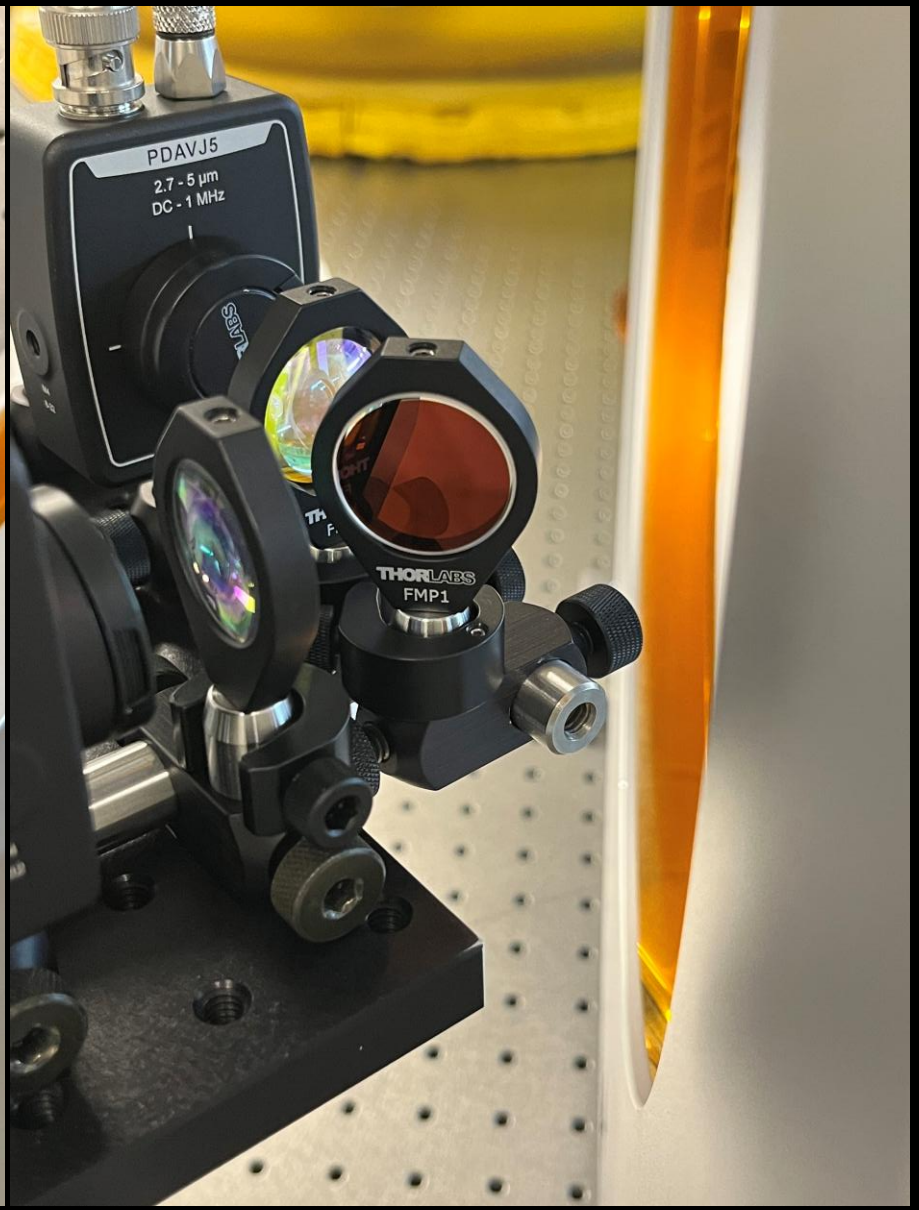
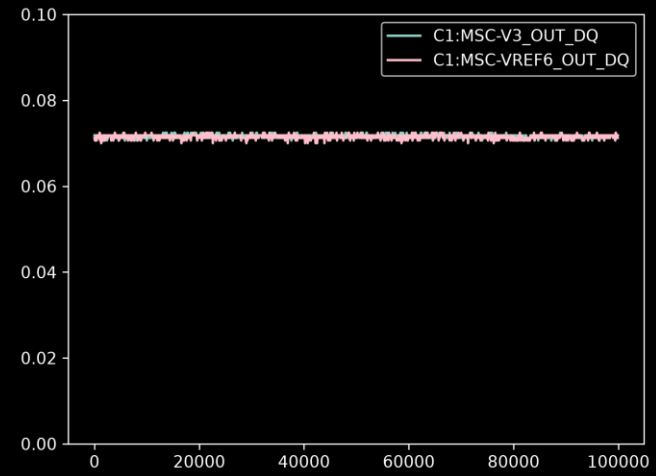
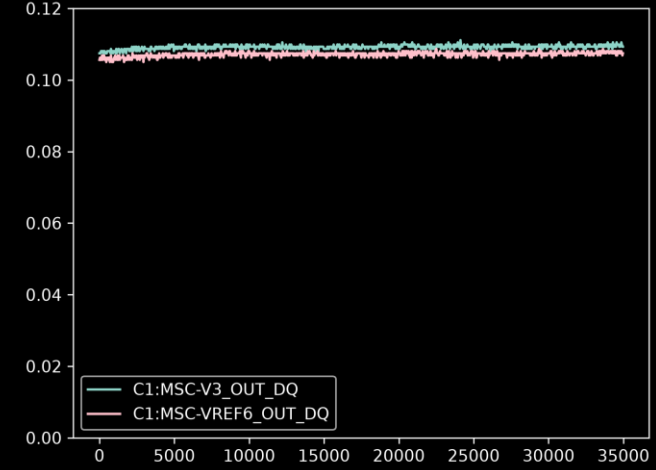
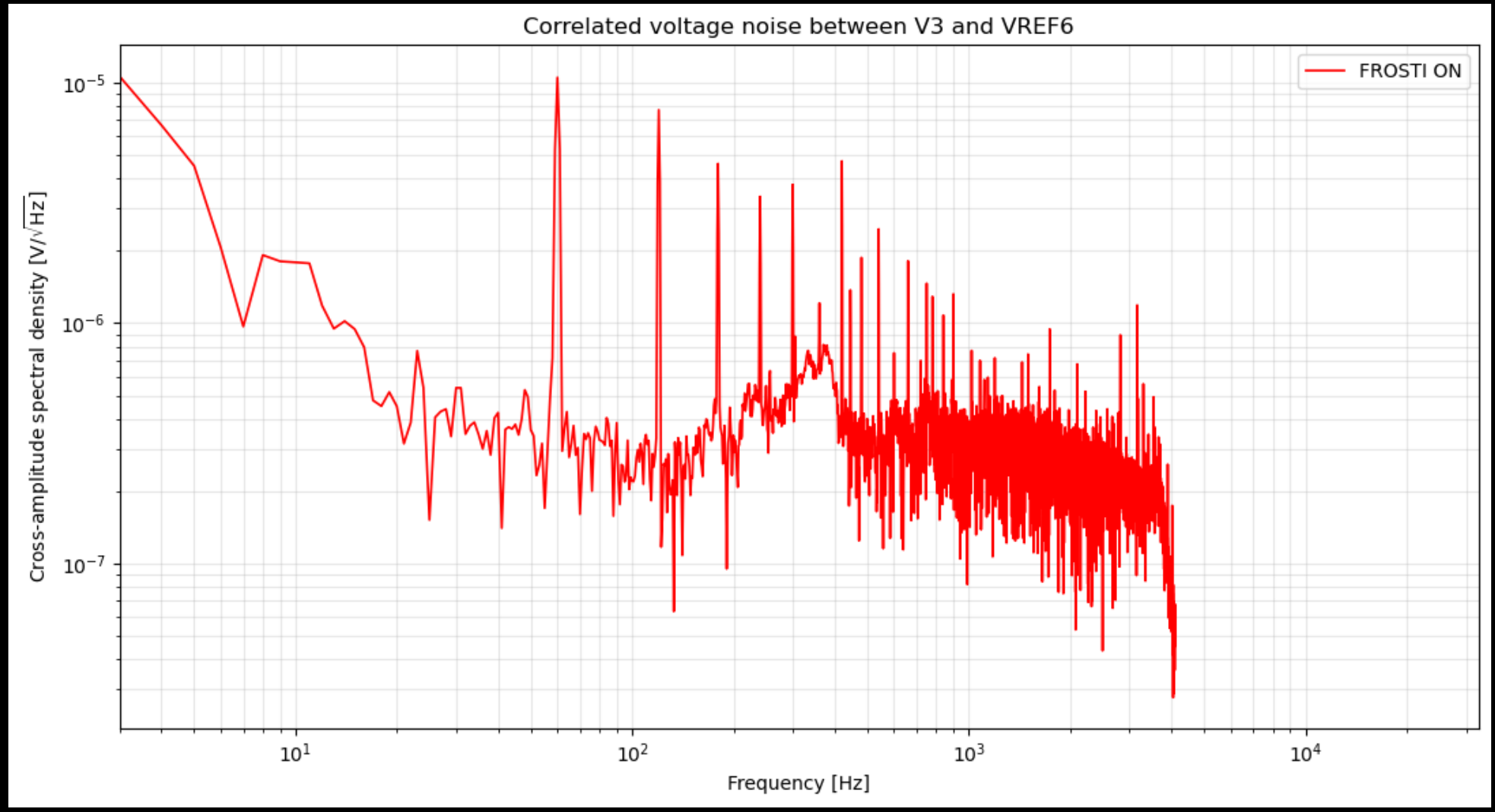


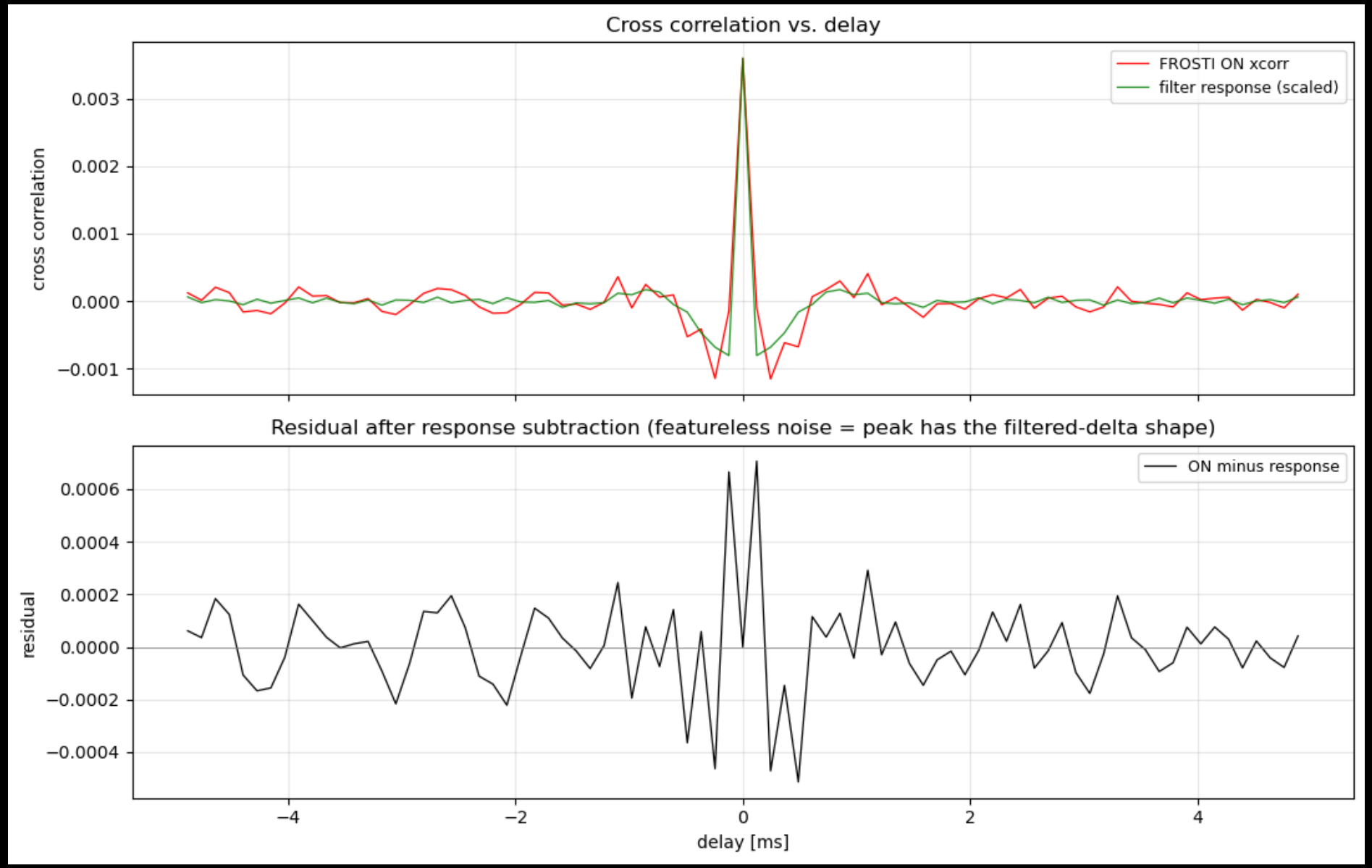
Alignment complete with 0.07mV of power on each arm. With 33V on FROSTI, we get 0.1V on each PD





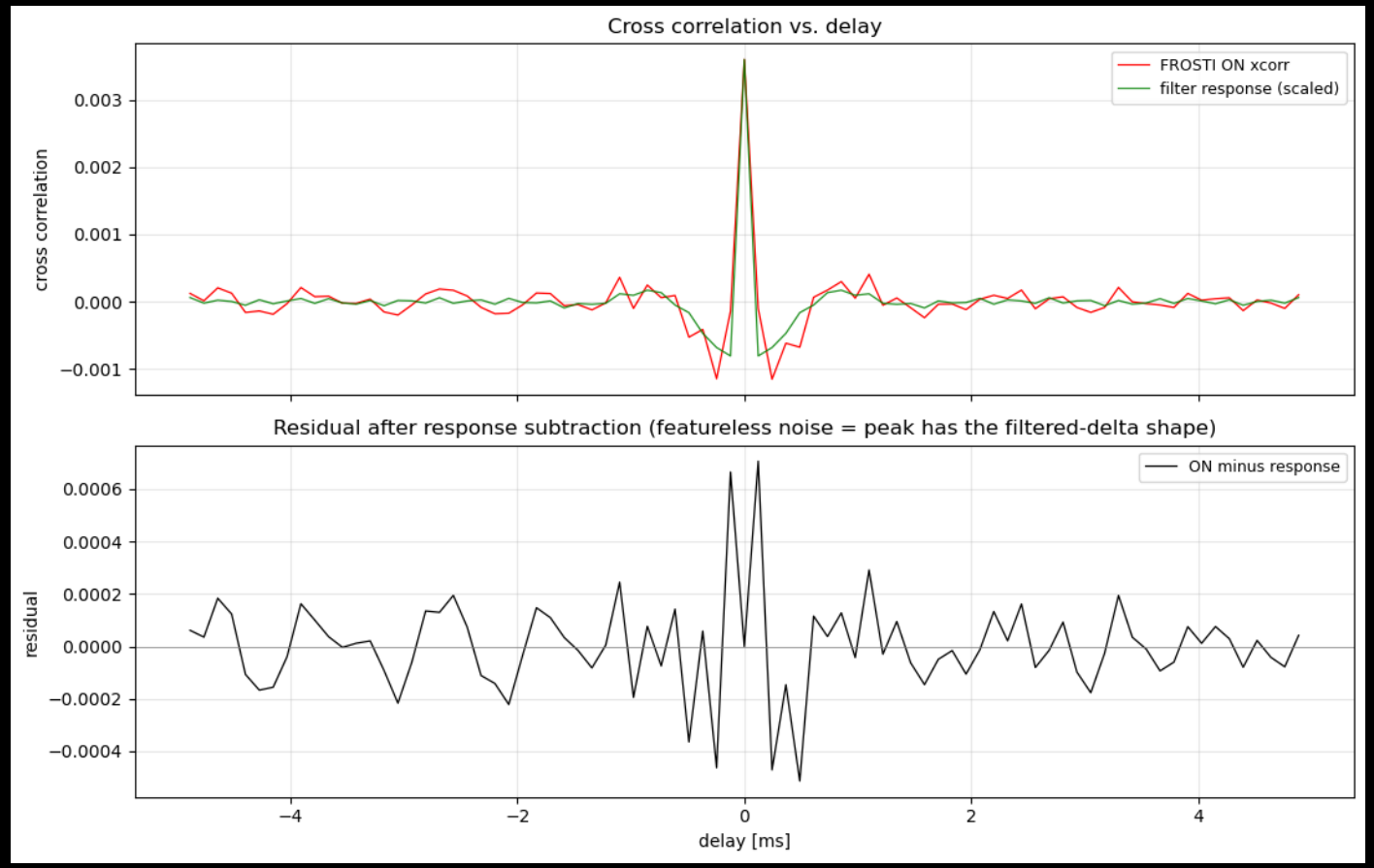


Cross spectral density of first measurement (~17hr, fs = 8kHz).



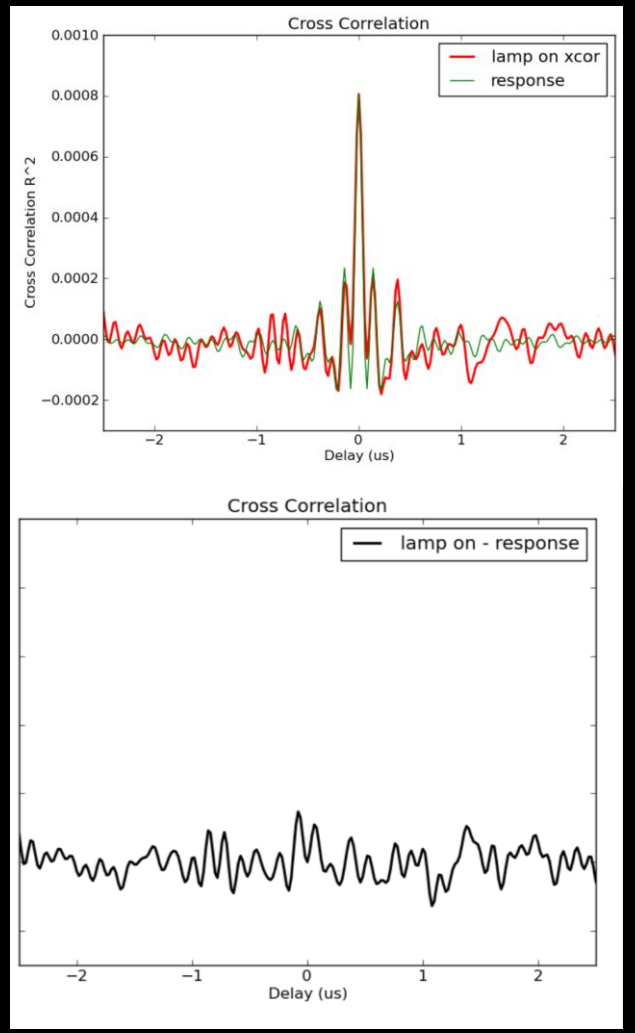
Cross correlation of dataset.

How can we prove what this is? Either photon bunching or something else.

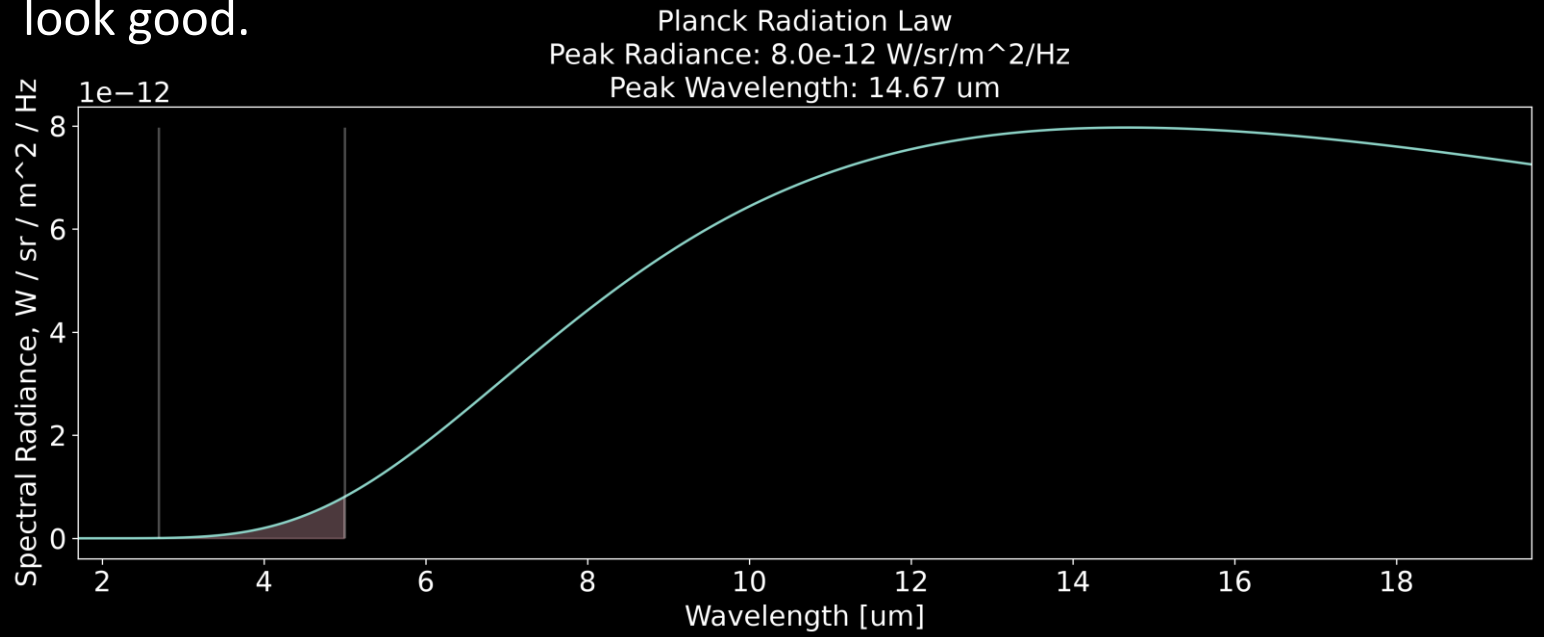


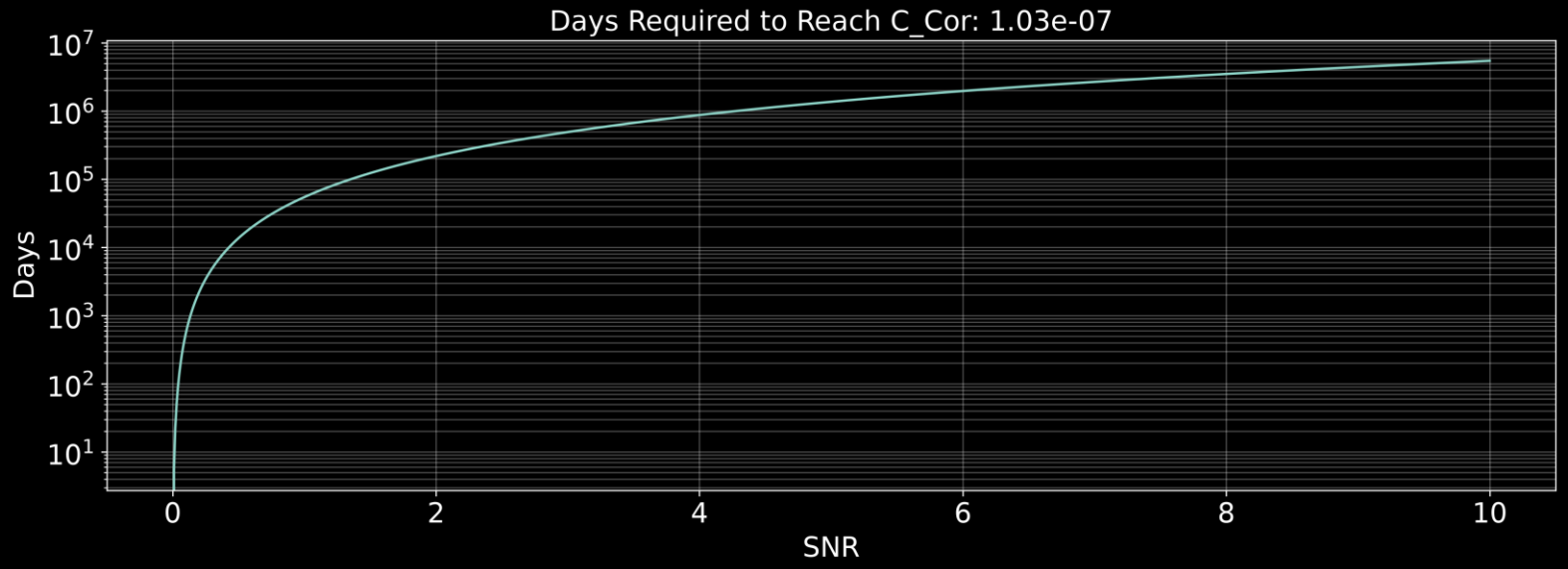
Our cross-correlation data

Neben Thesis for referece



Using Blackbody Analysis, we can predict how long we need to measure to resolve photon bunching. It doesn't look good.



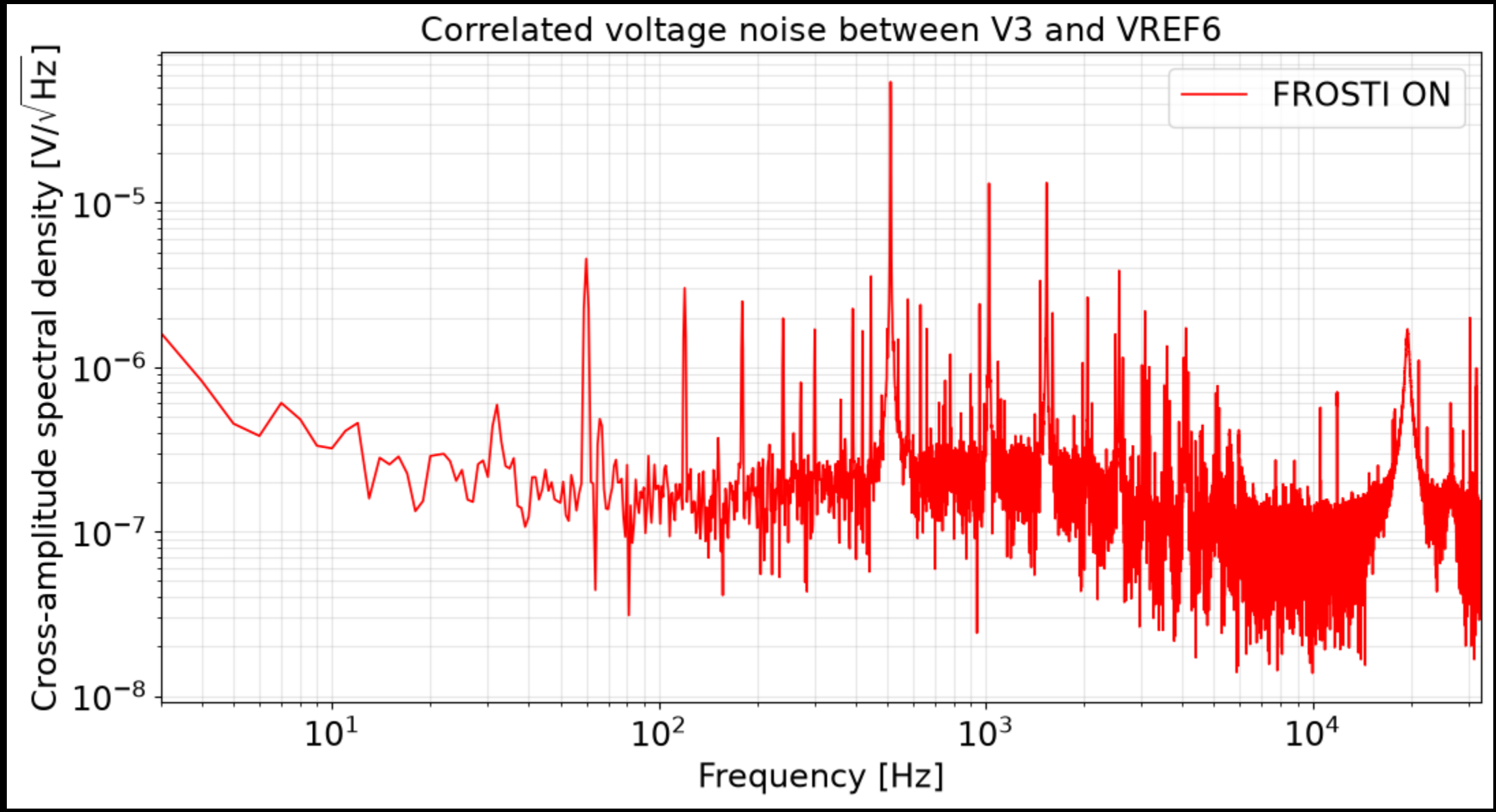


Source	FROSTI (348K)	Neben Lamp
Occupation Number, n	1.7e-4	0.44

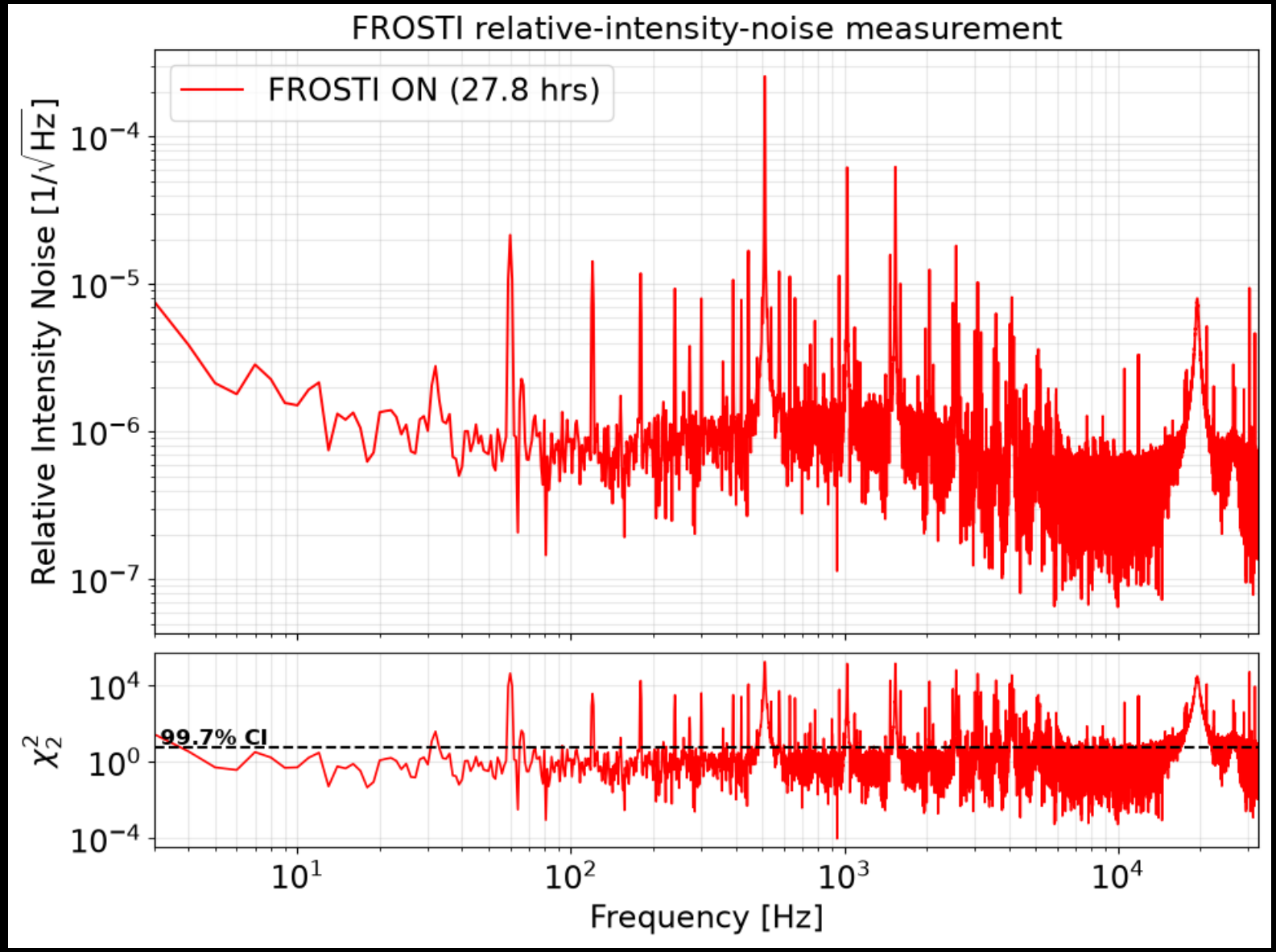
FROSTI's occupation number is quite low. There is much less photon bunching occurring compared to our reference. This produces a very small xcorr.

$$C_{cor} = n\frac{S_{shot}}{S_{shot} + S_{amp}}$$

```
temp = 348 # K
lam_min = 2.7e-6 # PDAVJ5 Data Sheet
lam_max = 5e-6   # PDAVJ5 Data Sheet
NEP = 14e-12 #W/root(Hz) PDAVJ5 Data Sheet
P_sat = 200e-6 # W Saturation Power PDAVJ5 Data Sheet
RESP = 1 # PDAVJ5 Data Sheet
```



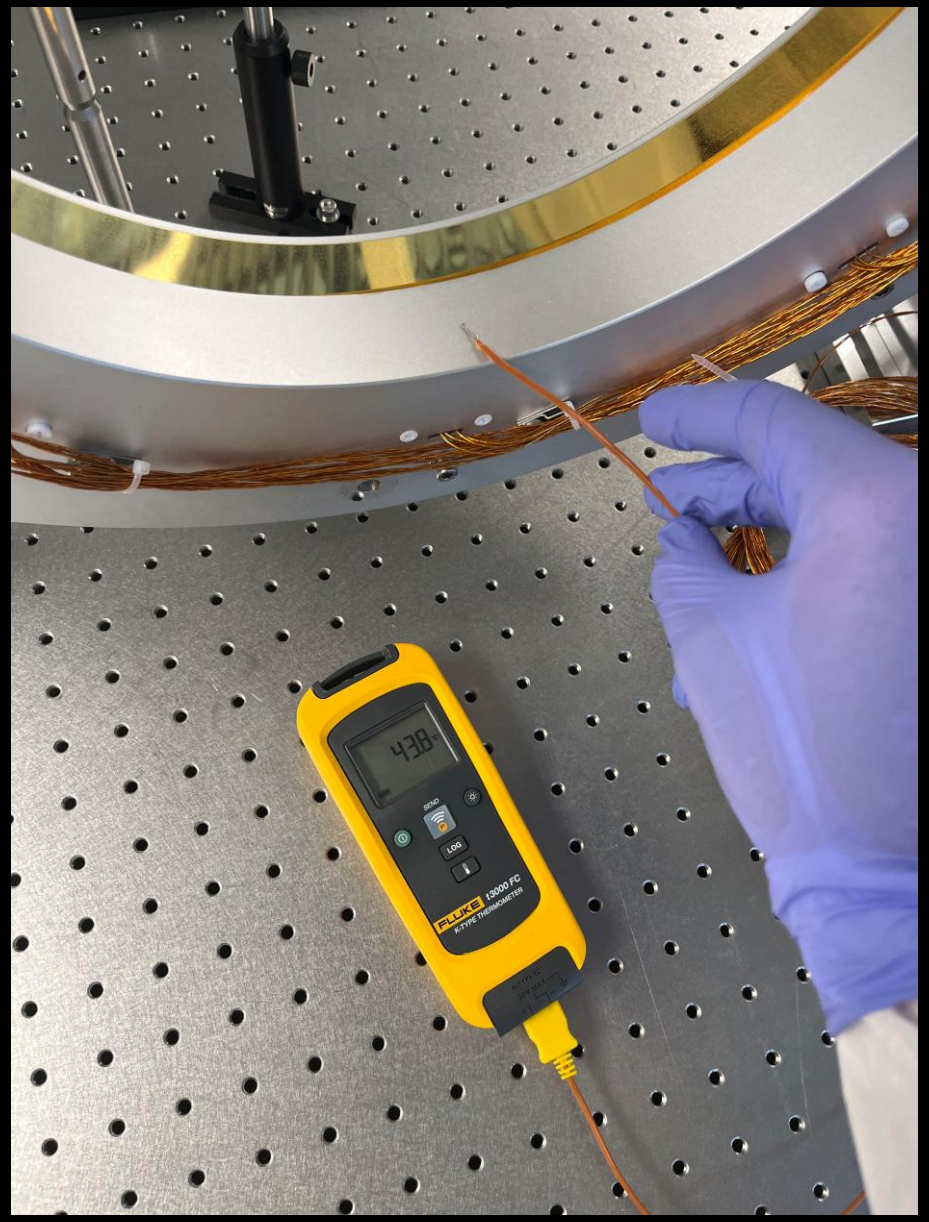
We are working to use higher sample rate data, fs = 65kHz. Current CSD readout



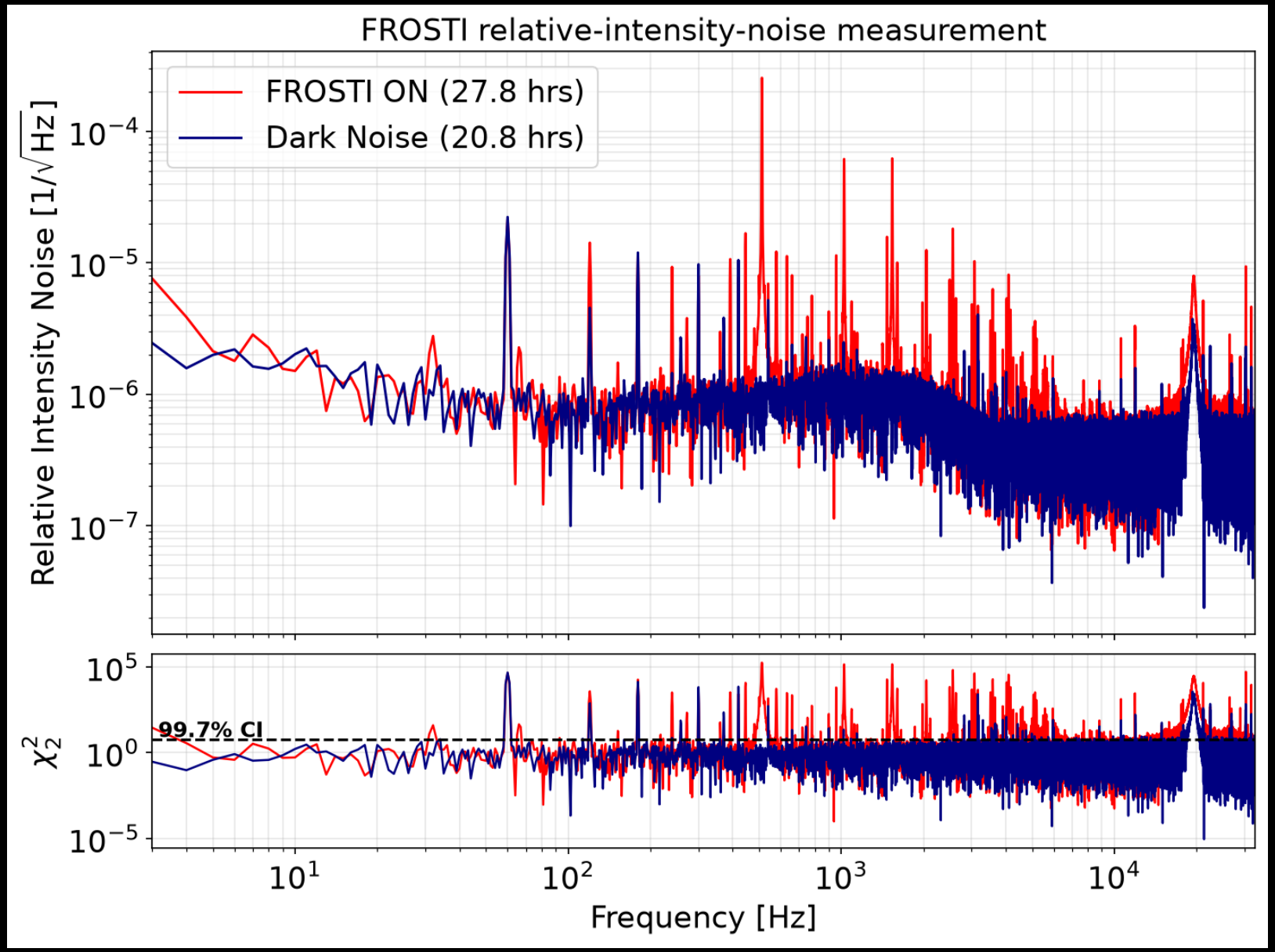
fs = 65kHz measurement projected to RIN

Questions:

- How can we test our cross-correlation to be photon bunching, or something else?
- How can we compute a predicted C_cor value for the bunching?
- Can we increase FROSTI temperature further?
- How to proceed if photon bunching too small to measure in 3 weeks



Aluminum frame is heating up. All around the instrument is ~40C



Latest measurement projected to RIN with dark noise