

# A self-calibrating receiver for EOR detection

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24 Aug 2012

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# A CSIRO Skunkworks project with

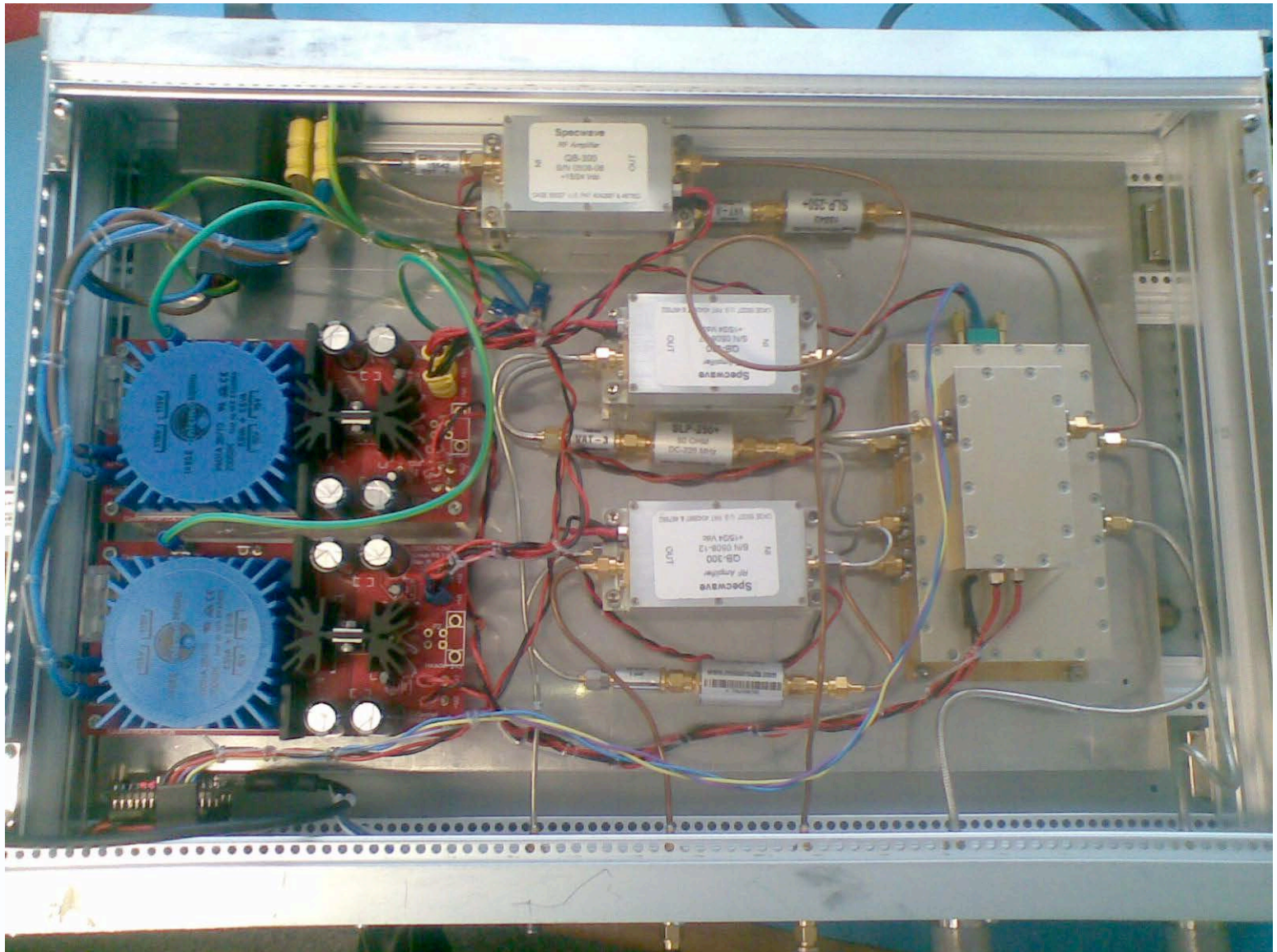
- Alex Dunning
- Aaron Chippendale
- Paul Roberts

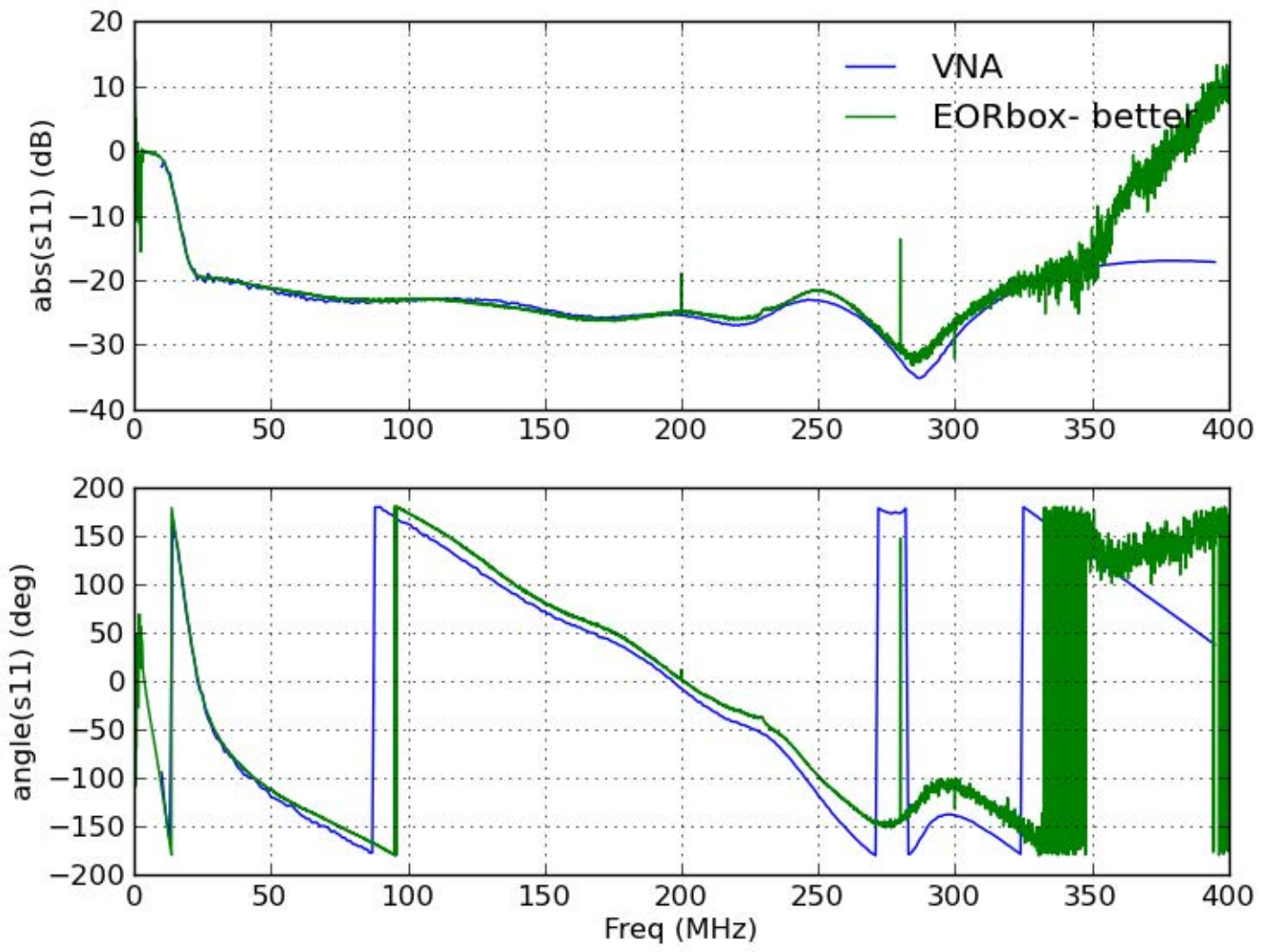
# This talk

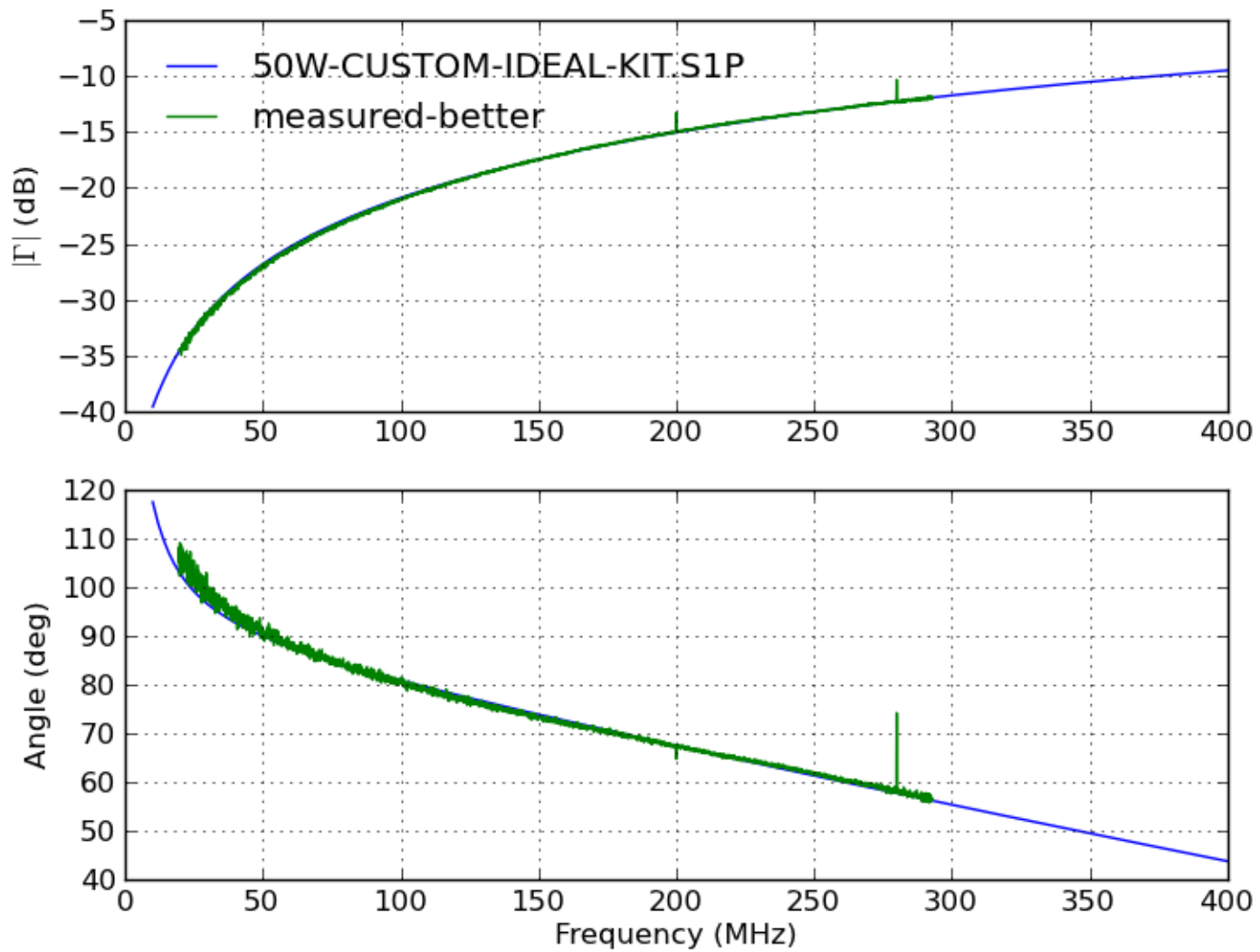
- Why a self calibrating receiver
- Preliminary results
- Conclusions

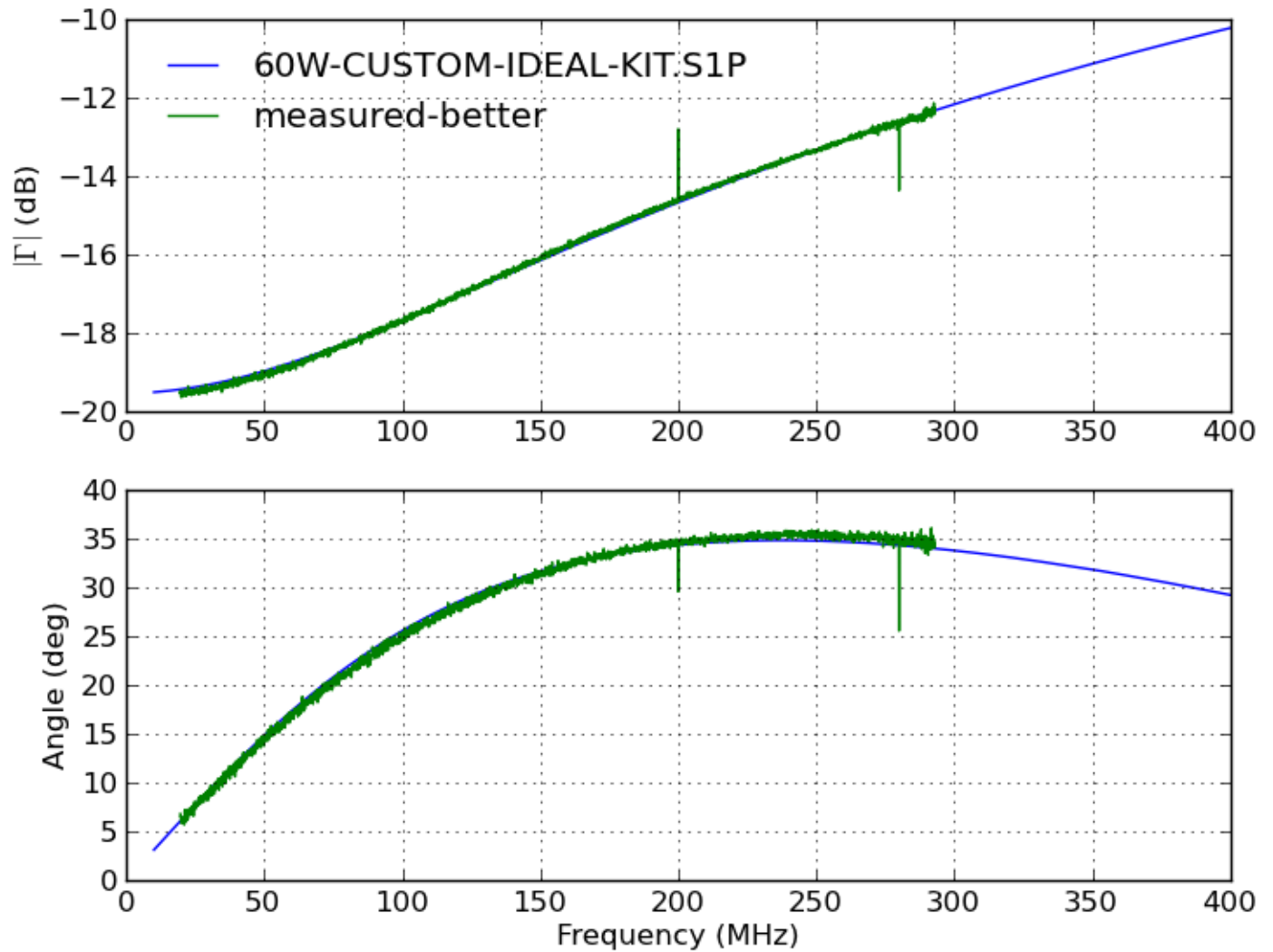
# Why a self-calibrating receiver?

- There are many sources of frequency structure in a total power measurement, e.g.:
  - Mismatch
  - Bandpass (gain)
  - LNA downward noise
  - LNA upward noise
  - Antenna resistive loss
- All of the above *can* change with time (although some more than others)
- The aim of a self-calibrating receiver is to measure these parameters *in-situ*, continuously or periodically

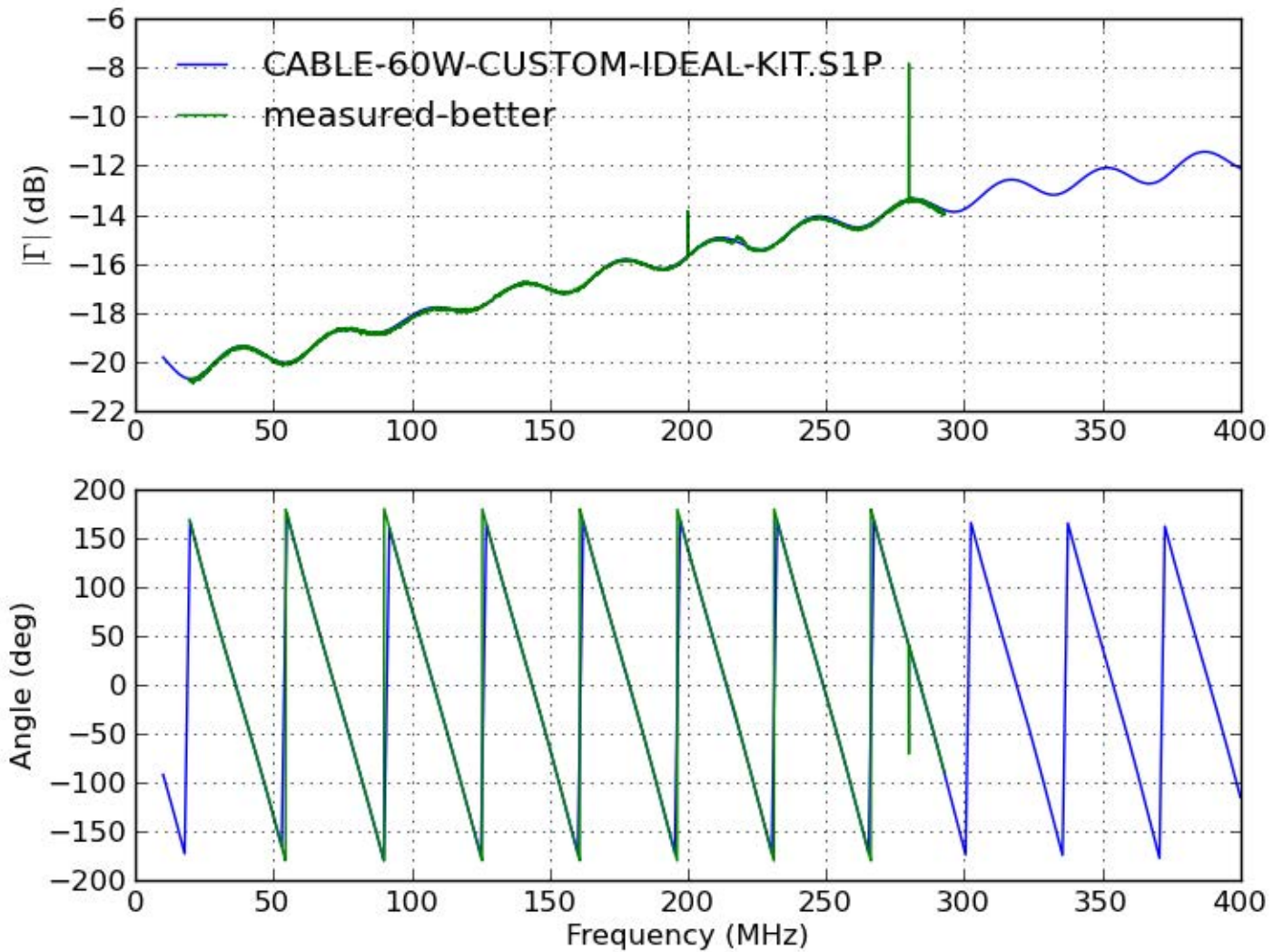


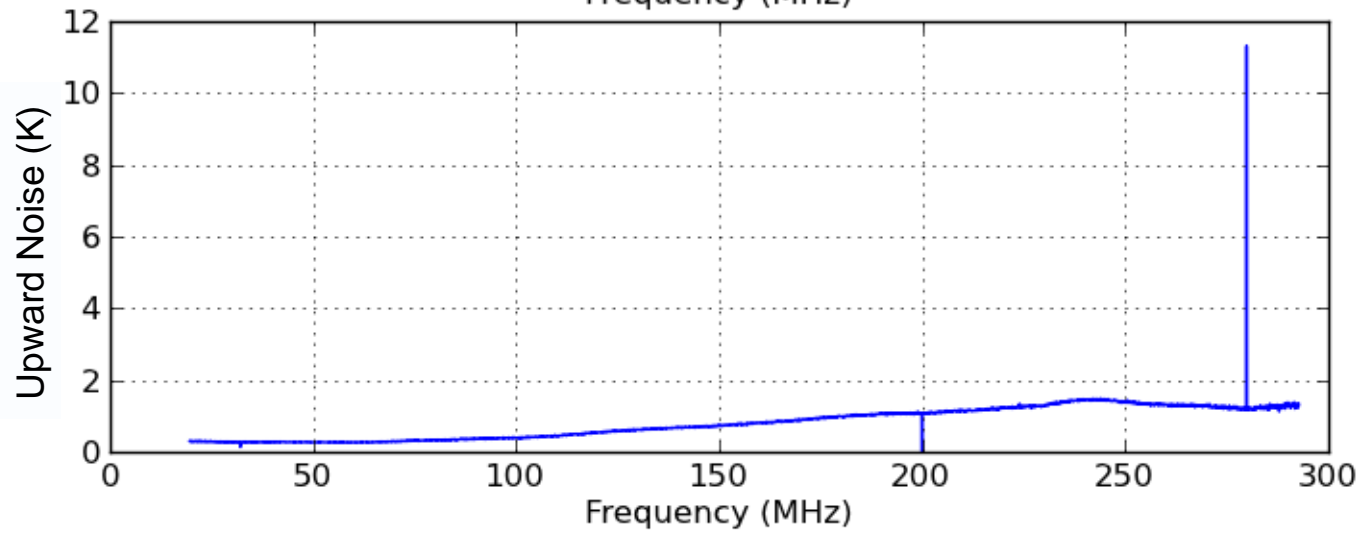
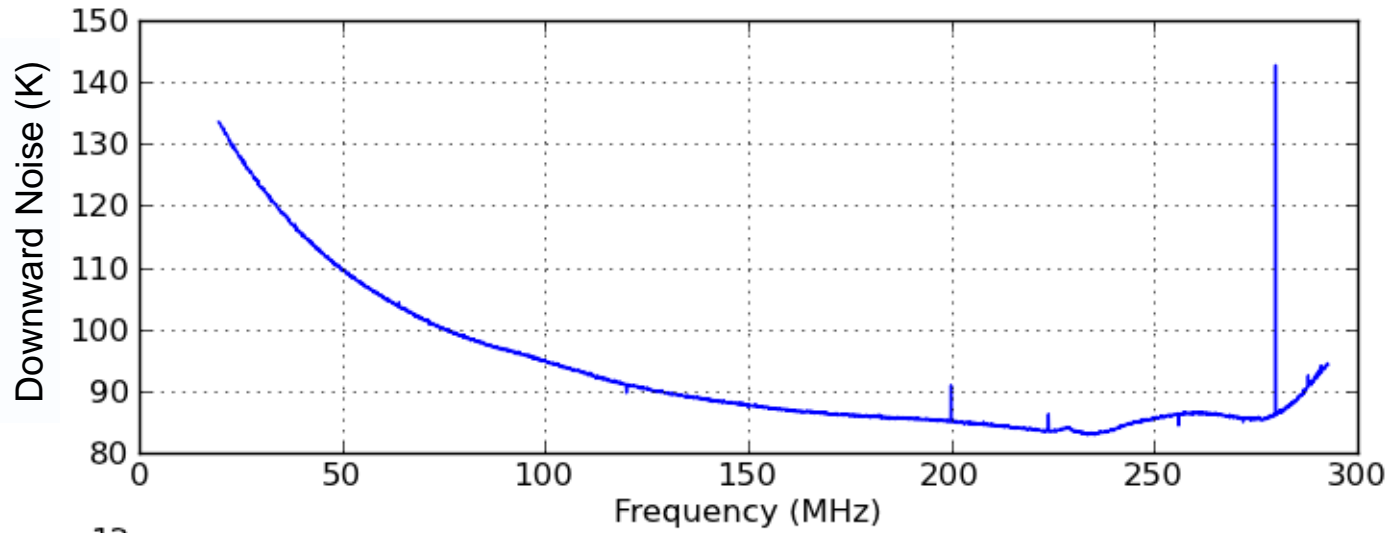


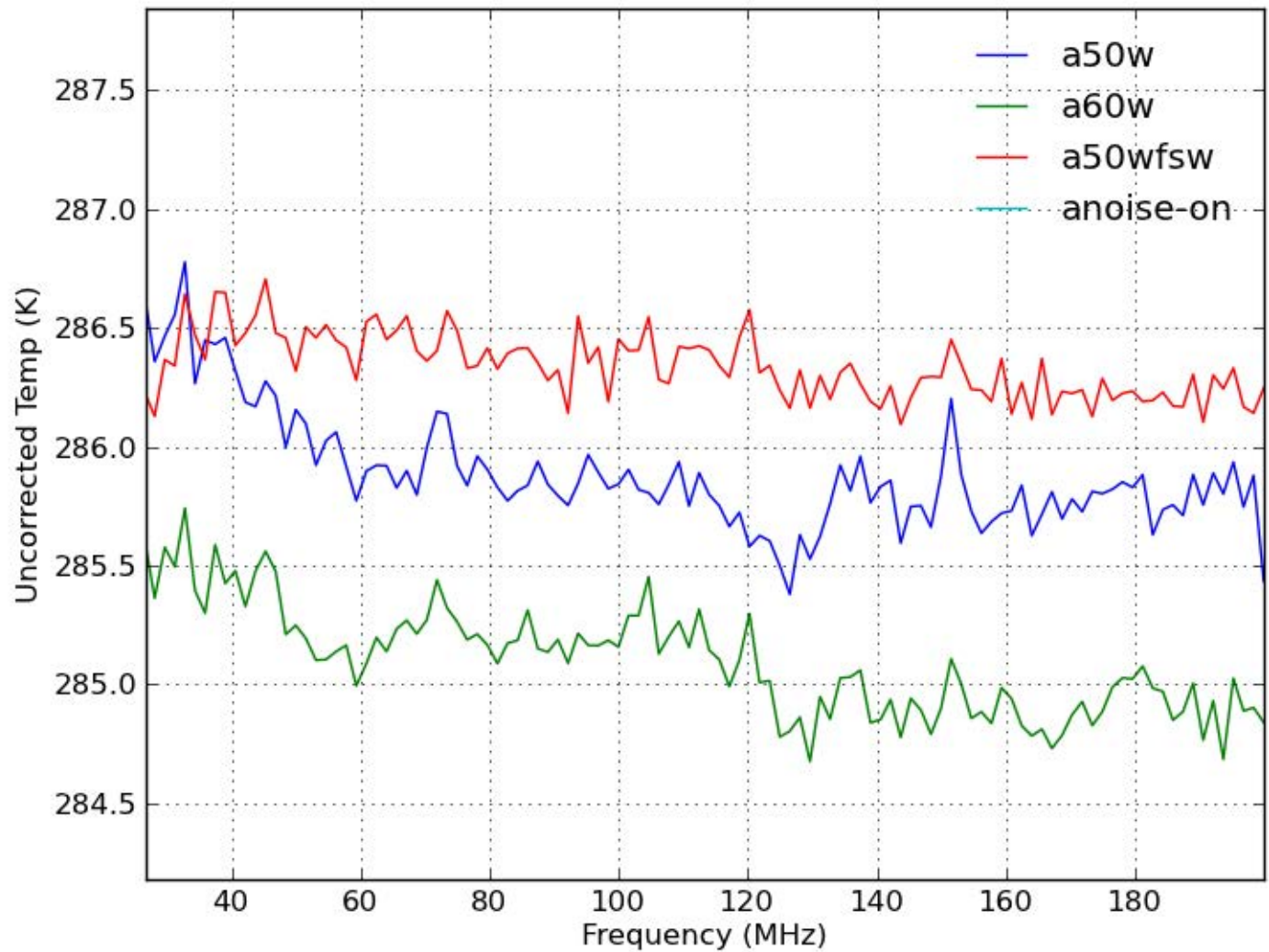












# Conclusions

- We can measure and correct for a number of parameters reasonably well:
  - $S_{11}$
  - Gamma
- Other parameters we're still working on:
  - Gain/bandpass variations
- Fielding a unit will be the next step, once the bench calibration is proven

# Questions

**Astronomy and Space Science**

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