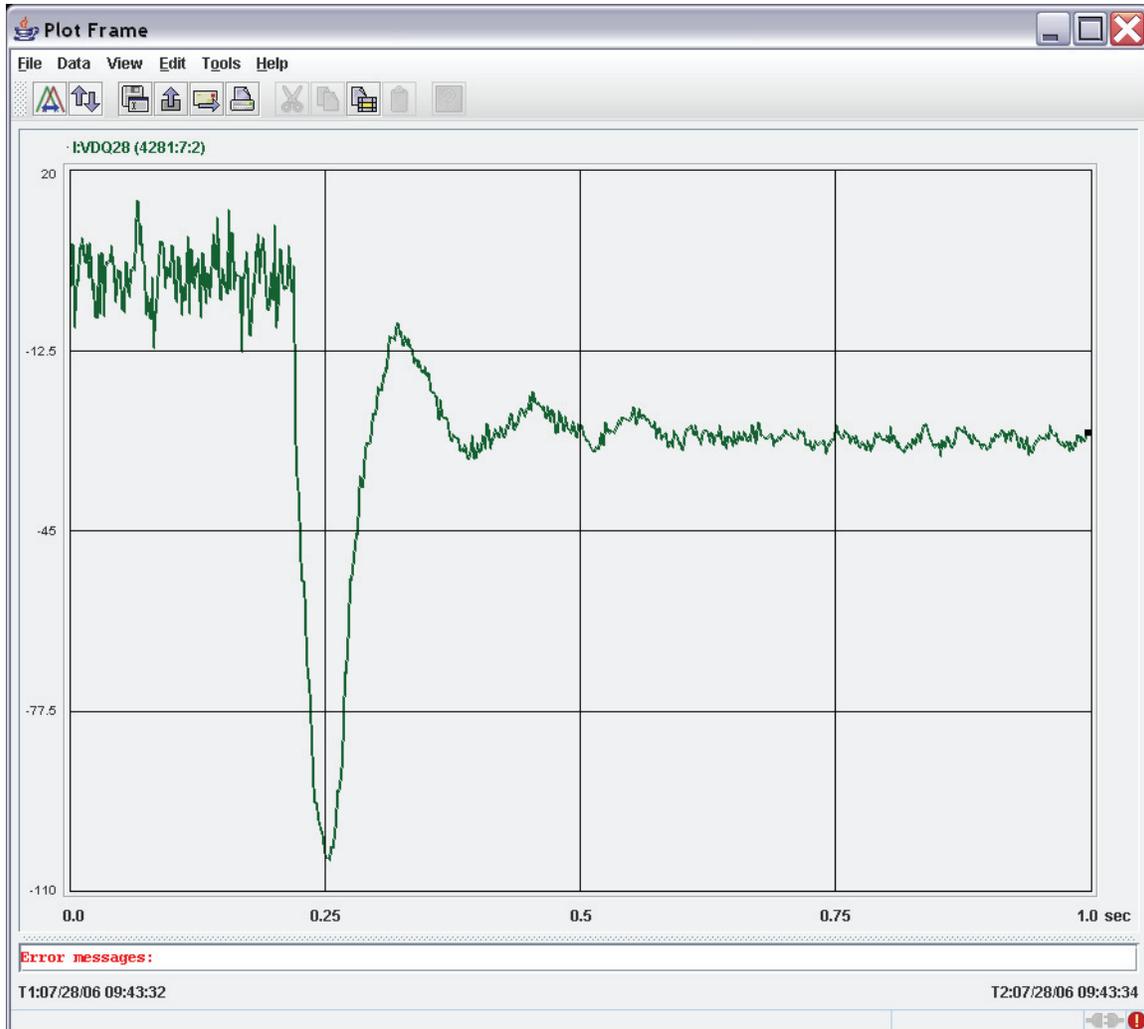


Correcting the Accumulator Extraction Energy

1. Make a plot of I:VDQ28 (MIRF 2.5 MHz phase detector) vs. time. This can be done from a FTP or SDA's plot viewer.
 - To get an FTP triggered at the right time, restore FTP file Pbar 9.
 - To view the SDA plot: open the view called MIRF_Phase_RR_SW.xml, select a transfer (or transfers) from case 7 (Transfer Pbars from Accum to MI for RR).
The resulting plot looks like the figure below:



NOTE: The above figure shows a pure energy error. There may be a phase error as well. The phase error is the value of I:VDQ28 – baseline when beam arrives. A phase error is corrected by adjusting A:R4MIPS.

2. Estimate the phase excursion.

The phase excursion is how far the phase detector swings from the baseline on the first oscillation. In the figure above the phase swing is about -76° .

3. Estimate the change to A:RLLEXF required.

The change required is approximately -1 Hz per +15° of phase swing. Therefore, the correction required above is:

$$\Delta A:RLLEXF = \frac{-1 \text{ Hz}}{15^\circ} \cdot (-76^\circ) = 5 \text{ Hz}$$

4. Before the markers on the longitudinal display have been frozen, change A:RLLEXF by the amount calculated in step 3.

5. Change the MIRF capture frequency:

- Open I6
- Load state 20
- Change the DATUM1 number in row 0 by $84 \times$ the number calculated in step 3. The number to change is circled in the figure below. After the change has been made, interrupt on *Send to Hardware.

ROW	TYPE	SIGNAL	MESSAGE	DATUM1	DATUM2	DATUM3	DATUM4
0	Event	AnyReset	EnergyStepToFset	52817084			
1	Continue		V588 Feedback	ON	10	10	
2	Delay	0.0299910009	AlignXFR28toMIaa	no check			
3	Continue		XfrSyncAccToMI	0	-170	use devices	0
4	Continue		SetRposGain	10 db			
5	Continue		QscpUpdate	1000			
6	Continue		QscpSet	5	.004		
7	Delay	0.2000000030	EnergyArmSnapToFset	52811400	211.149994		
8	Continue						
9	Delay	0.4000000060	AlignH28RF2	17.900011			
10	Continue		V28sbcSet	0	2.7	.1	
11	Continue		RfHSelect	h28 control			
12	Continue		V588Set	All Off	0	1	Enable
13	Delay	1.5599999428	QdotfbOn			0	150GeV LPF
14	Delay	1.7000000477	V28sbcPlay	0	20	.5	10
15	Delay	2.7000000477	EnergyRampToFset	1	.6		
16	Delay	3.2999999523	XfrCogToRecycler	.3	0	-90	
17	Delay	4.2500000000	V28sbcPlay	0	2.7	.3	10
18	Delay	4.6999502182	V588Apg(t)Curve	All On		1	Enable
19	Event	EndCycle					
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							

Messages

```

SEQUENCE : Receiving User Locks
SEQUENCE : Requesting User Locks
LLRF: initialized on CNS->231
PGM: Signal help disabled
PGM: Message help disabled
PGM: Bubble help enabled
    
```

6. When the shot is done, update the value for A:RLLEXF in file 13 of the Pbar Annex sequencer. If A:R4MIPS was changed, that should be updated in the same file.