

Bunch-by-bunch Feedback Studies at MLS

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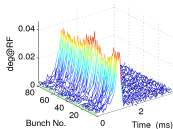
²Dimtel, Inc., San Jose, CA, USA

June 11, 2010

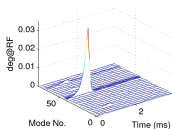


Longitudinal Grow/Damp Measurement

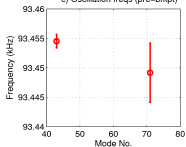
a) Osc. Envelopes in Time Domain



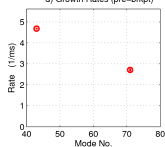
b) Evolution of Modes



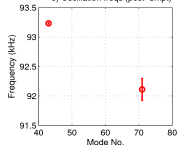
c) Oscillation freqs (pre-brkpt)



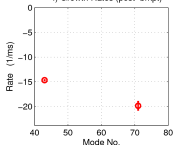
d) Growth Rates (pre-brkpt)



e) Oscillation freqs (post-brkpt)



f) Growth Rates (post-brkpt)

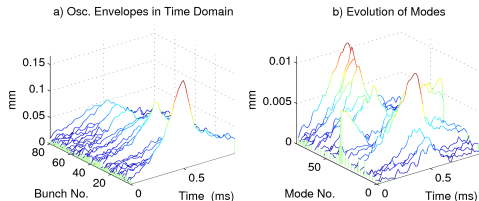


MLS:Jun1010/144614; I0= 175.7mA, Dsamp= 4, ShiftGain= 3, Nbnun= 80,
At Fs: G1= 63.5975, G2= 0, Ph1= -62.4714, Ph2= 0, Brkpt= 1900, Calib= 34.252.

- Grow/damp measurement at 175.7 mA;
- Fastest modes: 43, 71;
- Growth time of 214 μs , damping time of 68 μs .



Transverse Drive/Damp Measurement

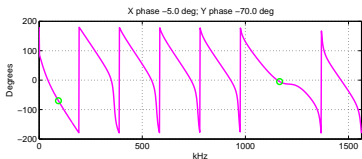
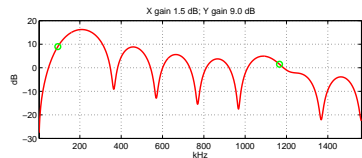
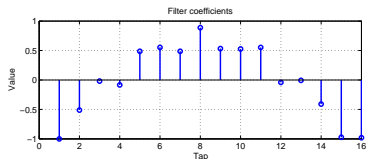


MLS: jun1010/162456: Io= 90mA, Dsamp= 1, ShifGain= 5, Nibun= 80,
At Fs: G1= 43.2375, G2= 43.2375, Ph1= -33.4343, Ph2= 146.5657, Brkpt= 3160, Calib= 10.

- Improved horizontal feedback setup;
- Positive/negative feedback transient 90 mA;
- Many modes growing.



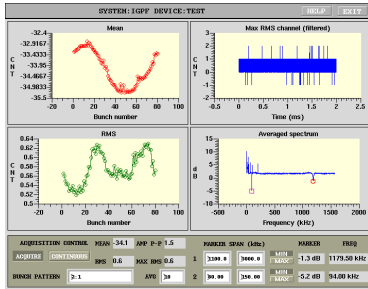
Simultaneous Control of Longitudinal and Horizontal Instabilities



- Set up Δx detection for the front end;
- Downconversion is off the peak, both amplitude and phase detection components;
- Two output chains;
- Dual-band filter;
- Both planes controlled, 135 mA at 629 MeV



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