

Skew Quadrupole Modulation Beam Experiment

(the fifth session, Feb. 11)

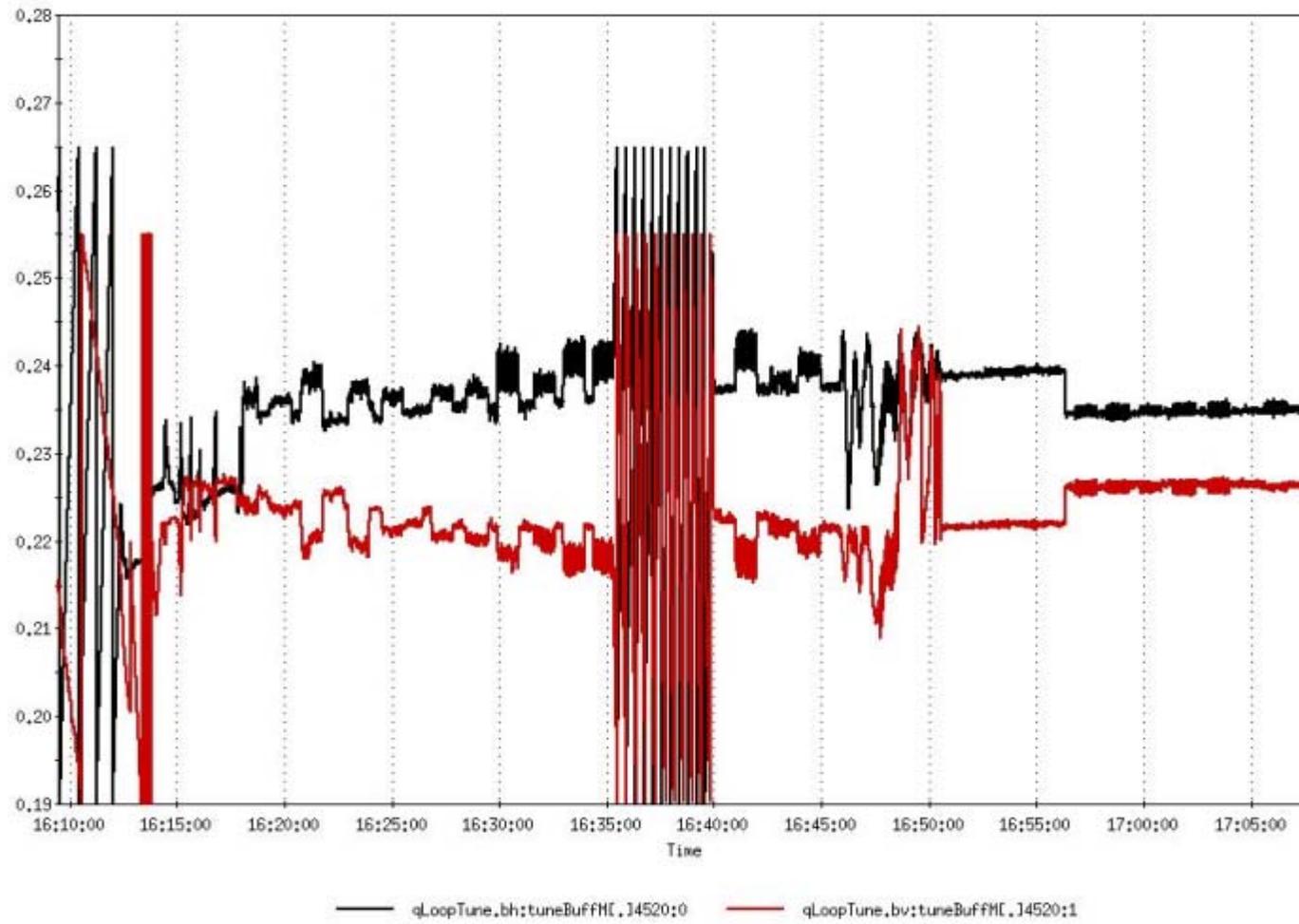
1 Goal of this session

To measure the coupling on ramp

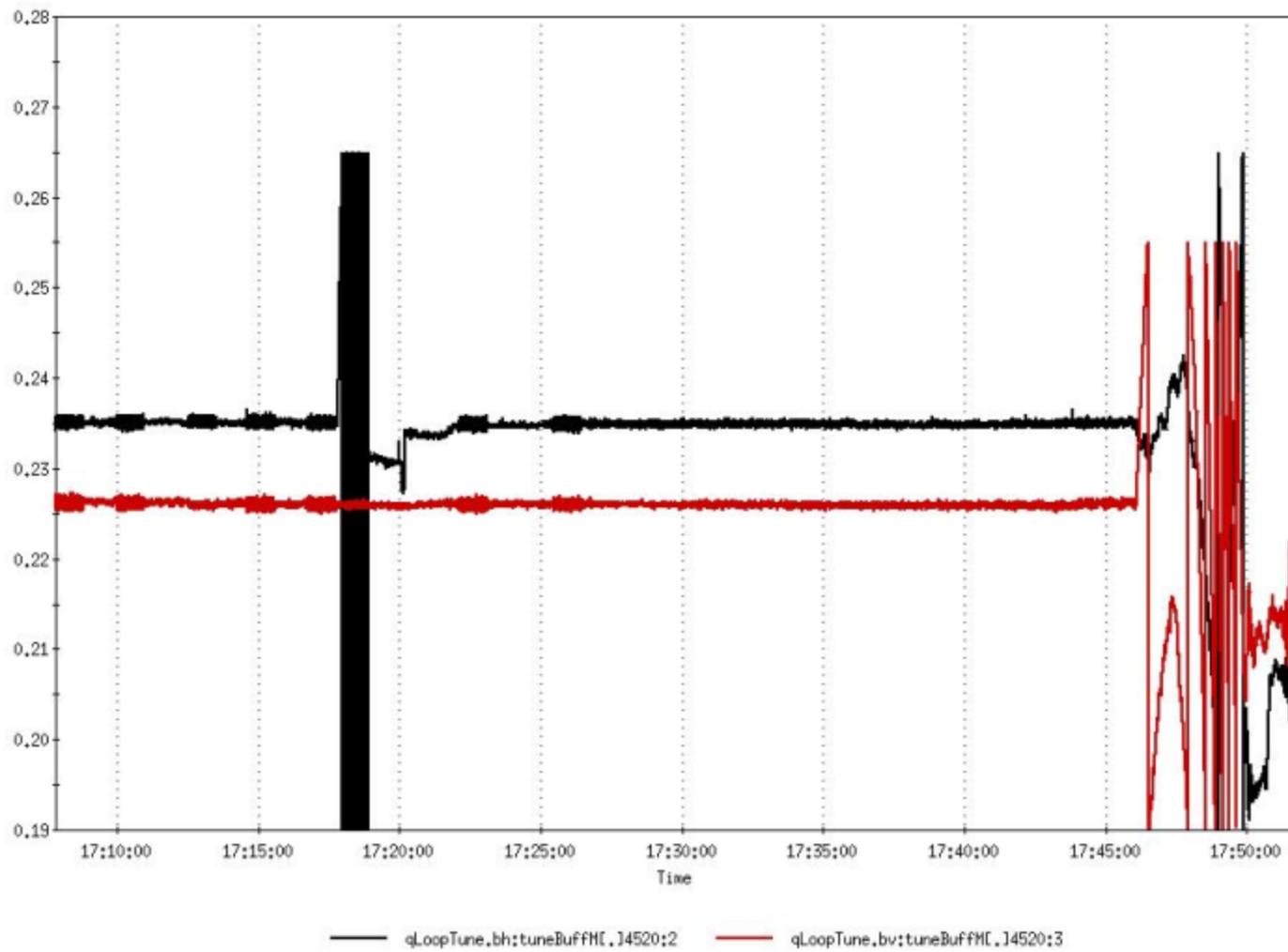
2 What data taken

- 1) 1 hour's experiment time, having two ramps
- 2) taking some data at injection and at sore
- 3) due to PLL problem (losing lock) , no useful data on ramp

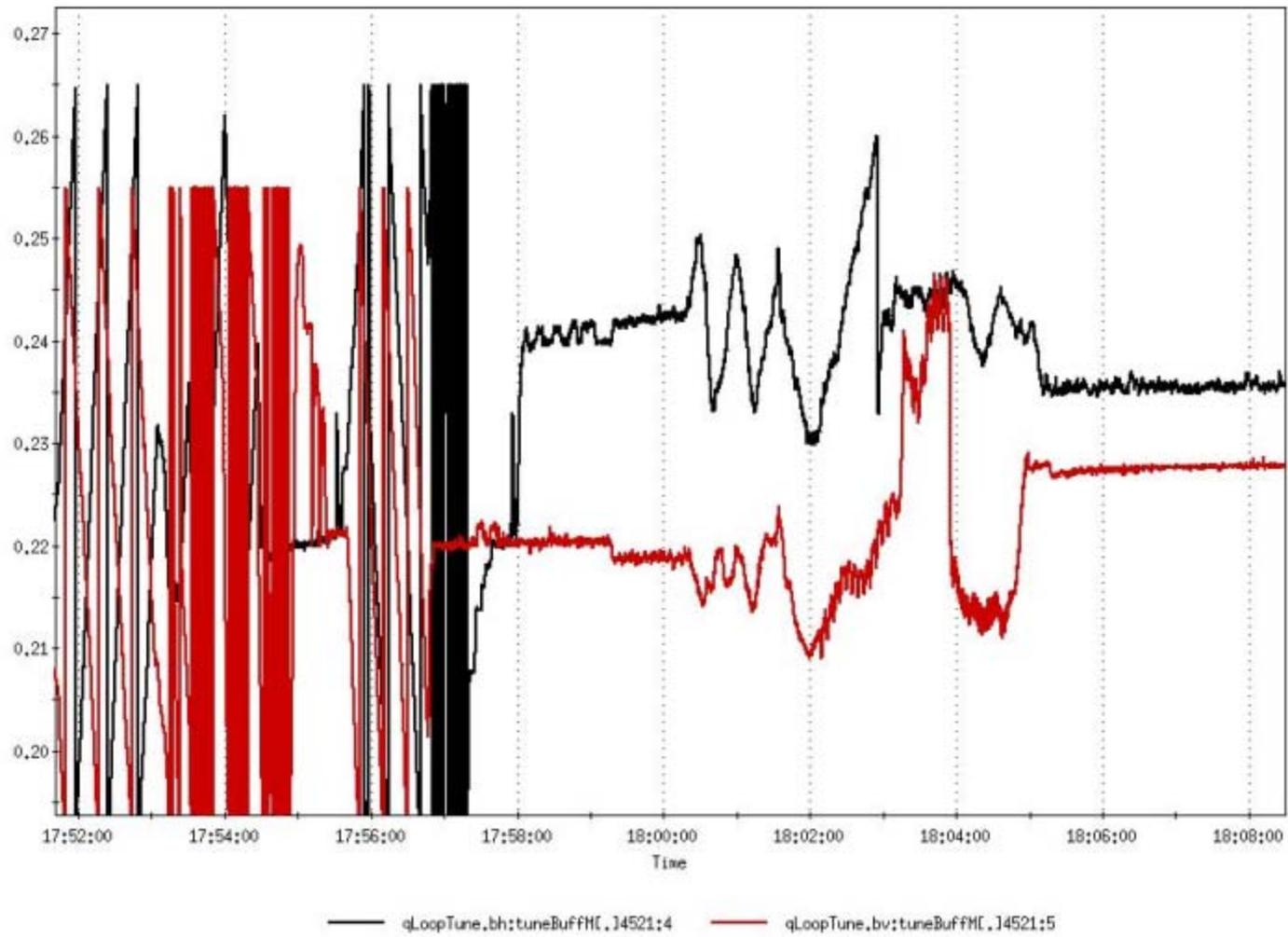
PLL Reading 1



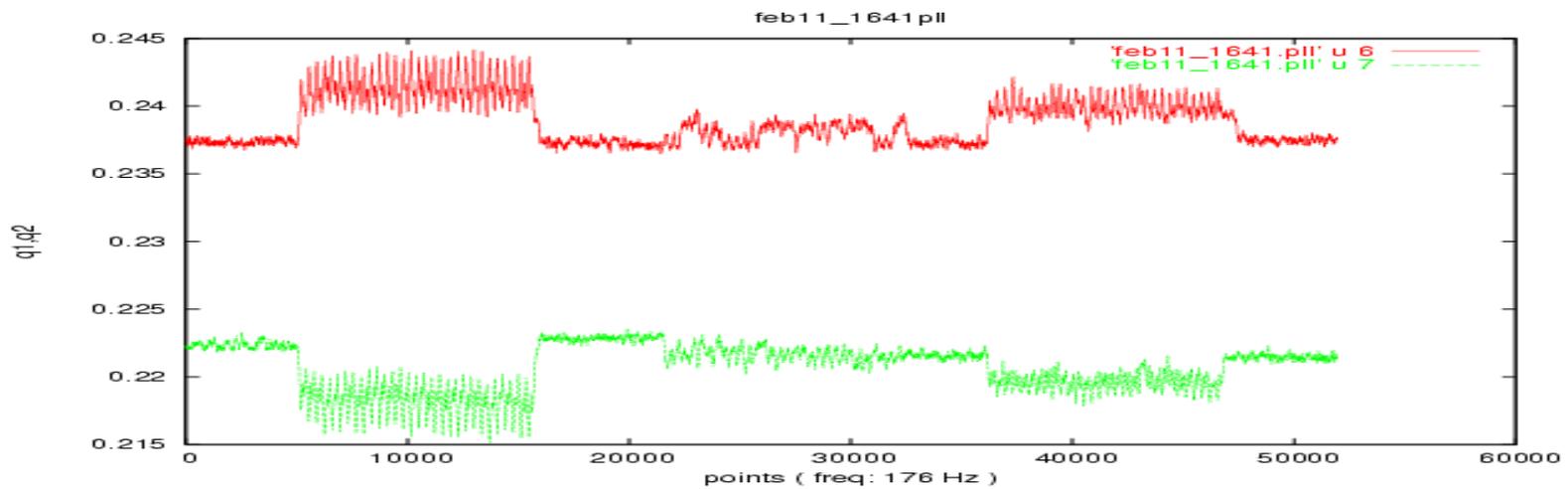
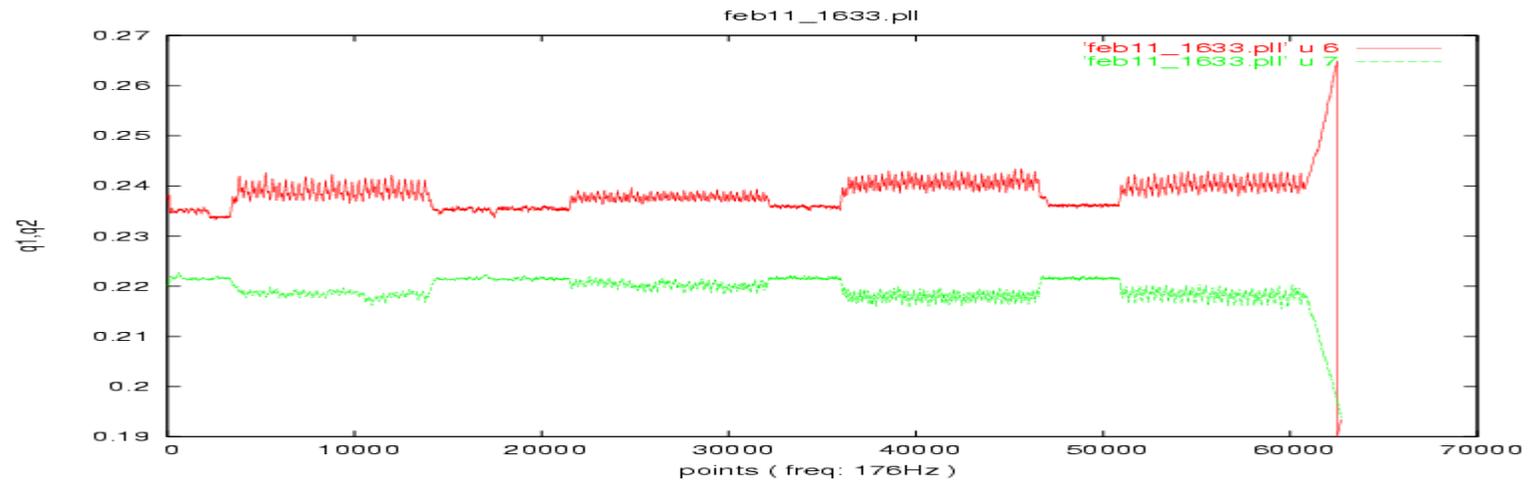
PLL Readings 2



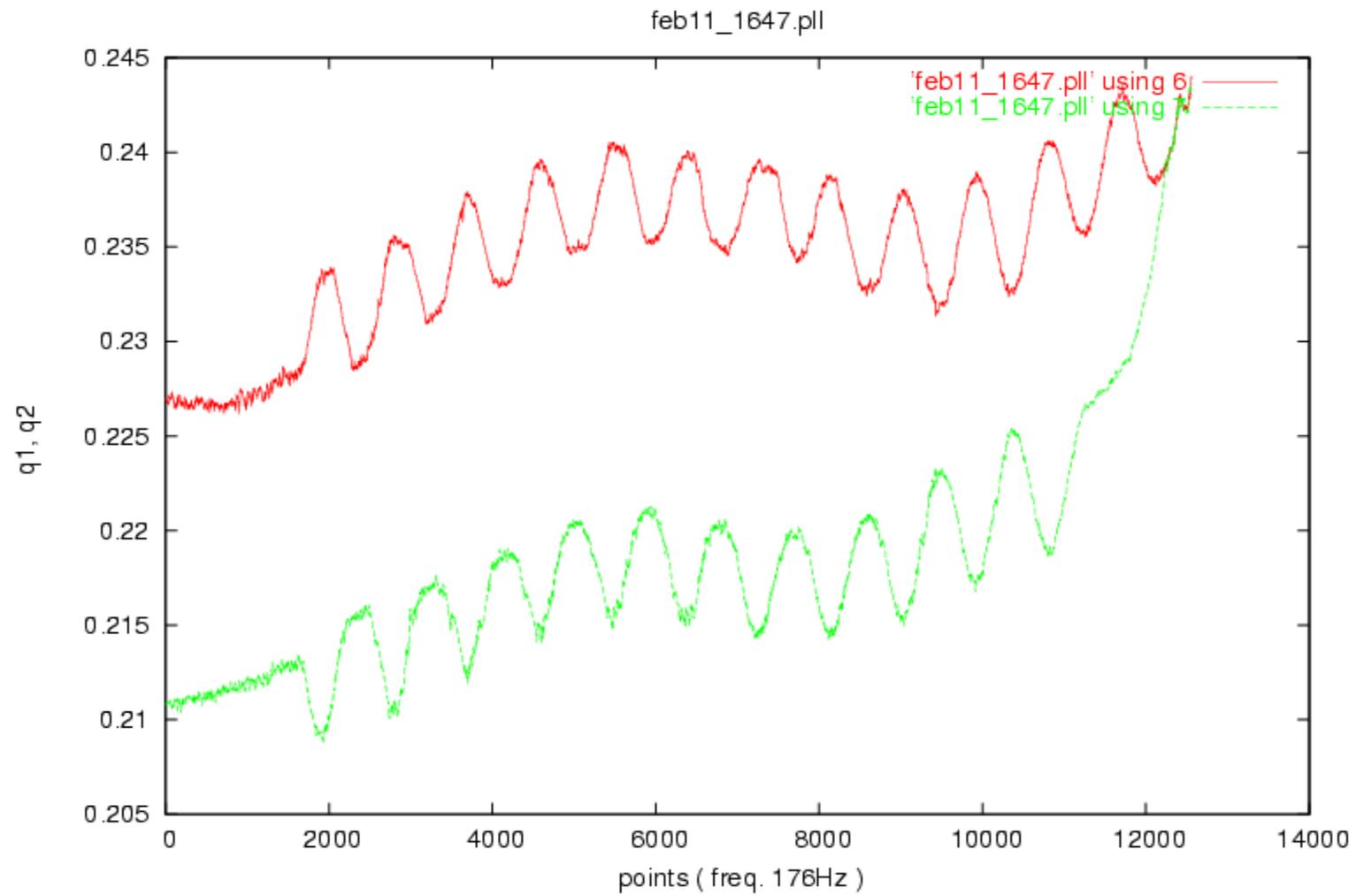
PLL Readings 3



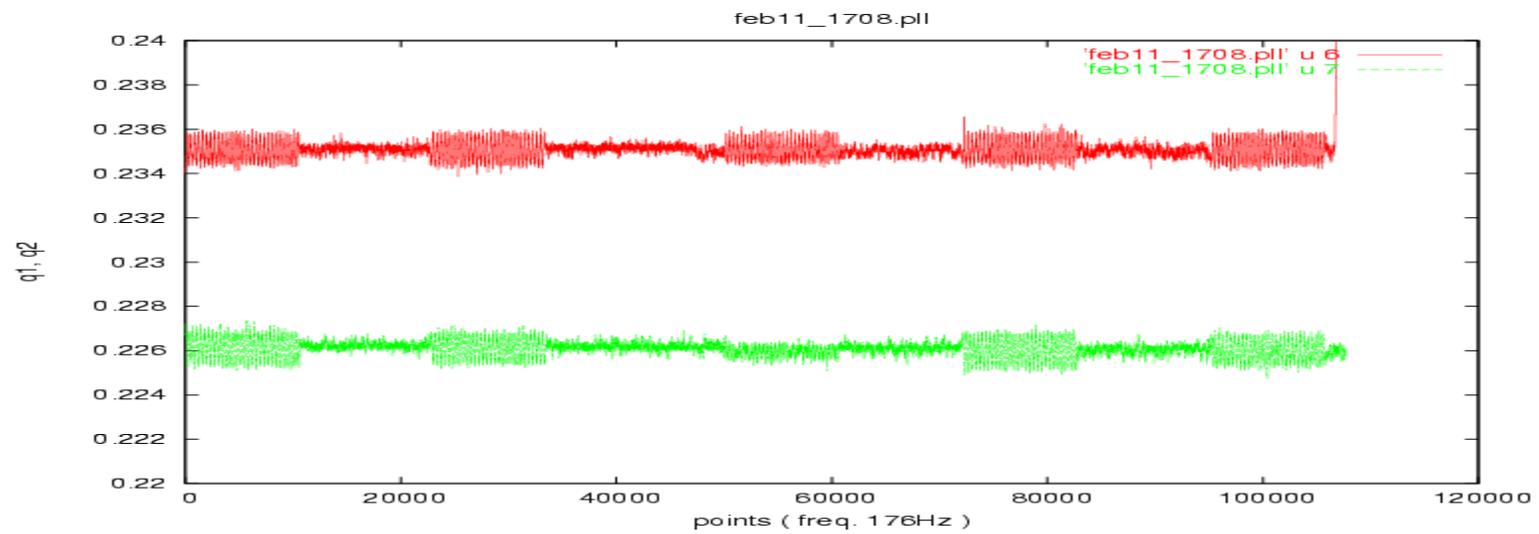
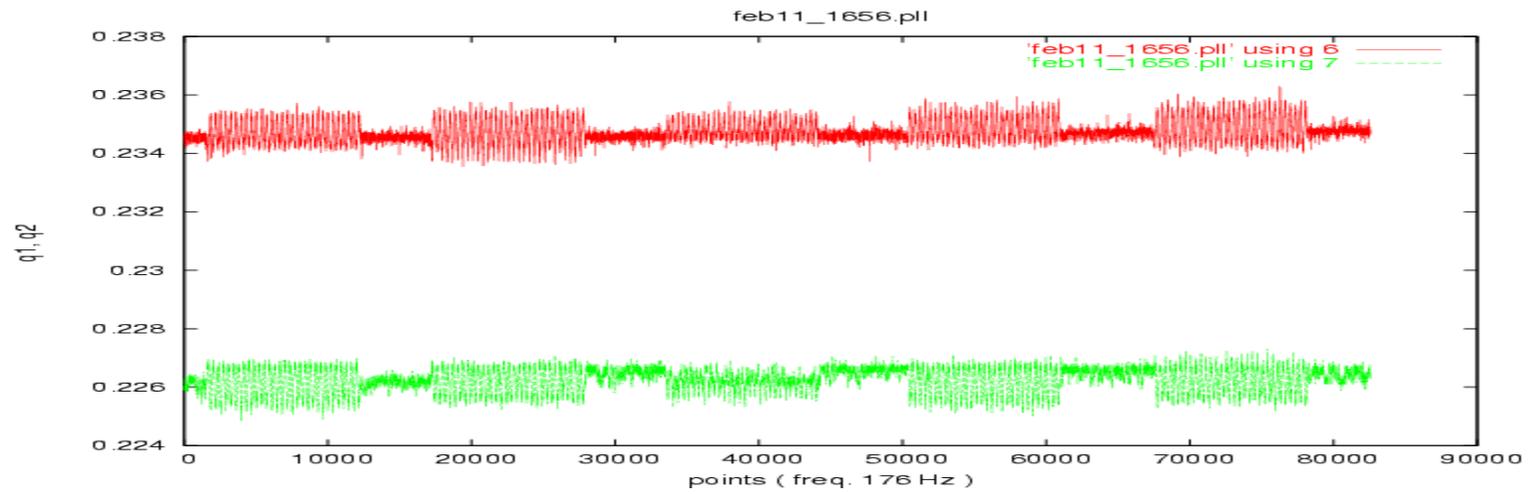
Data at Injection



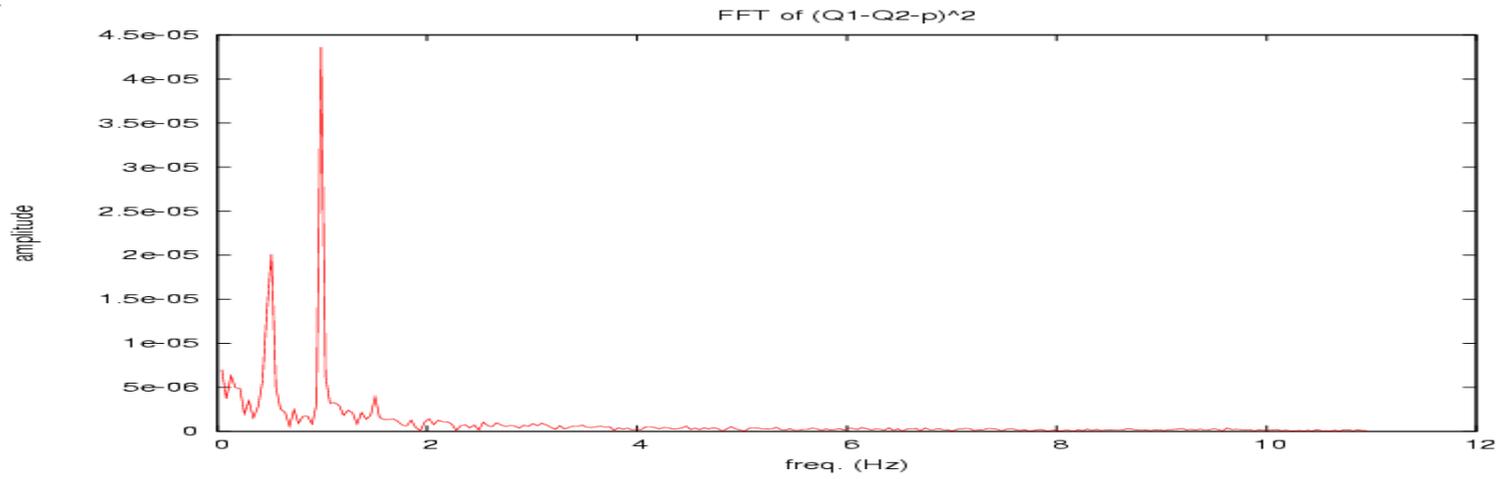
Data on ramp



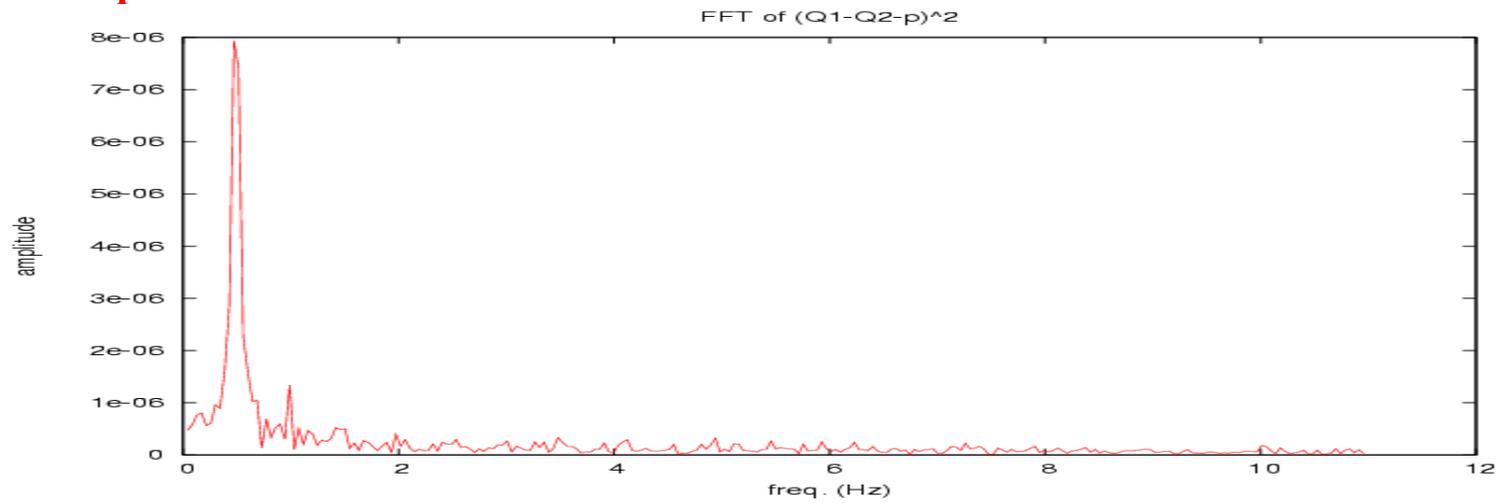
Data at Store



FFT example at injection



FFT example at store



Projections calculation

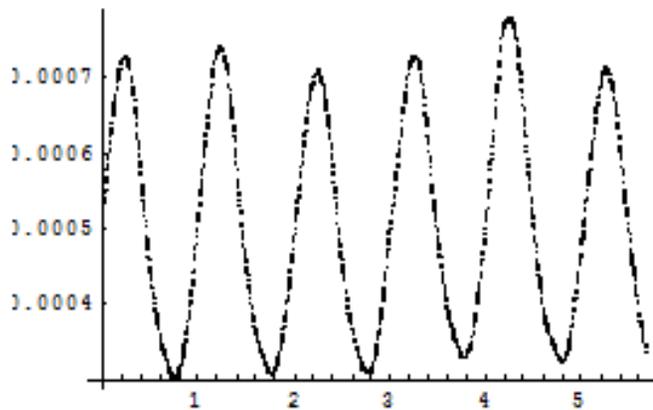
	File	Projection Ratio on F1	Projection Ratio on F2	Projection Ratio on F3
INJ.	Feb11_1633.pll	0.115	0.264 0.230	0.160
	Feb11_1641.pll	0.230	0.170*	0.120*
STORE	Feb11_1656.pll	1.12	3.02*	0.331
		1.13	2.30*	
	Feb11_1708.pll	1.34 1.32	1.48 1.09	0.74

* 2f peak too small, not visible.

Finding the coupling by FITING (or matching)

INJ:

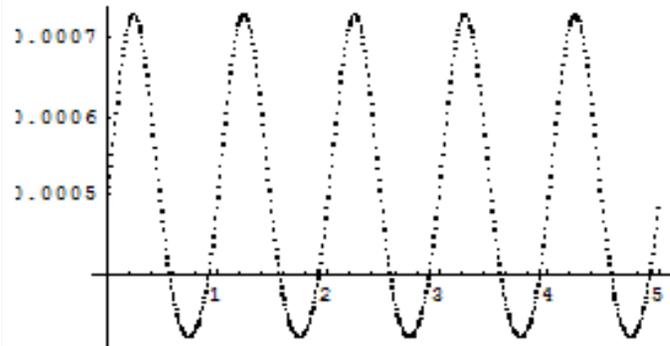
```
infile=OpenRead["~/test/test1"];  
dq={};  
Do [  
  { temp2=Read[infile,Number];  
    temp1=i*1.0/176;  
    dq=AppendTo[dq,{temp1,temp2}]; },{i,1,1000}];  
<<NumericalMath`TrigFit`;  
<<Statistics`NonlinearFit`;  
p1=ListPlot[dq];  
freq=1.0;  
NonlinearRegress[dq,par1 -par2 Cos[2. (par4 +2.0*Pi* x)]+par3 Sin[par4+2.0*Pi* x ],{x},{par1,par2,par3,par4}]
```



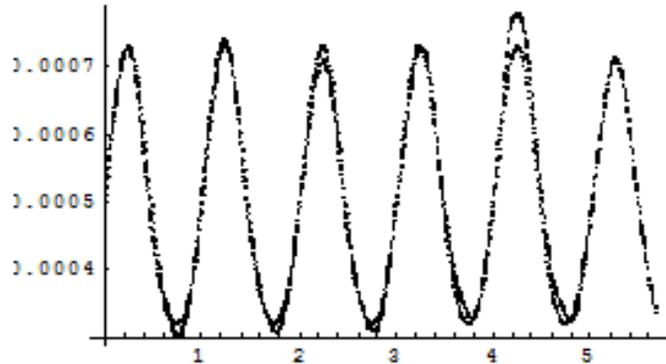
```

f1[x_]:=0.0005028121976088807^-0.00002153170123899959` Cos[2.`(0.007893169990764705` +6.283185307179586`
x)]+0.0002052401745876865` Sin[0.007893169990764705` +6.283185307179586` x];
data1=Table[{i/100,f1[i/100]},{i,1,500}];
p2=ListPlot[data1];

```



```
Show[p1,p2]
```



From FFT , projection ratio is 2.4 ; From FIT, projection ratio is 2.5

But for data with not very good quality, **FITING** doesn't work.
Maybe we'd use **MATCHING**, instead.

From Ramp

