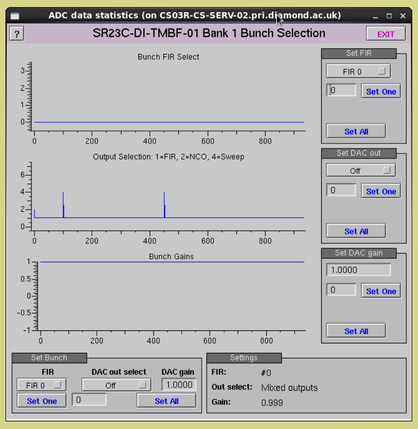
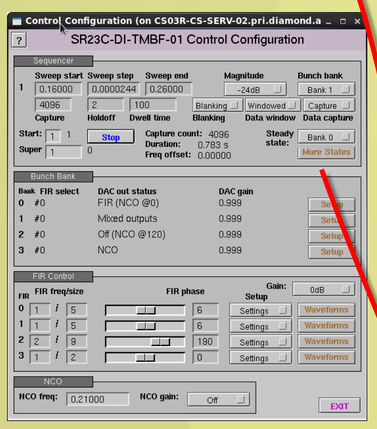
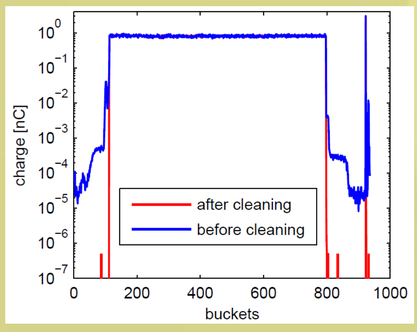
NEW FEATURES AND MEASUREMENTS USING THE UPGRADED TRANSVERSE MULTIBUNCH FEEDBACK AT DIAMOND

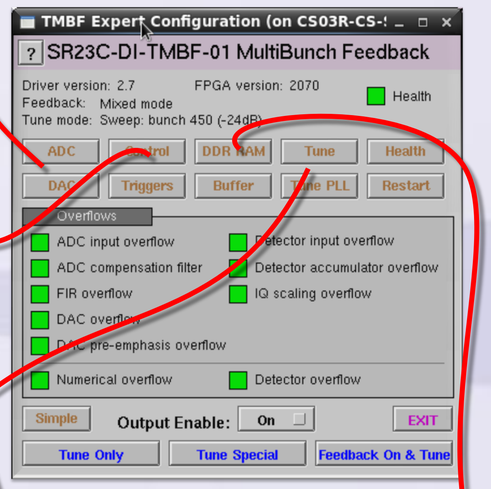
G. Rehm, M. Abbott, A.F.D. Morgan, Diamond Light Source, Oxfordshire, U.K.

Bunch by Bunch Function/Gain/FIR control and Sequencer for Excitation



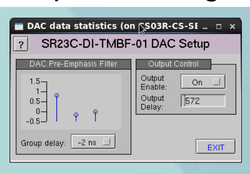


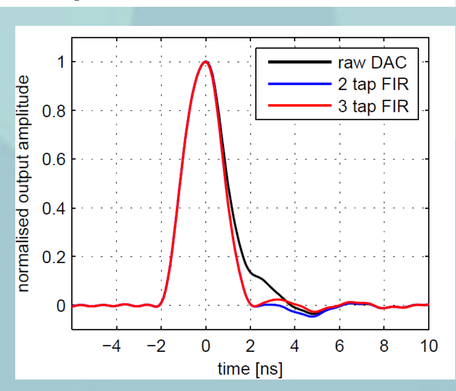




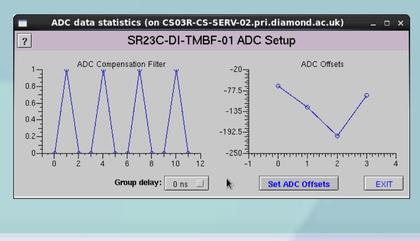
Frequency/Impulse Response Correction

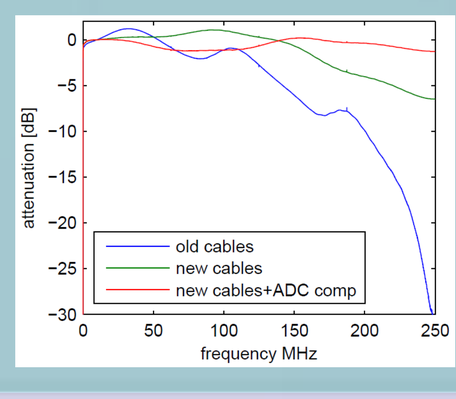
DAC pre-emphasis to adjust impulse response using scope





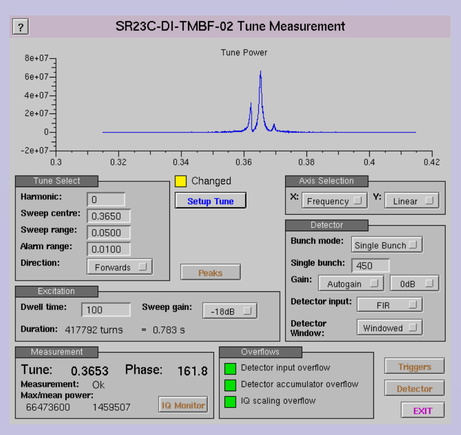
ADC post-emphasis to round trip frequency response



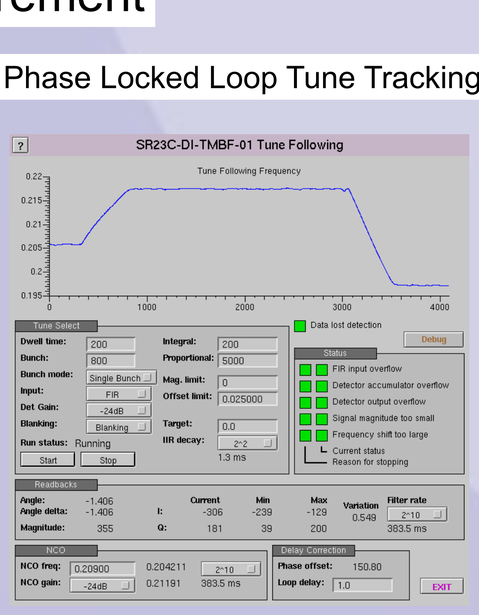


Tune Measurement

Swept excitation and I/Q detection

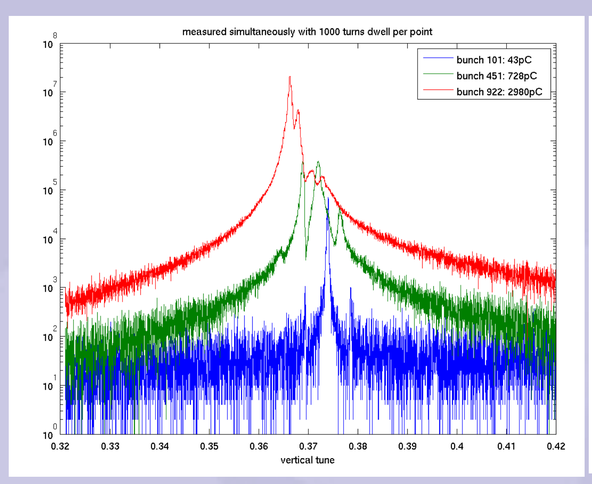


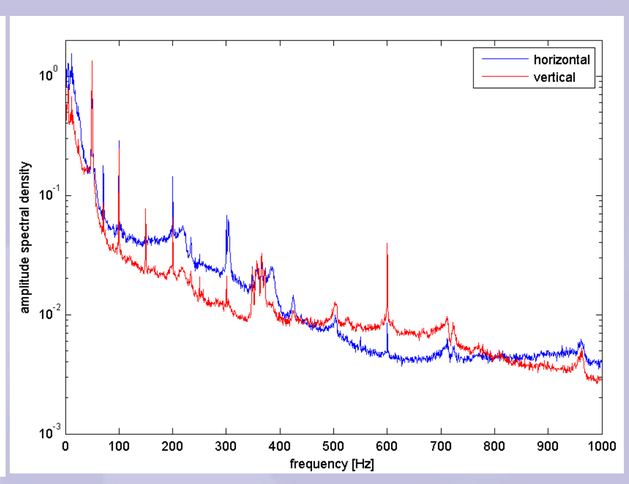
Phase Locked Loop Tune Tracking



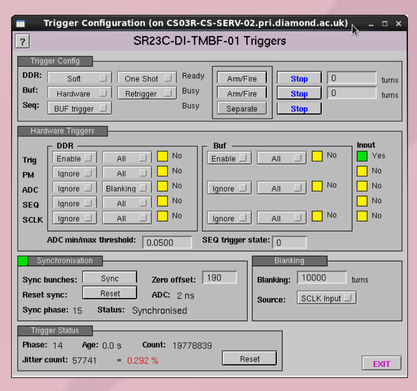
One sweep per second with 4096 points of 100 turns dwell

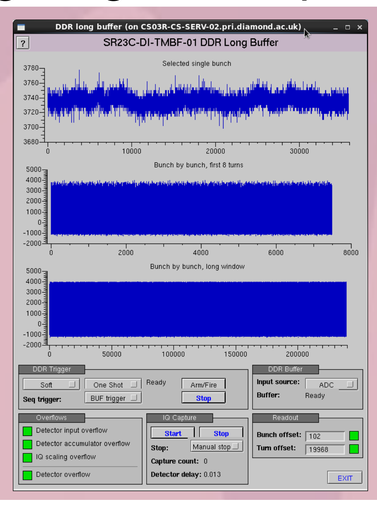
One tune reading every 100 turns or 187us

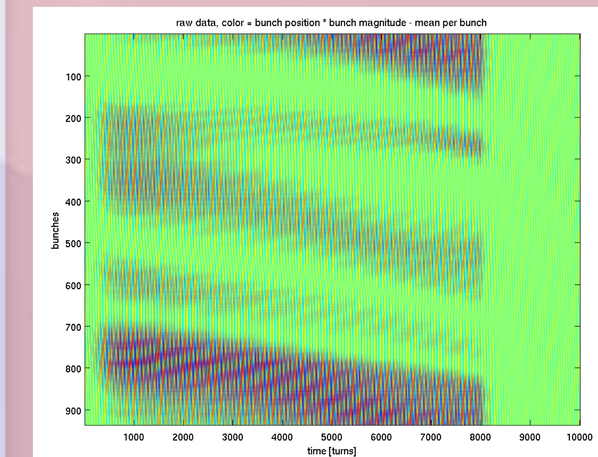


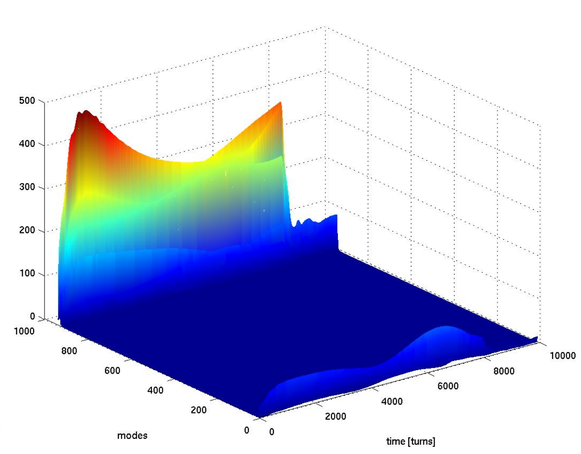


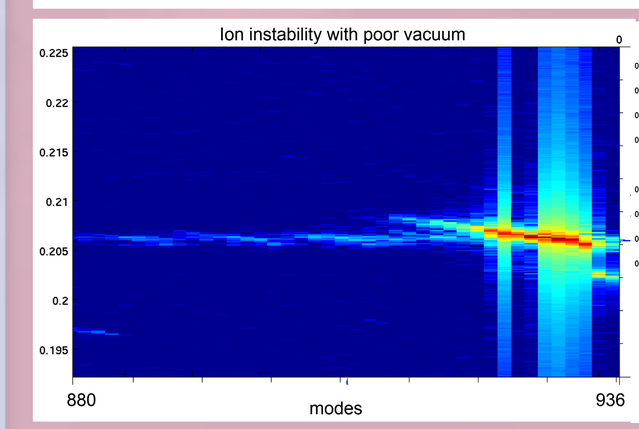
Bunch-by-Bunch Data Triggering and Capture

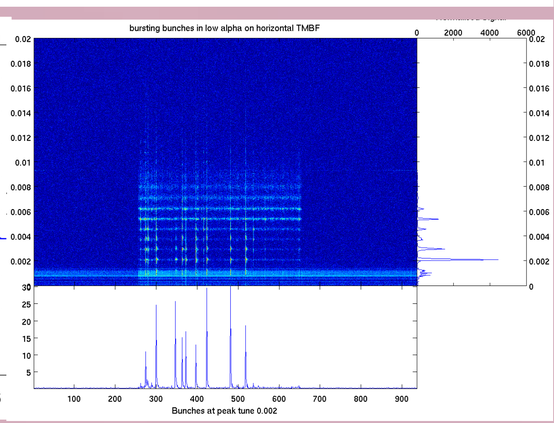




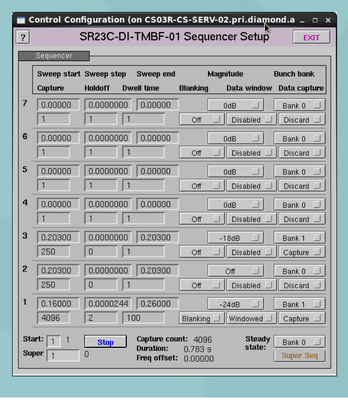




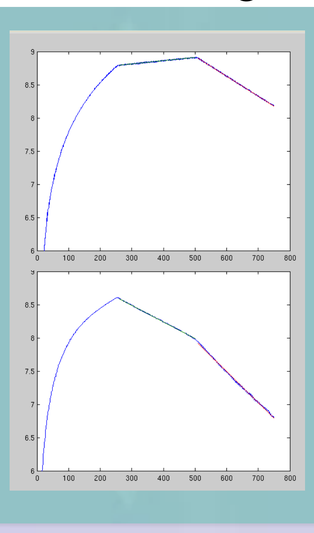


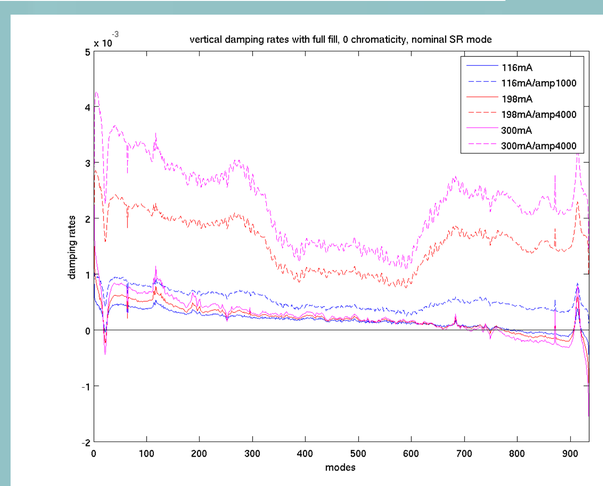


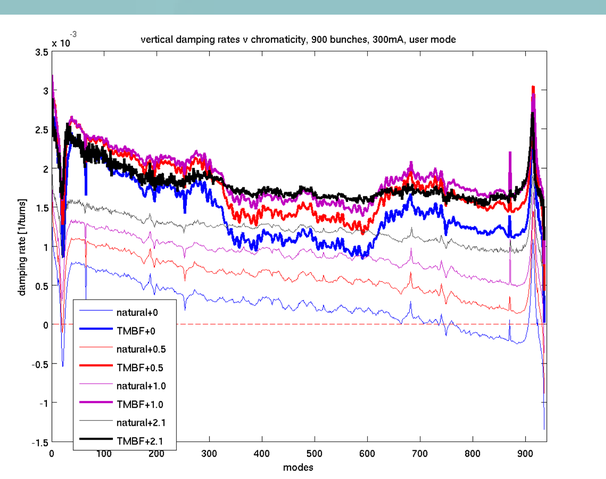
Fast Scanning of Transverse Mode Damping



Drive one mode for 250 turns
Then record 250 turns natural damping/growth
Then record 250 turns active damping







diamond