BPS amplifier for TBL

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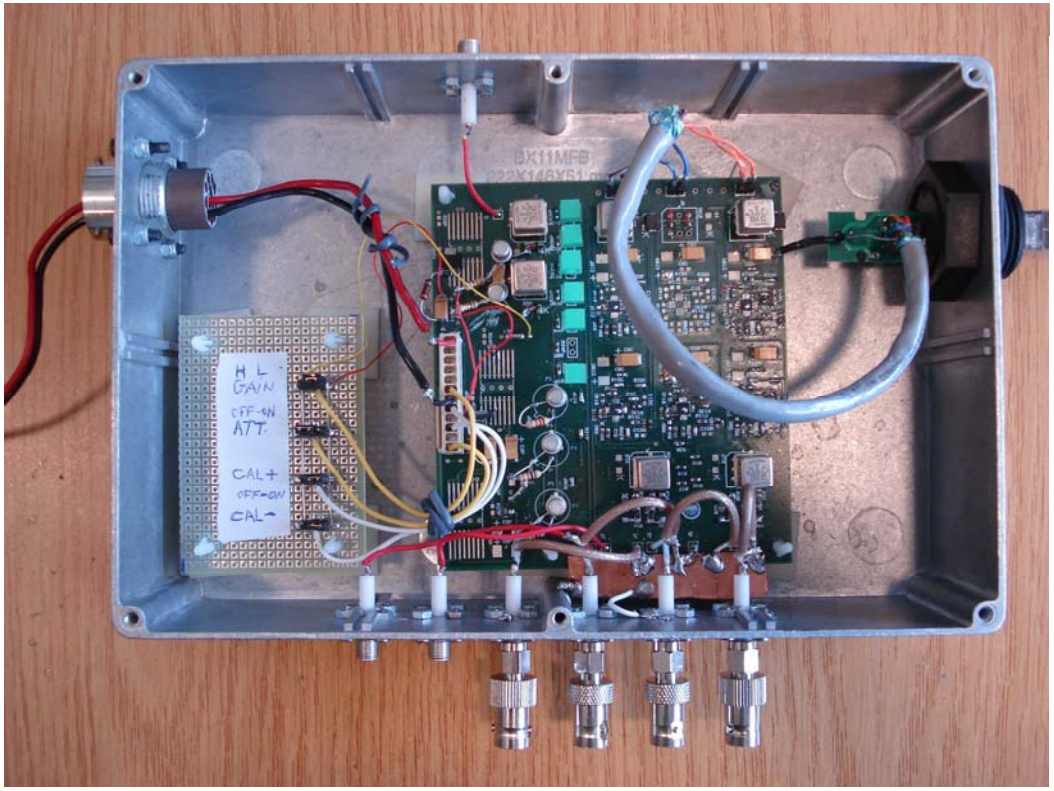
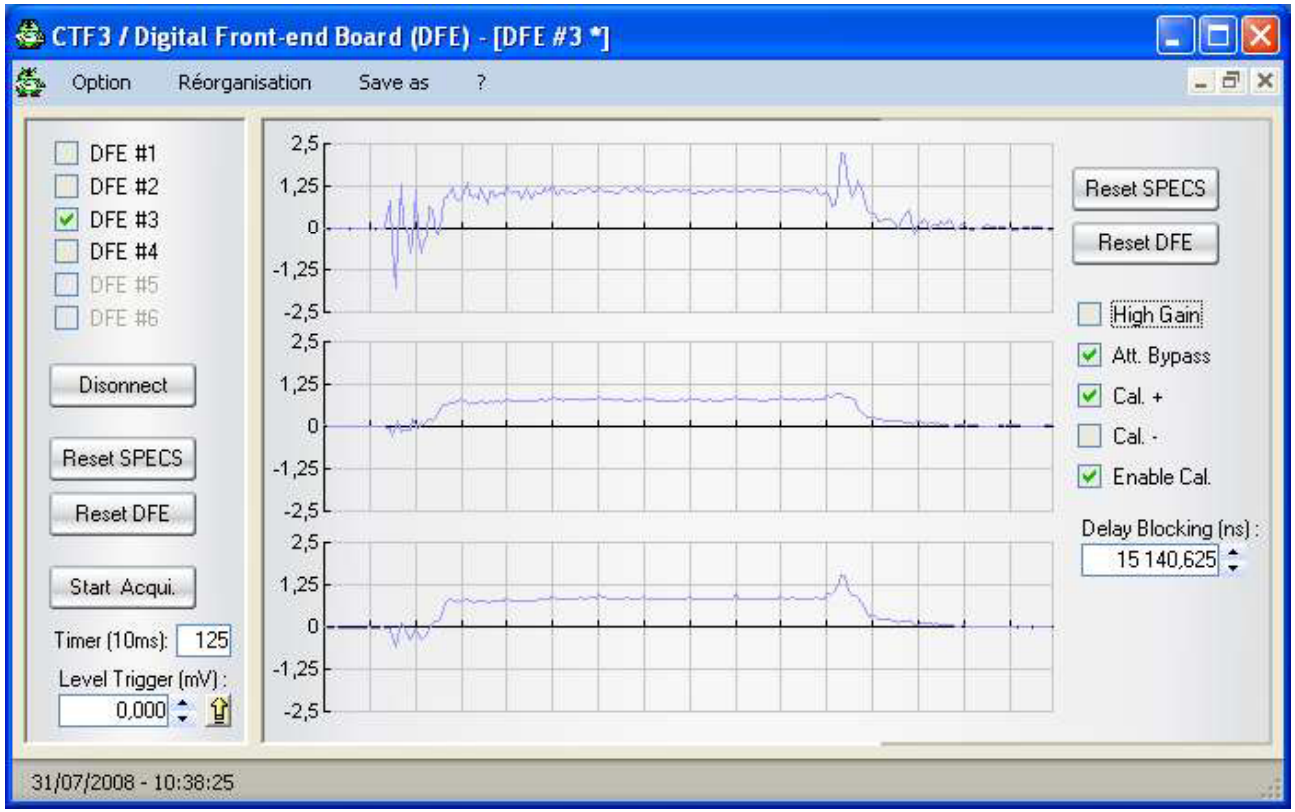
FPA2007-30577/E

A prototype unit of the BPS +amplifier has been installed (on July 2008)



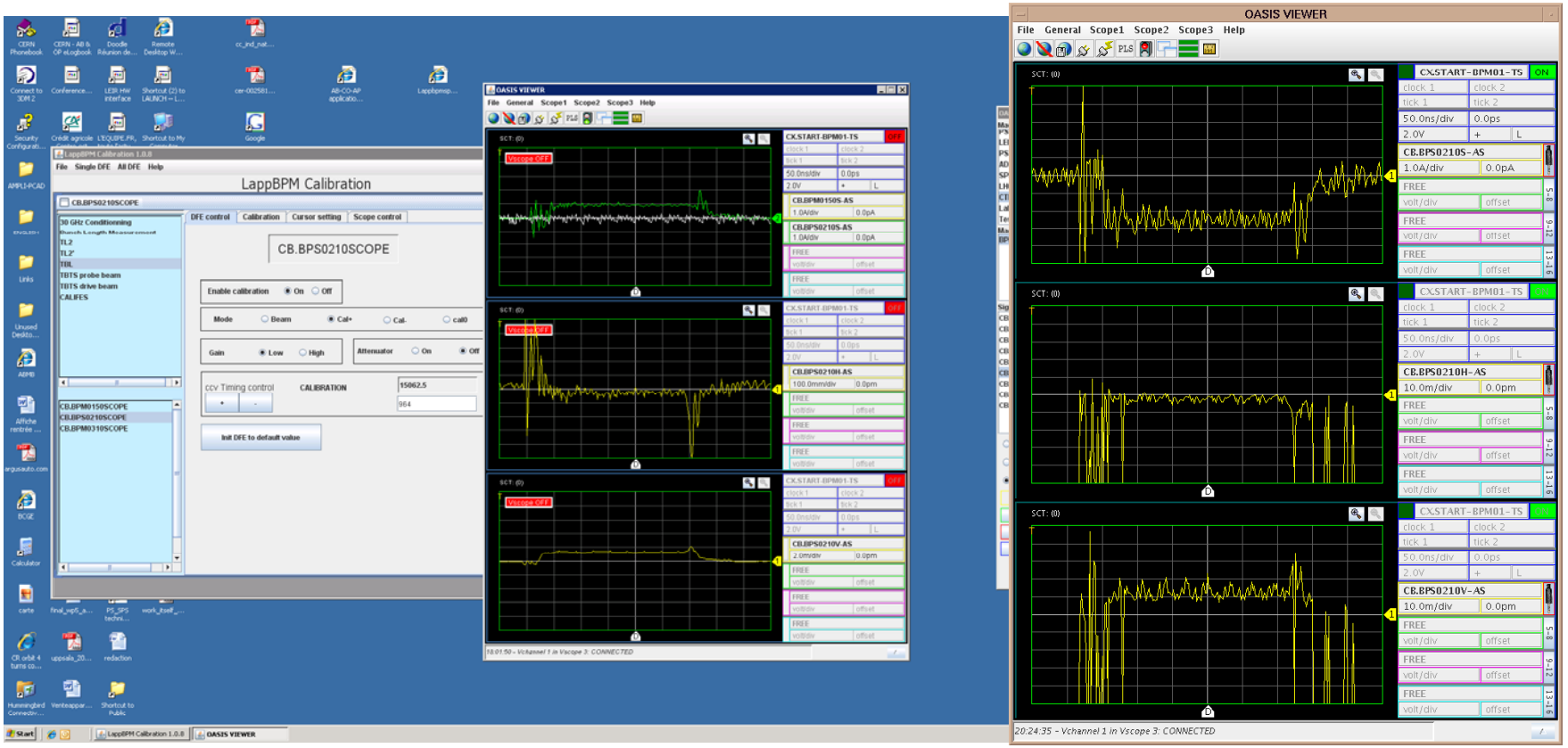
Amplifier prototype version v1.1 (as installed on July 2008)

A calibration test (BPS+amplifier+digitizer) was done on July



There was a 'glich' at the start and the end of the responses (Sum, deltaH, deltaV)

More testings: October (left plot) and November (right plot) testings show more mismatches



Sum and deltaV signals have some glitches … but the deltaH has disappeared !!!

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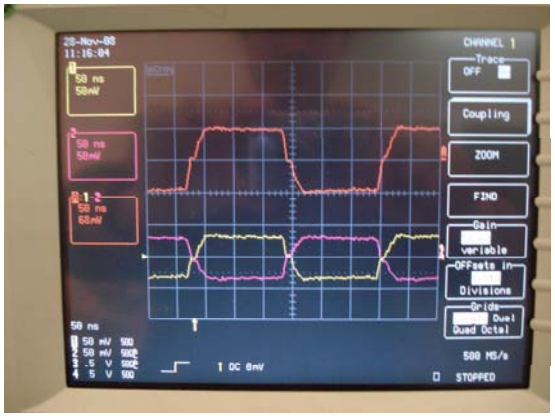
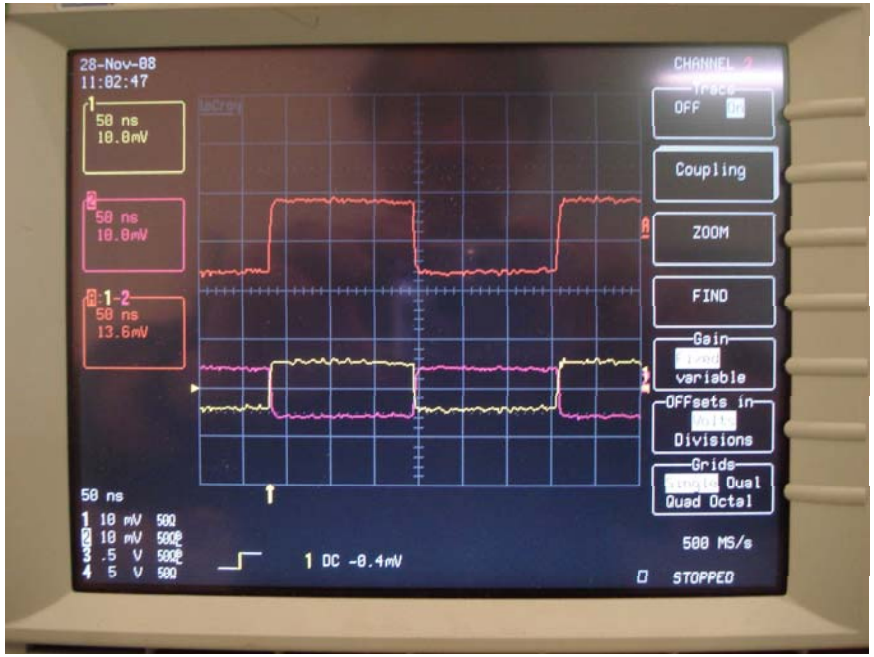
Calibration responses after doing some rework (on 26th November, in Lars Soby lab)

DeltaH, high gain, Cal+ AFE output



DeltaV, high gain, Cal+ AFE output



DeltaV, low gain, Cal- AFE bypass (the calibration signal don't goes inside the amplifier box)

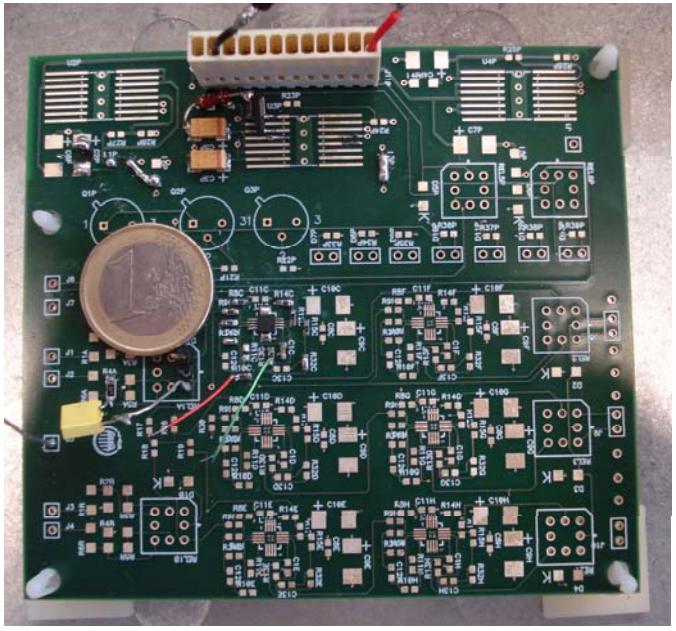
Calibration responses after doing some rework (on 26th November, in Lars Soby lab.)

Sigma signal, Cal+ AFE output

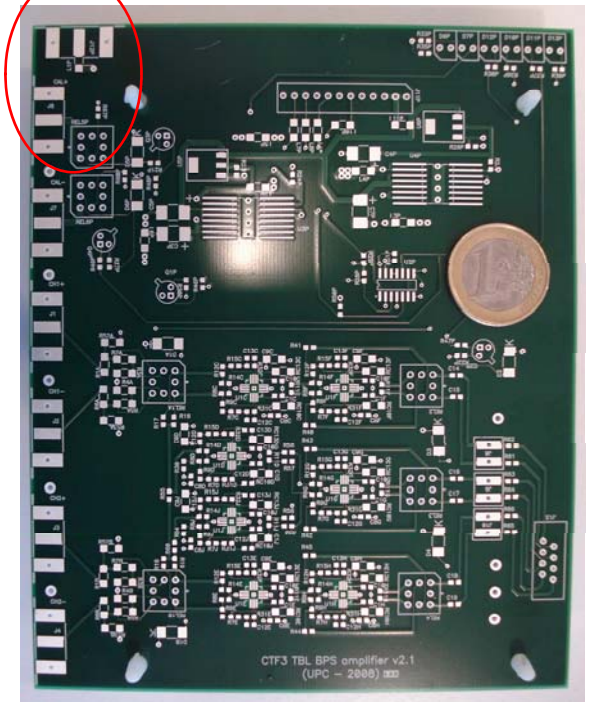
Sigma signal, Calibration AFE bypass (so, the calibration signal don't goes inside the amplifier box)

Steffen Doebert did some **beam tests** and the obtained results show a delta and sigma signals without ringing

Moreover, it’s been finished the PCB routing and manufacturing (16+2 units) of the second amplifier version, incorporating some improvements

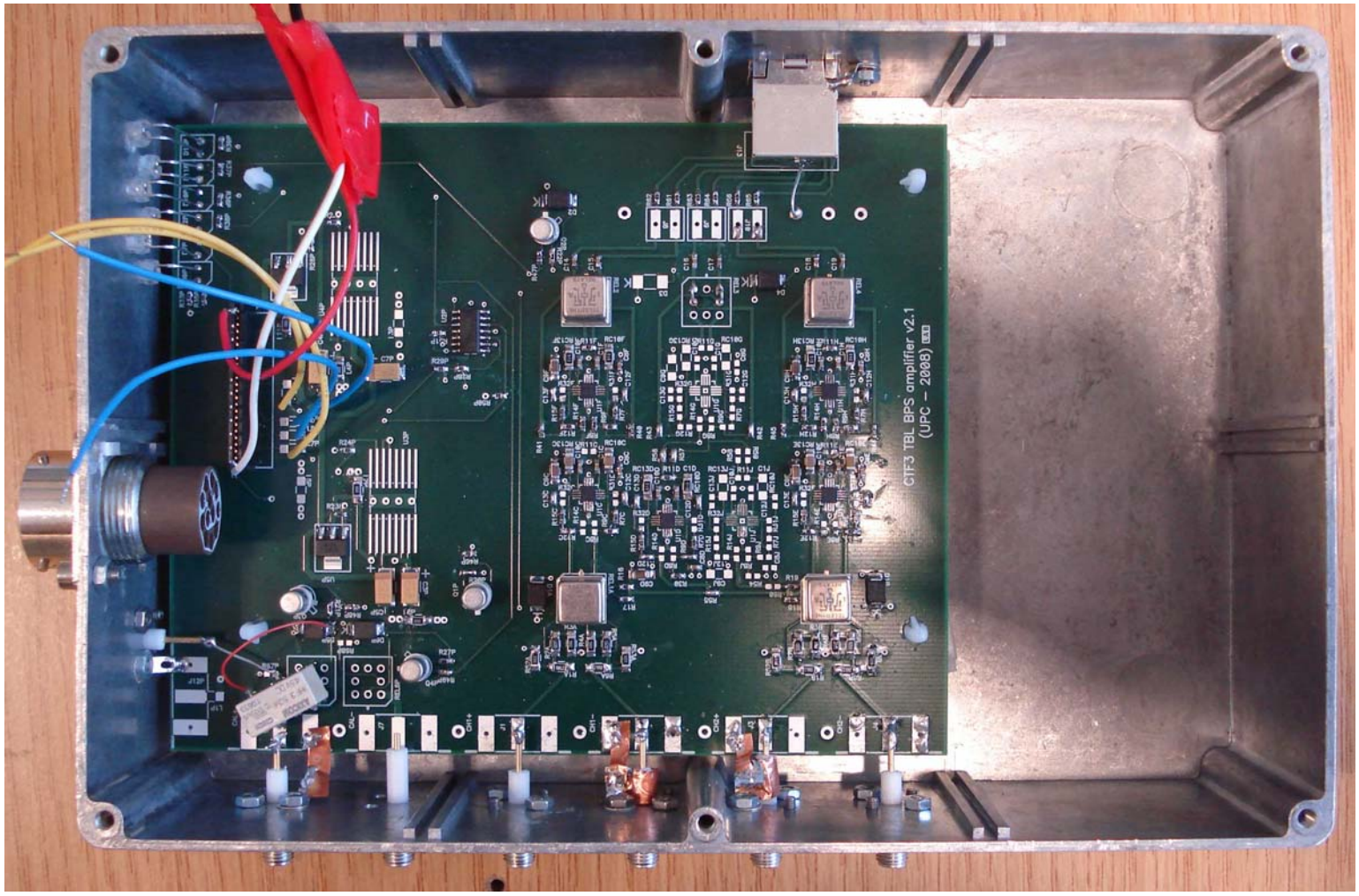


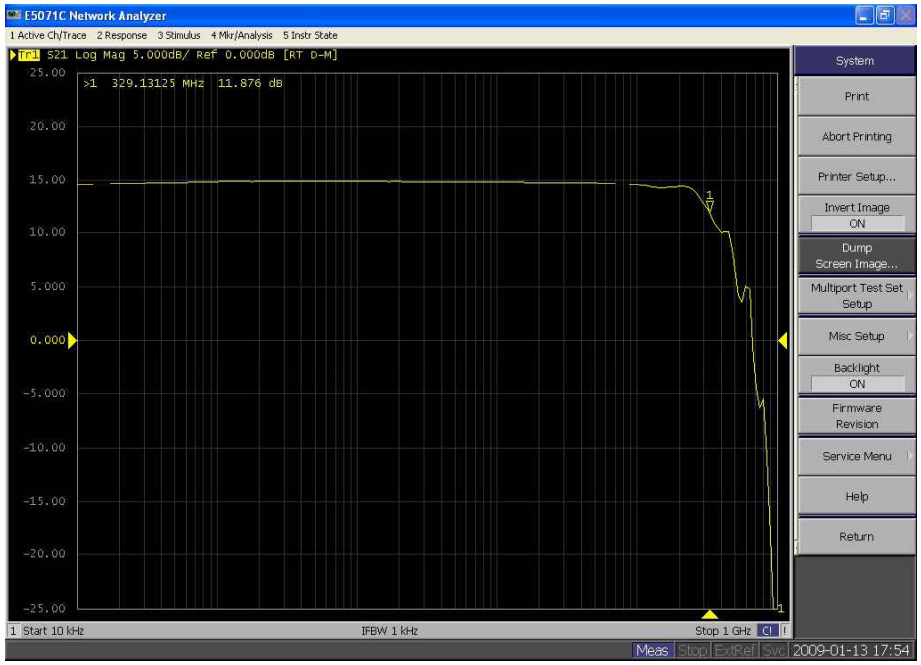
1rst prototype version (v1.1)

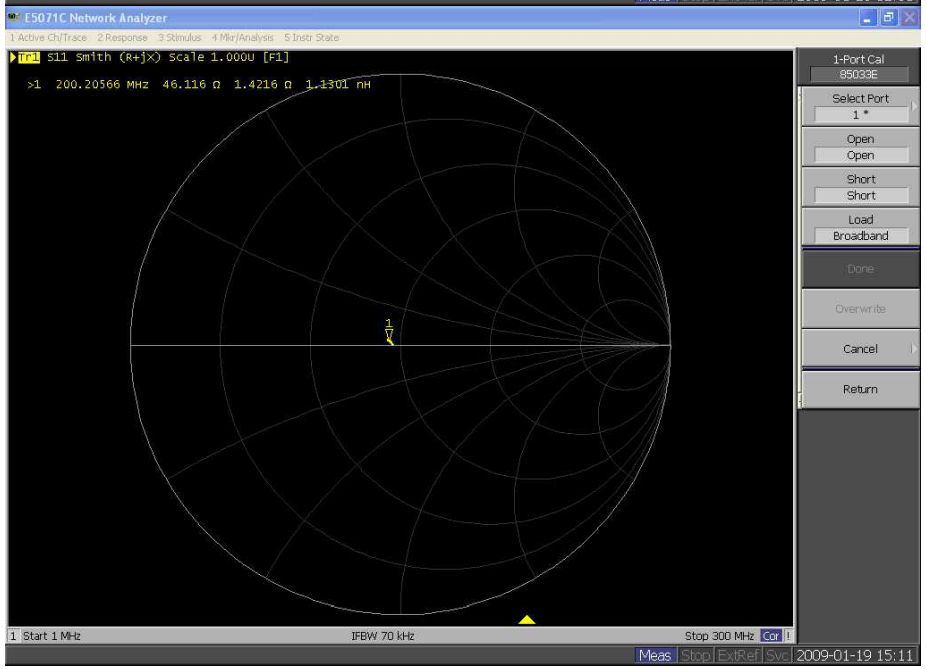


2nd prototype (v2.1) PCB: ‘the red circle’ shows the position of the input and output calibration connectors.

A first unit (prototype) of the second amplifier version has been build







Some testings:

-Delta freq. response (top-left)

-Sigma freq. response (top-right)

-S11 parameter of one channel (bottom)

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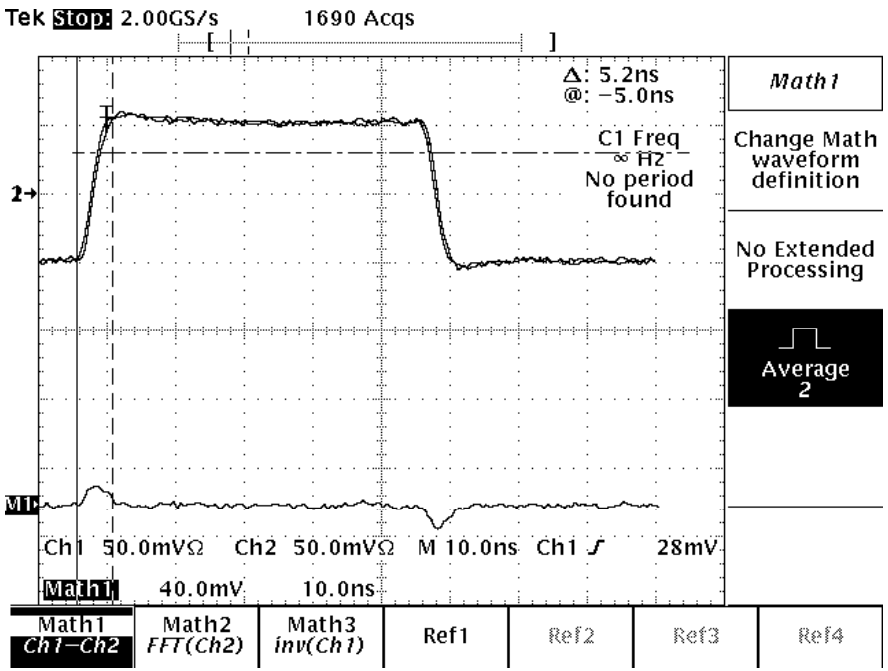

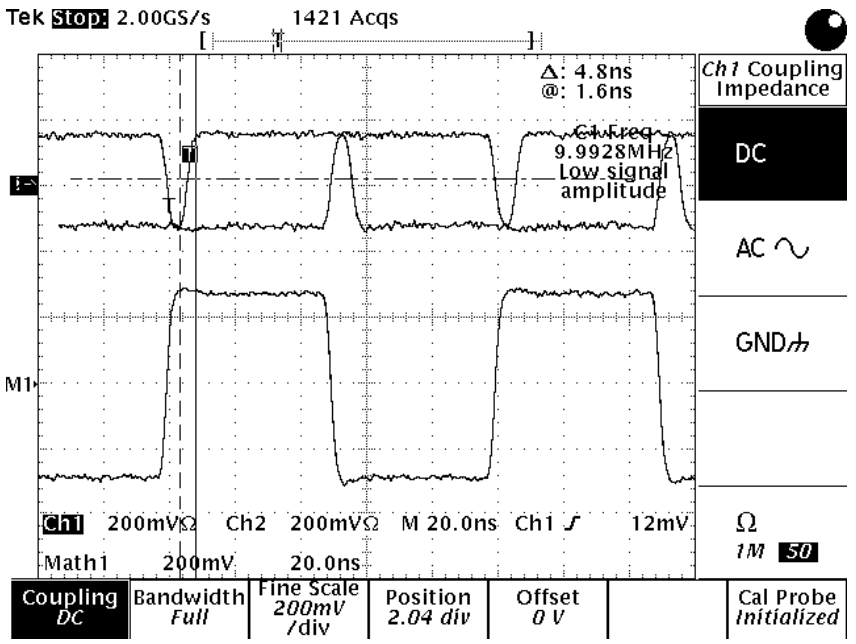

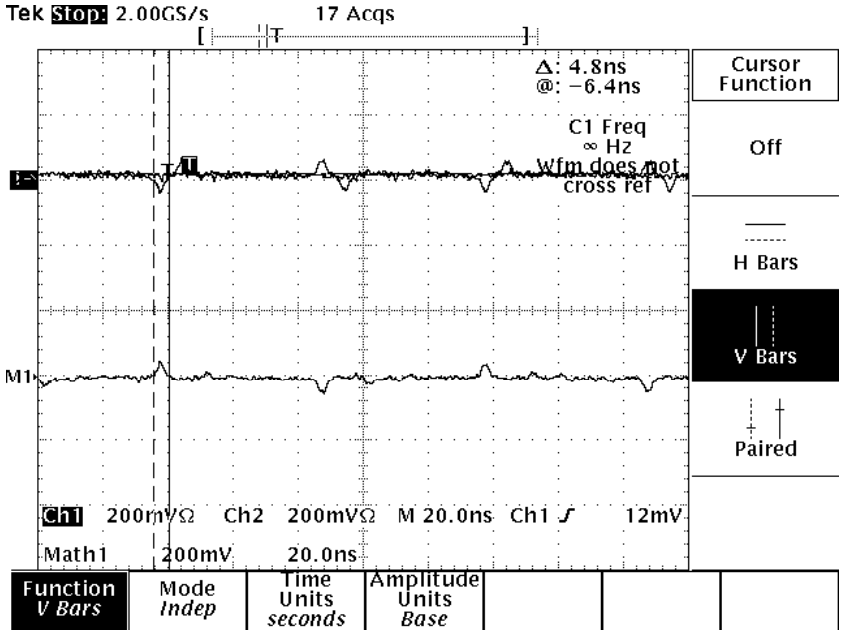

Pulse responses:

-pulses, as measured at the generator outputs (top-left)

-Delta output when only the V+ input excited (top-right)

-Delta output when both, V+ and V- inputs, are excited (bottom)

16+2 amplifier series status

- Last 15th January 17 PCB and boxes were sent to a company (‘ServiCircuits’) for doing the partial building/assembly (not the most critical components: as relays, etc) and boxes drilling.

  … ‘ServiCircuits’ said it’ll be finished on the first week of February.

Next work to do …

- After receiving the 17 amplifiers we must

  - to finish the building/assembly (relays, sma connectors, power connector, regulators).

  - to test and verifiy each amplifier.

- Another task: to start the 96 cable series (allocated to ‘Mier Communications’, an spanish company of telecommunications equipment).

There is an open question about the rad-hard regulators

- The NI LM317 is 40 Krads tolerant (according to information supplied by Atlas collaborators). In the tested prototype we are using it. It's cheap.

- The ST RHFL4913 is expensive (250 EUR). The amplifier PCB amplifier also incorporates this footprint.

- The ST LHC4913, used in LHC, is cheap (around 30 CHF) if buying it in the 'CERN store' but, to my knowledge, ST has stopped the production of this IC.

Thanks !

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