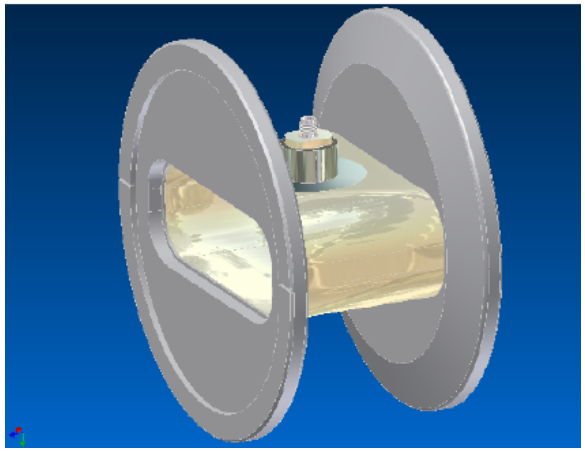
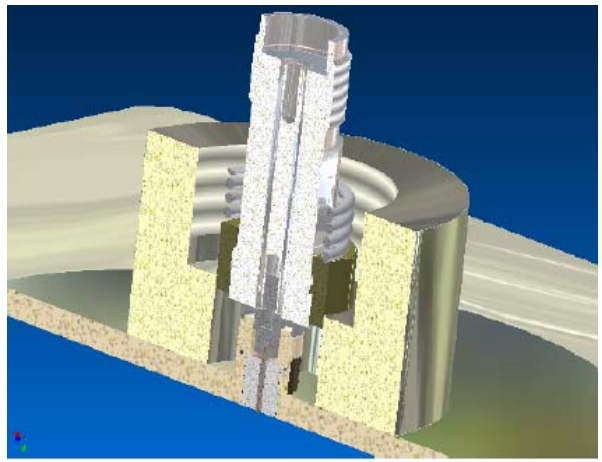
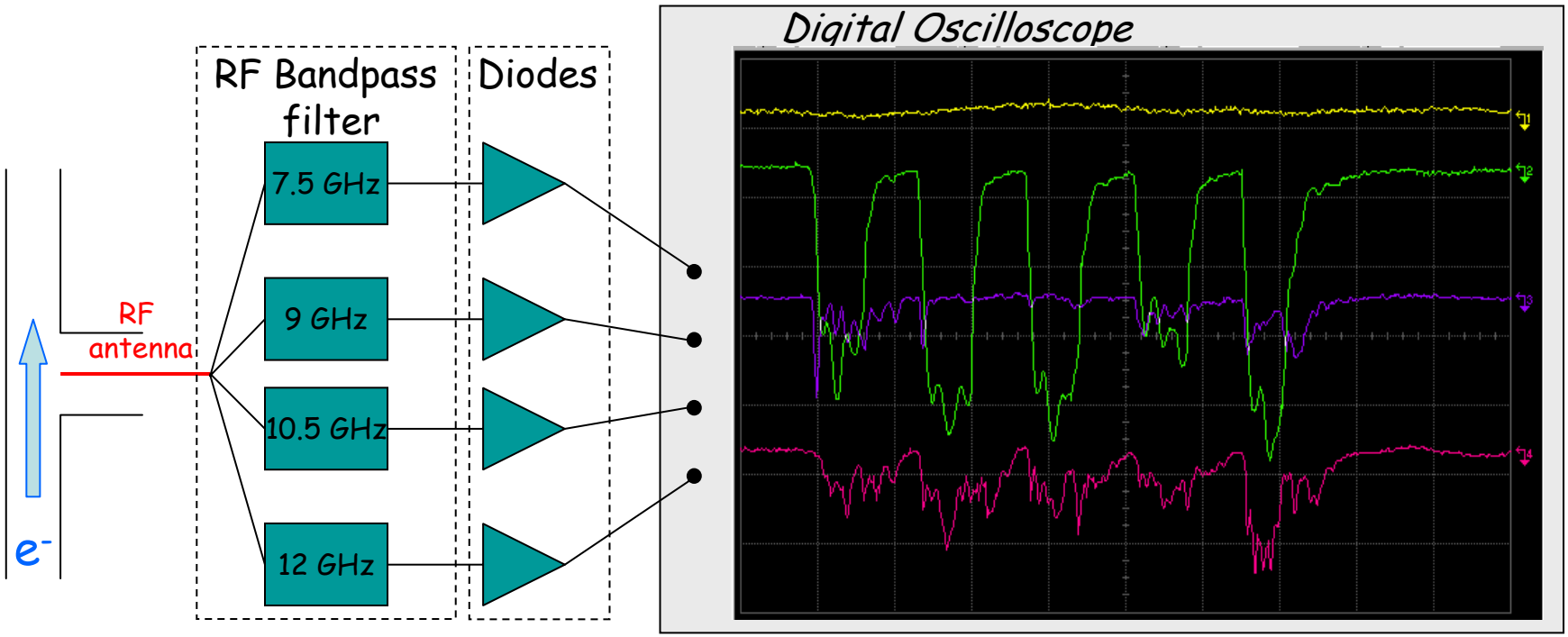
Phase Monitor Developed by Uppsala University

'To measure phase error in the RF bunch combination'

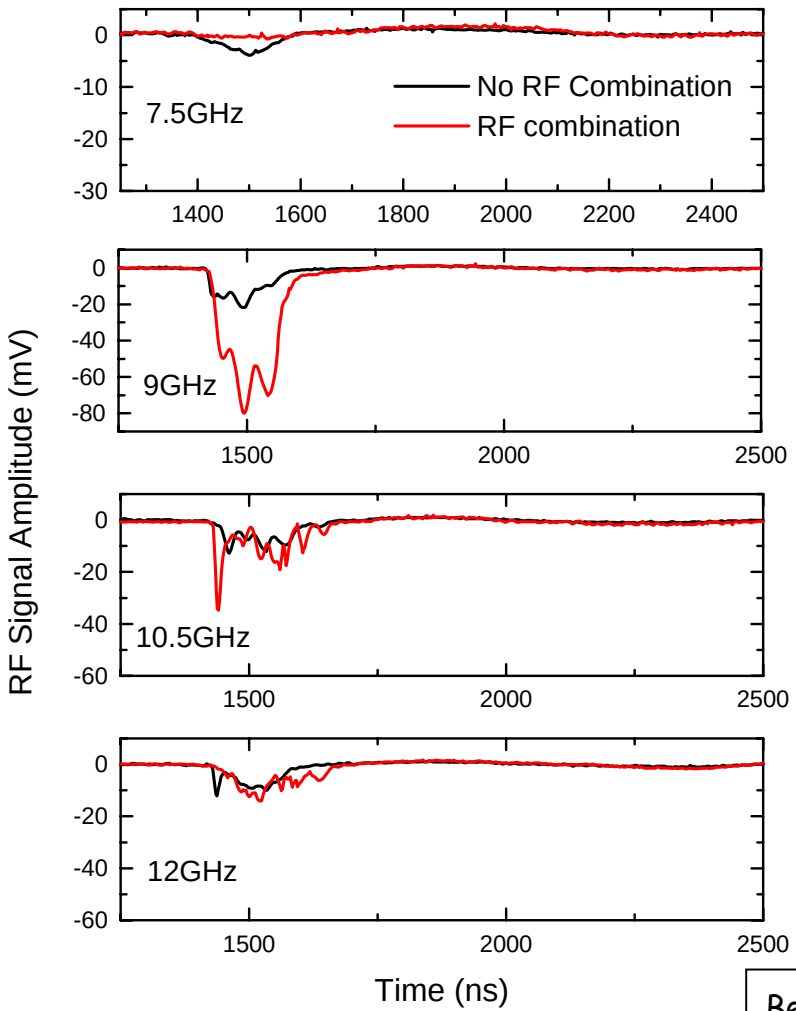




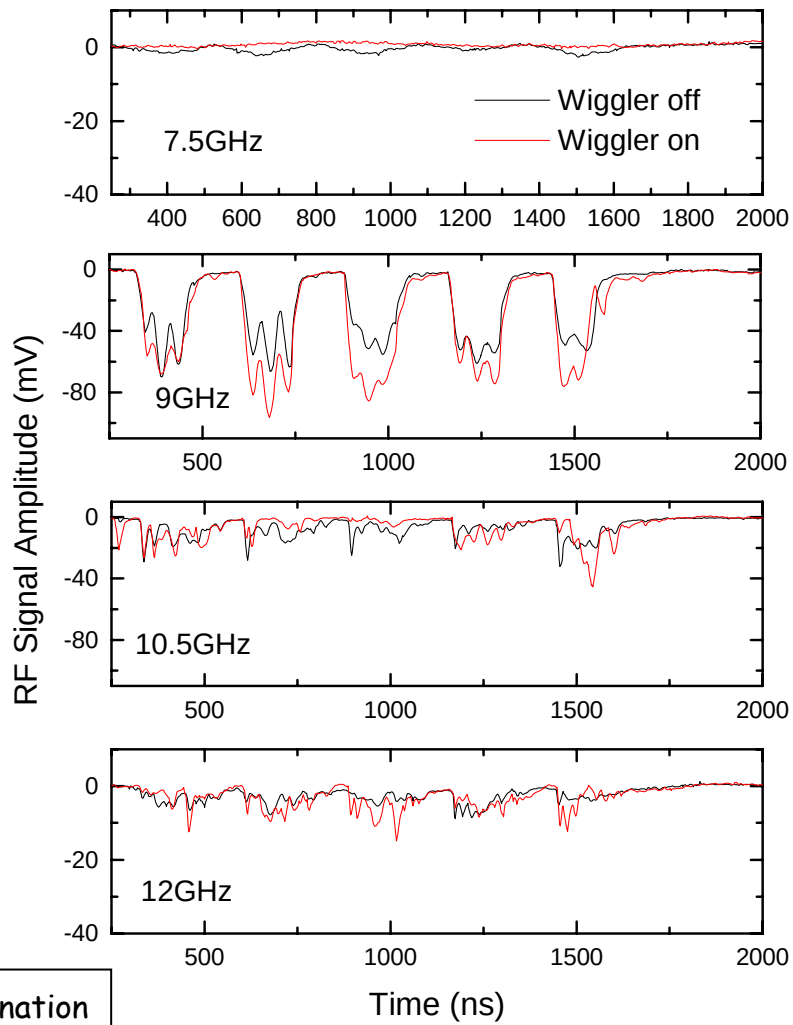


Phase Monitor Developed by Uppsala University

Pick-up signals with and without the combination (1.5 – 3 GHz)

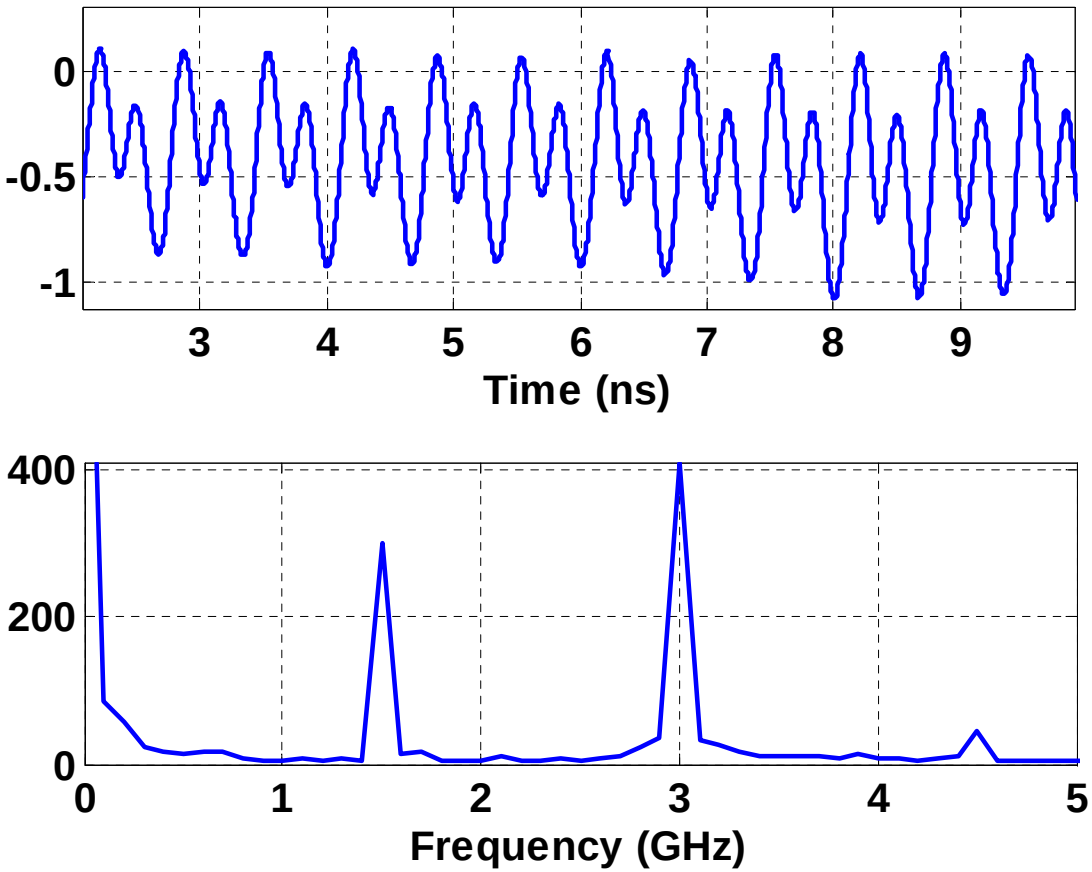


RF combination optimization with the Wiggler magnet

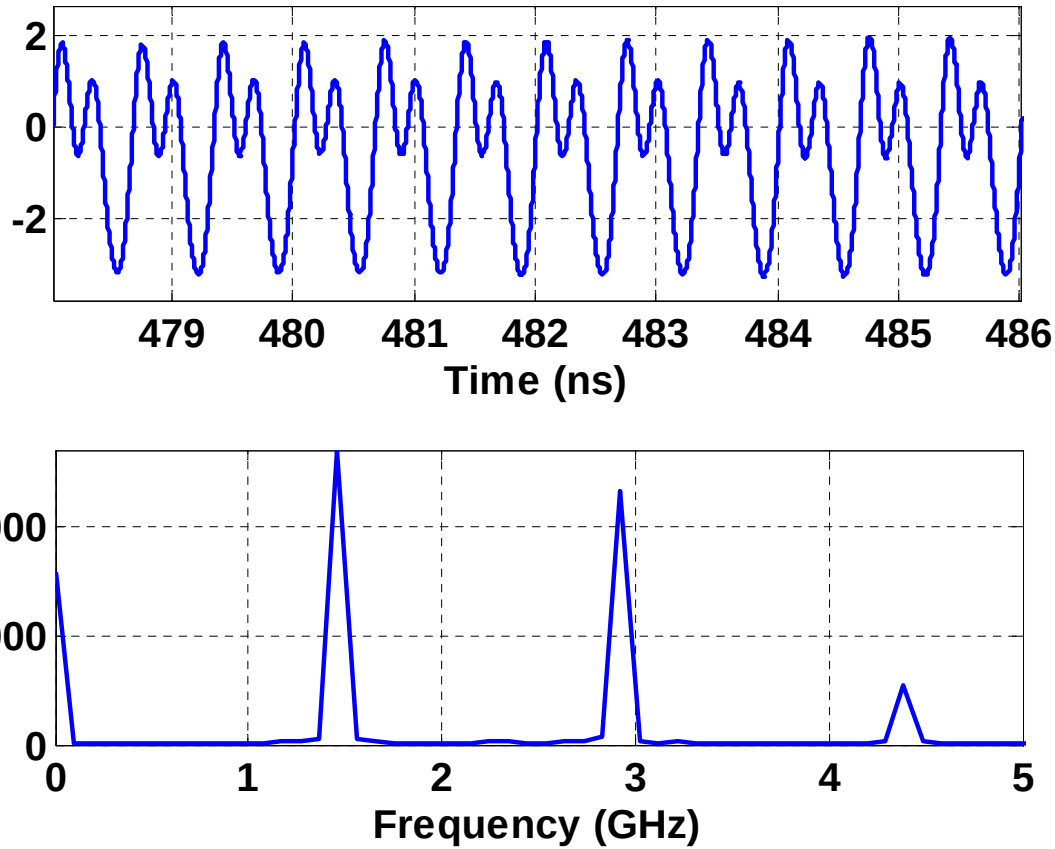


Better RF combination
- 7.5 & 10.5GHz ↘
- 9 & 12 GHz ↗

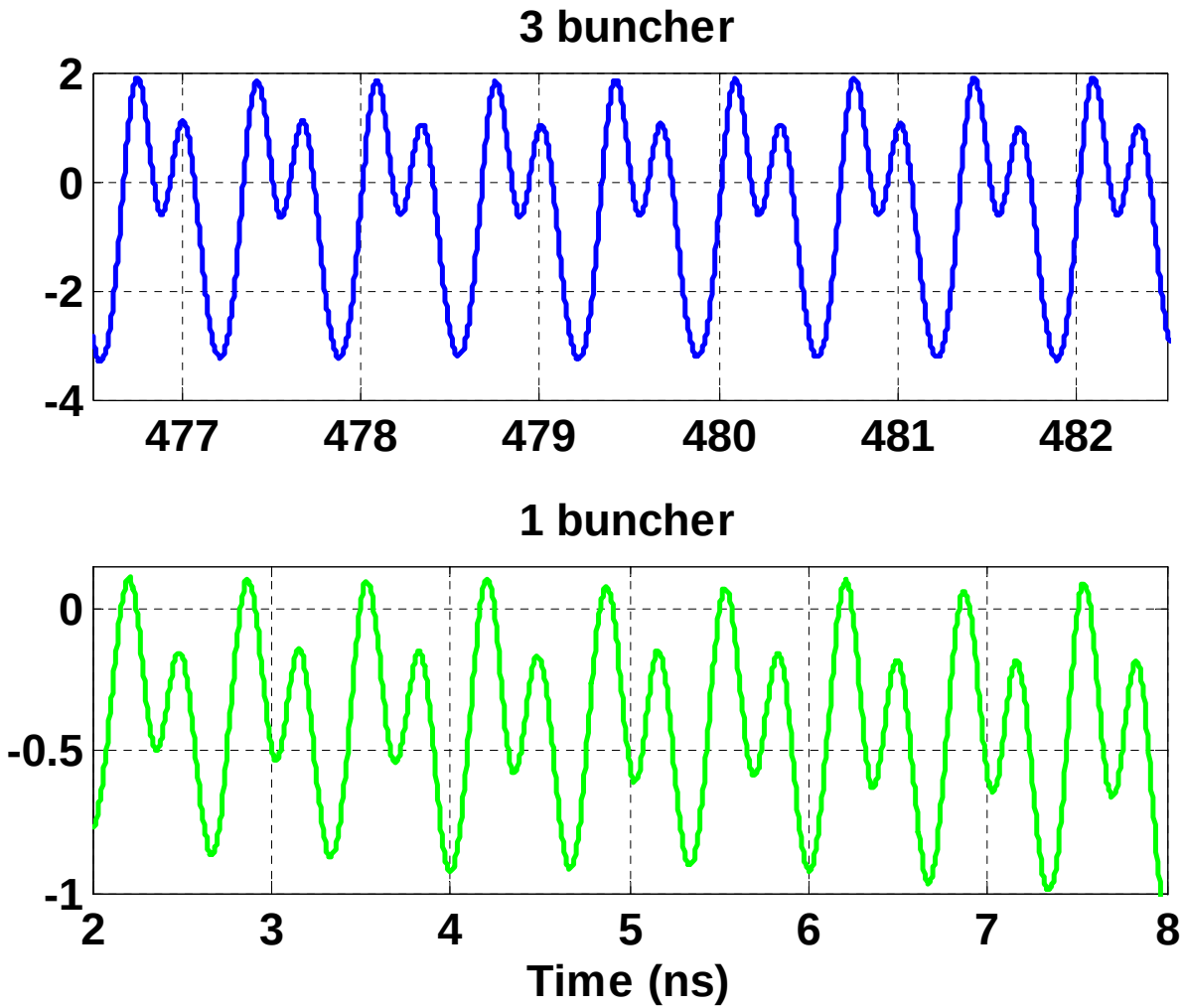
Sub-harmonic bunching with 1 buncher in CTF3



Sub-harmonic bunching with 3 buncher in CTF3

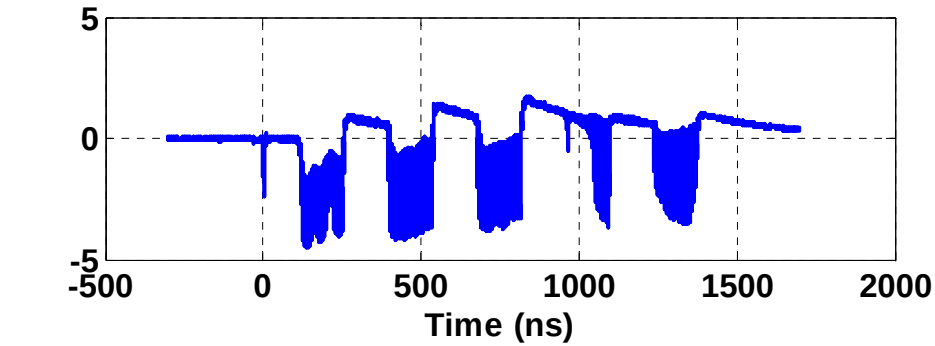


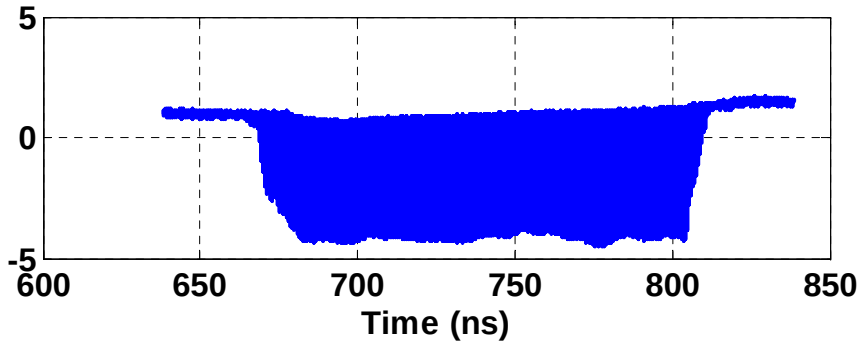
Sub-harmonic bunching with 3 buncher in CTF3

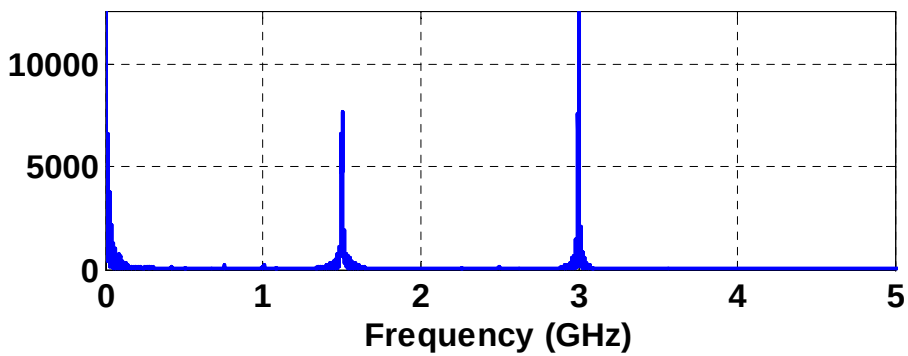


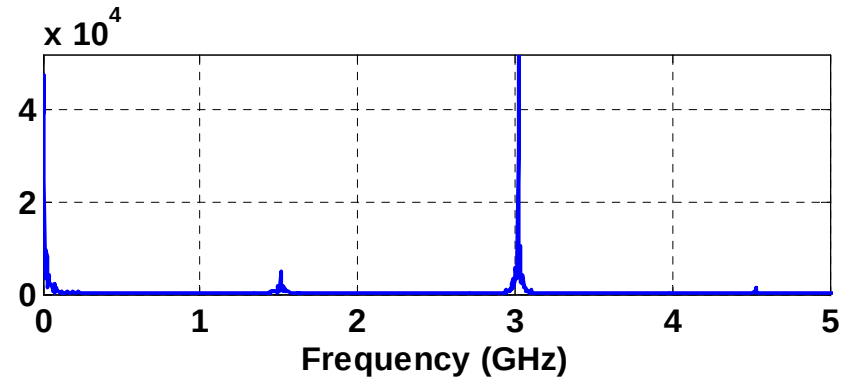
Sub-harmonic bunching with 3 buncher in CTF3

Combined beam after Delay Loop



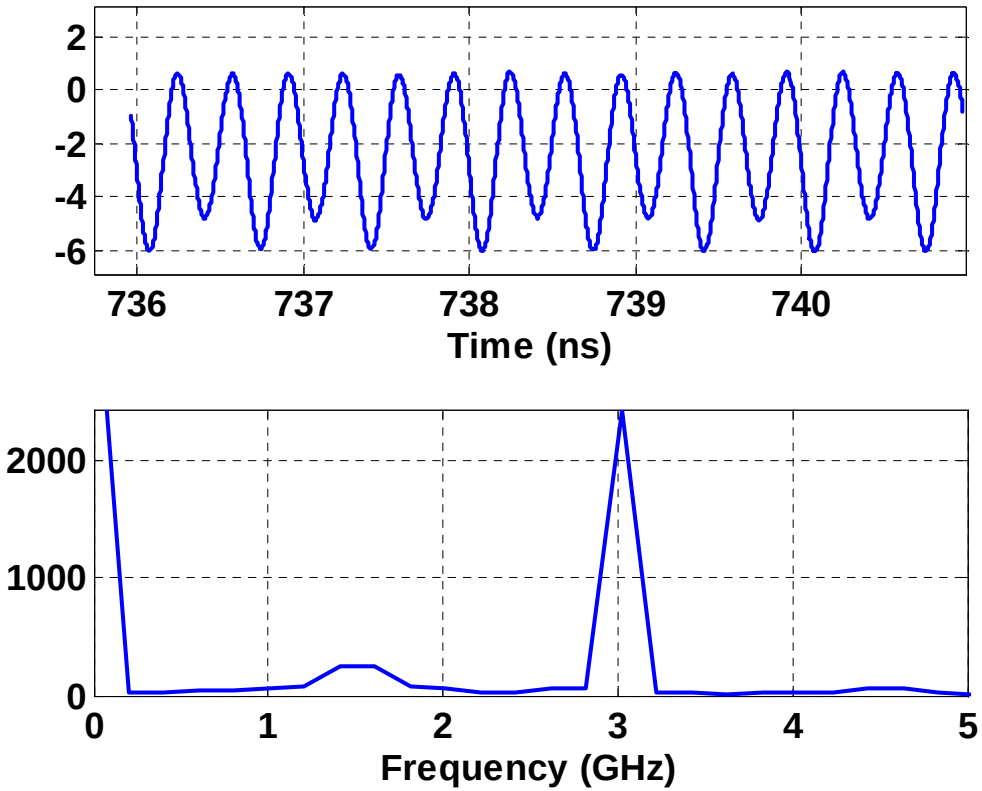






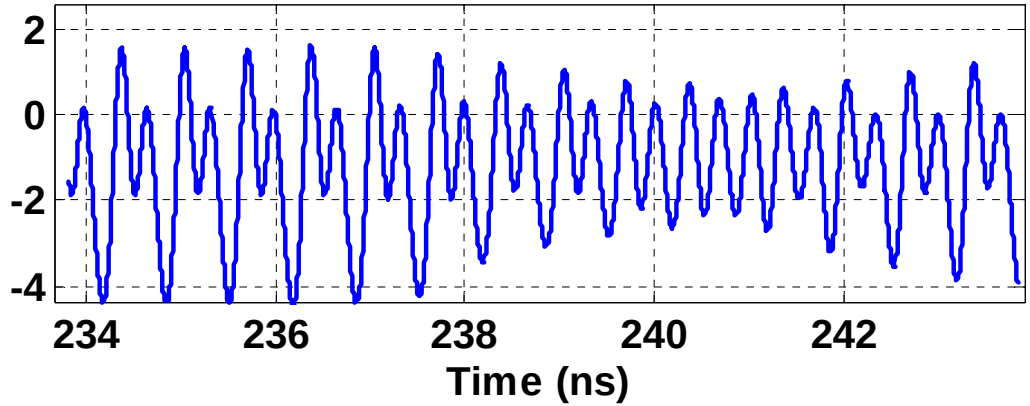
Sub-harmonic bunching with 3 buncher in CTF3

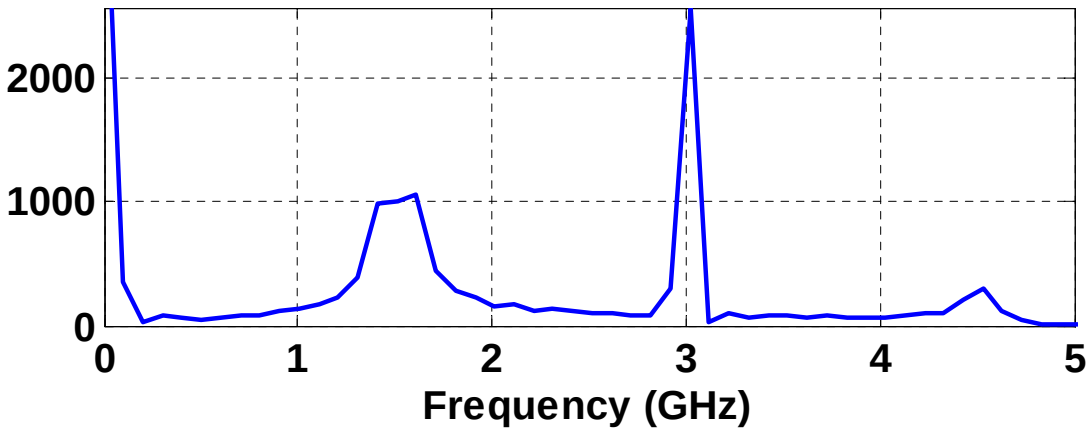
Combined beam after Delay Loop



Sub-harmonic bunching with 3 buncher in CTF3

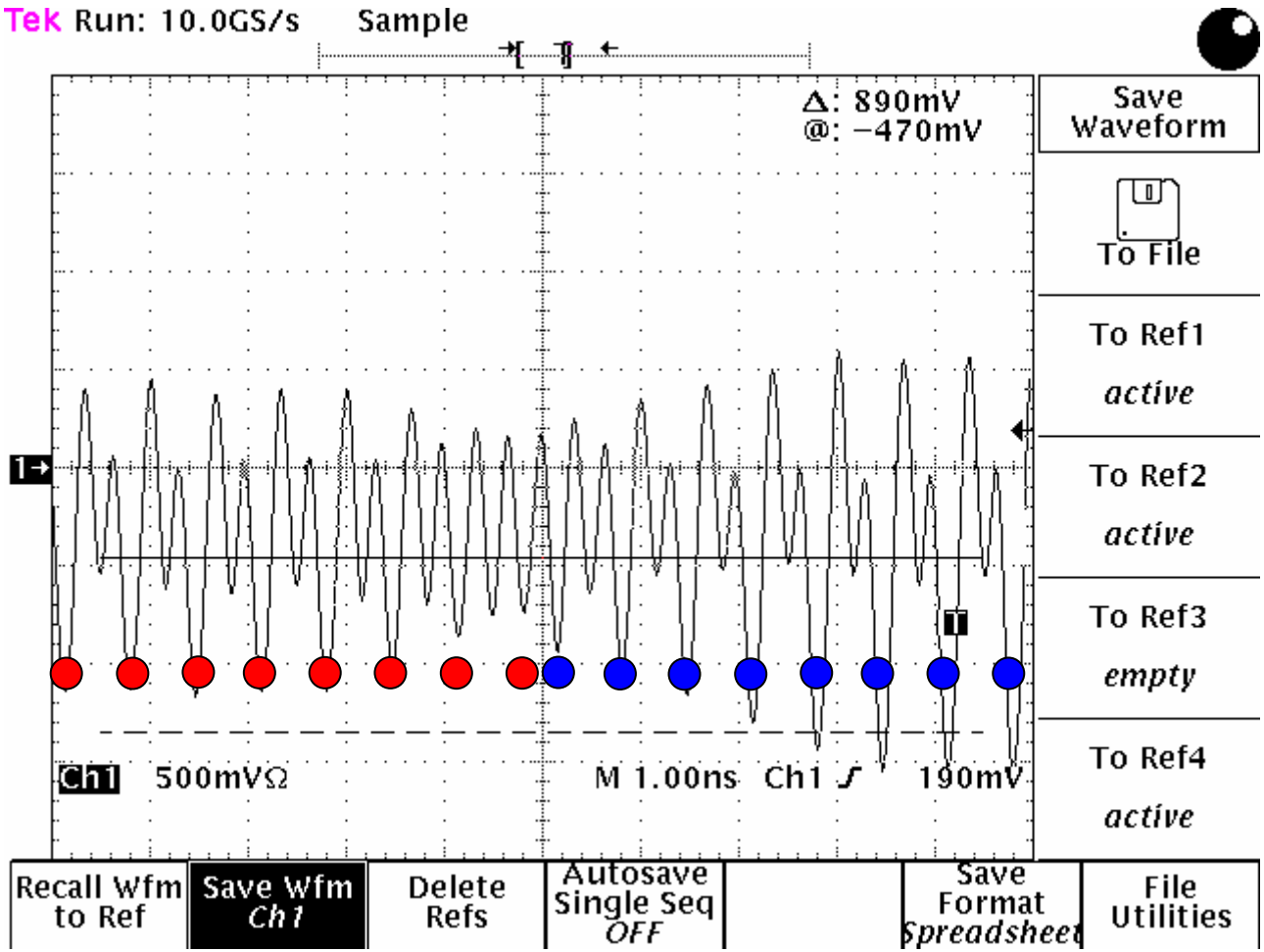
Phase flip, switching time ~ 4 ns





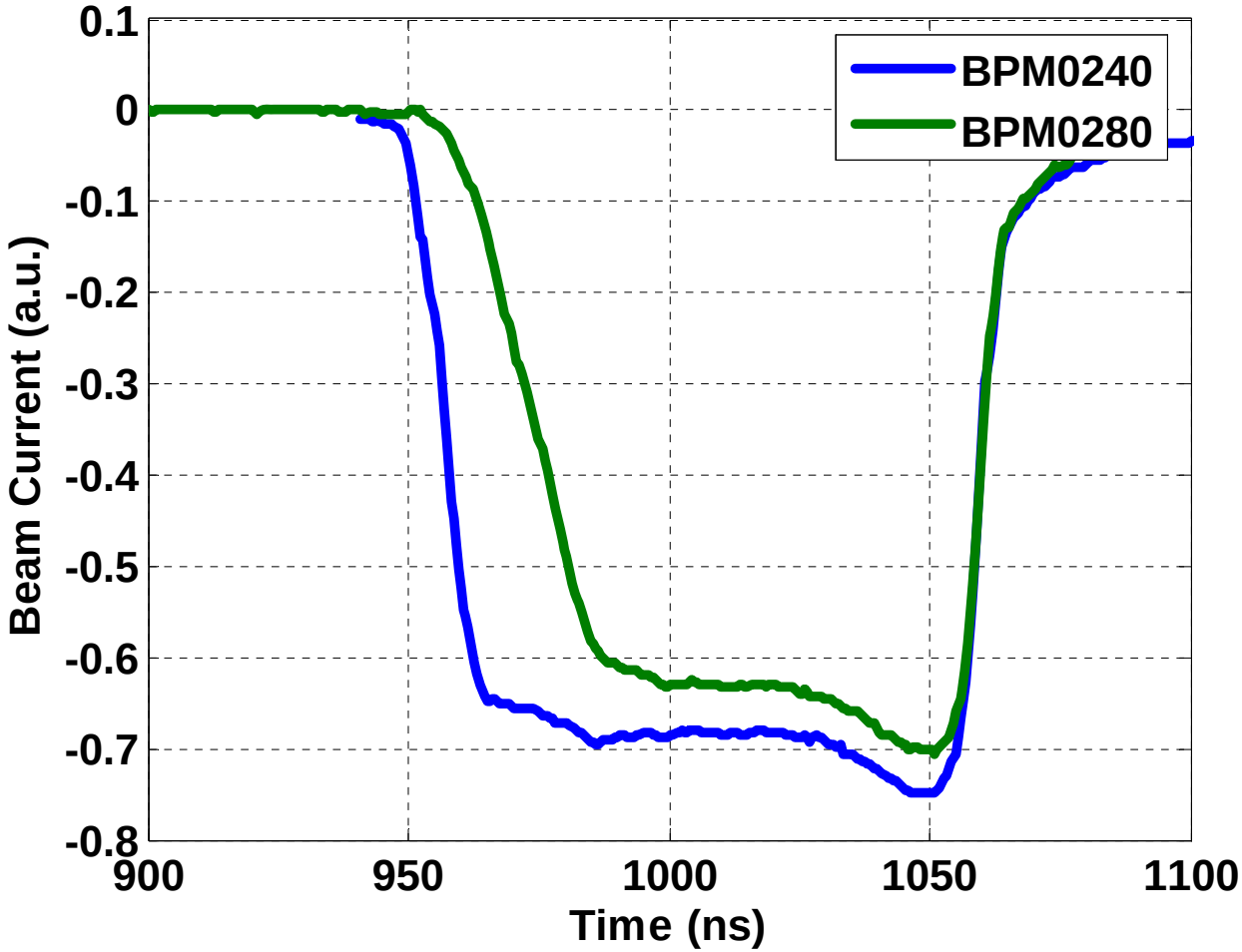
Sub-harmonic bunching with 3 buncher in CTF3

Phase flip, switching time ~ 4 ns



PETS Transmission for a 4A beam

80 % total, 93 % peak



30 GHz Power Production 2006

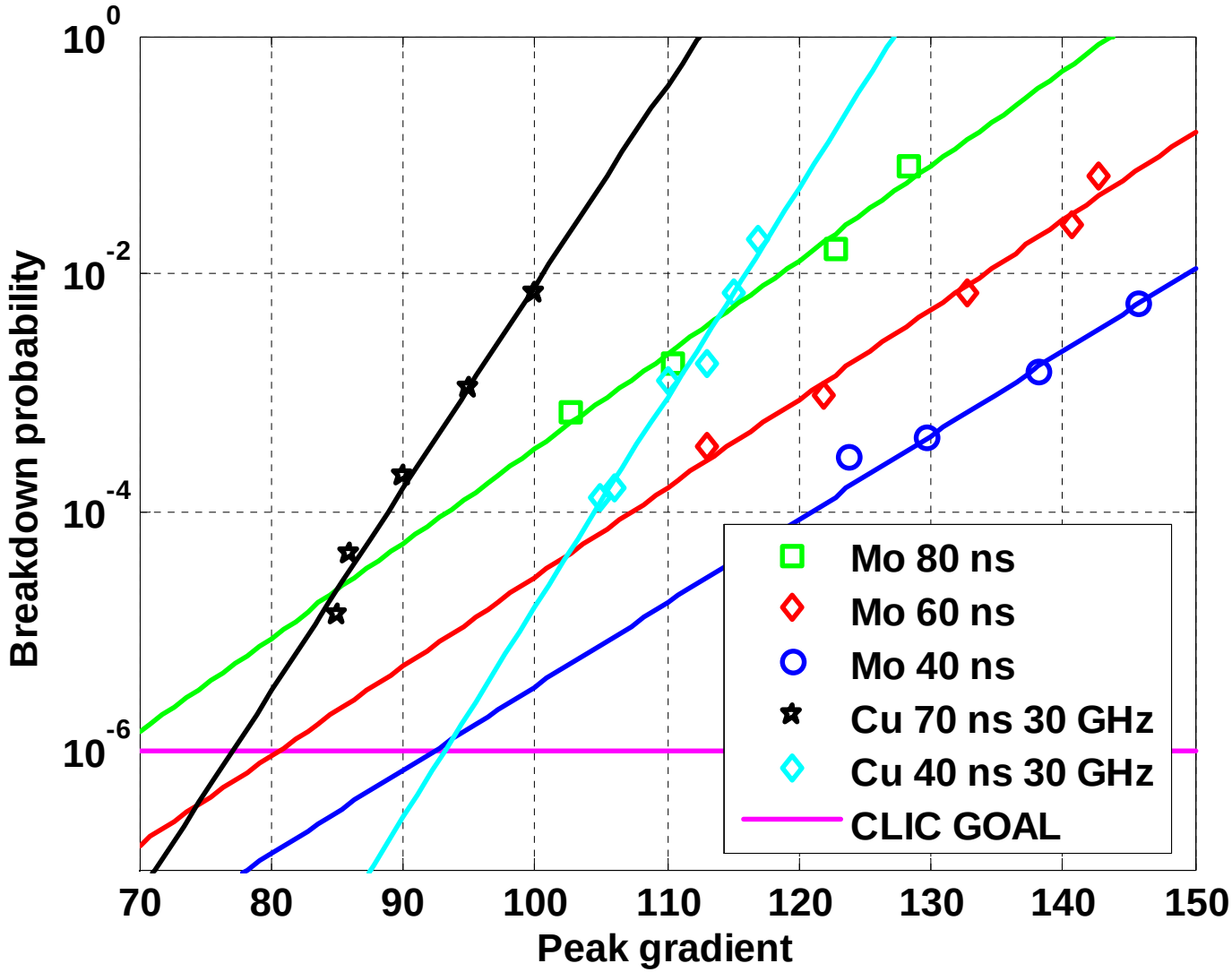
This Runs beams

3.5 A and 4 A for < 100 ns with 10 Hz rep rate

Expected	Achieved
(P_{out} (MW) = 4.762 I^2 (A) *F^2)	
3.5 A: 58 MW (29)	25 MW
4.0 A: 76 MW (38)	35 MW

Very fast switching times

30 GHz Results 2006, 3.5 mm Cu structure



30 GHz Results 2006, 3.5 mm Cu structure

Some qualitative observations:

Opened up at 80 and 90 MV/m, nothing clear but feels like we are getting to the limits

Processed to 100 MV/m at 70 ns

Very little vacuum response at break downs now

Getting into the 'Spit fest' regime, persisting breakdowns

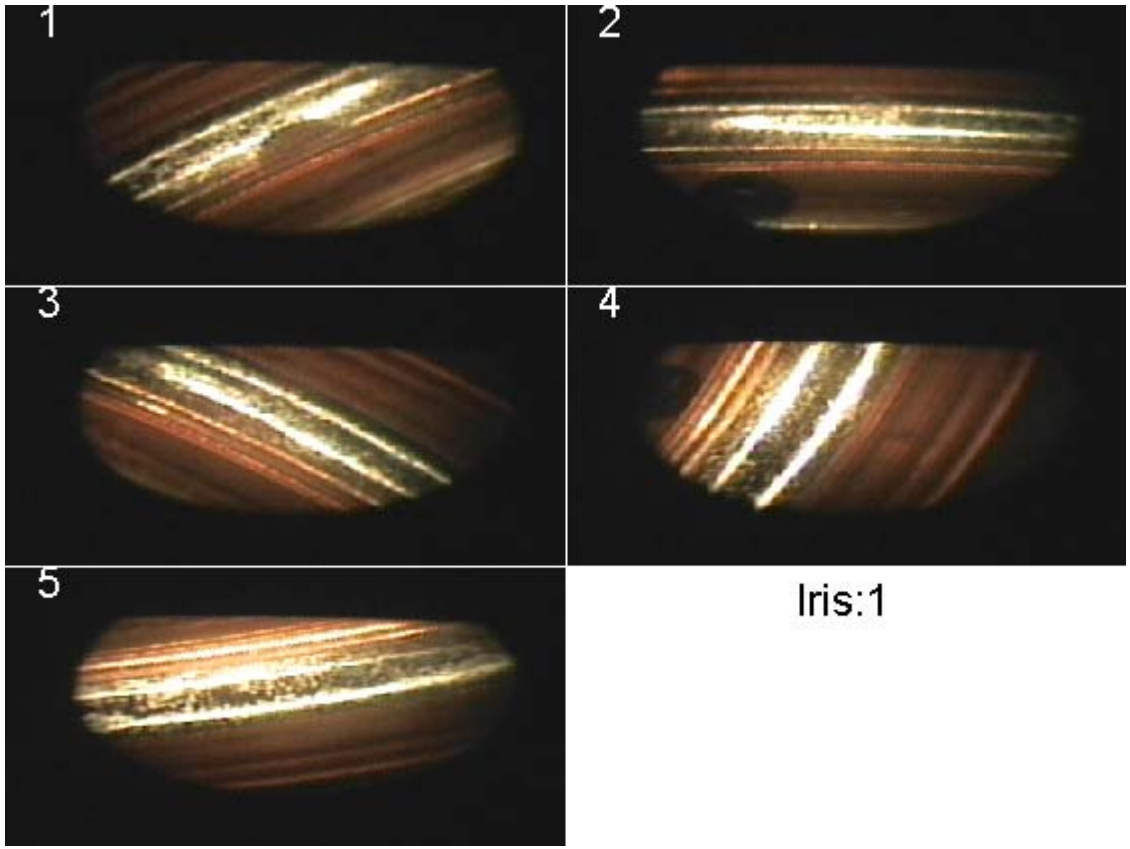
BD-rate slopes quite stable, steeper than Mo and independent from conditioning state

Very little pulse length dependence compared with CTFII results

Very fast conditioning time, 20-30 hours

30 GHz Results 2006, 3.5 mm Cu structure

After conditioning to 80 MV/m



30 GHz Results 2006, 3.5 mm Cu structure

'Spit fest' above 90 MV/m