

Max-Planck-Institut für Physik
(Werner-Heisenberg-Institut)

Measurement @ UHH

+ Comparison with DESY North-hall

MadMax-Workshop
Paris

O. Reimann for the MADMAX-Group

May 10, 2017

Outline

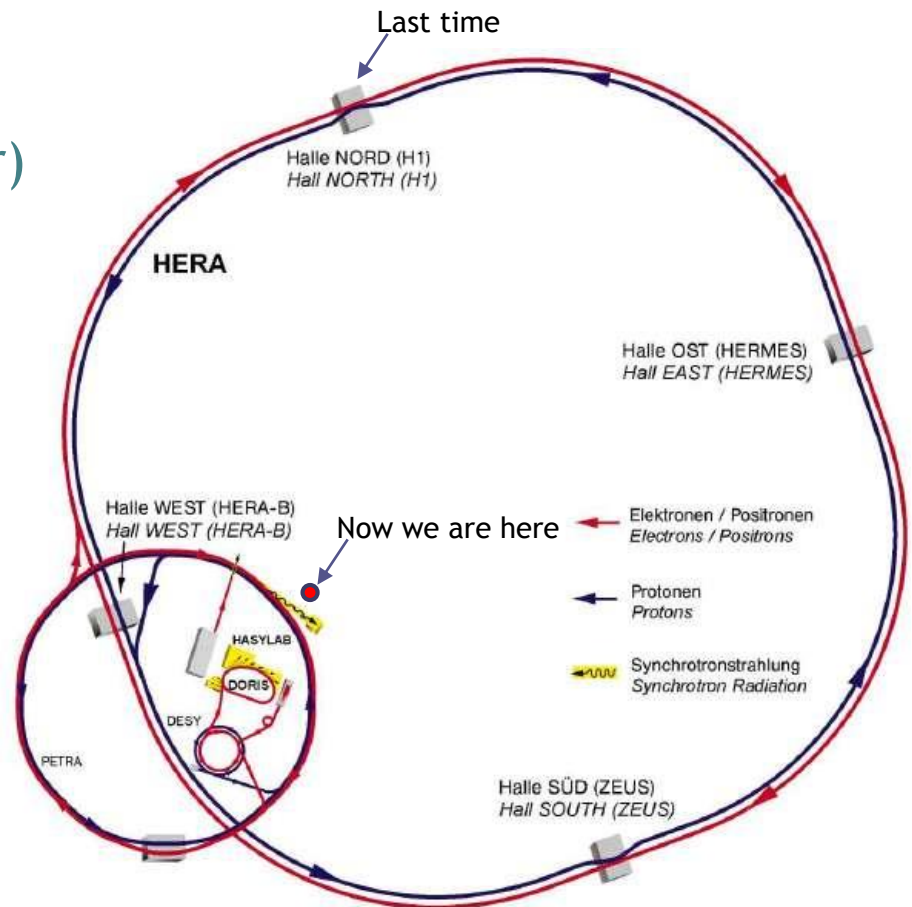
- Requirements for the MadMax-experiment site
- UHH measurements and comparison with DESY north-hall

Requirements (Reminder)

- Low electromagnetic background
 - < 10GHz: < -50dBm
 - > 10 GHz: < -100dBm
 - Not very tight requirements

UHH Background Measurement

- Test @ UHH Bunker
 - Close to PETRA III experimental building
 - At ground level
 - 2m thick concrete walls, but
 - One “open” side (garage door)
- First test run
 - 0Hz ... 20GHz
 - Looking for suspicious lines
- Continuous run
 - 0Hz ... 3GHz
 - 2 Days

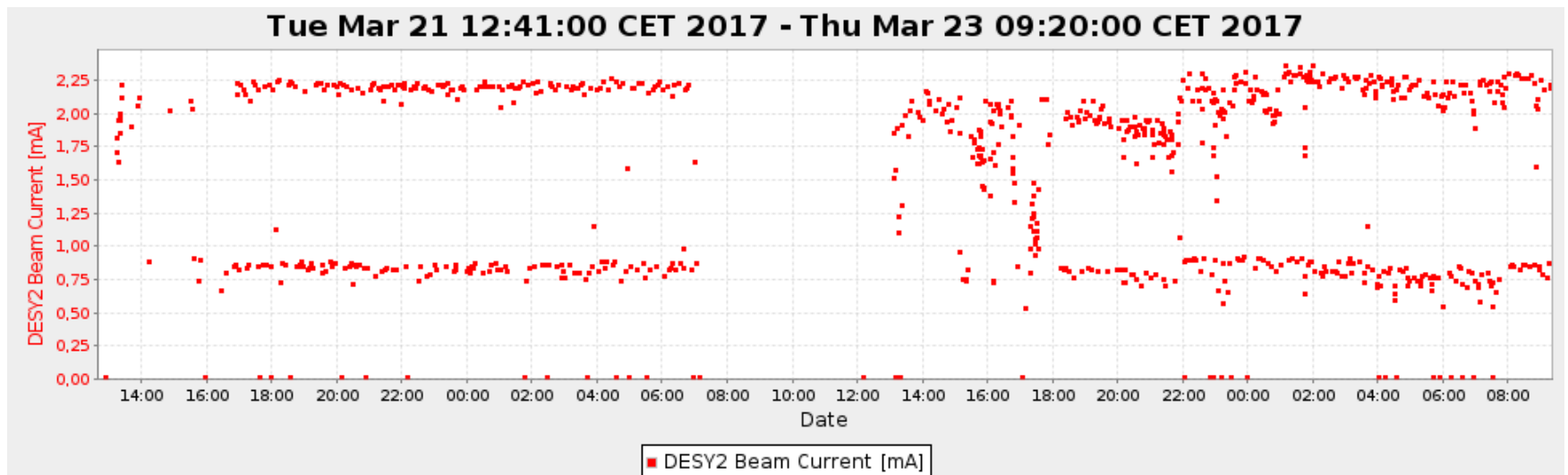


UHH Background Measurement



DESY-RF Activities

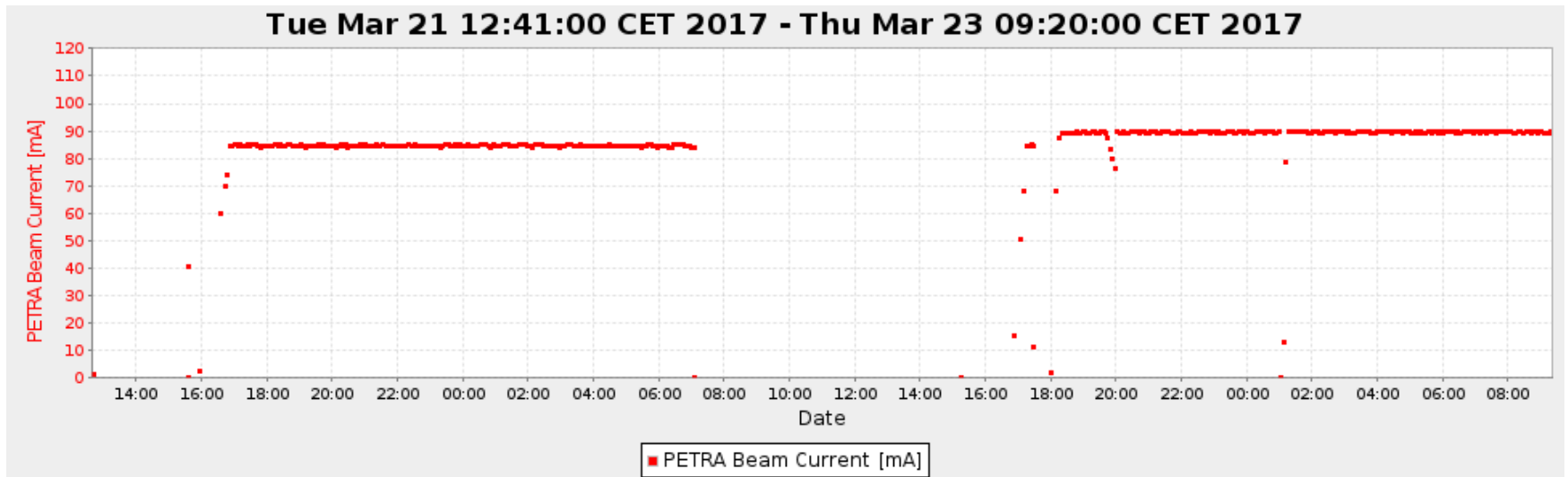
- Lot of activity:
 - DESY2-RF: 500MHz



- RF-data are not accessible

DESY-RF Activities

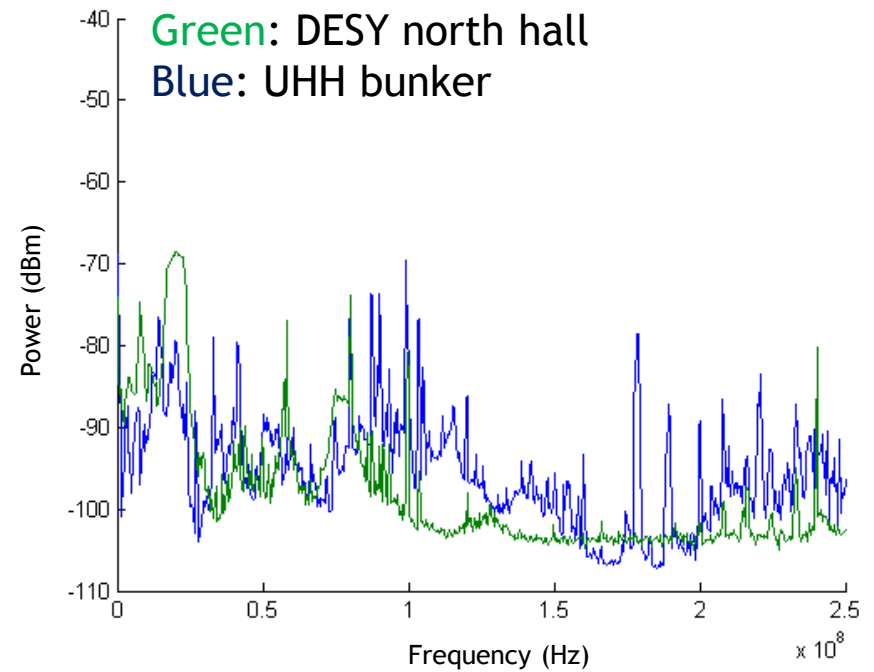
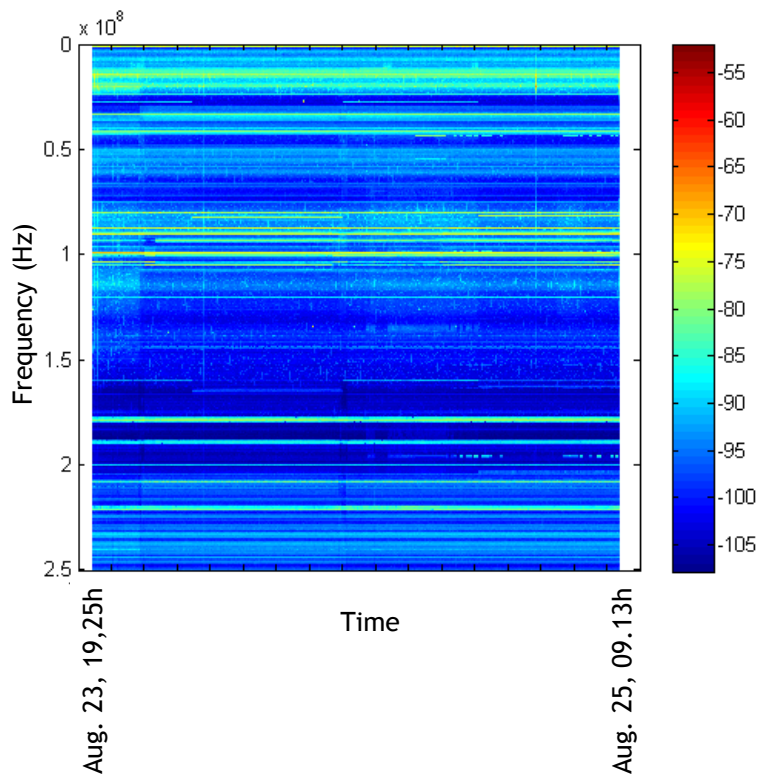
- Petra-RF: 499,564 MHz



- Flash-RF: 1.3GHz (10MW Klystron)
 - Unfortunately I was not able to download data from website (http://photon-science.desy.de/facilities/flash/operation_status/index_eng.html)

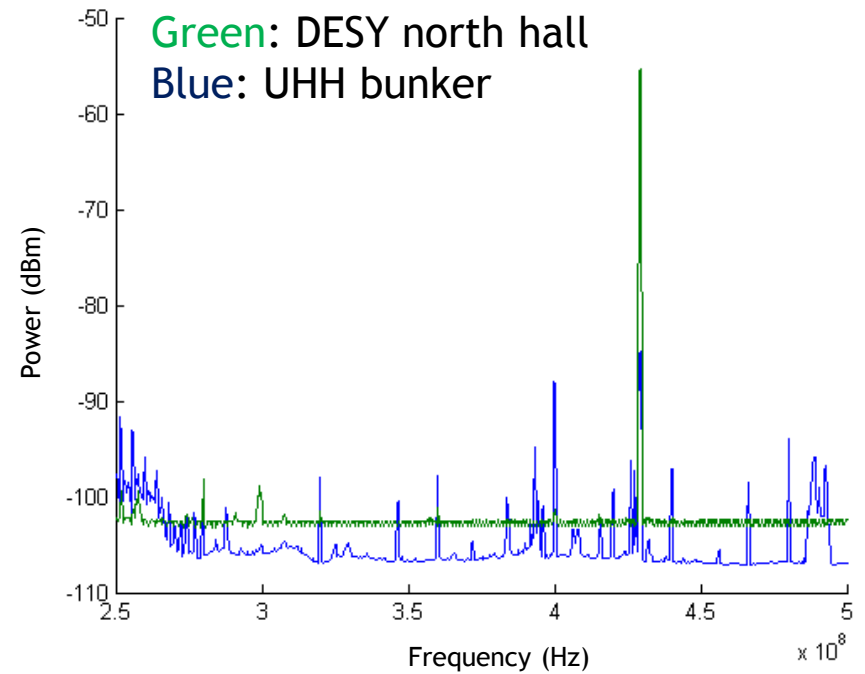
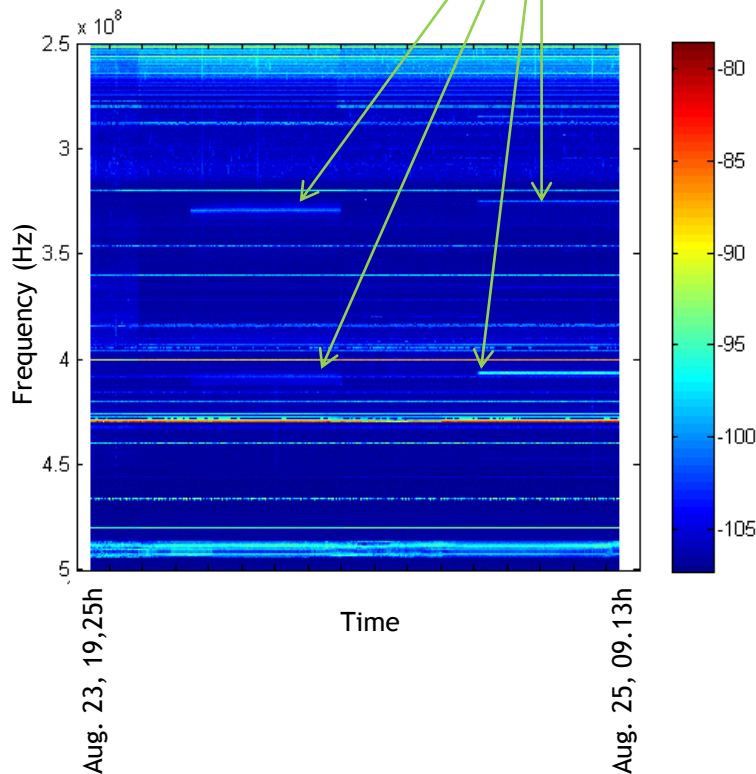
Measurement

- 0MHz - 250MHz
 - More activity compared to DESY north-hall



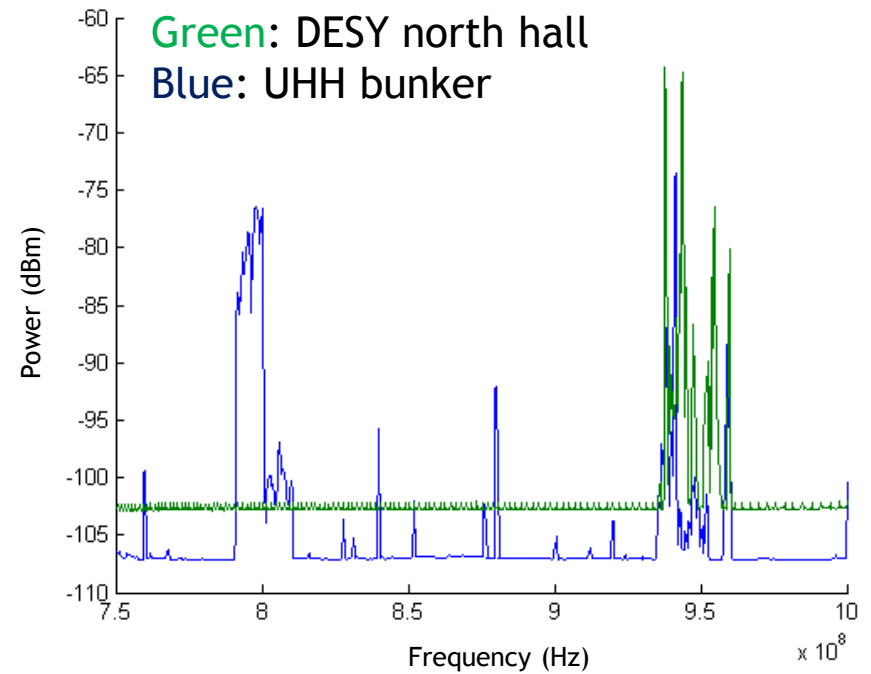
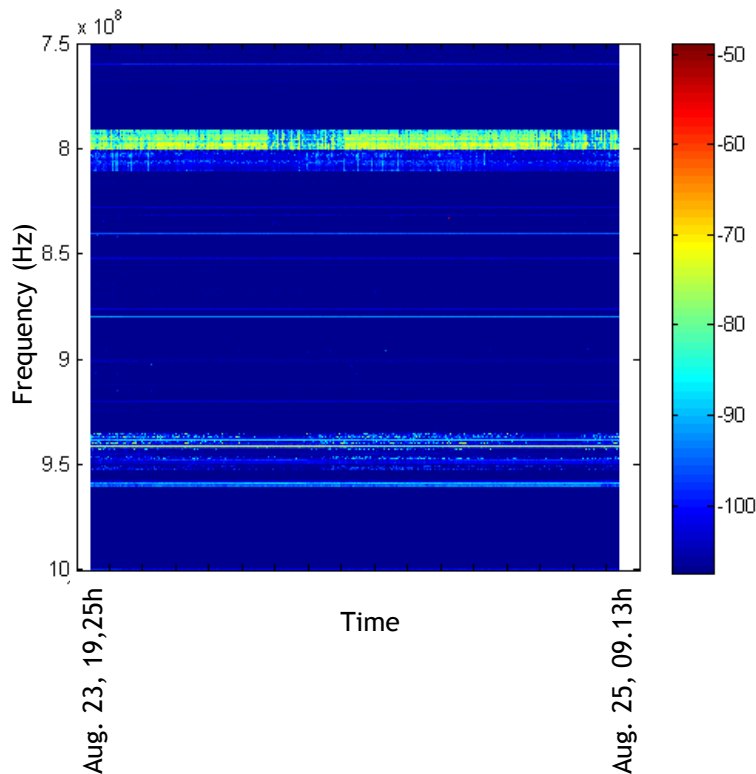
Measurement

- 250MHz - 500MHz
 - Correlated signal with PETRA-RF? (I little bit time shifted)



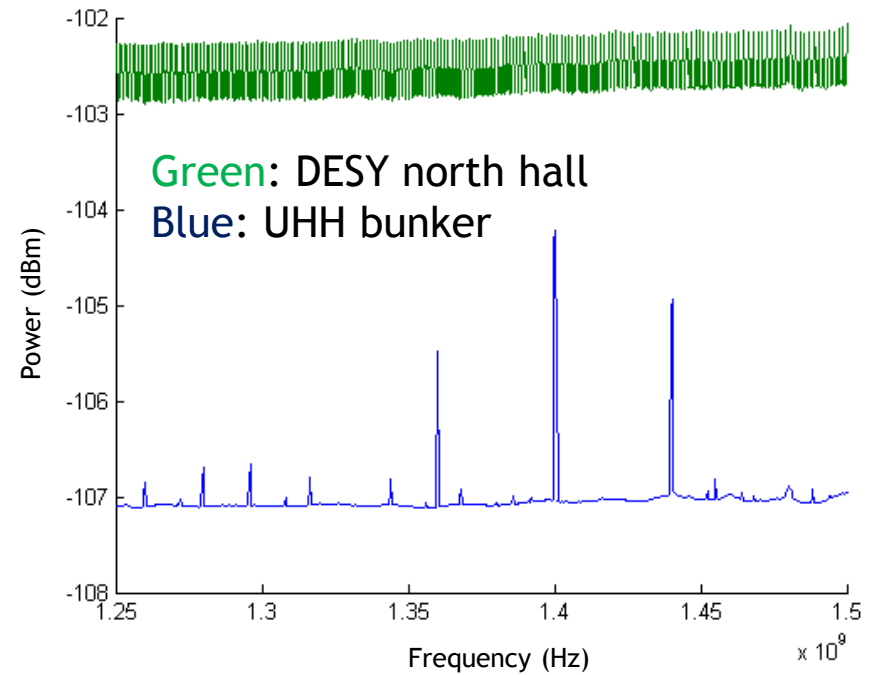
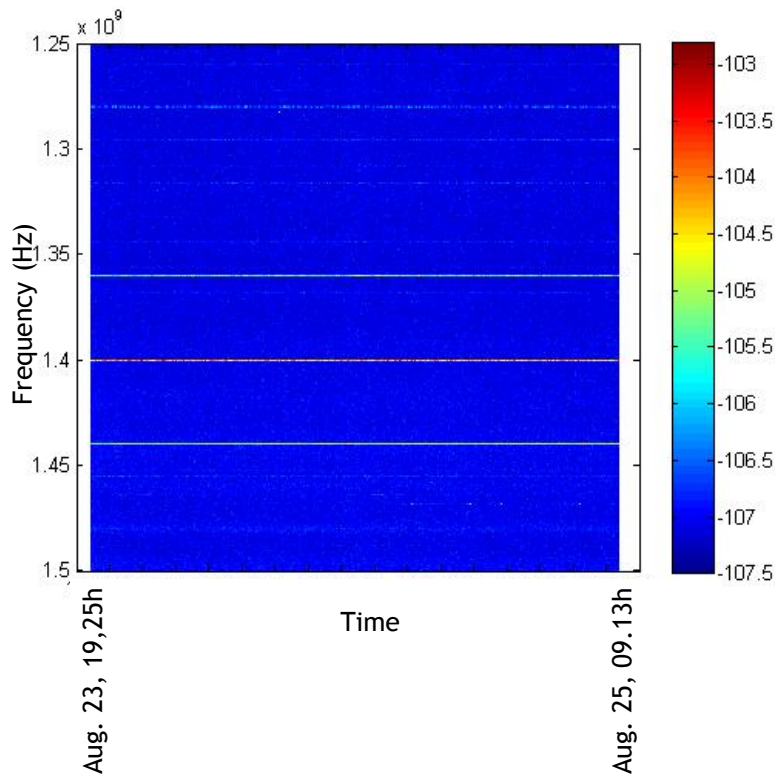
Measurement

- 750MHz - 1000MHz
 - Telekom-transmitter



Measurement

- 1250MHz - 1500MHz
 - Tiny signals (Not relevant)
 - Same for higher frequencies



Conclusion

- Requirements for the MadMax-experiment site are not very tight
- Maybe a signature from PETRA's RF-systems? (Small signal, not at a relevant level)
- UHH bunker seems to be a acceptable candidate for the prototype experiment