

Controlling of ACC1 by SIMCON 3.1

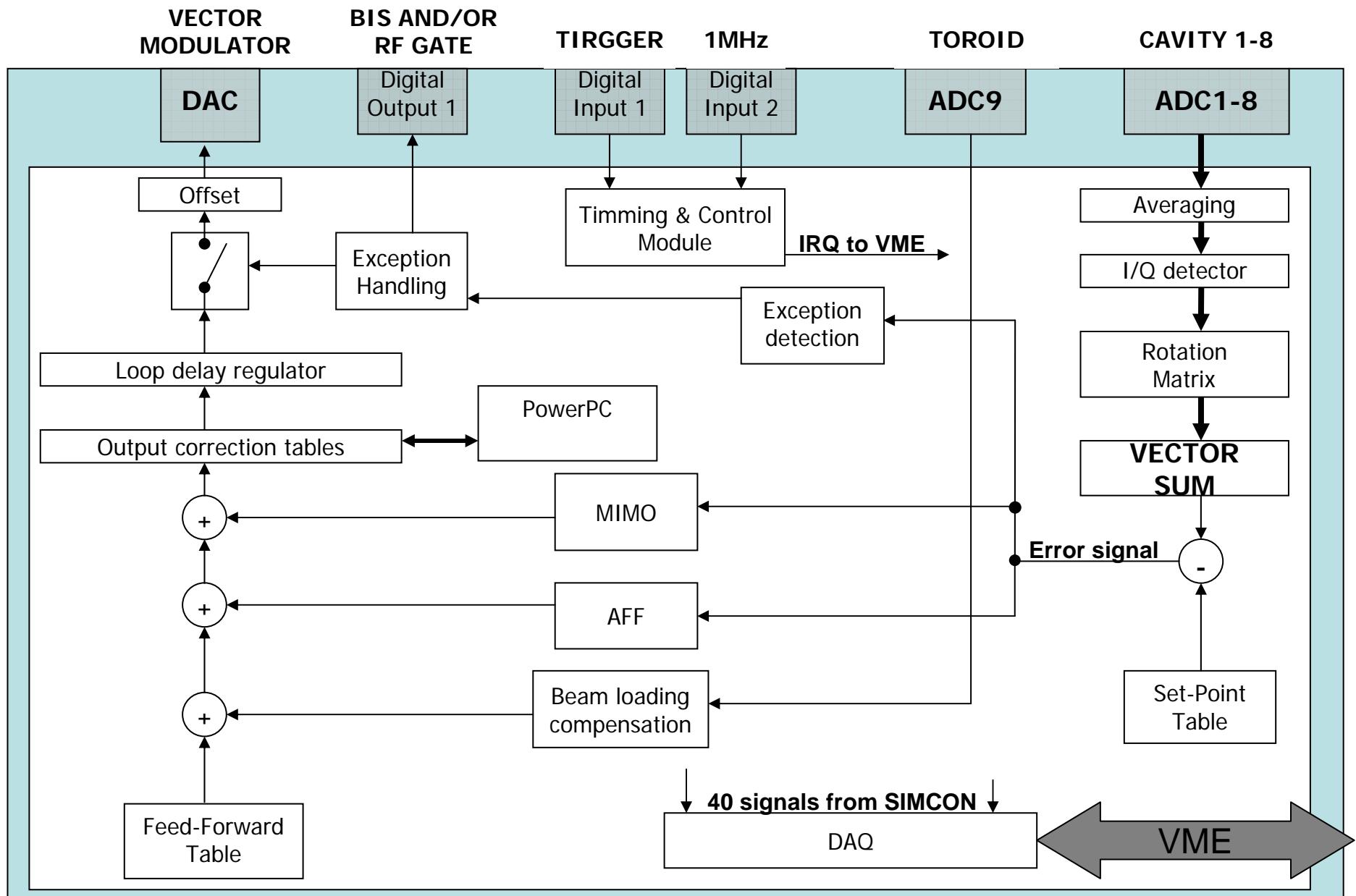
Wojciech Jalmuzna, Przemyslaw Fafara

Warsaw University of Technology Poland

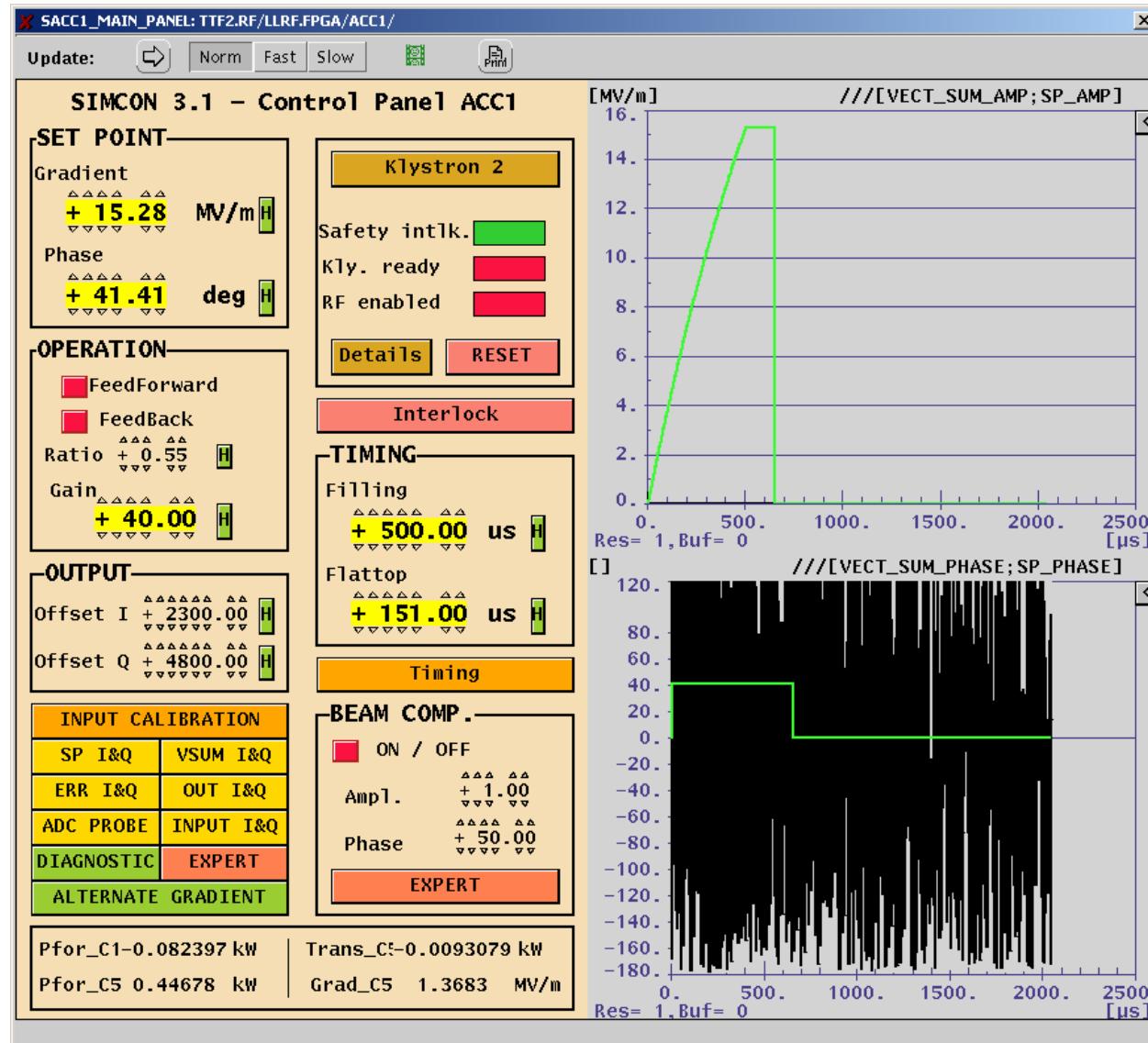
Waldemar Koprek, Piotr Pucyk

DESY

SIMCON 3.1 BOARD – FIRMWARE



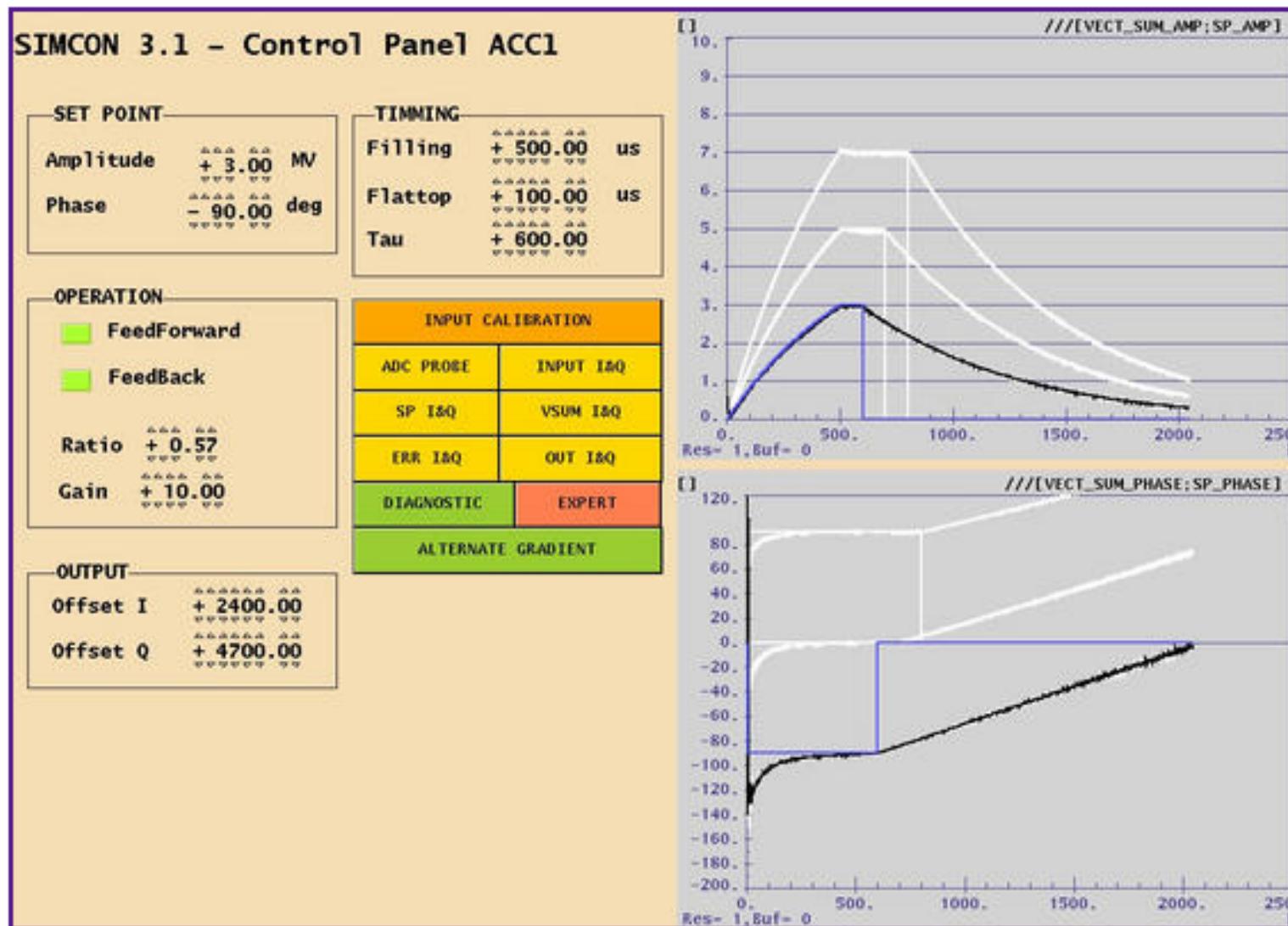
Control panel for SIMCON 3.1@ ACC1



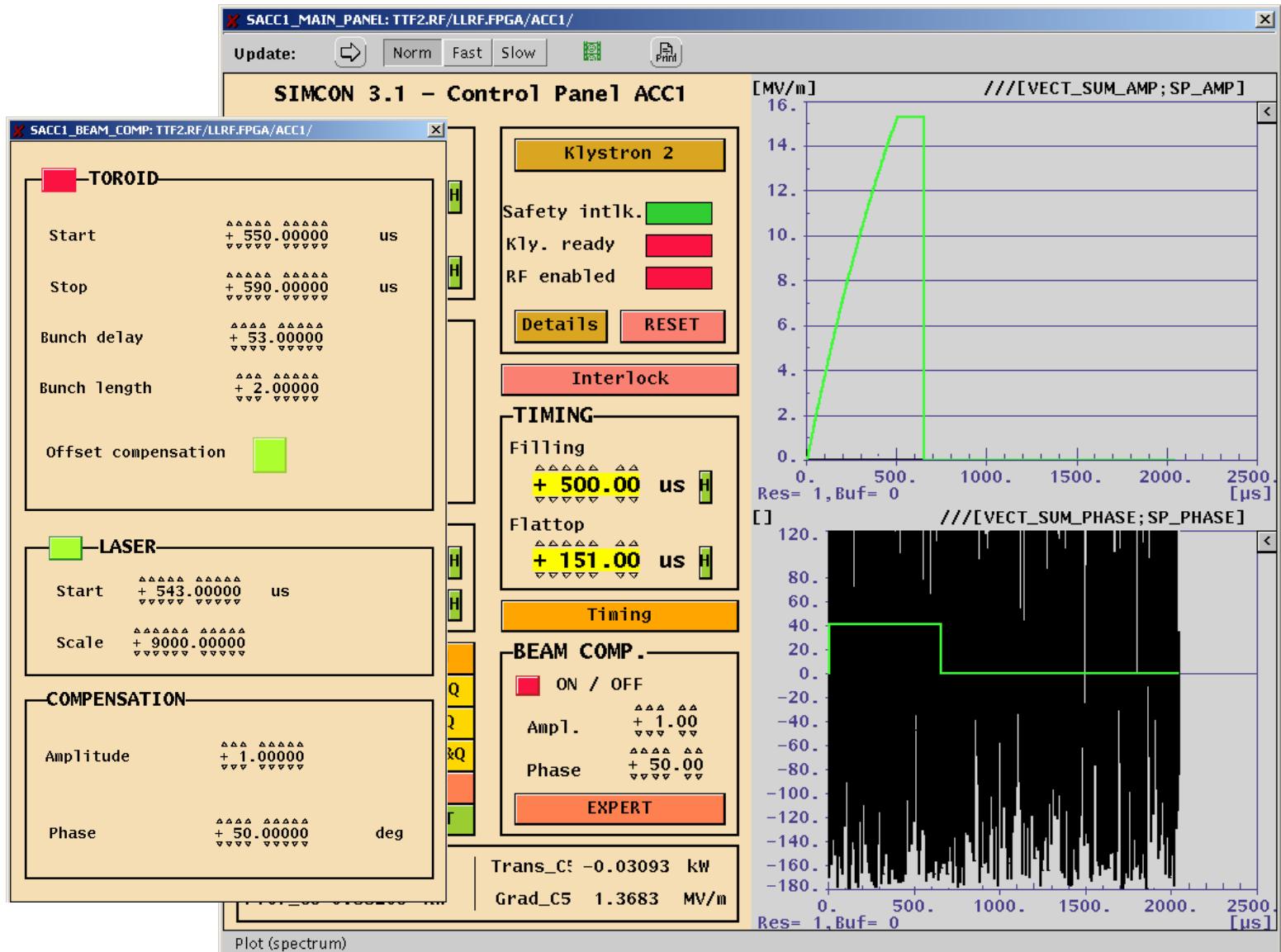
Alternating gradient (1)

Control Tables		
FEEDFORWARD SCHEMA 1		
Filling	+ 500.00	▲▲▲▲ ▲▲
Flattop	+ 151.00	▼▼▼▼ ▼▼
RATIO	+ 0.55	▲▲▲▲ ▲▲
SPTAU	+ 830.00	▼▼▼▼ ▼▼
Amplitude	+ 15.24	▲▲▲▲ ▲▲
Phase	+ 43.36	▼▼▼▼ ▼▼
Gain	+ 40.00	▲▲▲▲ ▲▲
FeedForward	■	FeedForward
FeedBack	■	FeedBack
FEEDFORWARD SCHEMA 2		
Filling	+ 0.00	▲▲▲▲ ▲▲
Flattop	+ 0.00	×××× ××
RATIO	+ 0.00	▼▼▼▼ ▼▼
SPTAU	+ 0.00	▲▲▲▲ ▲▲
Amplitude	+ 0.00	▲▲▲▲ ▲▲
Phase	+ 0.00	▼▼▼▼ ▼▼
Gain	+ 0.00	▼▼▼▼ ▼▼
FeedForward	■	FeedForward
FeedBack	■	FeedBack
FEEDFORWARD SCHEMA 3		
Filling	+ 0.00	▲▲▲▲ ▲▲
Flattop	+ 0.00	▼▼▼▼ ▼▼
RATIO	+ 0.00	▲▲▲▲ ▲▲
SPTAU	+ 0.00	▼▼▼▼ ▼▼
Amplitude	+ 0.00	▲▲▲▲ ▲▲
Phase	+ 0.00	▼▼▼▼ ▼▼
Gain	+ 0.00	▼▼▼▼ ▼▼
FeedForward	■	FeedForward
FeedBack	■	FeedBack

Alternating gradient (2)

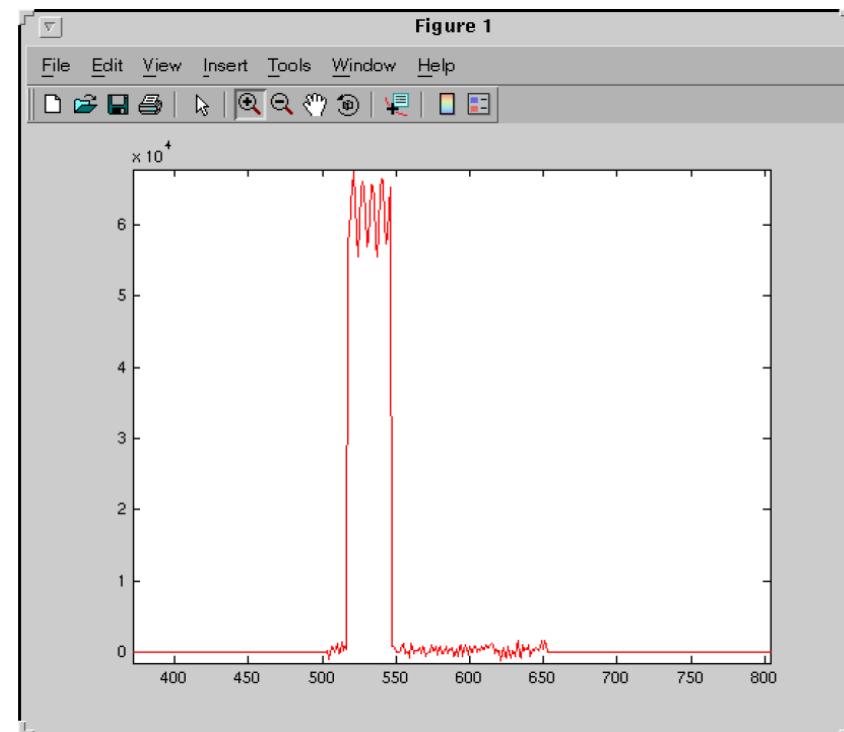
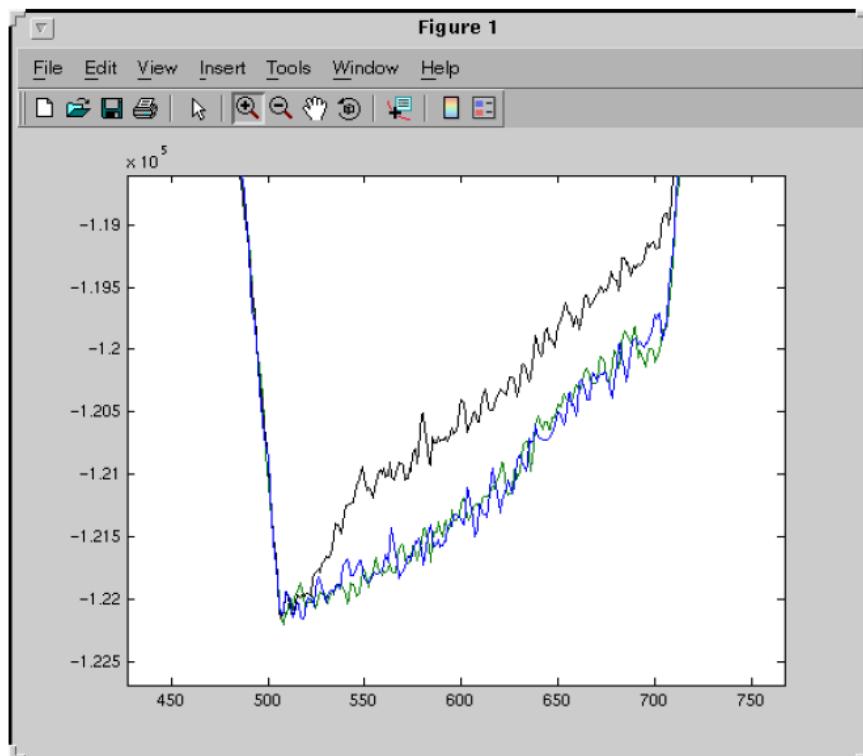


Beam load compensation (1)

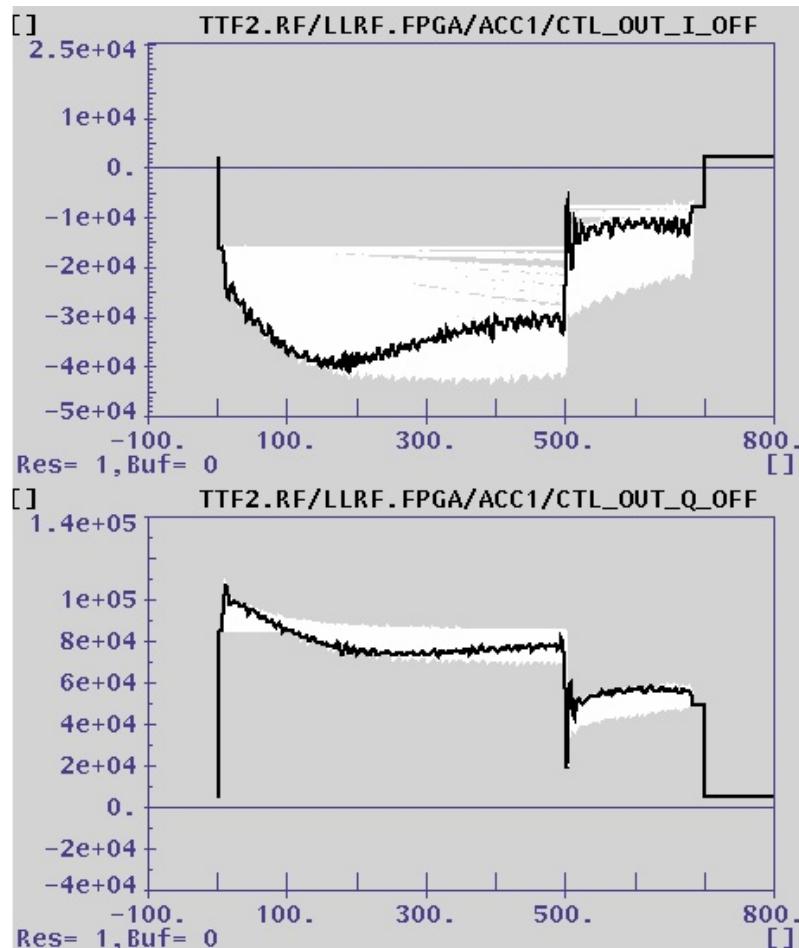


Beam loading compensation (2)

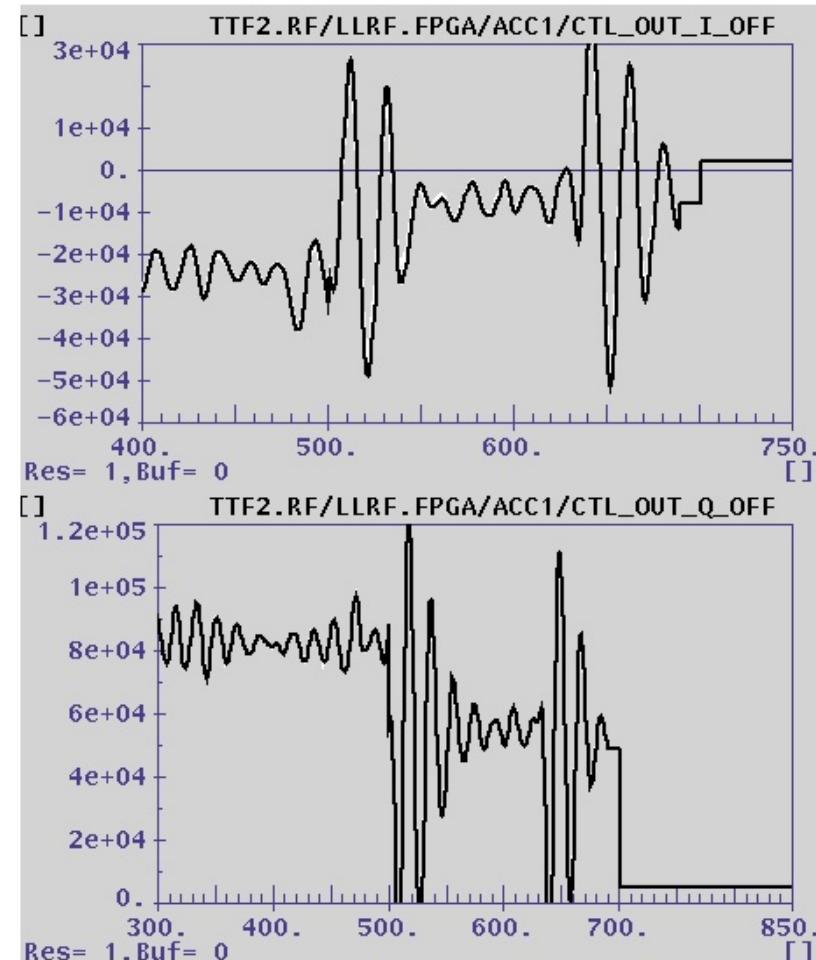
green – without beam
black – 30 bunches
blue – 30 bunches and
beam load compensation



Adaptive Feed Forward

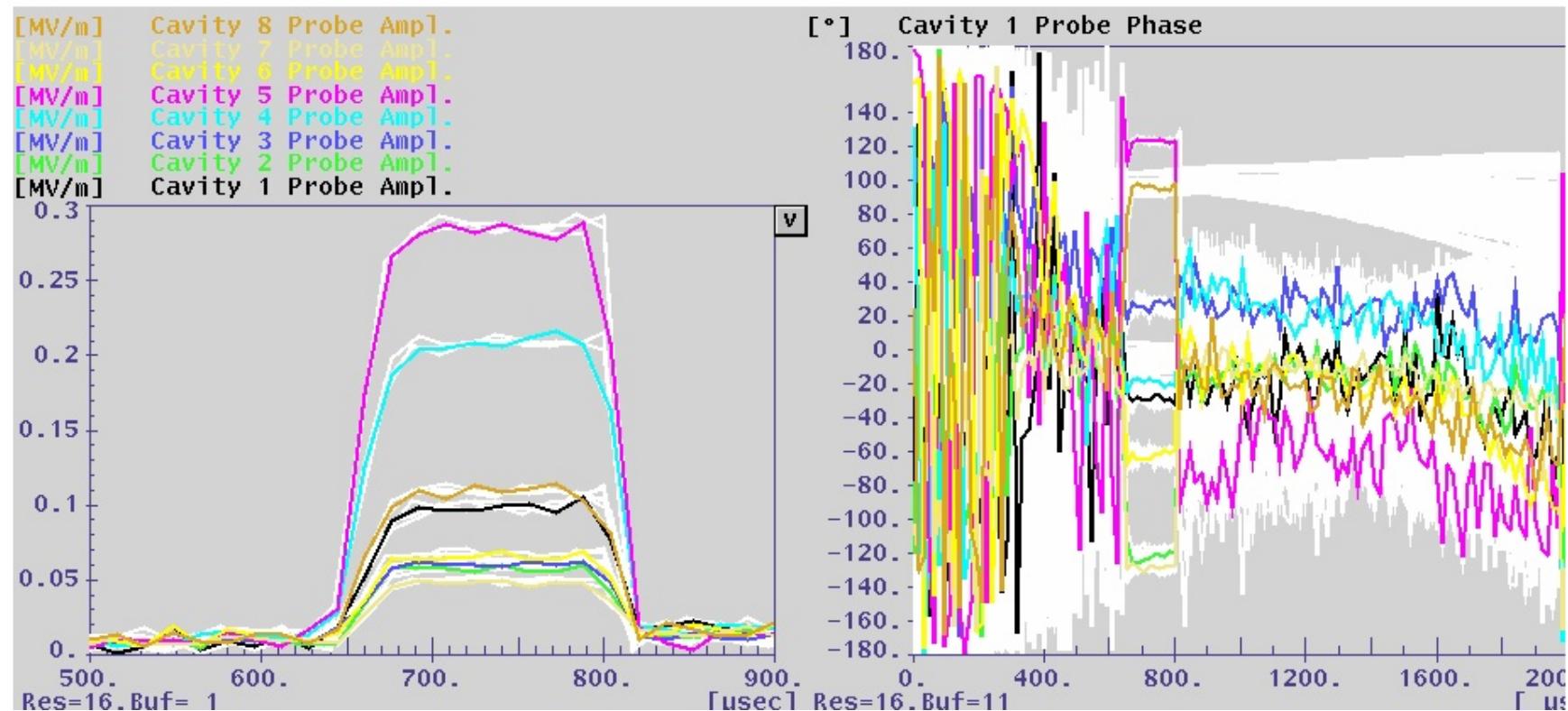


FF tables after 100 iterations

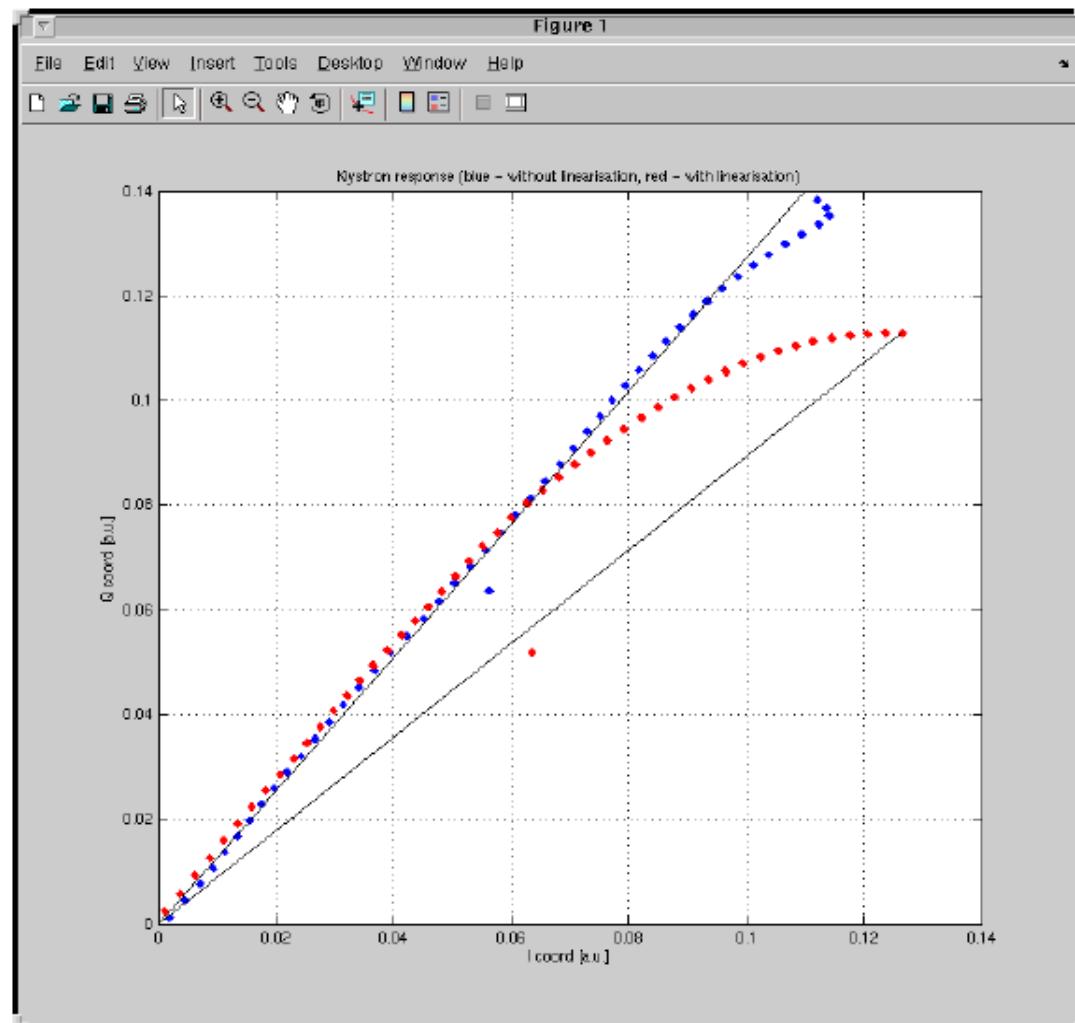


Part of FF tables after 300 iterations

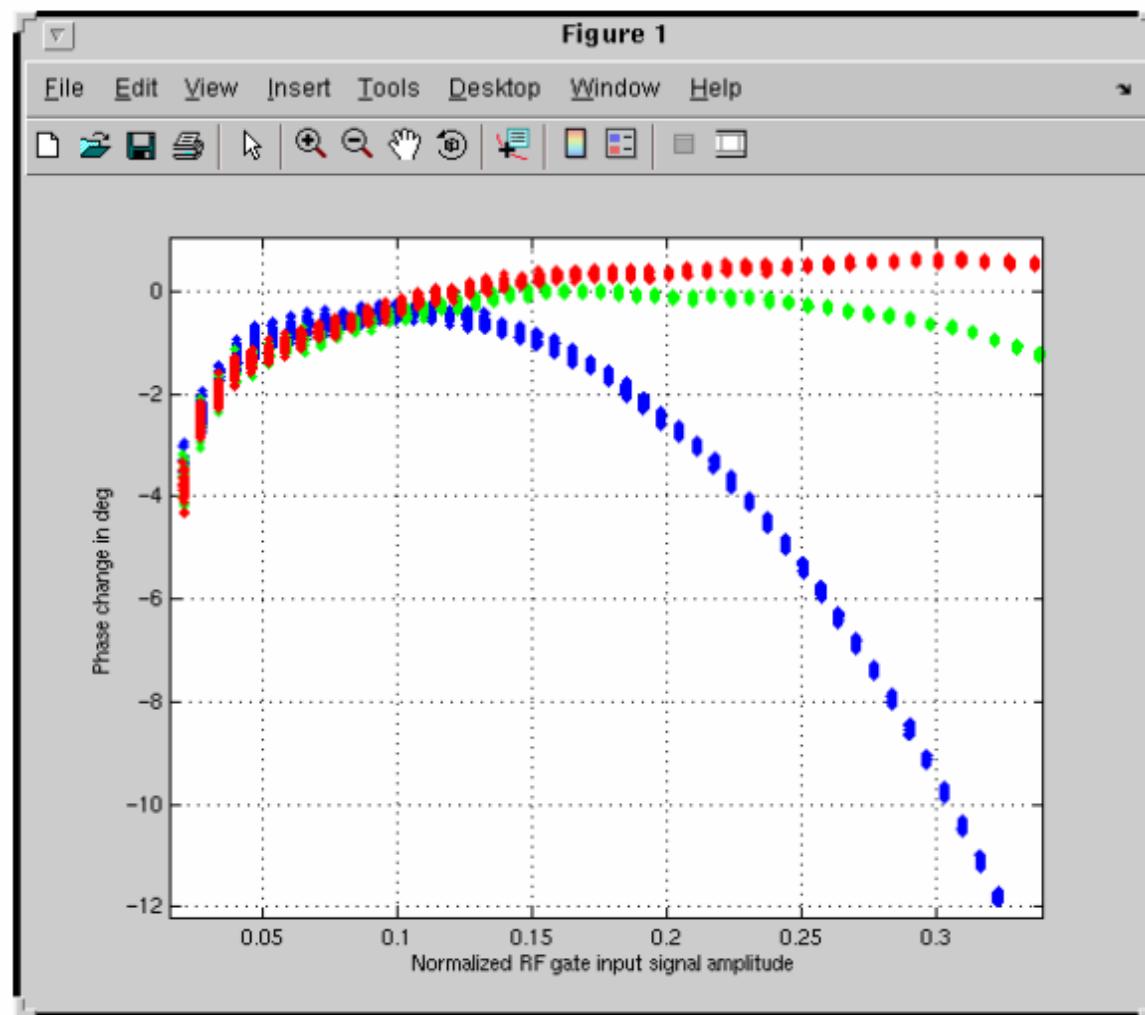
Problems with crosstalks from RF-Gun



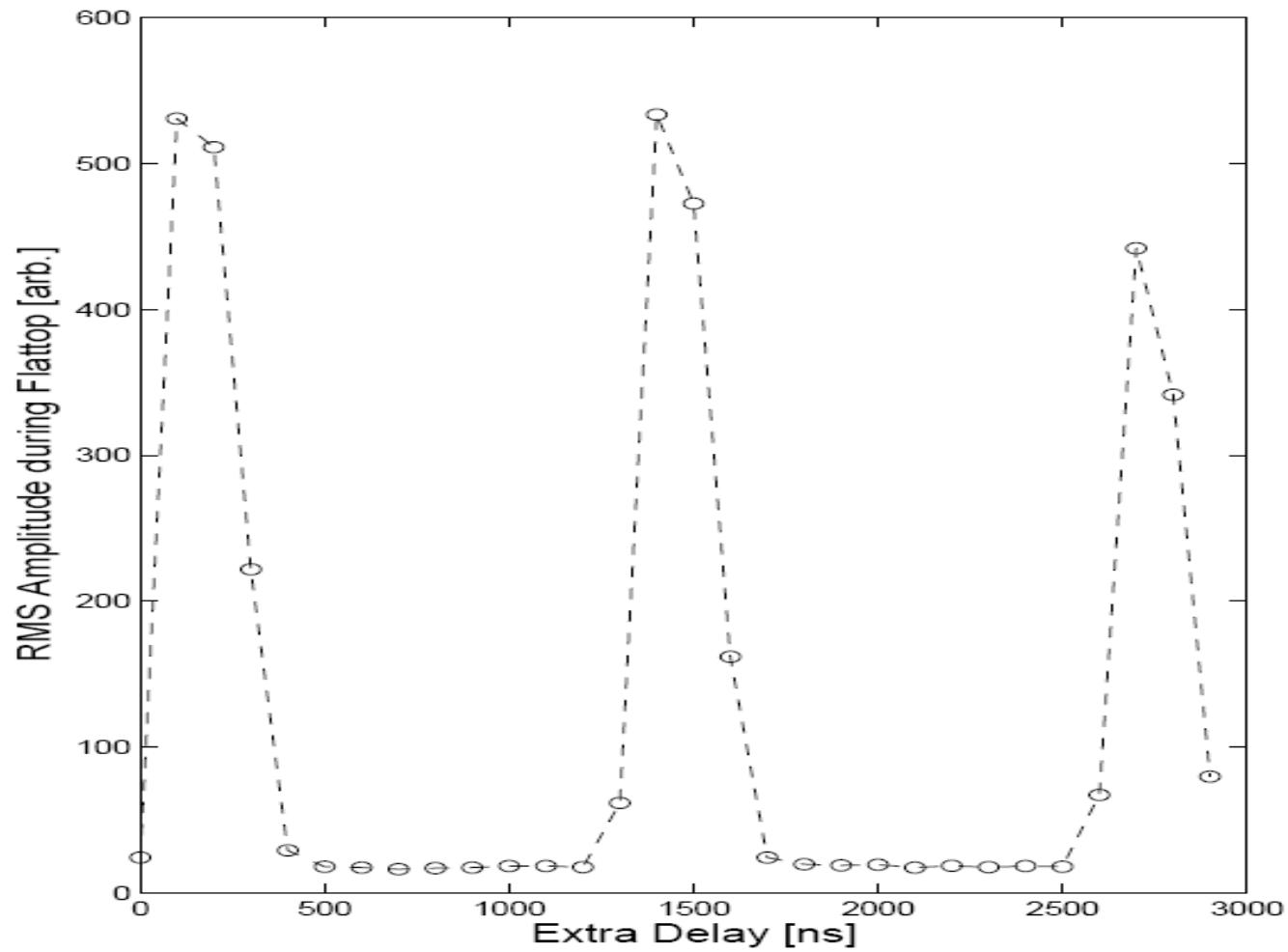
Klystron linearization (1)



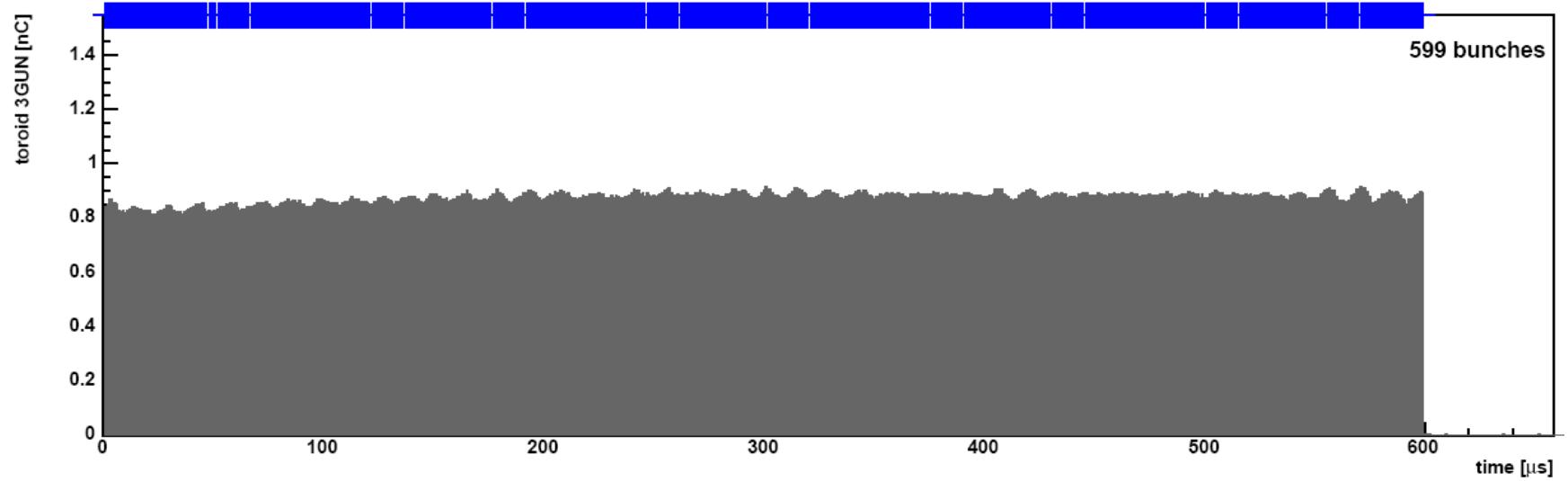
Klystron linearization (2)



Loop delay regulation



600 bunches through ACC1



Plans for LLRF studies in December 2006 and January 2007

- Test of exception handling
- Measurement of beam energy stability in BC2
- AFF in PowerPC
- Generation of output correction tables in PowerPC
- Test of higher IF (9MHz)