e+ 1

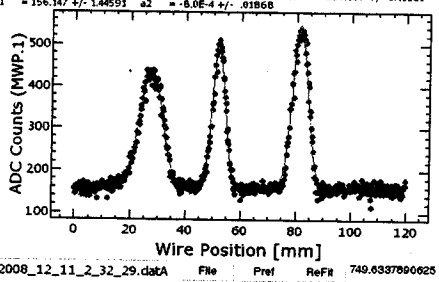
File Edit Control Window

12/11/2008 02:38:07 Help

Wire A

ChiSquare = 87908.6 Goodness = .49177

sigma1 = 4.10935 +/- .05211 sigma2 = 2.25919 +/- .02053 sigma3 = 2.78210 +/- .02896
asymm1 = -.06784 +/- .02418 asymm2 = -.05032 +/- .02658 asymm3 = -.06130 +/- .02103
xwire1 = 27.7614 +/- .12152 xwire2 = 52.1580 +/- .07347 xwire3 = 81.7144 +/- .07361
b1 = 279.451 +/- 2.88002 b2 = 342.892 +/- 3.79898 b3 = 390.187 +/- 3.43201
a1 = 156.147 +/- 1.44591 a2 = -8.0E-4 +/- .01868

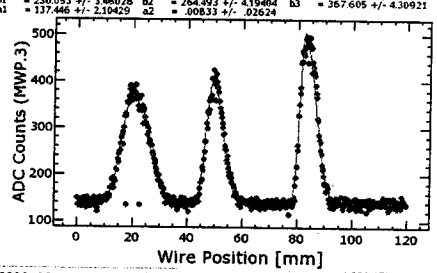


File: WS2008_12_11_2_32_29.datA File Pref ReFit 749.6337890625 V 4574

Wire C

ChiSquare = 139345. Goodness = .49177

sigma1 = 4.79022 +/- .09083 sigma2 = 2.98708 +/- .05641 sigma3 = 2.88074 +/- .03910
asymm1 = .16212 +/- .03395 asymm2 = .20199 +/- .03699 asymm3 = .36957 +/- .02608
xwire1 = 20.2170 +/- .19857 xwire2 = 49.3447 +/- .13525 xwire3 = 82.7031 +/- .08940
b1 = 230.053 +/- 3.46028 b2 = 264.493 +/- 4.19404 b3 = 367.605 +/- 4.30921
a1 = 137.446 +/- 2.10429 a2 = .00833 +/- .02624

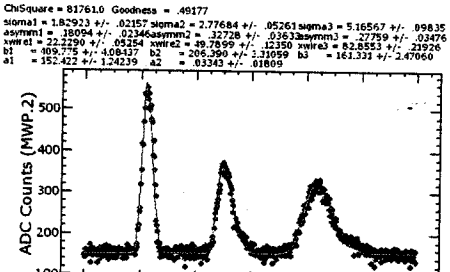


File: WS2008_12_11_2_33_47.datC File Pref ReFit 669.6728515625 V 4018

Wire B

ChiSquare = 81761.0 Goodness = .49177

sigma1 = 1.82923 +/- .02157 sigma2 = 2.77684 +/- .05261 sigma3 = 5.16567 +/- .09835
asymm1 = .18094 +/- .02346 asymm2 = .12728 +/- .03633 asymm3 = .27759 +/- .03476
xwire1 = 22.2290 +/- .05254 xwire2 = 49.7899 +/- .12350 xwire3 = 82.8553 +/- .21926
b1 = 409.775 +/- 4.08437 b2 = 206.390 +/- 3.31059 b3 = 161.333 +/- 2.47060
a1 = 152.422 +/- 1.24239 a2 = .03343 +/- .01609

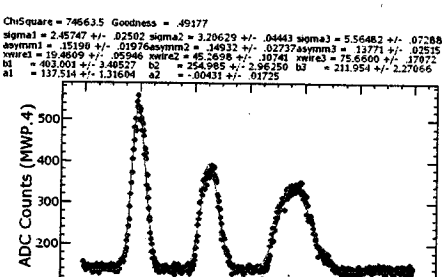


File: WS2008_12_11_2_33_8.datB File Pref ReFit 699.658203125 V 4185

Wire D

ChiSquare = 74663.5 Goodness = .49177

sigma1 = 2.45747 +/- .02502 sigma2 = 3.20629 +/- .04443 sigma3 = 5.56482 +/- .07268
asymm1 = .15198 +/- .01976 asymm2 = .14932 +/- .02737 asymm3 = .13771 +/- .02515
xwire1 = 19.4609 +/- .05946 xwire2 = 45.2698 +/- .10741 xwire3 = 75.6600 +/- .17072
b1 = 403.001 +/- 3.48527 b2 = 254.985 +/- 2.96250 b3 = 211.954 +/- 2.27066
a1 = 137.514 +/- 1.31604 a2 = -.00431 +/- .01725



File: WS2008_12_11_2_35_44.datD File Pref ReFit 699.658203125 V 4110

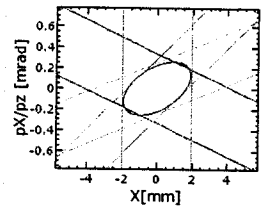
Select Matching zone on localhost:12.0

File Edit Window

12/11/2008 02:38:53 Help

Wire Scan Optics Calculate Matching

X phase space at Wire A



X phase space at Matching Point

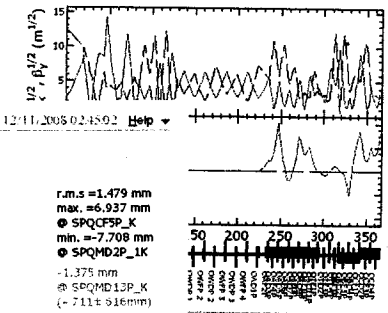
Y phase space at Wire A

Y phase space at Matching Point

Results of Measurement

β_x @MWP.1 [m] :	8.536	β_y @MWP.1 [m] :	32.968
α_x @MWP.1 :	-.571	α_y @MWP.1 :	2.345
ε_x [m] :	4.2879E-7	ε_y [m] :	2.6208E-7
$\gamma\varepsilon_x$ [x.mm.mrad] :	2781.177	$\gamma\varepsilon_y$ [x.mm.mrad] :	1699.885
Bmag x :	1.001	Bmag y :	1.083
εBmag x :	4.2938E-7	εBmag y :	2.8395E-7
$\gamma\varepsilon$Bmag x :	2785.047	$\gamma\varepsilon$Bmag y :	1841.765

Optics Plot



12/11/2008 02:47:17 H

Conditions

<	100.00	8.20399
<	100.00	22.73639
<	150.00	139.95258
=	-4.00	-4
<	100.00	29.93437
<	100.00	19.26747
<	- 3.00	3
<	100.00	89.65499
<	20.00	18.14803
<	100.00	99.43786
<	100.00	99.11909
QXD6P: η_x =	.00	1.1663E-15
QXD6P: η'_x =	.00	1.4433E-15

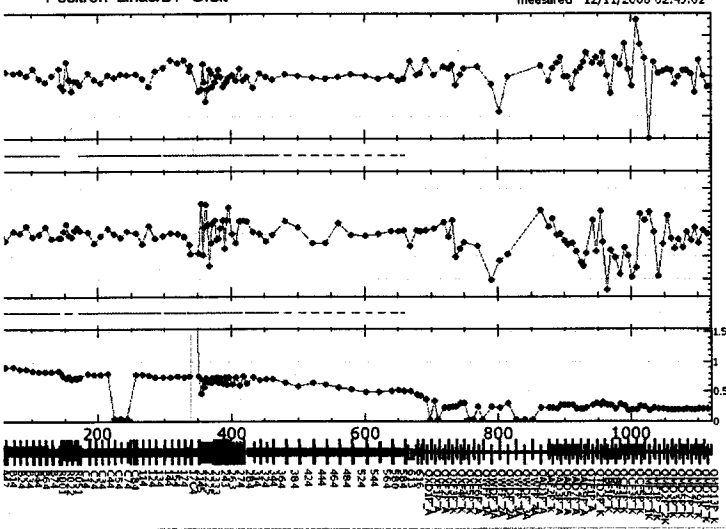
urement Correction Steering Orbit Window

12/11/2008 02:45:02 Help

Positron Linac/BT Orbit

measuring at intervals of 3 sec

measured 12/11/2008 02:45:02



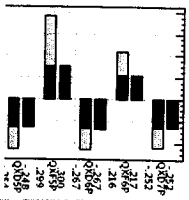
r.m.s =1.479 mm
max. =6.937 mm
@ SPQCF5P_K
min. =-7.708 mm
@ SPQMD2P_1K
-1.375 mm
@ SPQMD13P_K
(-.711± 516mm)

r.m.s =1.384 mm
max. =2.612 mm
@ SPQWFP_4A
min. =-5.007 mm
@ SPQBD2P_K
-.054 mm
@ SPQMD13P_K
(.149±.635mm)

218 nC
@ SPQMD13P_K
(.223±.038 nC)

.48

3-wire:ACD 3-wire:BCD



Matching Calculation

Calc Matching

Recover Calculation

Reset Calculation

Q-mag Set

Set Q-Magnets

Q-mag Read&Write

Read Q-Mag from File

Save Q-Mag to File

QM: BTp12_11_2008-02:45:37

ST " 38 is save

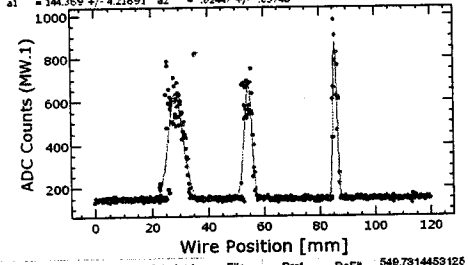
(07) Matching for Q5 BTe12_11_2008_02:48:33 _02:48:32

2

File Edit Control Window

Wire A

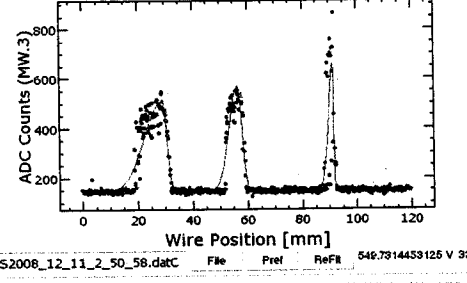
ChiSquare = 1920096 Goodness = .49307
sigma1 = 2.56016 +/- .07407 sigma2 = 1.36648 +/- .04859 sigma3 = .74529 +/- .02600
asymm1 = .06242 +/- .05810 asymm2 = -.18113 +/- .07244 asymm3 = .08209 +/- .07229
xwire1 = 28.4964 +/- .18211 xwire2 = 54.7458 +/- .12123 xwire3 = 85.7289 +/- .06599
b1 = 489.525 +/- 11.9269 b2 = 529.258 +/- 16.1504 b3 = 727.567 +/- 21.8466
a1 = 144.369 +/- 4.21891 a2 = .02447 +/- .05748



File: WS2008_12_11_2_49_24.datA File Pref RefFit 549.7314453125 V 410

Wire C

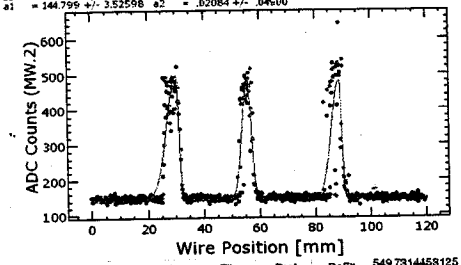
ChiSquare = 1680714 Goodness = .49307
sigma1 = 4.07136 +/- .12512 sigma2 = 2.35918 +/- .07528 sigma3 = 1.01095 +/- .04023
asymm1 = -.61293 +/- .04516 asymm2 = -.32646 +/- .06147 asymm3 = -.72007 +/- .05728
xwire1 = 29.2235 +/- .22495 xwire2 = 56.5792 +/- .17757 xwire3 = 91.6170 +/- .07105
b1 = 376.284 +/- 8.67269 b2 = 427.036 +/- 11.5566 b3 = 514.670 +/- 17.5800
a1 = 136.762 +/- 4.65083 a2 = .09998 +/- .06007



File: WS2008_12_11_2_50_58.datC File Pref RefFit 549.7314453125 V 3396

Wire B

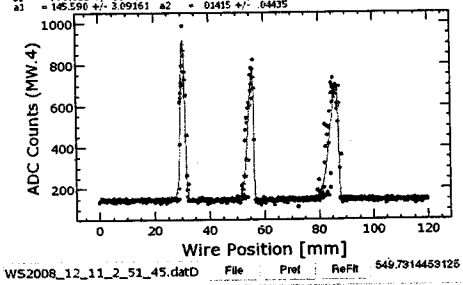
ChiSquare = 1370773 Goodness = .49307
sigma1 = 2.14868 +/- .07996 sigma2 = 1.65745 +/- .07100 sigma3 = 1.84103 +/- .07673
asymm1 = -.55040 +/- .06266 asymm2 = -.16586 +/- .08799 asymm3 = -.45907 +/- .07586
xwire1 = 30.3553 +/- .16497 xwire2 = 55.7585 +/- .17859 xwire3 = 86.8156 +/- .17104
b1 = 350.033 +/- 10.9668 b2 = 338.074 +/- 12.4035 b3 = 332.326 +/- 11.8161
a1 = 144.796 +/- 3.52598 a2 = .02084 +/- .04600



File: WS2008_12_11_2_50_11.datB File Pref RefFit 549.7314458125 V 3789

Wire D

ChiSquare = 1221649 Goodness = .49307
sigma1 = .80563 +/- .02024 sigma2 = .99769 +/- .02769 sigma3 = 1.57921 +/- .04633
asymm1 = -.19764 +/- .05109 asymm2 = -.86000 +/- .03293 asymm3 = -.65919 +/- .07949
xwire1 = 36.7719 +/- .05040 xwire2 = 56.2237 +/- .04012 xwire3 = 86.9218 +/- .07634
b1 = 776.633 +/- 16.7667 b2 = 630.559 +/- 15.0731 b3 = 549.890 +/- 12.0205
a1 = 145.590 +/- 3.09161 a2 = .01415 +/- .04435

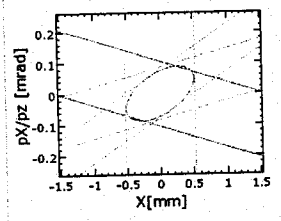


File: WS2008_12_11_2_51_45.datD File Pref RefFit 549.7314453125 V 3224

File Edit Window

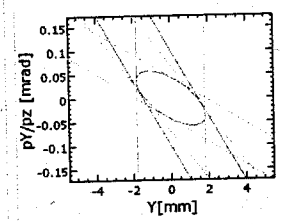
Wire Scan | Optics Calculate | Matching

X phase space at Wire A



X phase space at Matching Point

Y phase space at Wire A

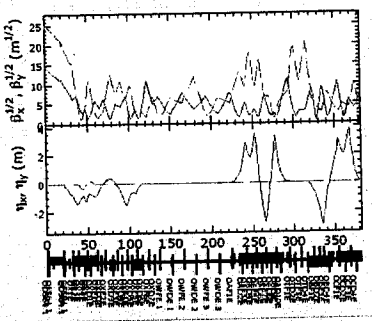


Y phase space at Matching Point

Results of Measurement

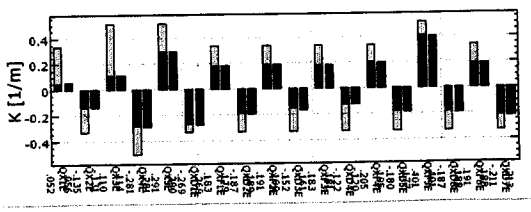
β, @MW.1 [m] :	6.965	β, @MW.1 [m] :	41.664
α, @MW.1 :	-.651	α, @MW.1 :	.862
ε, [m] :	3.7270E-8	ε, [m] :	7.9556E-8
γε, [x.mm.mrad] :	552.537	γε, [x.mm.mrad] :	1179.454
Bmag x :	1.083	Bmag y :	1.879
εBmag x :	4.0358E-8	εBmag y :	1.4949E-7
γεBmag x :	598.327	γεBmag y :	2216.242

Optics Plot



Wire Selection
3-wire:ABC 3-wire:ABD 3-wire:ACD 3-wire:BCD
4-wire:ABCD

Strength of Free Qmag (QX*)



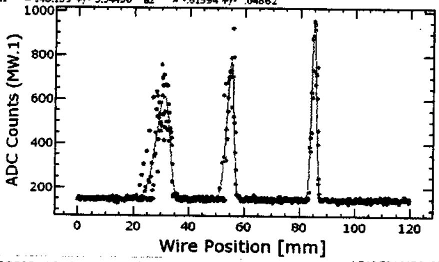
Matching
Recov
Rese
Q-mag S
Q-mag f
Read C
Save

(e+) 3 1回目 Match 후 Q: 03:04:48 S: 03:04:49

File Edit Control Window 12/11/2008 03:02:50 Help

Wire A

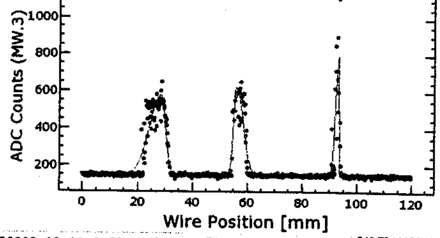
ChiSquare = 1389892 Goodness = .49307
sigma1 = 2.37905 +/- .06389 sigma2 = 1.29270 +/- .03402 sigma3 = .89010 +/- .02219
asymm1 = -.30575 +/- .05157 asymm2 = -.37521 +/- .05055 asymm3 = .02339 +/- .05176
xwire1 = 31.4102 +/- .15021 xwire2 = 55.5495 +/- .08003 xwire3 = 85.1212 +/- .05643
b1 = 464.299 +/- 10.4958 b2 = 625.060 +/- 14.1231 b3 = 793.875 +/- 17.0124
a1 = 148.139 +/- 3.54490 a2 = -.01594 +/- .04862



File: WS2008_12_11_3_0_5.datA File Pref ReFit 549.7314453125 V 412

Wire C

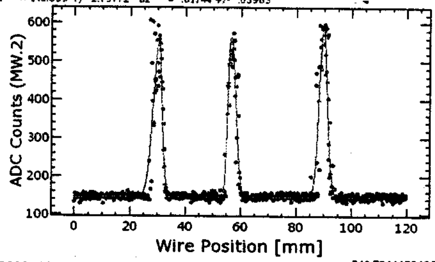
ChiSquare = 1552055 Goodness = .49307
sigma1 = 3.00469 +/- .08299 sigma2 = 1.76021 +/- .05521 sigma3 = .63883 +/- .02405
asymm1 = -.43339 +/- .04899 asymm2 = .35800 +/- .06045 asymm3 = -.74565 +/- .06398
xwire1 = 28.6463 +/- .18019 xwire2 = 56.2648 +/- .13029 xwire3 = 93.5853 +/- .05130
b1 = 435.141 +/- 9.92752 b2 = 477.073 +/- 12.8143 b3 = 652.577 +/- 21.2005
a1 = 141.391 +/- 3.96791 a2 = .06390 +/- .05340



File: WS2008_12_11_2_58_48.datC File Pref ReFit 549.7314453125 V 3397

Wire B

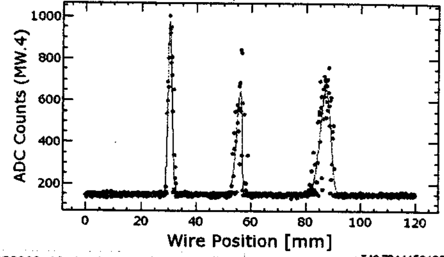
ChiSquare = 902440. Goodness = .49307
sigma1 = 1.61482 +/- .04843 sigma2 = 1.36149 +/- .04239 sigma3 = 1.44991 +/- .04094
asymm1 = -.35957 +/- .05729 asymm2 = .15108 +/- .06384 asymm3 = -.07727 +/- .05787
xwire1 = 30.6747 +/- .11329 xwire2 = 56.7005 +/- .10645 xwire3 = 89.9740 +/- .10276
b1 = 400.628 +/- 10.2207 b2 = 414.682 +/- 11.0892 b3 = 447.028 +/- 10.7794
a1 = 145.659 +/- 2.75772 a2 = .01744 +/- .03903



File: WS2008_12_11_2_58_1.datB File Pref ReFit 549.7314453125 V 3790

Wire D

ChiSquare = 1952524 Goodness = .49307
sigma1 = .77644 +/- .02355 sigma2 = .99366 +/- .04427 sigma3 = 1.85977 +/- .06042
asymm1 = .08197 +/- .06279 asymm2 = -.68059 +/- .06831 asymm3 = -.19520 +/- .06529
xwire1 = 30.5373 +/- .05971 xwire2 = 56.5843 +/- .08327 xwire3 = 87.6501 +/- .14869
b1 = 827.681 +/- 21.5886 b2 = 496.983 +/- 19.0623 b3 = 506.364 +/- 14.0228
a1 = 147.268 +/- 3.90297 a2 = .01125 +/- .05649

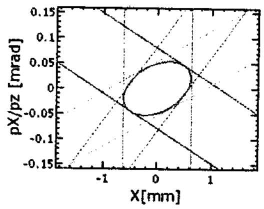


File: WS2008_12_11_3_0_56.datD File Pref ReFit 549.7314453125 V 3226

File Edit Window 12/11/2008 03:03:31 Help

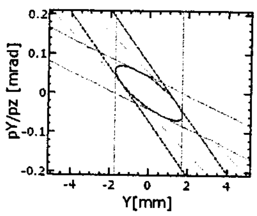
Wire Scan | Optics Calculate | Matching

X phase space at Wire A



X phase space at Matching Point

Y phase space at Wire A

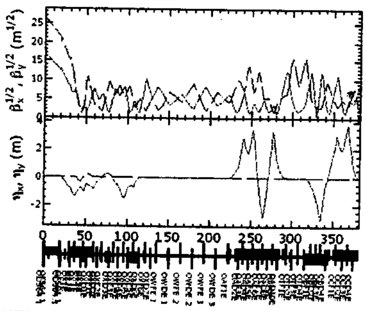


Y phase space at Matching Point

Results of Measurement

β_x @MW.1 [m] :	12.678	β_y @MW.1 [m] :	44.098
α_x @MW.1 :	-.410	α_y @MW.1 :	1.473
ϵ_x [m] :	3.0330E-8	ϵ_y [m] :	6.7107E-8
$\gamma\epsilon_x$ [π.mm.mrad] :	449.658	$\gamma\epsilon_y$ [π.mm.mrad] :	994.894
Bmag x :	1.091	Bmag y :	1.319
εBmag x :	3.3079E-8	εBmag y :	8.8516E-8
γεBmag x :	490.412	γεBmag y :	1312.291

Optics Plot



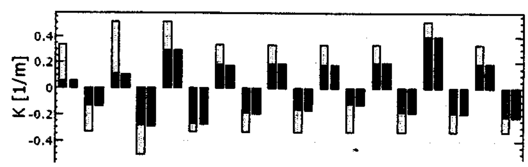
Wire Selection
3-wire:ABC 3-wire:ABD 3-wire:ACD 3-wire:BCD
• 4-wire:ABCD

12/11/2008 03:04:17

...ing Conditions

: β_x <	100.00	46.42903
: β_y <	260.00	241.03037
: β_x <	100.00	44.74161
: β_y <	60.00	7.26924
E: β_x <	50.00	50
E: β_y <	60.00	10.2505
E: β_x <	60.00	43.32593
3E: β_y <	80.00	79.99126
E: β_x <	62.00	35.922
E: β_y <	110.00	74.78331
E: β_x <	80.00	36.39727
5E: β_y <	100.00	98.94886
5E: β_y <	100.00	50.54518
: η_x =	.00	-5.125E-15
: η'_x =	.00	-1.832E-15
: η_y =	.00	-2.095E-15
: η'_y =	.00	-1.985E-16
QX1E OXD6E: η_x <	-1.50	1.5

Strength of Free Qmag (QX*)



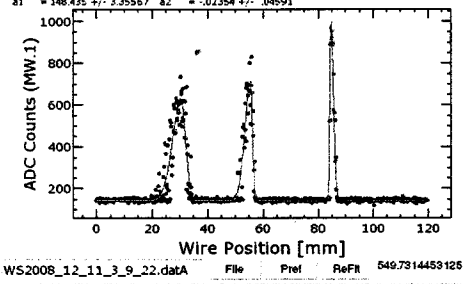
Matching Calculation
Calc Matching
Recover Calculation
Reset Calculation
Q-mag Set
Q-mag Read&Write
Read Q-Mag from File
Save Q-Mag to File

2/2日 QM 03:11:0
ST 03:11:02

File Edit Control Window 12/11/2008 03:12:31 Help

Wire A

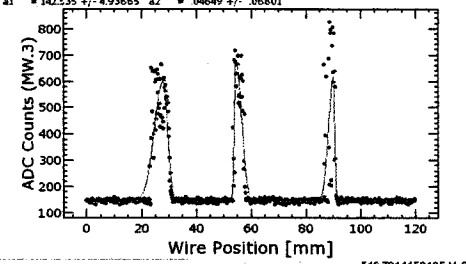
ChiSquare = 1240417 Goodness = .49307
sigma1 = 2.31269 +/- .05772 sigma2 = 1.35885 +/- .03632 sigma3 = .65398 +/- .01670
asymm1 = -.35618 +/- .04702 asymm2 = -.52655 +/- .04708 asymm3 = .39585 +/- .04865
xwire1 = 30.7528 +/- .13315 xwire2 = 55.6846 +/- .07835 xwire3 = 84.7732 +/- .03894
b1 = 478.797 +/- 10.0550 b2 = 567.467 +/- 13.0152 b3 = 851.932 +/- 18.7397
a1 = 148.435 +/- 3.35567 a2 = -.02354 +/- .04591



File: WS2008_12_11_3_9_22.datA File Pref ReFit 549.7314453125 V 414

Wire C

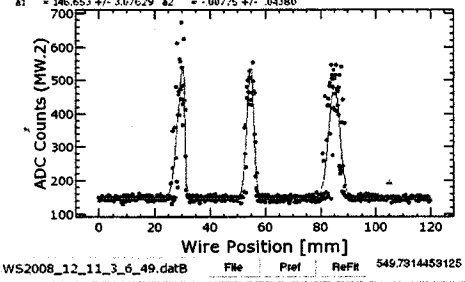
ChiSquare = 2618022 Goodness = .49307
sigma1 = 2.40569 +/- .09062 sigma2 = 1.30309 +/- .05434 sigma3 = 1.13448 +/- .05804
asymm1 = -.33047 +/- .07130 asymm2 = .56850 +/- .07114 asymm3 = -.53859 +/- .08923
xwire1 = 28.0035 +/- .21601 xwire2 = 54.5523 +/- .11352 xwire3 = 90.1775 +/- .12403
b1 = 454.354 +/- 14.3477 b2 = 536.984 +/- 19.3114 b3 = 472.183 +/- 20.7206
a1 = 142.535 +/- 4.93665 a2 = .04649 +/- .06801



File: WS2008_12_11_3_7_37.datC File Pref ReFit 549.7314453125 V 3395

Wire B

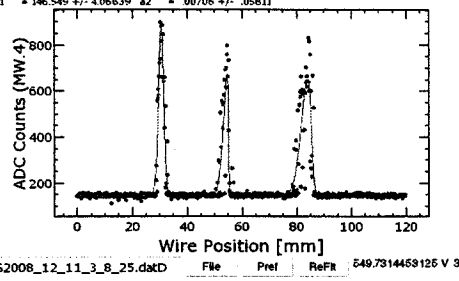
ChiSquare = 1147788 Goodness = .49307
sigma1 = 1.30544 +/- .04993 sigma2 = 1.25898 +/- .04931 sigma3 = 2.02162 +/- .07369
asymm1 = -.56566 +/- .06498 asymm2 = -.13471 +/- .08056 asymm3 = -.68627 +/- .07447
xwire1 = 30.5159 +/- .10369 xwire2 = 54.8419 +/- .12422 xwire3 = 85.1709 +/- .16436
b1 = 392.139 +/- 12.7975 b2 = 386.326 +/- 13.0017 b3 = 332.486 +/- 10.3142
a1 = 146.653 +/- 3.87629 a2 = -.00775 +/- .04380



File: WS2008_12_11_3_6_49.datB File Pref ReFit 549.7314453125 V 3791

Wire D

ChiSquare = 2084816 Goodness = .49307
sigma1 = .98348 +/- .03098 sigma2 = .94045 +/- .04236 sigma3 = 1.84551 +/- .06252
asymm1 = -.11736 +/- .06498 asymm2 = -.80000 +/- .05963 asymm3 = -.42760 +/- .06312
xwire1 = 30.7444 +/- .07600 xwire2 = 55.0135 +/- .06990 xwire3 = 84.3575 +/- .14233
b1 = 733.517 +/- 19.8615 b2 = 525.547 +/- 20.1747 b3 = 501.396 +/- 14.5516
a1 = 146.545 +/- 4.06639 a2 = .00706 +/- .05811

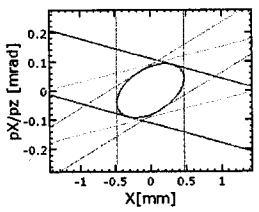


File: WS2008_12_11_3_8_25.datD File Pref ReFit 549.7314453125 V 3227

File Edit Window 12/11/2008 03:13:14 Help

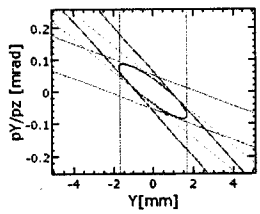
Wire Scan | Optics Calculate | Matching

X phase space at Wire A



X phase space at Matching Point

Y phase space at Wire A

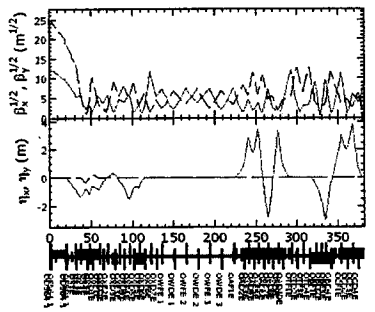


Y phase space at Matching Point

Results of Measurement

β, @MW.1 [m] :	5.622	β, @MW.1 [m] :	43.034
α, @MW.1 :	-.512	α, @MW.1 :	1.892
ε, [m] :	3.9127E-8	ε, [m] :	6.7383E-8
γε, [x.mm.mrad] :	580.072	γε, [x.mm.mrad] :	998.985
Bmag x :	1.141	Bmag y :	1.054
εBmag x :	4.4629E-8	εBmag y :	7.1027E-8
γεBmag x :	661.046	γεBmag y :	1053.006

Optics Plot

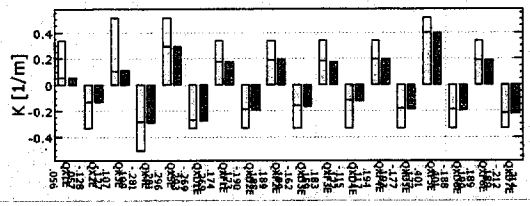


Wire Selection
3-wire:ABC 3-wire:ABD 3-wire:ACD 3-wire:BCD
4-wire:ABCD

ng Conditions
βx < 1
: βy < 2
βx < 1
βx <
: βx <
: βy <
: βy <
: βy <
: βx <
: βx < 1
: βy <
: βy <
: βy <
: ηx =
: η'x =
: ηy =
: η'y =

QX1E QXD6E: ηx <

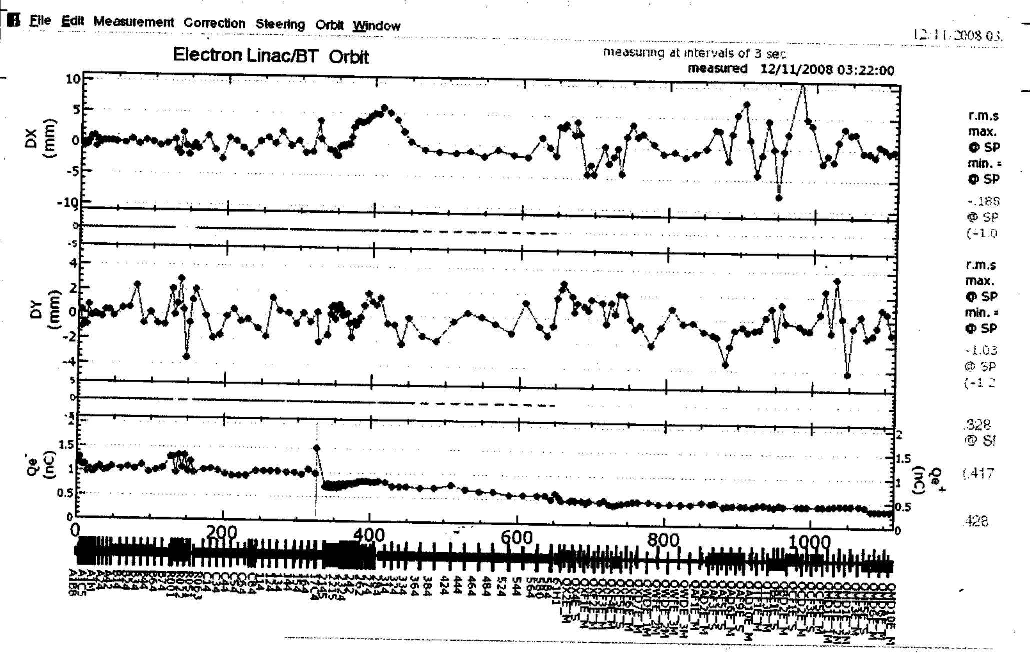
Strength of Free Qmag (QX*)

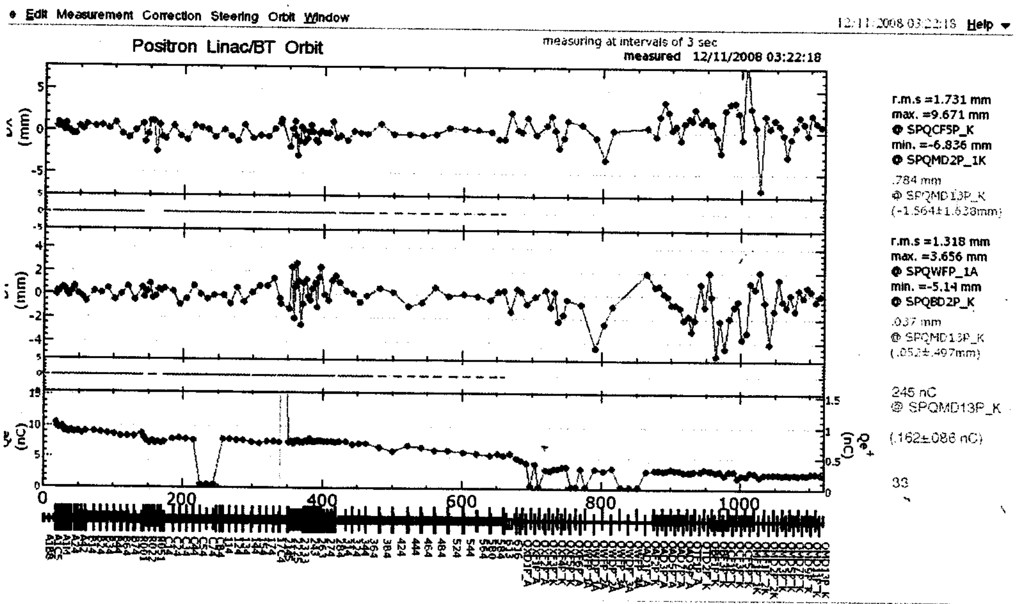


Matching Cal
Calc Ma
Recover C
Reset Ca
Q-mag Set
Q-mag Read
Read Q-Ma
Save Q-M

final ε. (QM: BTe12-11-2008-03:14:41
ST: 03:14:41

12 save

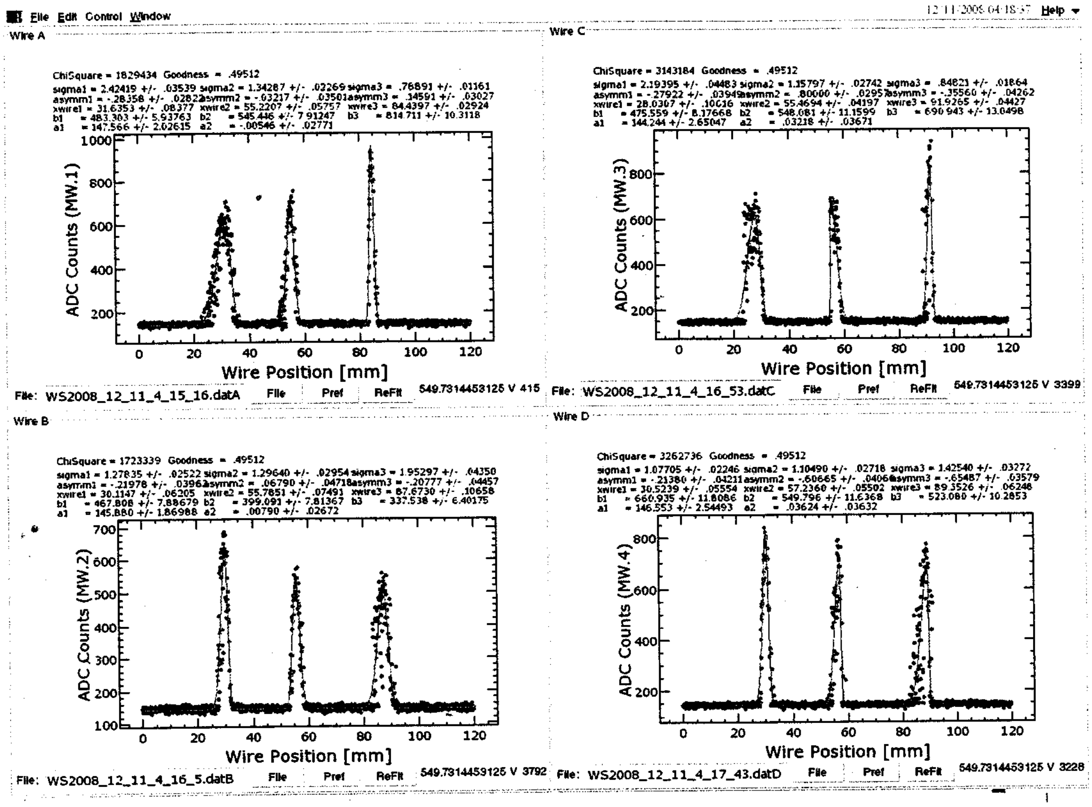


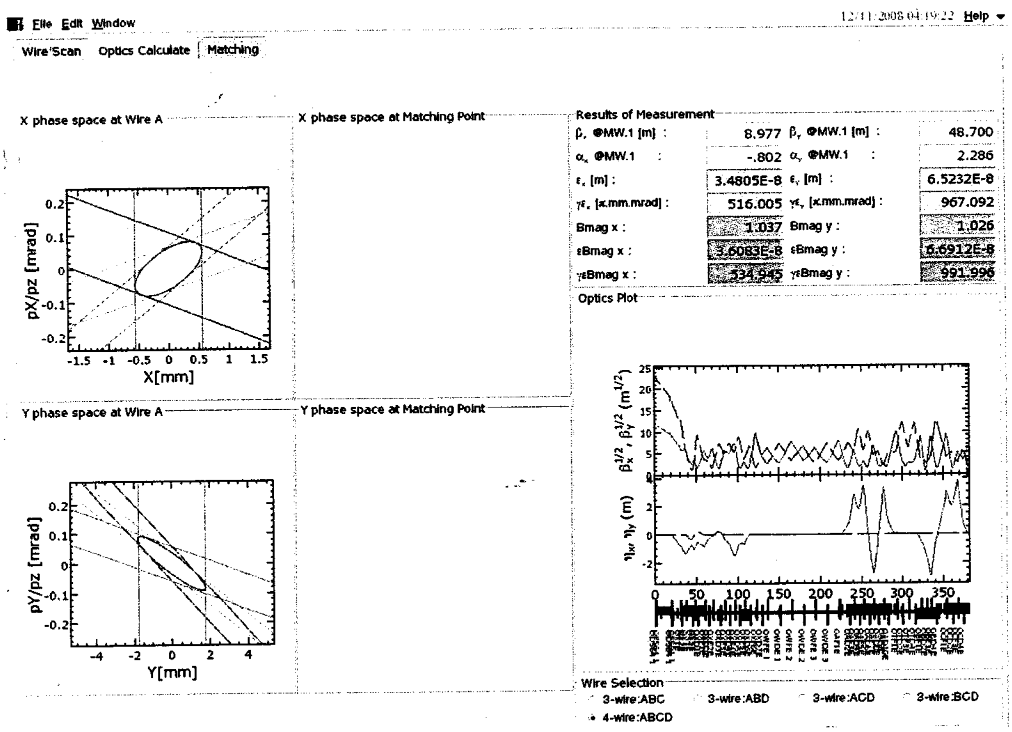


HER ~0.2 mA/s @12.5 Hz
LER ~0.1 mA/s 〃

で、入射。

切り換え時間は、2秒。





しかし、e^- beam の Energy 変動問題はある。

'08/12/11

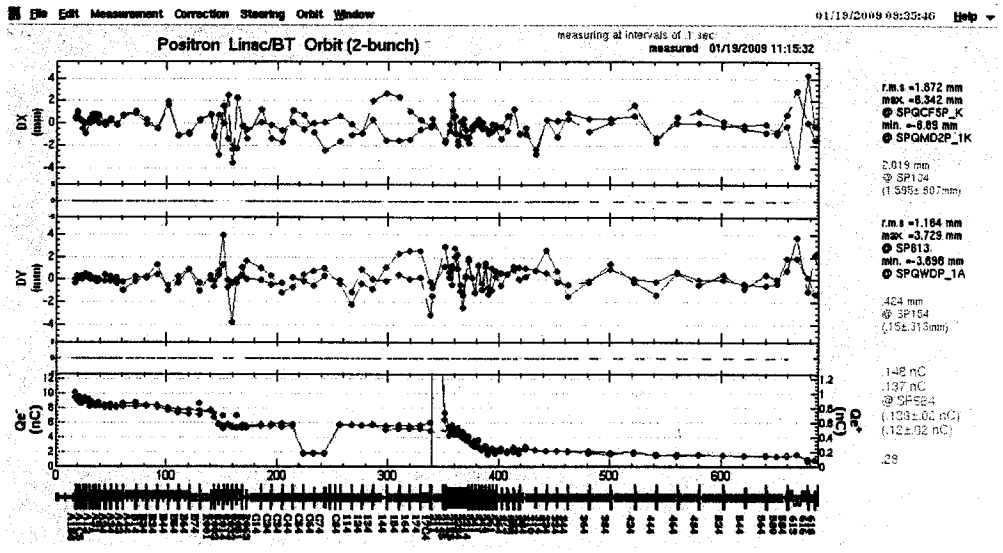
- e^- の変動はおさまっていた。
- LER の入射率が悪かったのはリングの状態による。
  25Hz で >0.7 mA/s は達成できる。
- HER 入射良好。　・入射パネル改良 (→大西さん)

7

'09/7/19

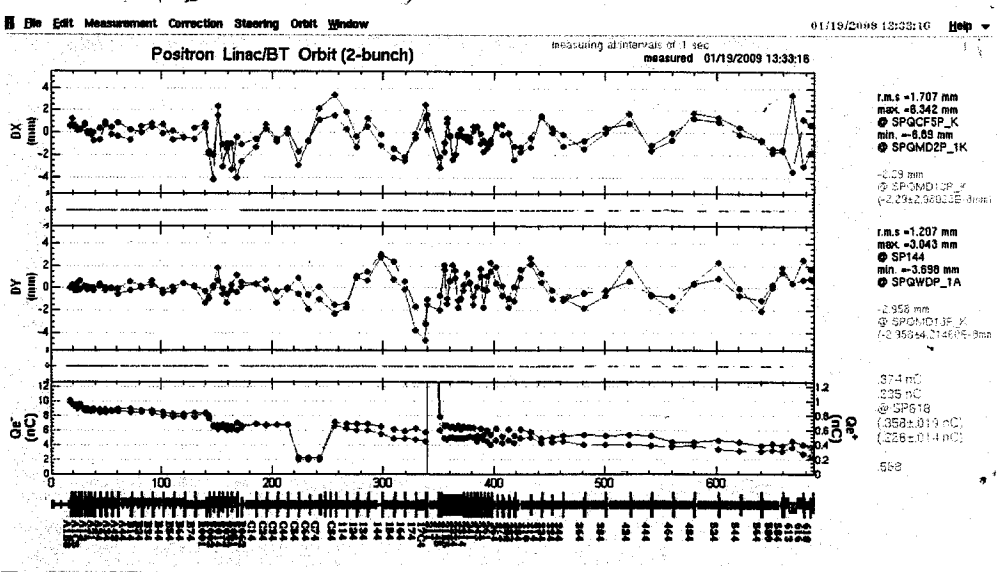
8 (3ring 同時入射に向けて) 大西.小川.飯田.水川

HER/LER 共通 Optics 再現 及び Υ(2S)→Υ(4S)へ

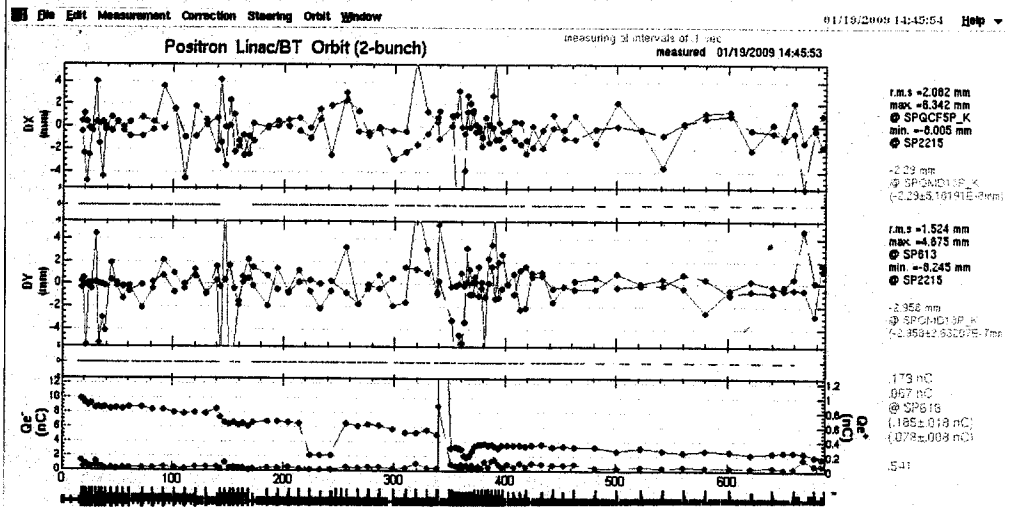


'08/12/10 のQM 1ST

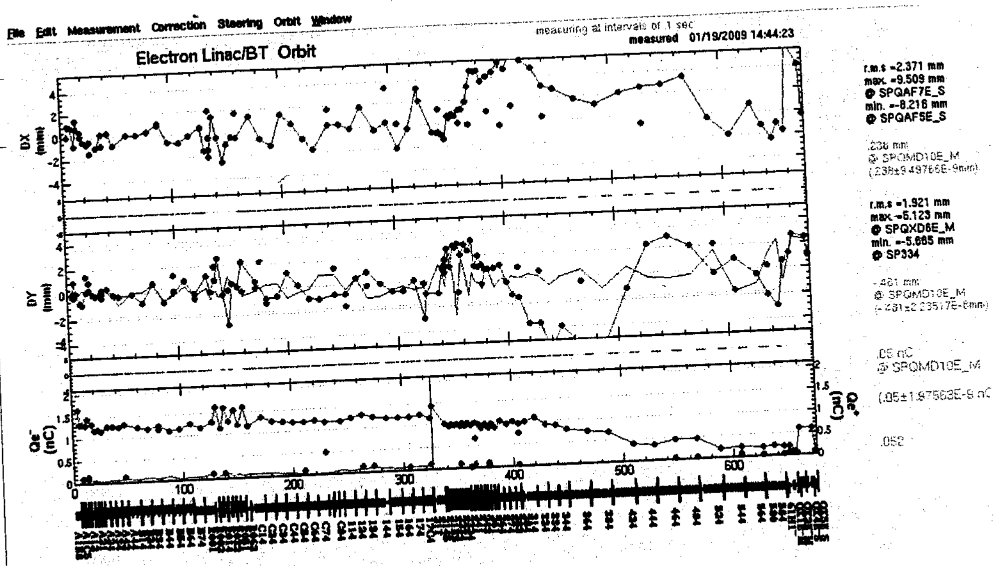
↓ 調整 (by 水川氏)



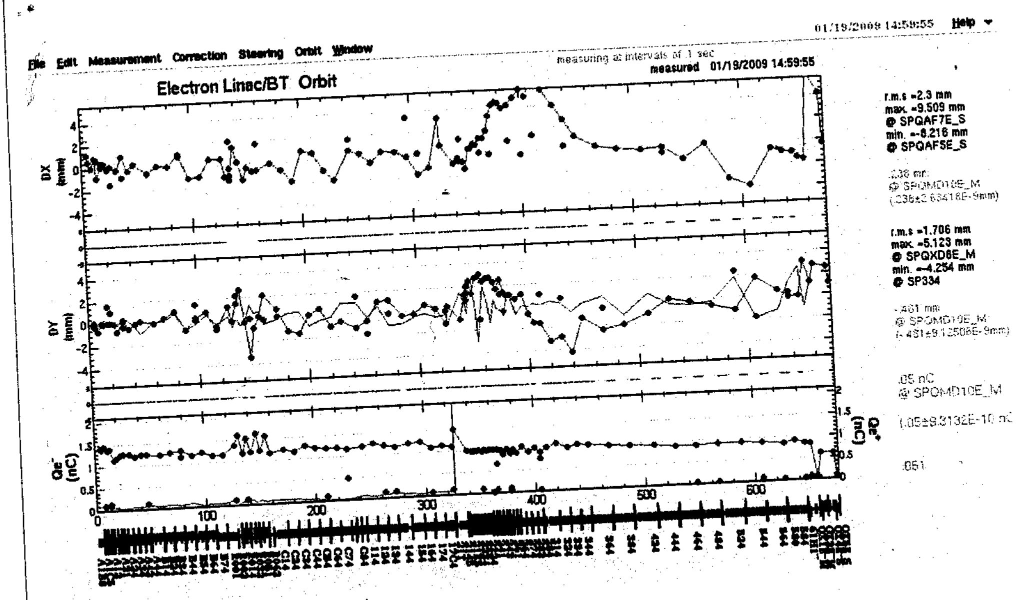
'09/1/15 に QM 1ST なってしまった



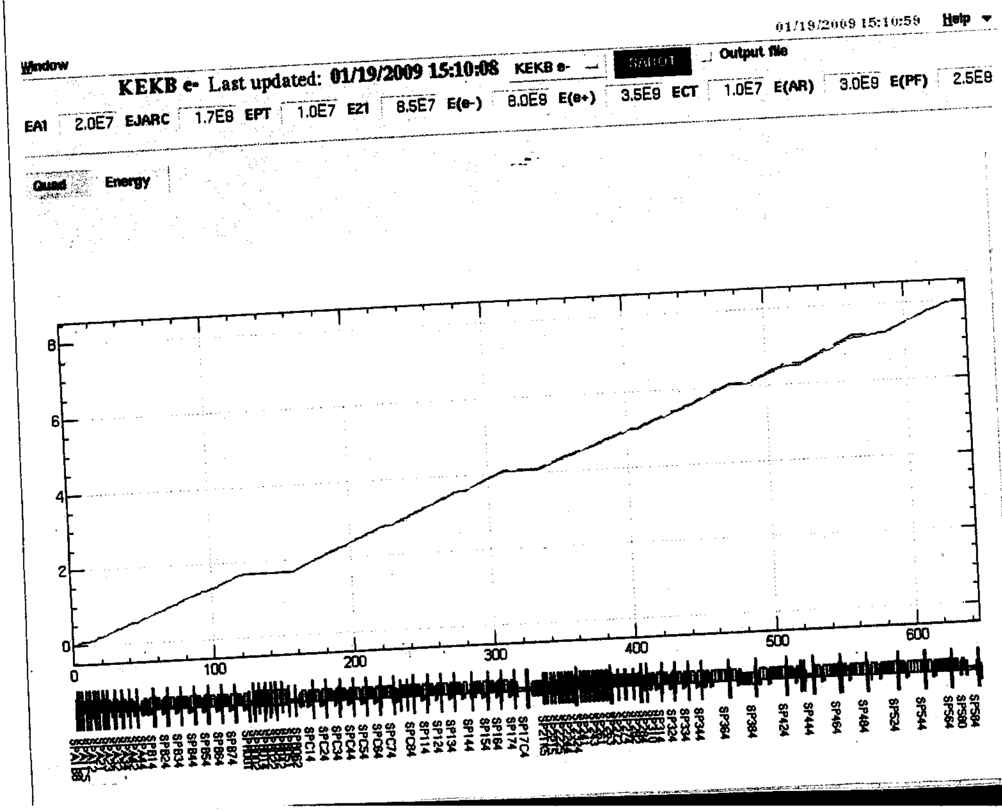
'08/12/10 のQM 1ST phaseは 13.33のまま



e⁻



pulse Steering
+ 57-1 StXを
調整して
EC第1Bendを
まっすぐ通すように
した



SABOT
+
Outputもした

~~2~~ C, 1 セクター

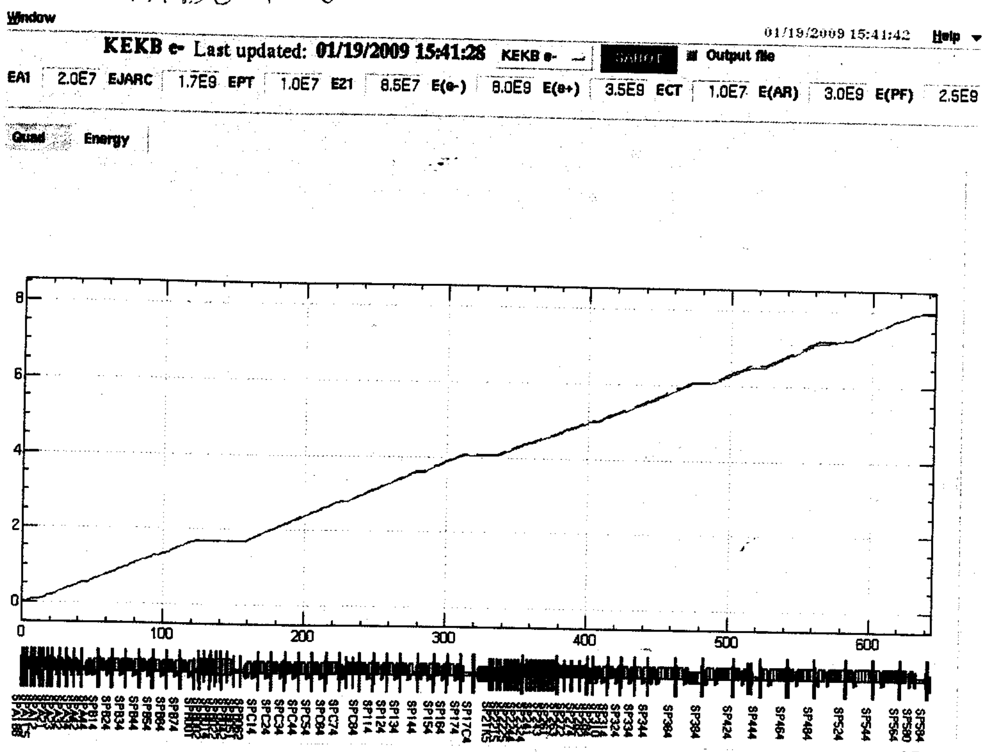
(e+) Spread 調整したが改善せず。元値

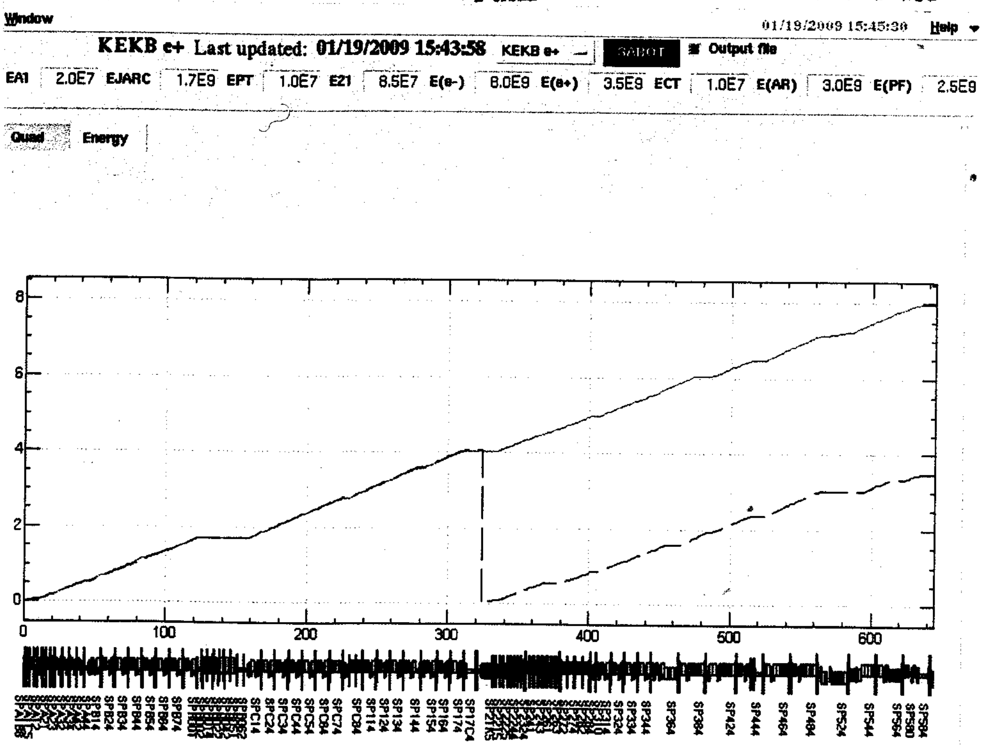
15:36

(e-) 2~5 セクター SB で、Analyzer ラインの Spread を調整。

SABOT で output file

(e+) SABOT で 〃





Cセクター ワイヤースキャナー測定

21T