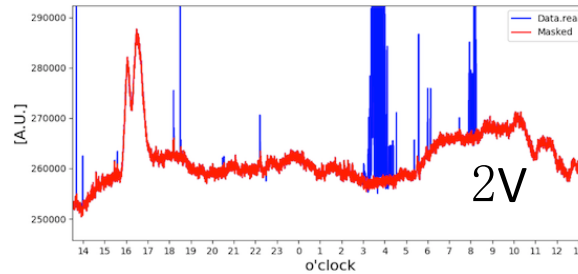
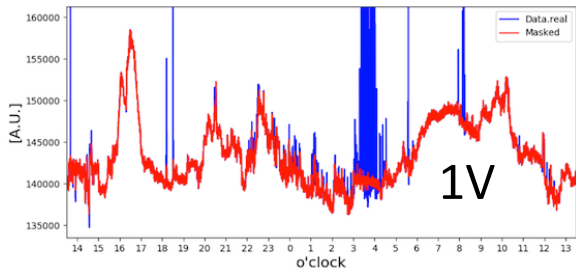


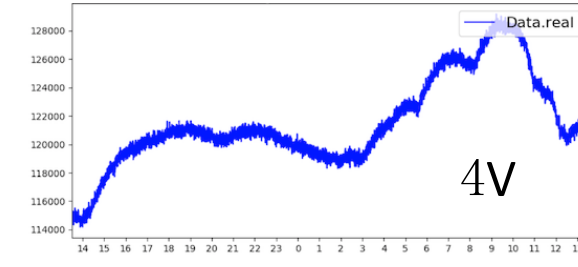
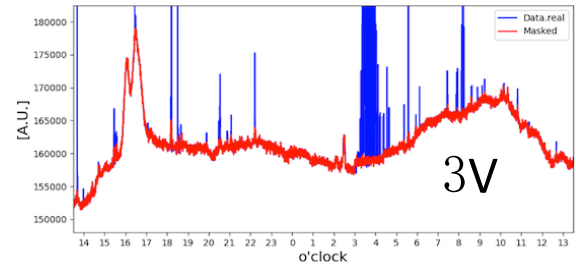
Gain of PAON-4

Qizhi Huang

20 Apr. 2017



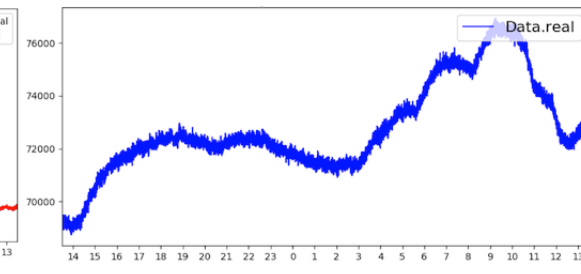
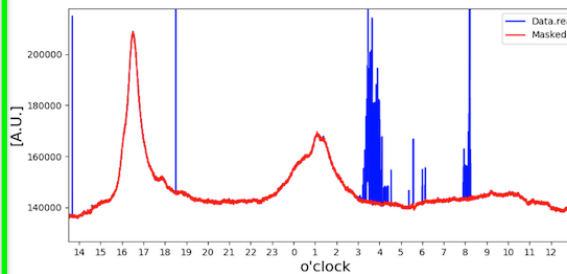
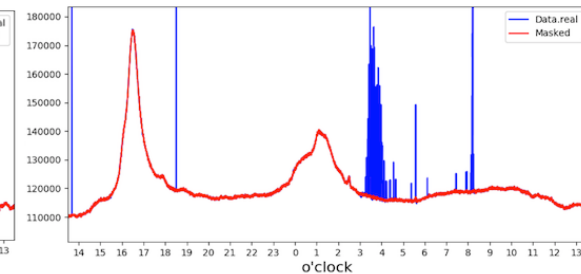
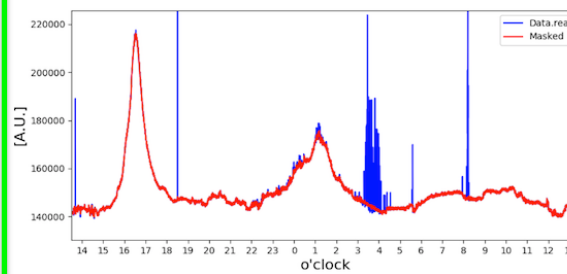
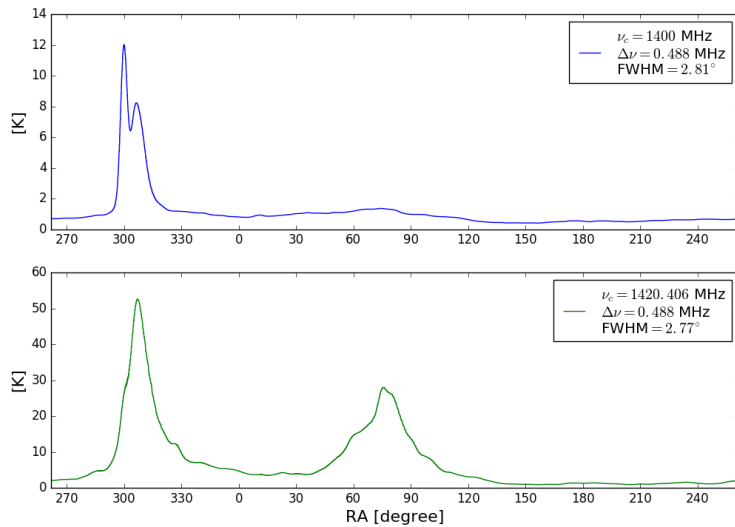
Original data
1400MHz



Original data
1420.406MHz

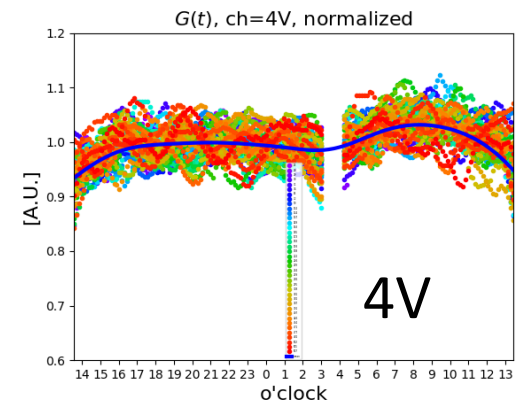
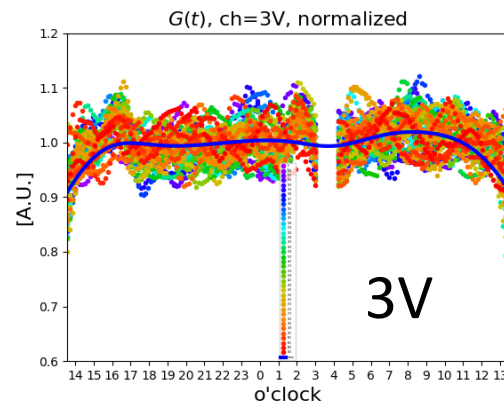
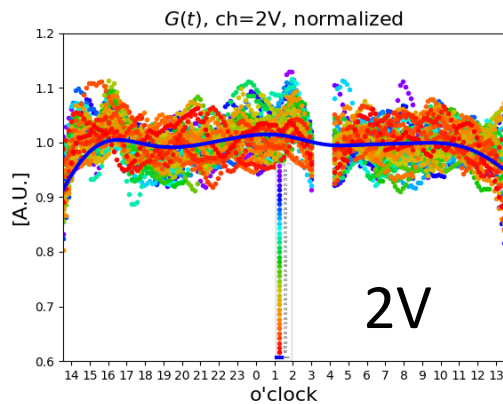
GSM (10MHz-100GHz)
LAB (1418.2MHz-1422.5MHz)

Auto-correlation simulation



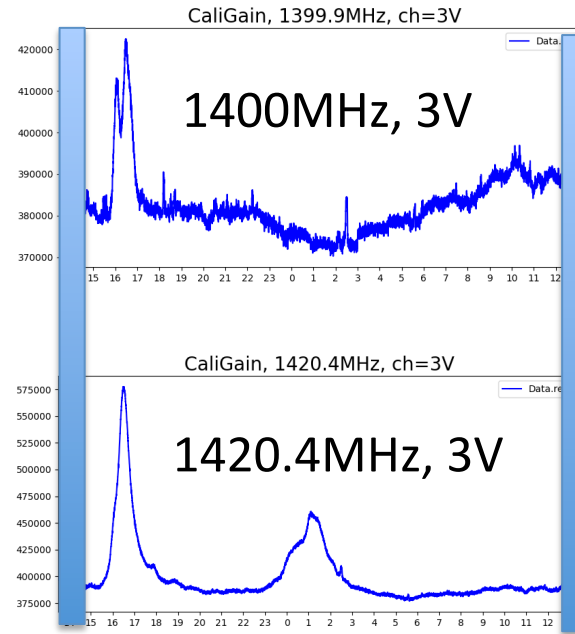
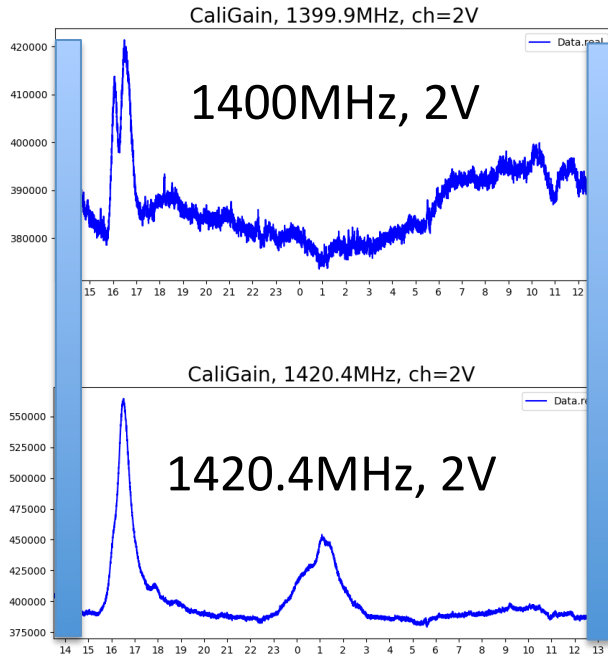
Auto-correlation components

- Auto-corr = gain * (sky + Tsys + noise)
= gain*sky + gain*Tsys + gain*noise
- Below shows the “gain* Std(noise)”:



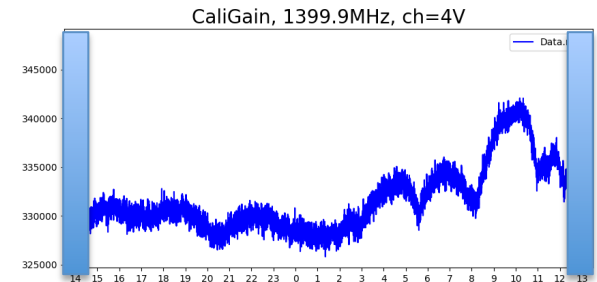
- 2V, 3V: observe the sky
- 4V: has a 50 Ohm resistor at the input of the LNA, the figure shows the std of white noise from the resistor.

- $$\frac{\text{Auto-corr}}{\text{gain} * \text{Std}(\text{noise})} = \frac{\text{sky} + \text{Ts}_{\text{sys}} + \text{noise}}{\text{Std}(\text{noise})} \approx \frac{\text{sky} + \text{Ts}_{\text{sys}}}{\text{Std}(\text{noise})}$$



- I mask the left and right edges because of the bad smoothing at the edges

- Not flat enough comparing to what we expect



- Ts_{sys} or/and Std(noise) is/are not stable enough along time ?
- The gain we determined above is not good enough ?