



EMC WG Teleconf 03/09/2020 RPW status



Laboratoire d'Études Spatiales et d'Instrumentation en Astrophysique

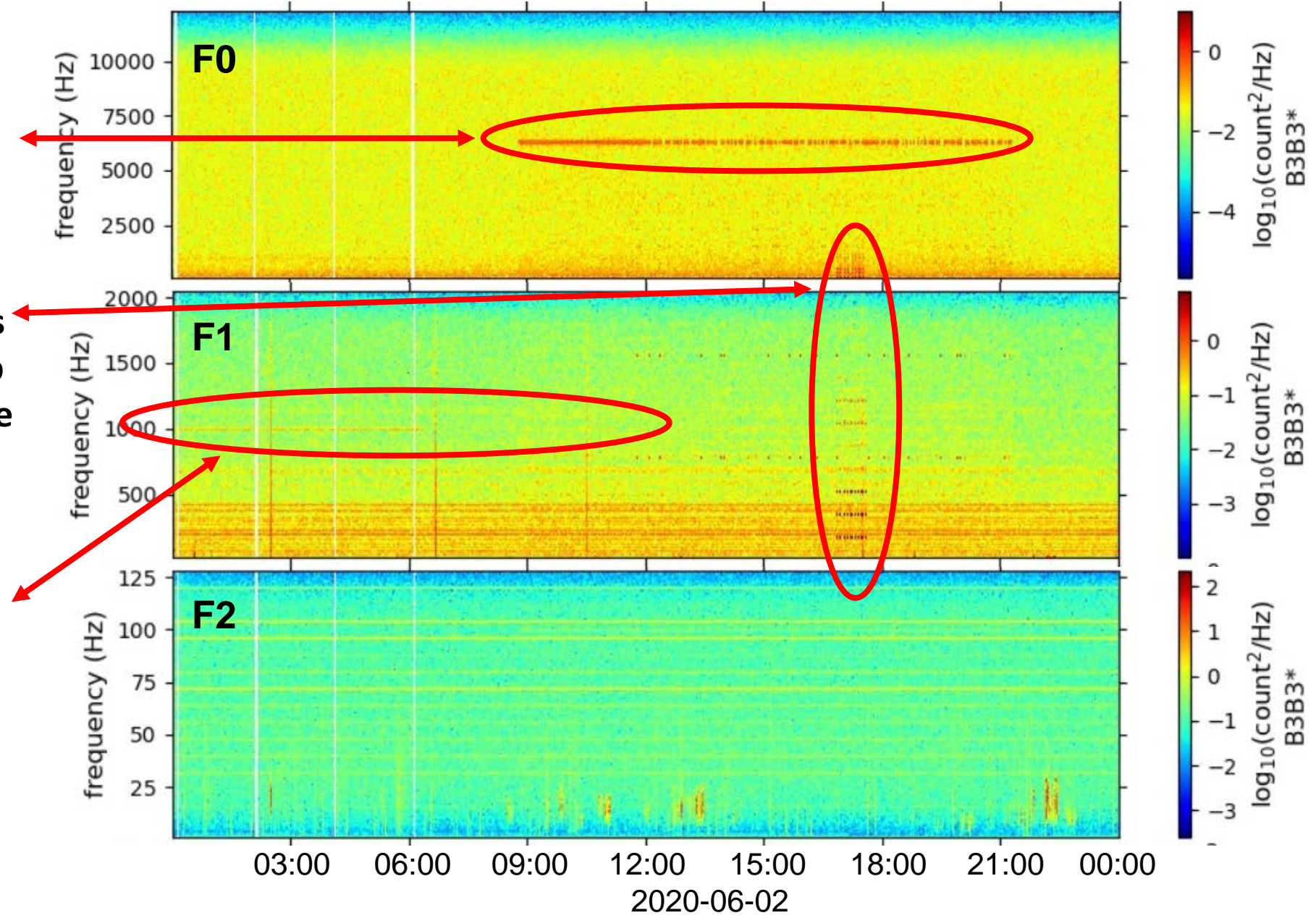


**LFR – magnetic
June 2nd**

- spurious at ~6300Hz during all the time HI was on (from ~8:47 up to ~21:17)

- broadband noise/harmonics up to 3000Hz, from ~16:47 up to ~17:47, which may coincide with EUI to EMC Mode 2 (IU_EMC-3-16-mode-2)

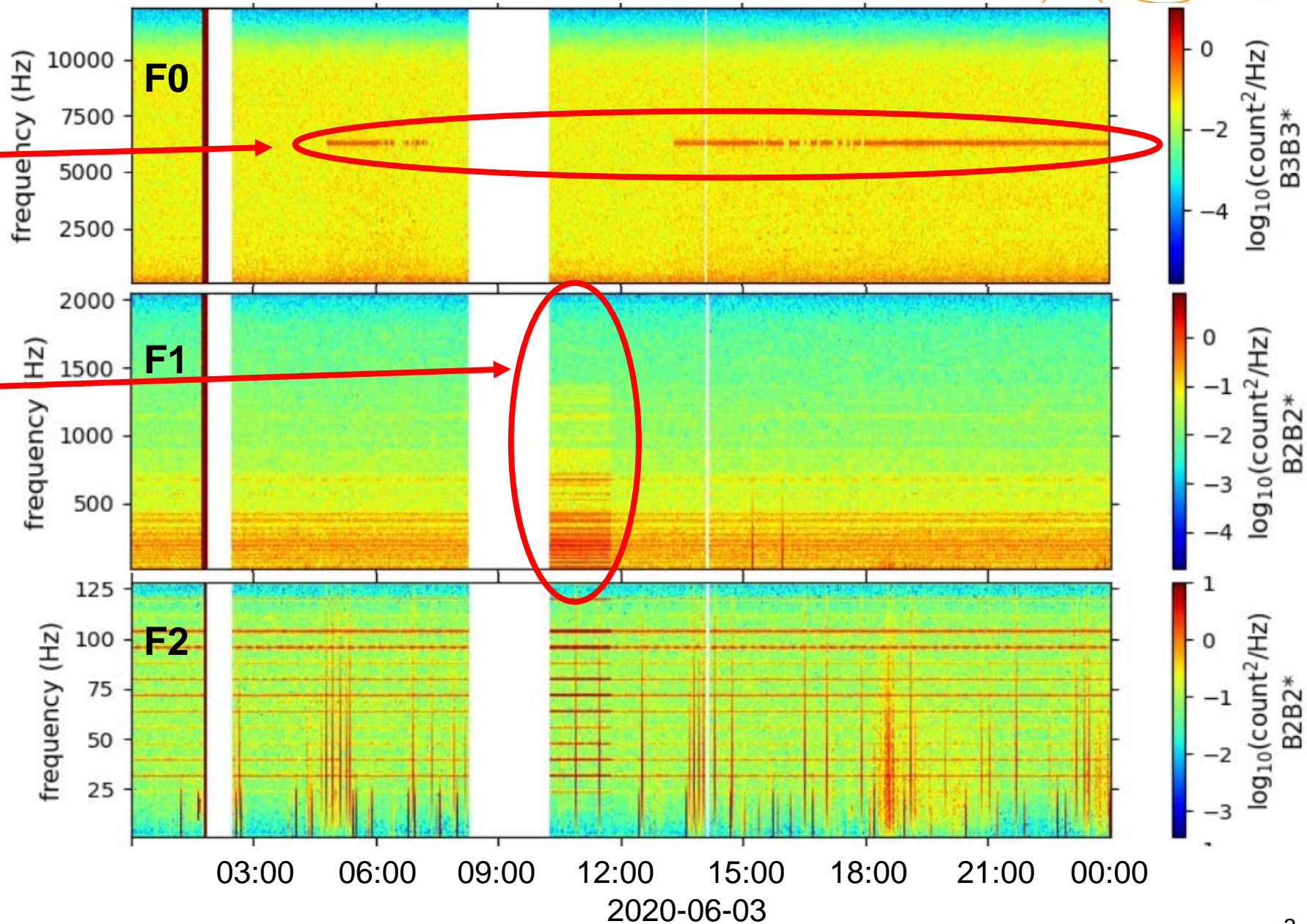
- spurious line at ~1000Hz which disappears apparently just before EMC campaign starts June 2nd, ~7:00 (better seen on B1B1*)



**LFR – magnetic
June 3rd**

- spurious at ~6300Hz,
corresponds to SoloHI to Safe
(@04:47) - SoloHi Off (07:17).
After 12:00 ?

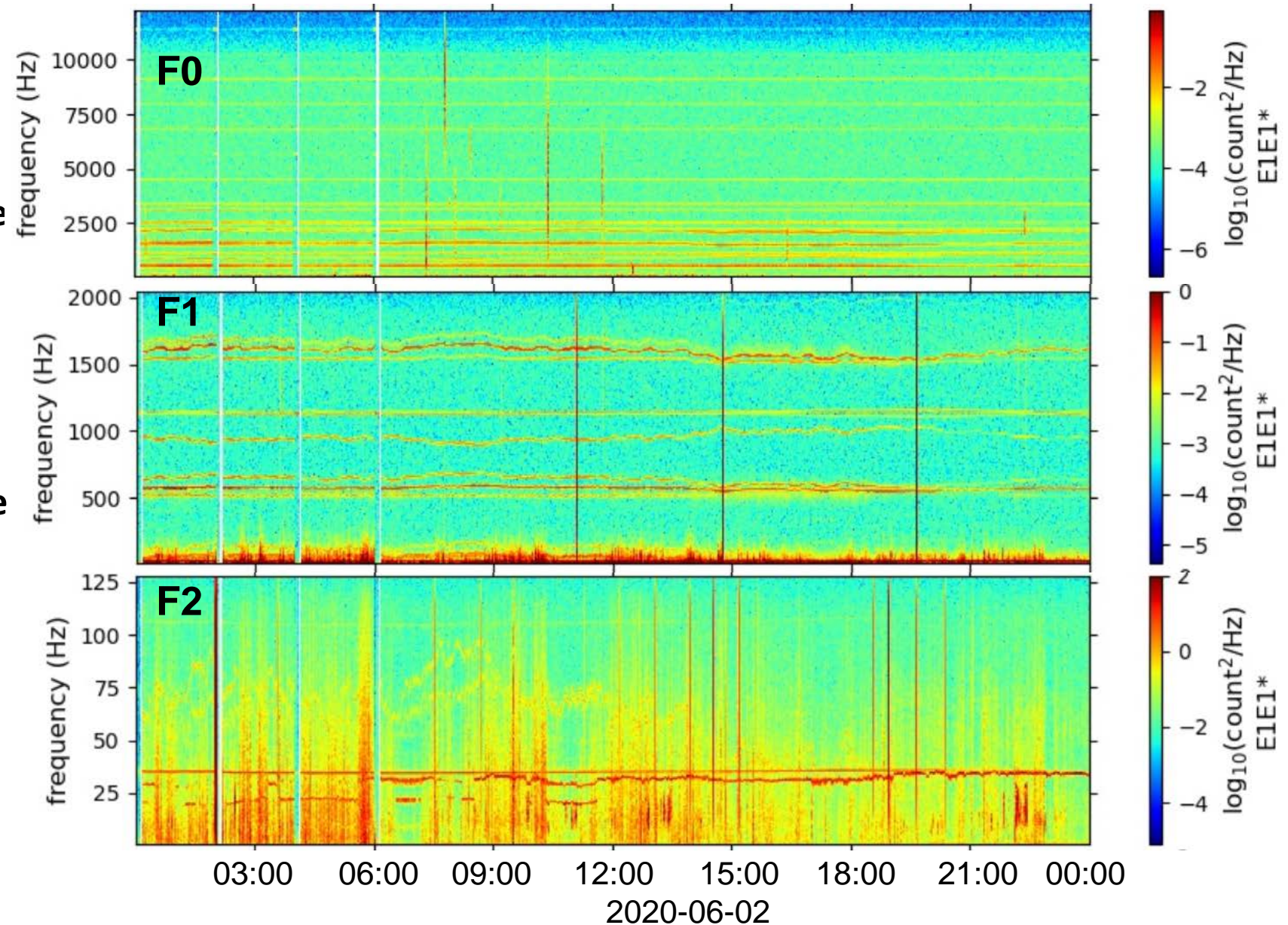
- Another broadband
noise/harmonics up to 1500
Hz. Source ?



LFR – electric June 2nd

- No obvious perturbations associated to the working of other instruments

- sharp increases of intense electrostatic broadband noise appearing as vertical lines in the spectrograms could be due to the switching on/off of certain instruments (to be confirmed)



TDS

- No extraordinary perturbations that would come and go with the instrument activity.
- We see the known platform emissions + know internal RPW weak signals
- the only thing we observe is a very faint 250 kHz emission which comes and goes, I assume this is some heater. But it is so weak it is not important.

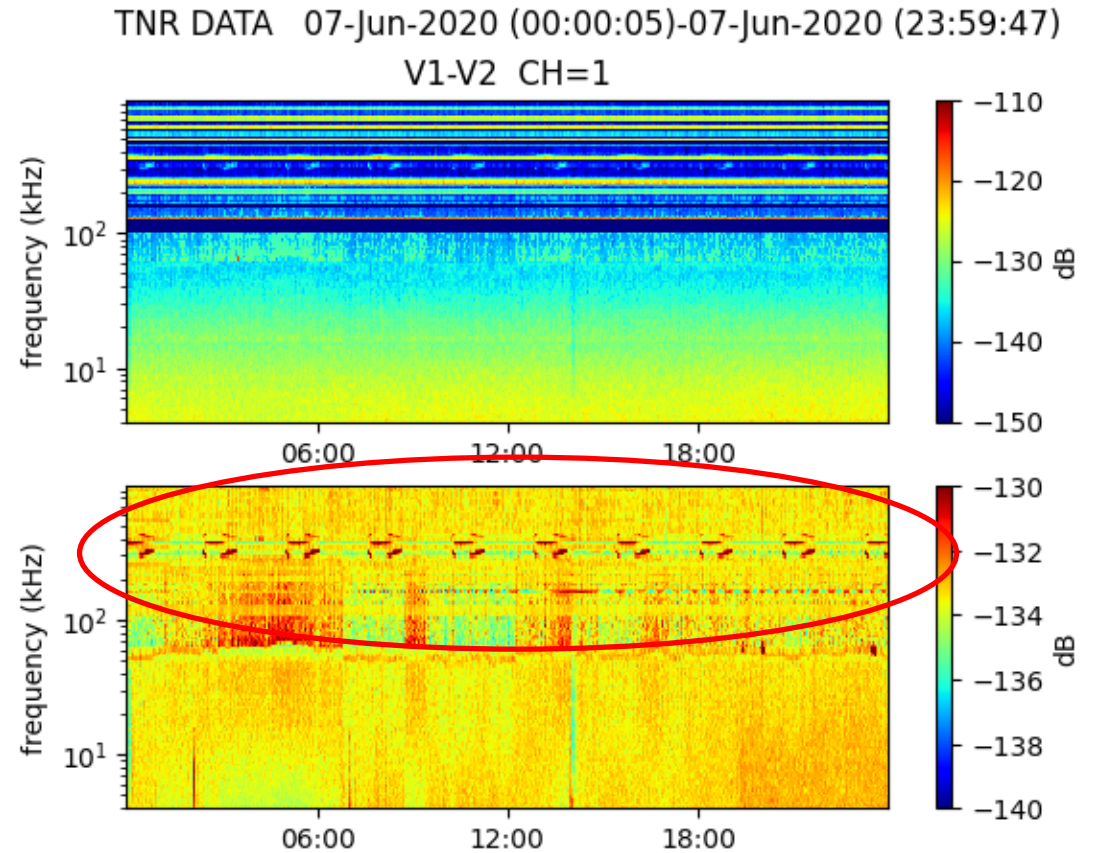
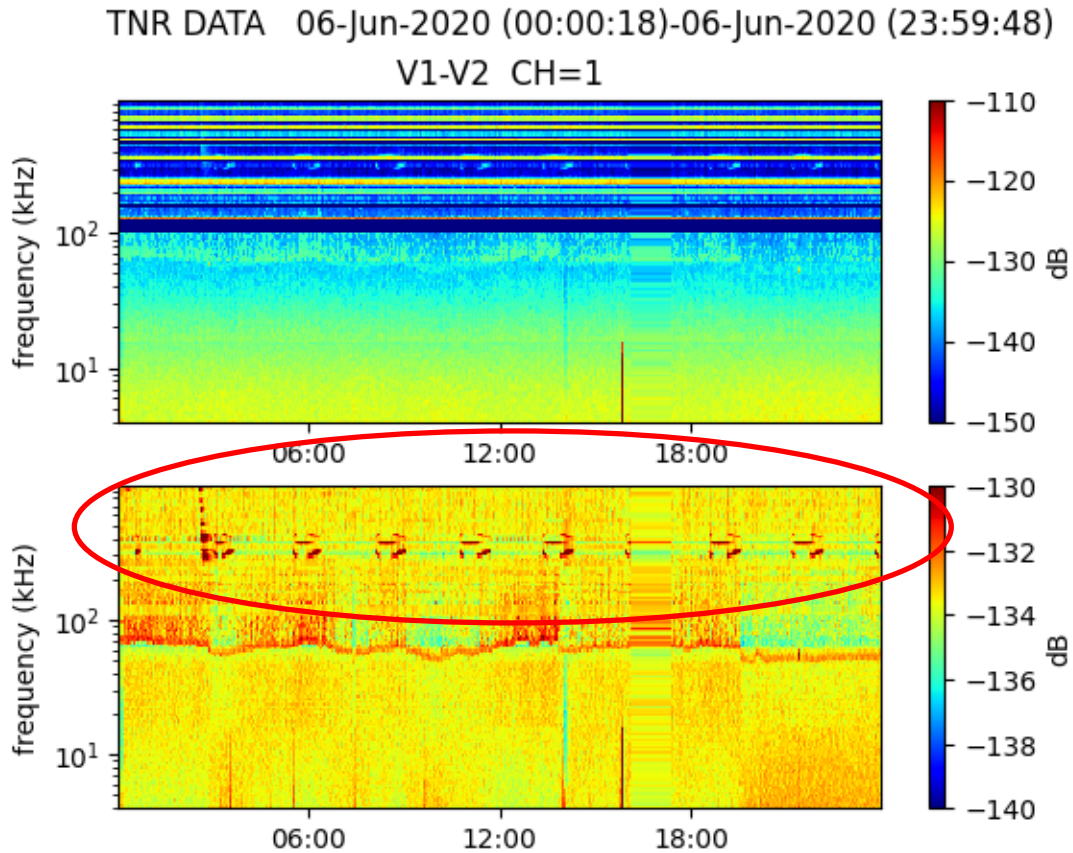
TNR-HFR

- From a first quicklook at hourly TNR-HFR we do not see any extra perturbation (to the already know platform spurious and harmonics)
- We need to perform a more detailed automatic search
- Not related to the EMC campaign : Antonio Vecchio is working on the coupling between solar pannels and RPW antennas and effect on the 120 kHz

First very preliminary outcome of the RPW EMC campaign

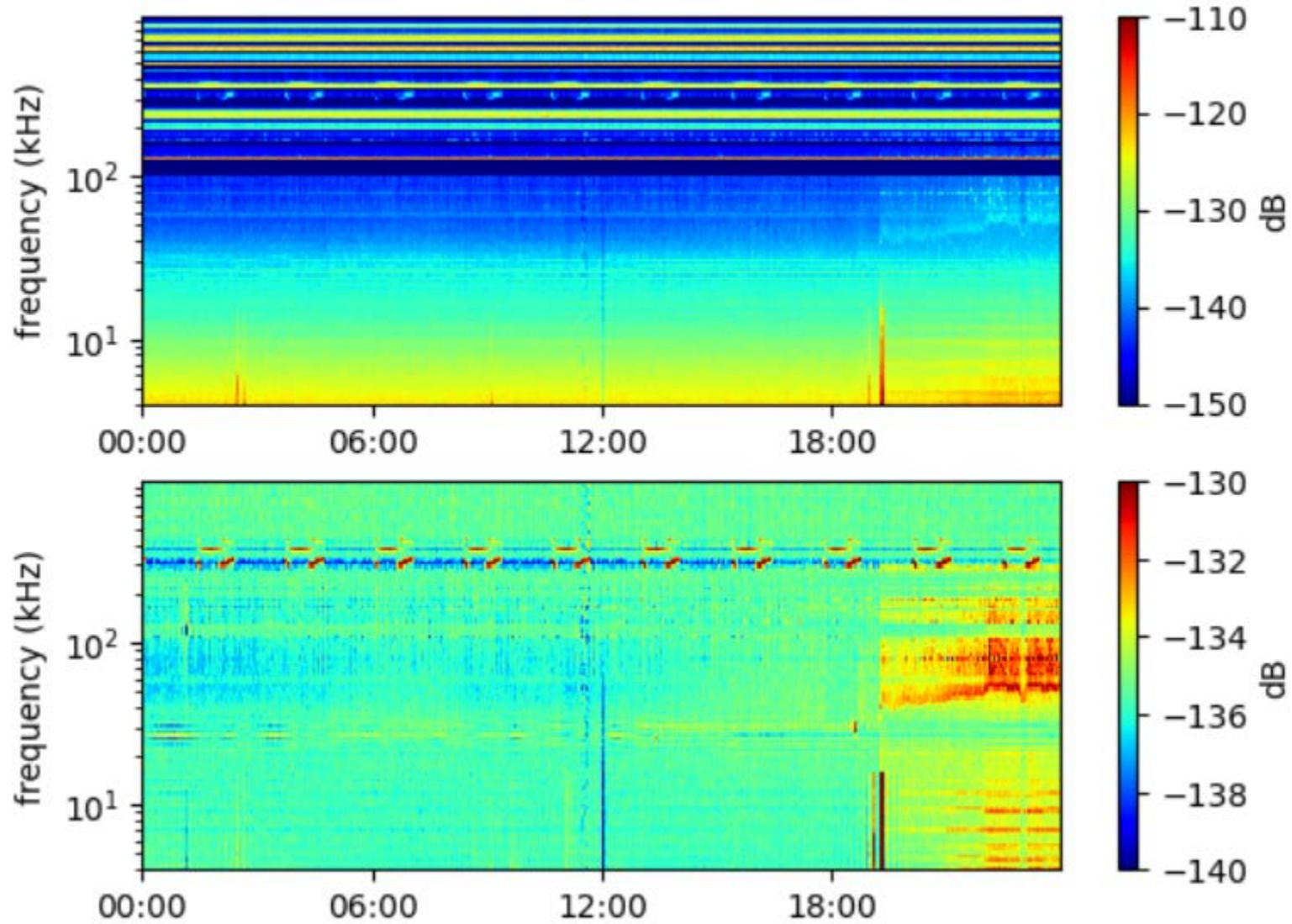
- Solo-HI may not be compliant in some modes (spurious @ ~6300Hz)
- EUI in EMC Mode 2 (IU_EMCC-3-16-mode-2) may not be compliant
- More work is needed

290 – 360 kHz electric perturbation



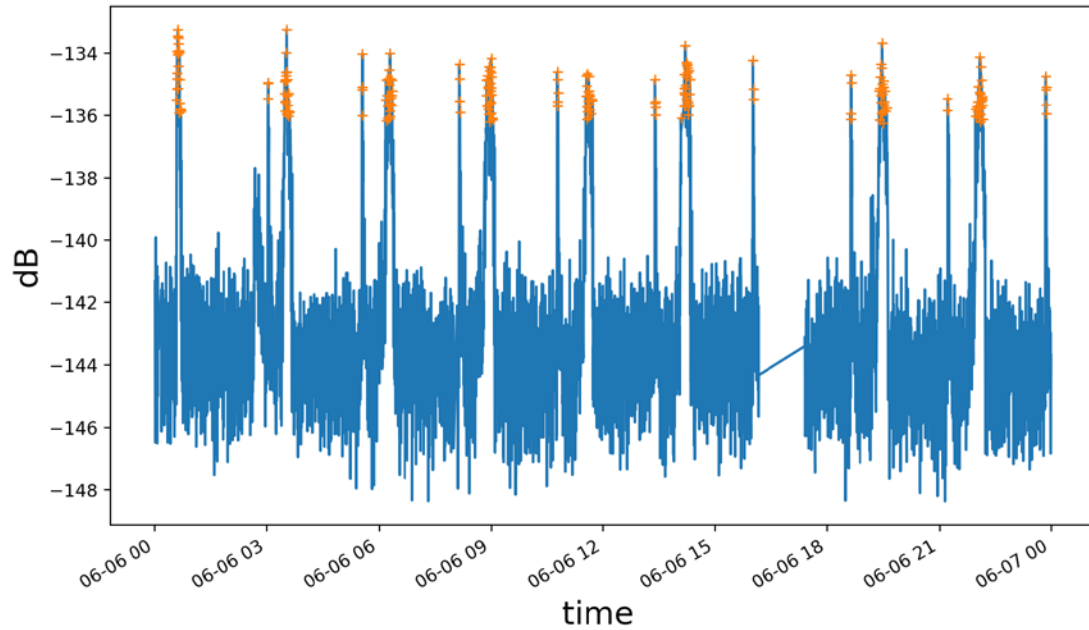
- Appeared on 06/06/2020 0:34:50 and since then always present in the data → NOT present before
- Characteristic pattern strongly periodic
- Observed at TNR frequencies [290.931, 303.812, 317.263, 331.309, 345.977, 361.295] kHz

TNR DATA 20-Aug-2020 (23:59:52)-21-Aug-2020 (23:59:10)
V1-V2 CH=1



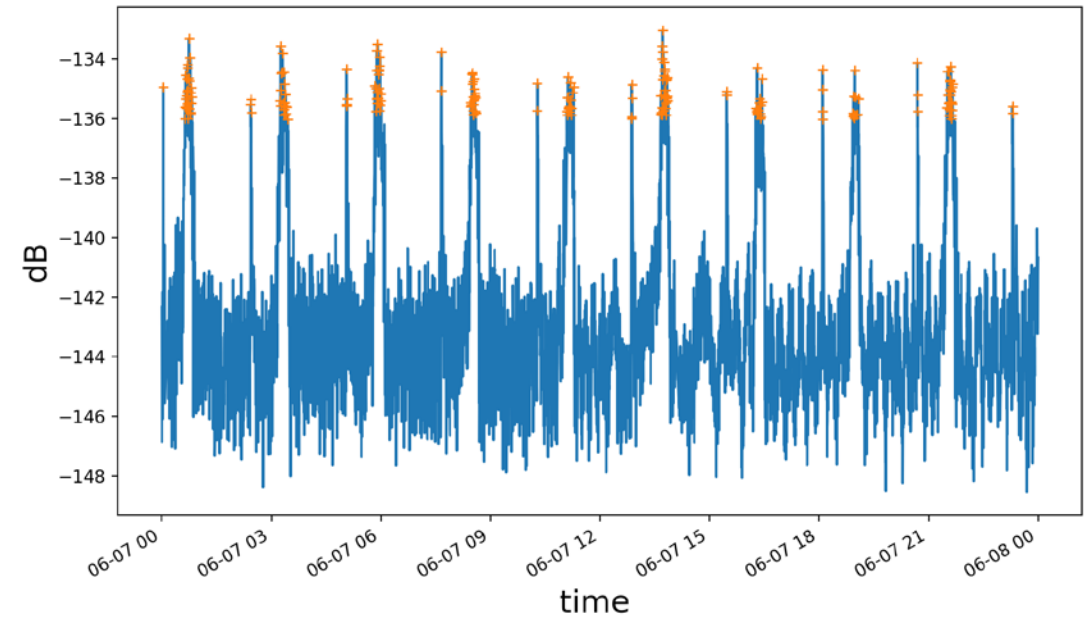
06 June 2020

303.812 KHz



07 June 2020

303.812 KHz



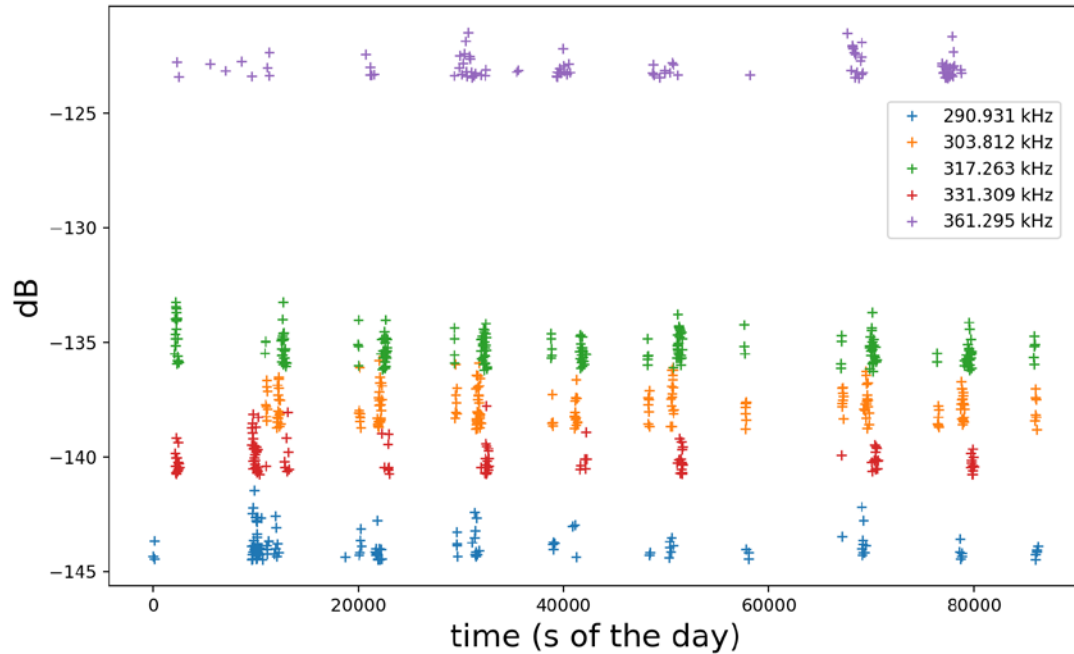
Time evolution of the spectrum at 303.812 KHz:

- periodic interference peaks clearly observed
- 2 main periodicities observed

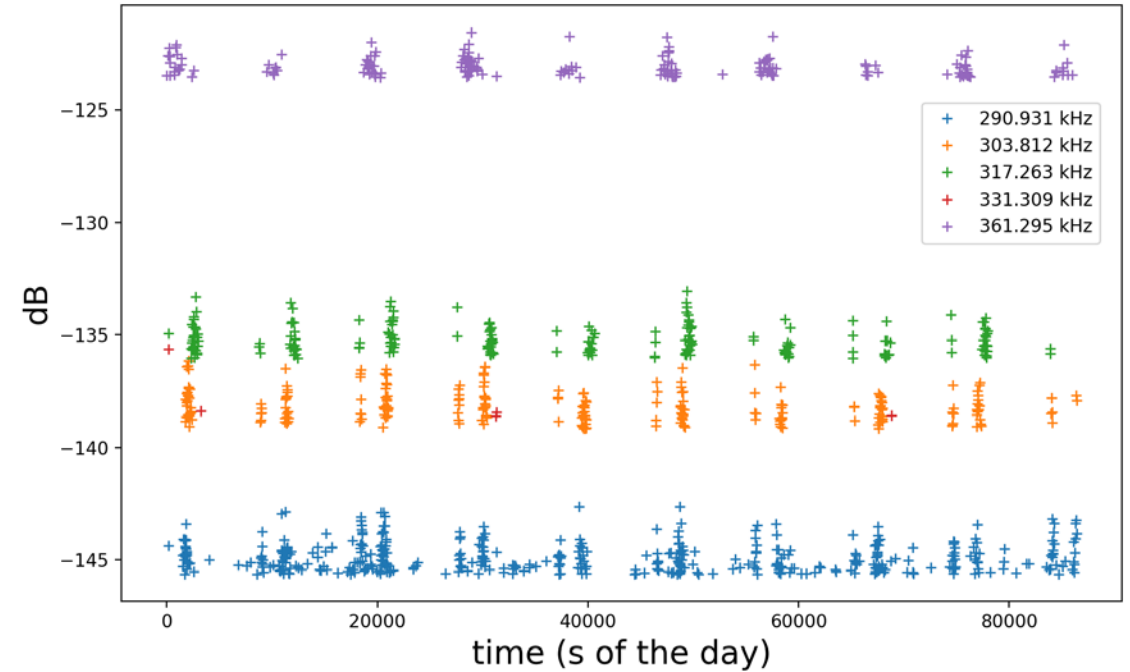
Interferences have the highest power → threshold to select time of occurrence



06 June 2020

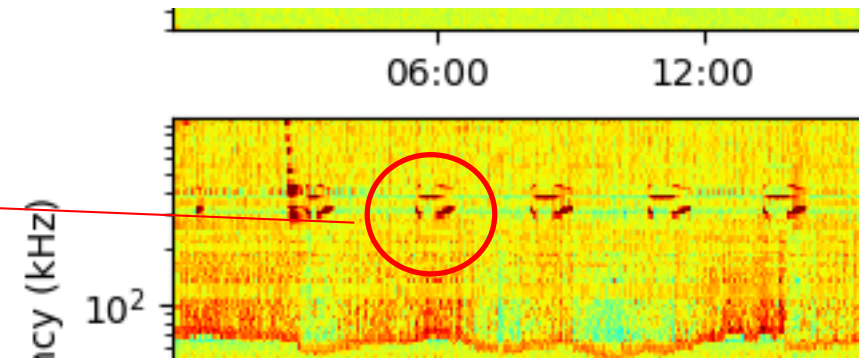


07 June 2020



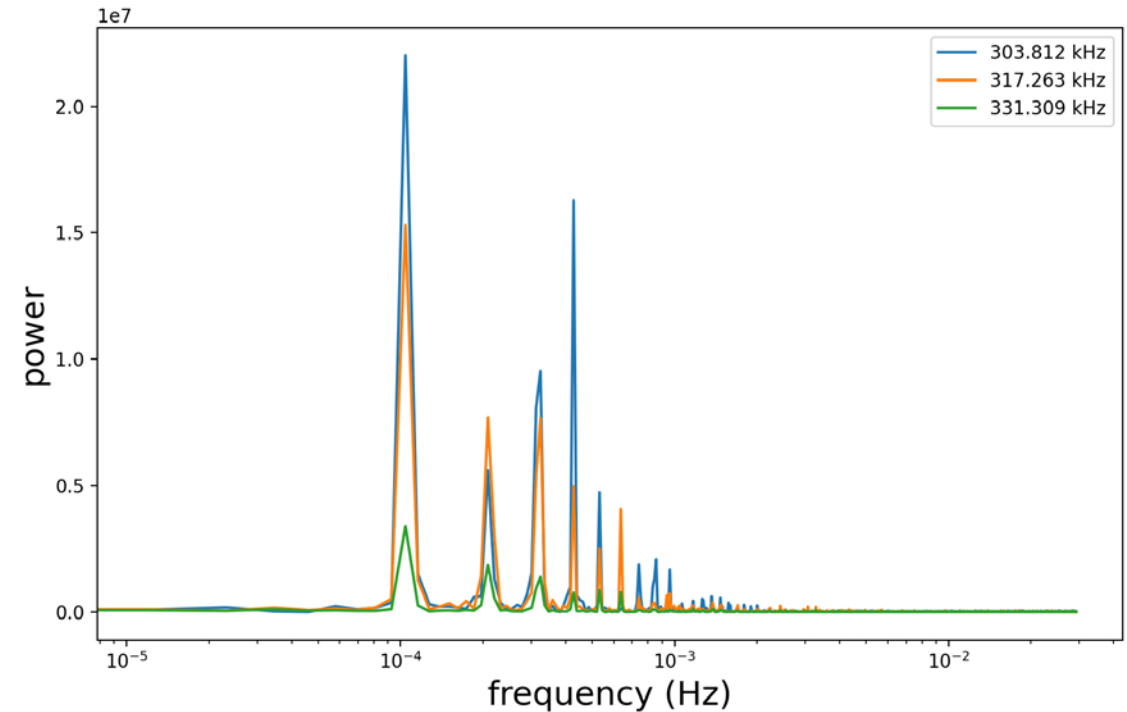
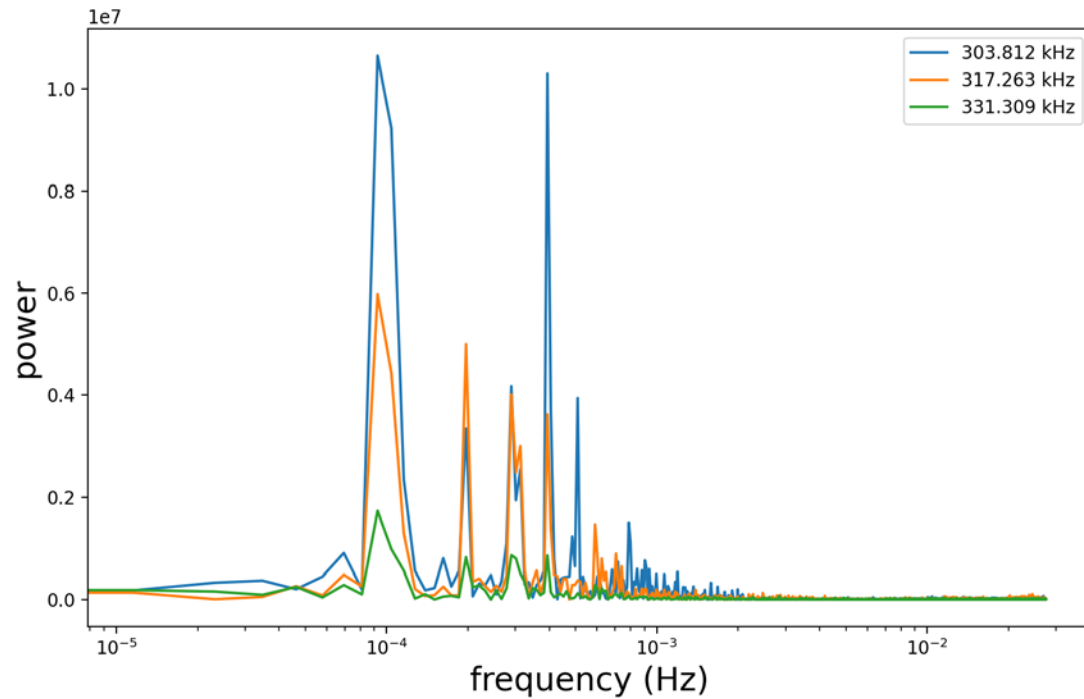
Occurrence of interference lines for all the considered frequencies:

Interference at the frequency of about 331 kHz seems to occur later, this is also clearly visible in the dynamic spectrum.



06 June 2020

07 June 2020



Main peaks associated with this interference:

- 0.0001 Hz / 2.7 h
- 0.0002 Hz / 1.4 h

Possible source:

262 kHz mag heater ?

Star Tracker?