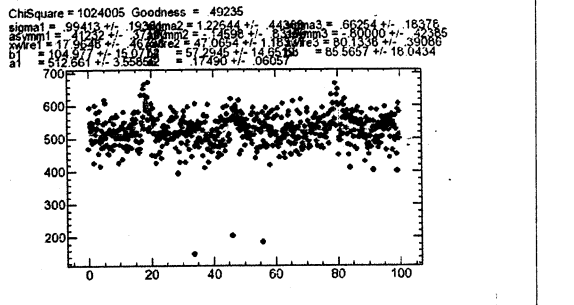
File: WS2009_9_28_14_47_29.datC File Pref ReFit 879.5703125 V 2479

Wire B



File: WS2009_9_28_14_48_46.datB File Pref ReFit 449.7802734375 V 2566

Wire D



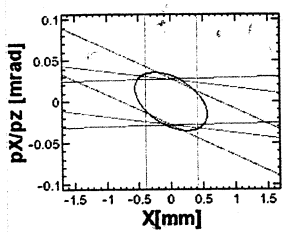
File: WS2009_9_28_14_46_28.datD File Pref ReFit 829.5947265625 V 238

File Edit Window

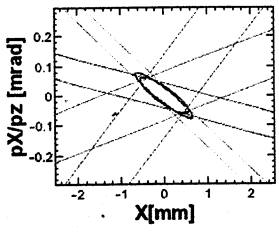
09/28/2009 14:51:06 Help

Wire Scan Optics Calculate Matching

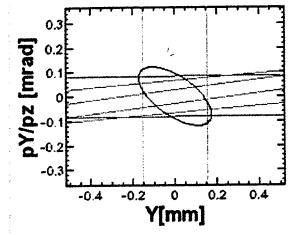
X phase space at Wire A



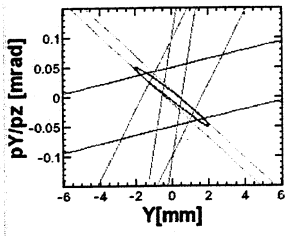
X phase space at Matching Point



Y phase space at Wire A



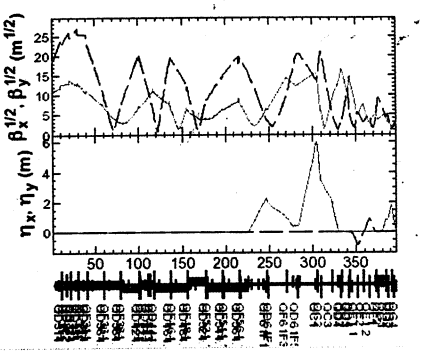
Y phase space at Matching Point



Results of Measurement

β_x @BP581 [m] :	17.338	β_y @BP581 [m] :	251.720
α_x @BP581 :	1.610	α_y @BP581 :	6.105
ε_x [m] :	1.7822E-8	ε_y [m] :	1.6224E-8
$\gamma\varepsilon_x$ [π.mm.mrad] :	87.193	$\gamma\varepsilon_y$ [π.mm.mrad] :	79.375
Bmag x :	1.119	Bmag y :	1.000
εBmag x :	1.9935E-8	εBmag y :	1.6224E-8
$\gamma\varepsilon$Bmag x :	97.532	$\gamma\varepsilon$Bmag y :	79.375

Optics Plot

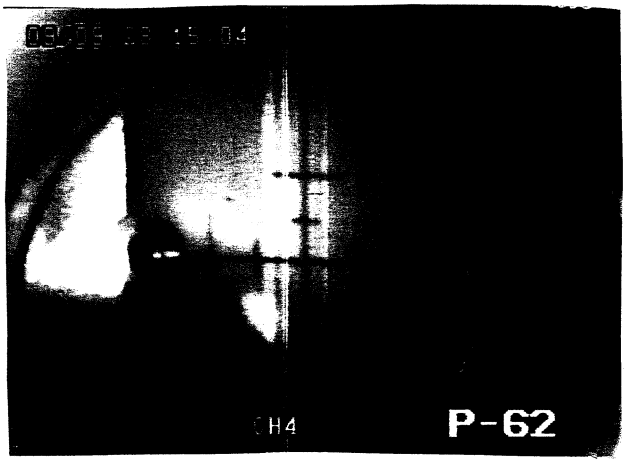


Wire Selection

3-wire:ABC 3-wire:ABD 3-wire:ACD 3-wire:BCD

4-wire:ABCD

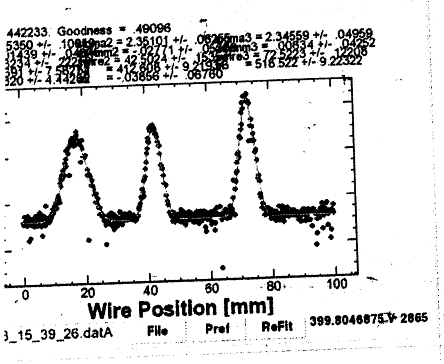
NonLinearFit Err(meas), no n: 0 Err(opt) (‰): 0

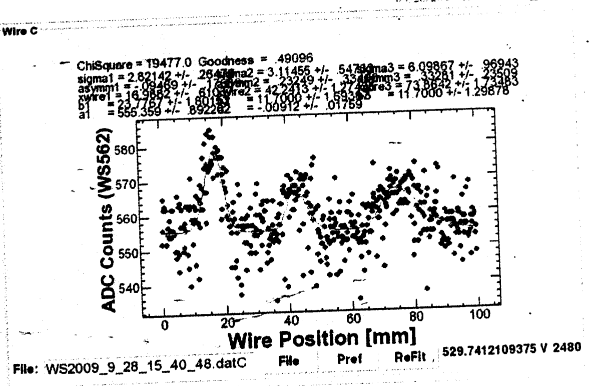


F4でのビーム

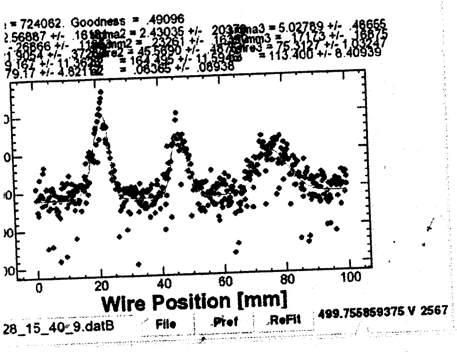
19

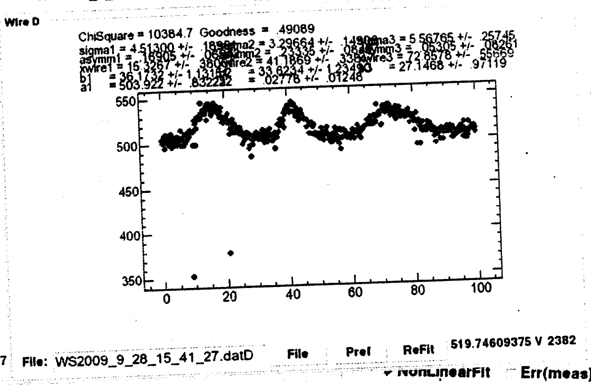
LER Beamは5セクタで 2割程ロスする

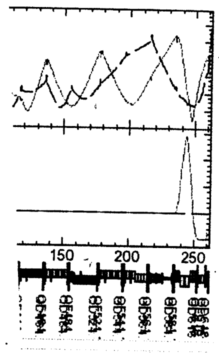




β_y @BM611P [m] :	17.610
α_y @BM611P :	.979
ε_y [m] :	2.1269E-7
$\gamma\varepsilon_y$ [π.mm.mrad] :	1447.912
Bmag y :	2.235
εBmag y :	4.7542E-7
$\gamma\varepsilon$Bmag y :	3236.441

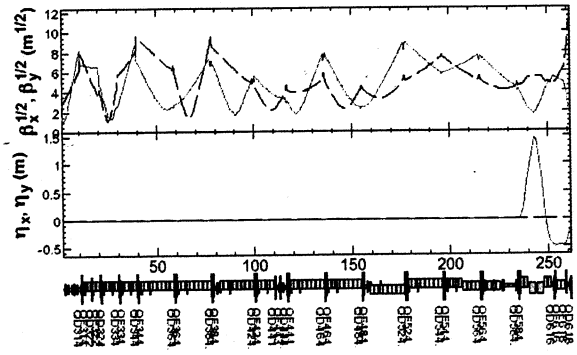




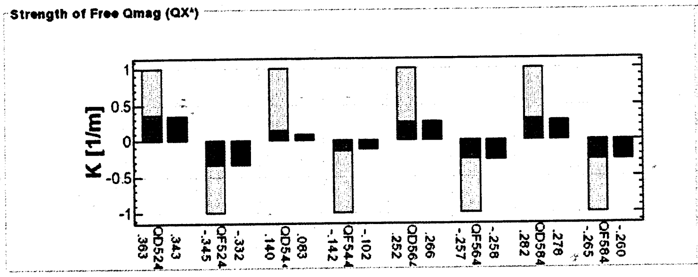


Matching Residual = 2.9184E-28

Matching Conditions		
QD544 QF584: β_x <	60.00	57.93382
QD544 QF584: β_y <	60.00	58.46107



Strength of Free Qmag (QX*)



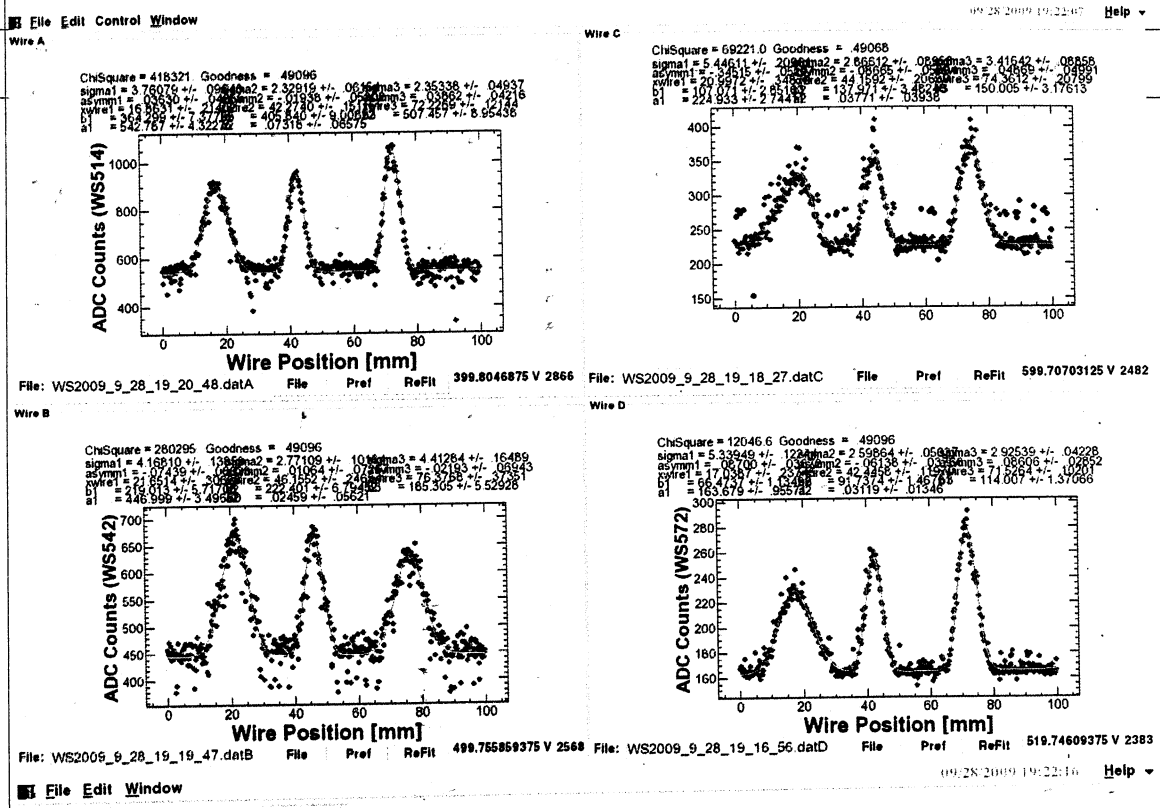
Matching Calculation
Calc Matching
Recover Calculation
Reset Calculation
Q-mag Set
Q-mag Read&Write
Read Q-Mag from File
Save Q-Mag to File

LERのBMAGが x=5.9 と y=2.2 とあまり良くなく
Matchingをsetしても LERも PFもよくない

↑ ロスはそのまま2割減　↑ F4で たて長になる

〈方針変更〉 LERでMatchingし、その ~~Beam~~ QMで PF Beamを通して、BT(PF)をMatchingし直す
初期値を測り

LER Beam P.16 の 13:46 頃に戻して再測定.



この設定で、PF Beam を測定してみる.