FAST: on-going commissioning

Yogesh Chandola
on behalf of The FAST Team
NAOC

FAST construction

Construction completed 2016-09-25

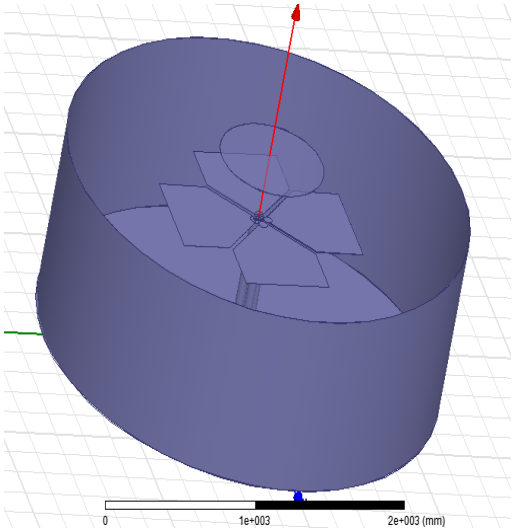
Commissioning

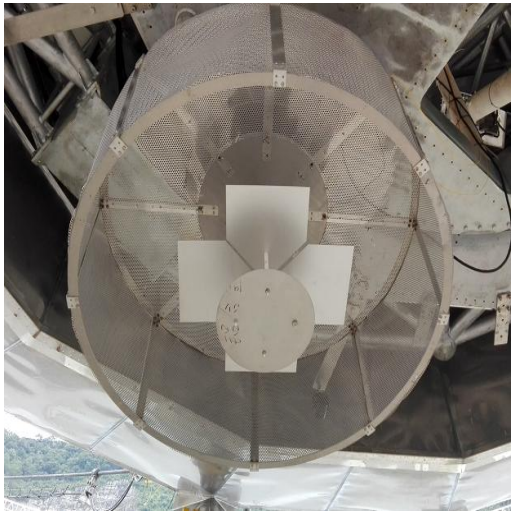
- Receiver system developments
- EMC and RFI
- Measurement and control system
- Surface adjustment

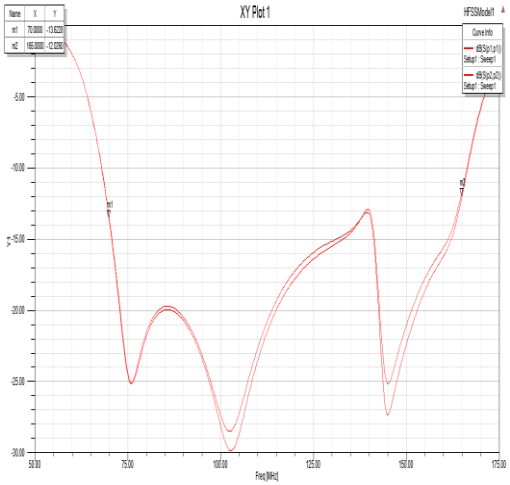
Early Science and test observations

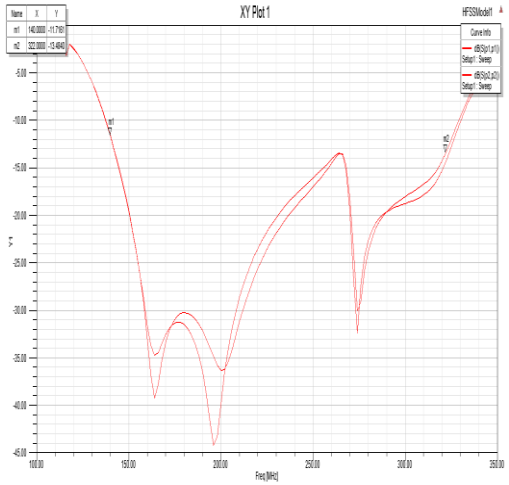
- Pulsar observations
- Continuum sources
- Pointing and Focus calibration
- Flux calibrations
- Commensal observations

140-280MHz Receiver





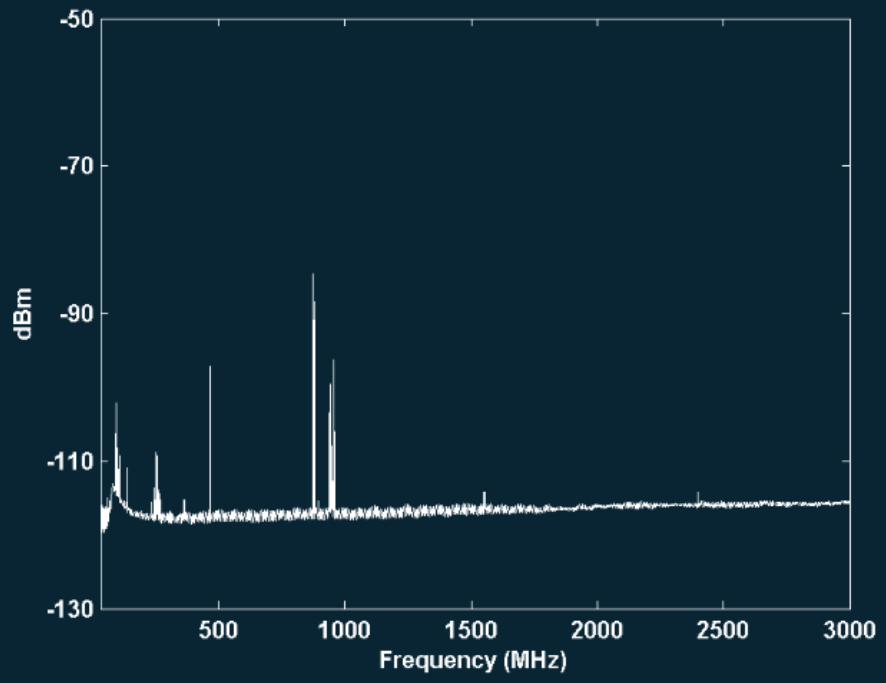




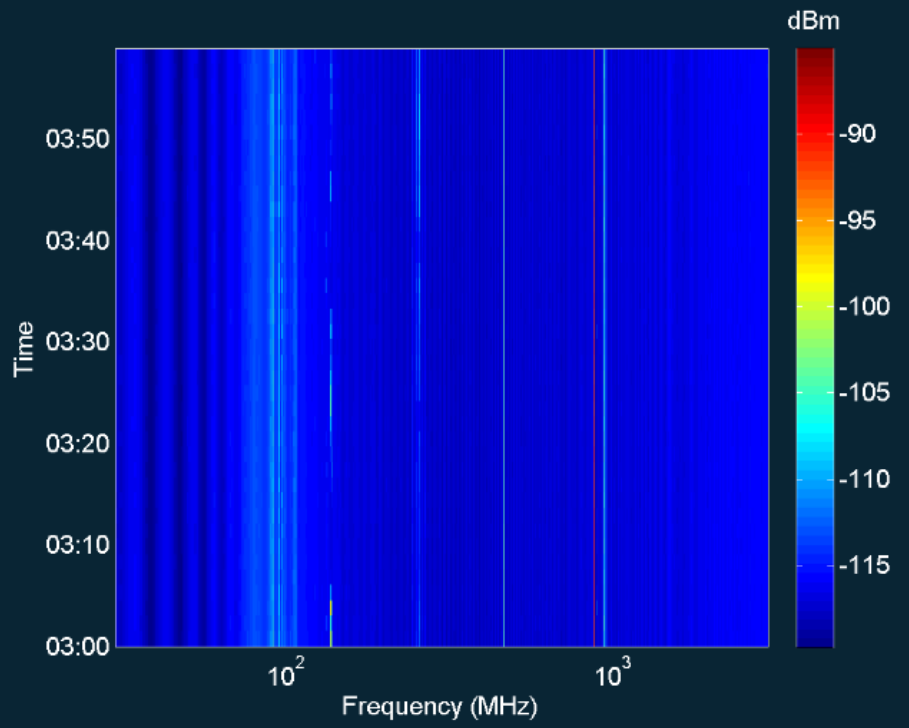
二、EMC and RFI

电磁干扰监测
Radio Frequency Interference Monitor

RFI 频谱
RFI Spectra



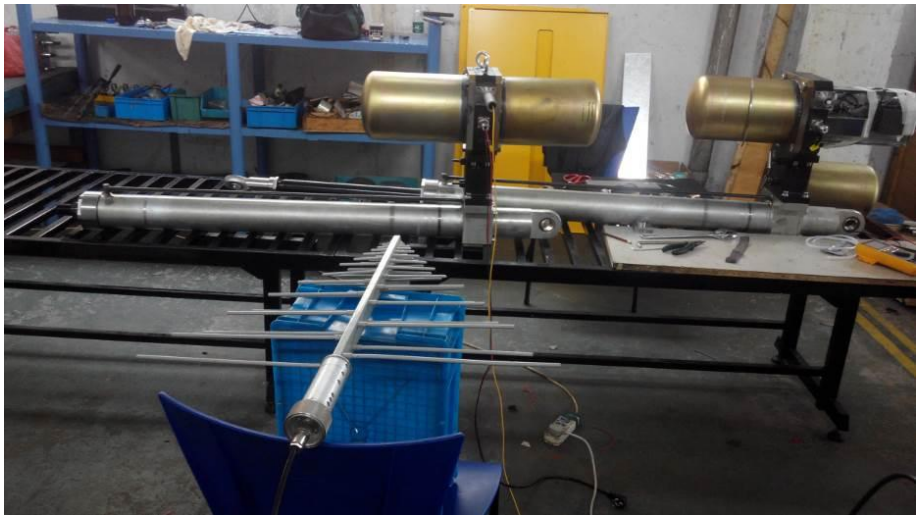
RFI 时变
RFI Waterfall

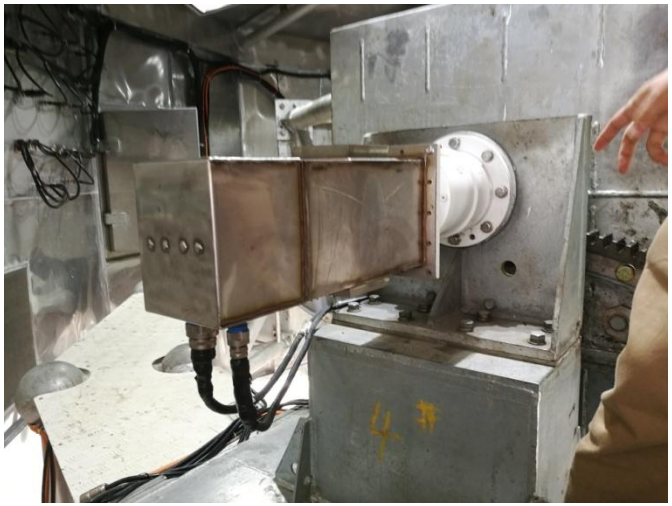


EMC control

- Actuator testing and shielding

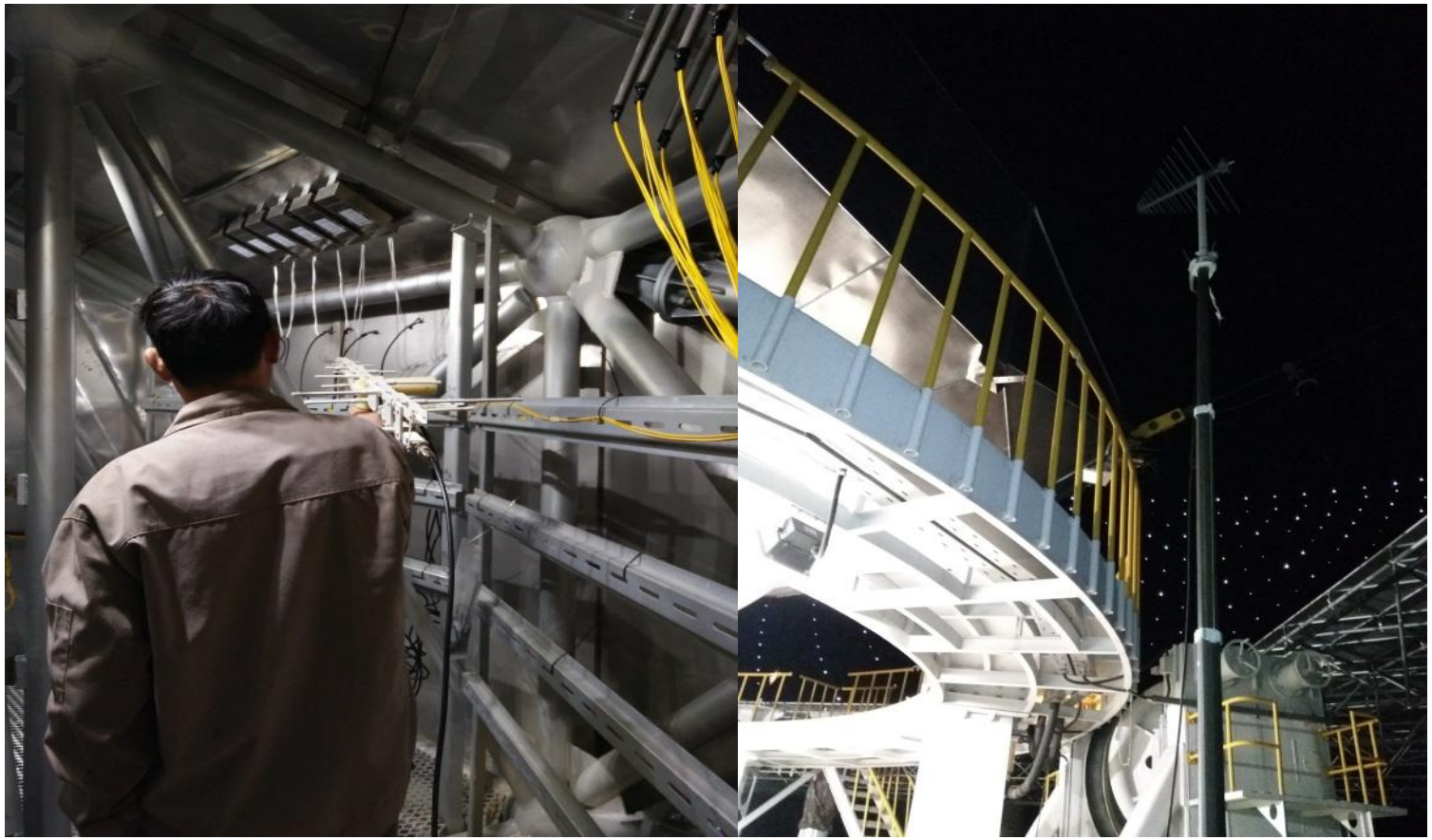
✓ Shielding 80dB





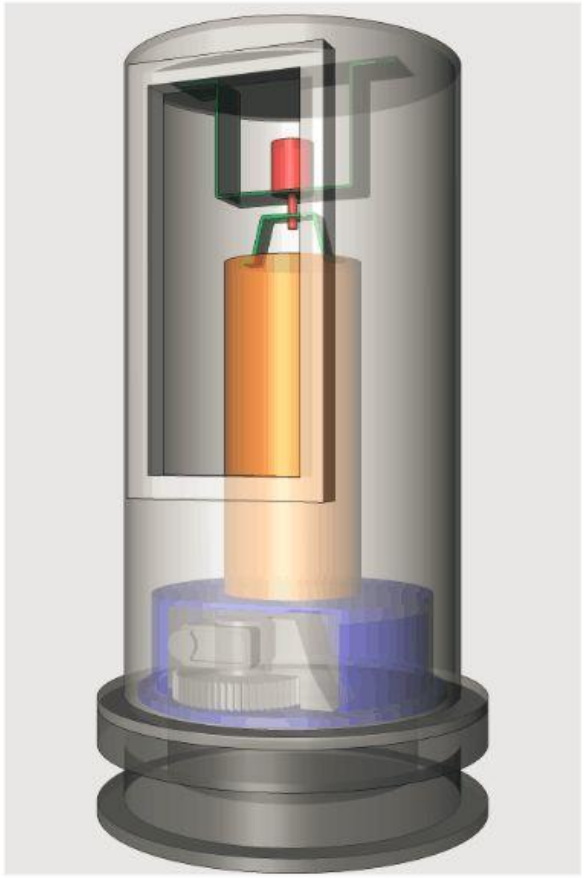
EMC control

FAST receiver cabin shielding



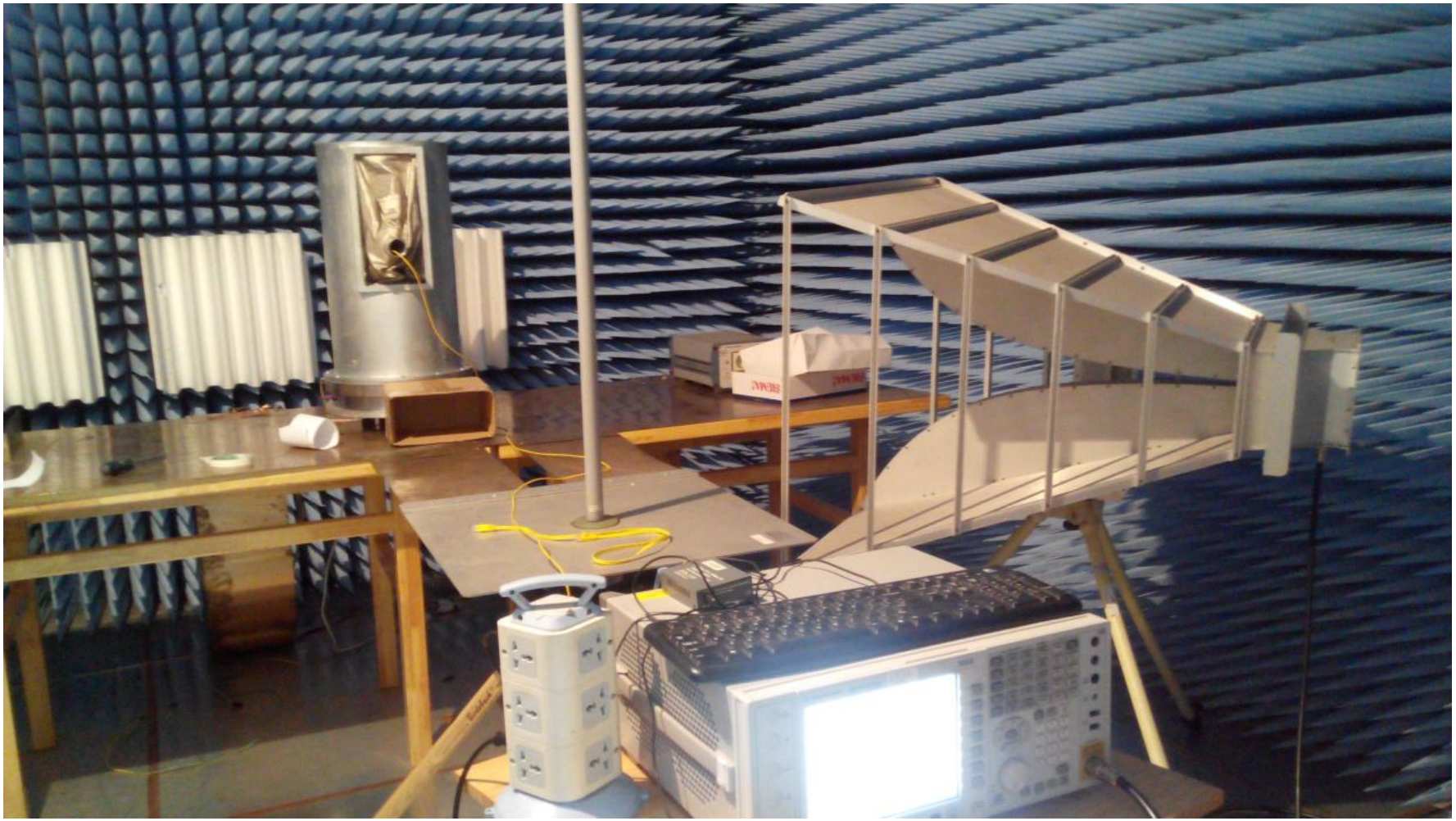
Total station shielding

Model design



EMI test

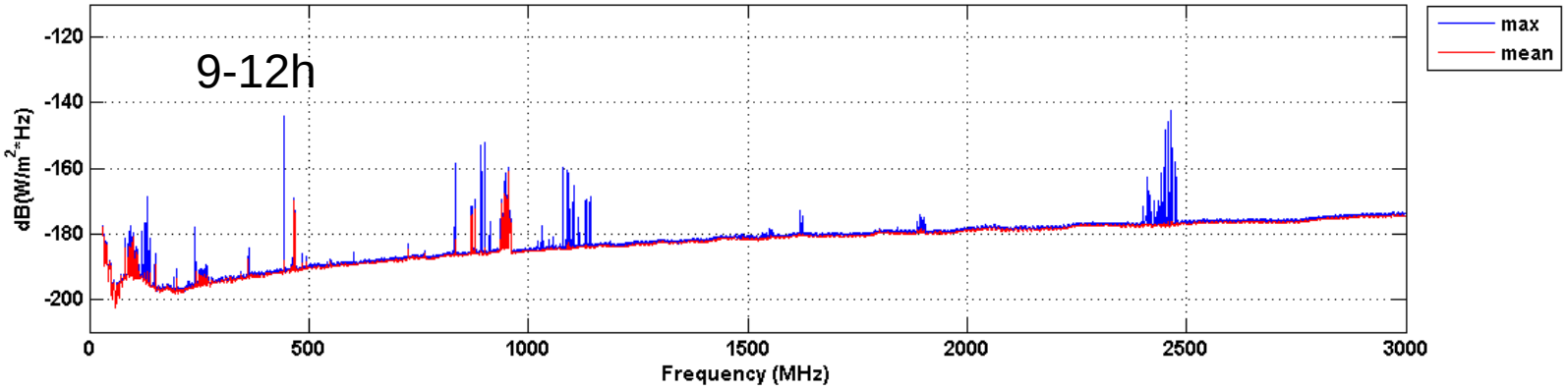
EMI testing

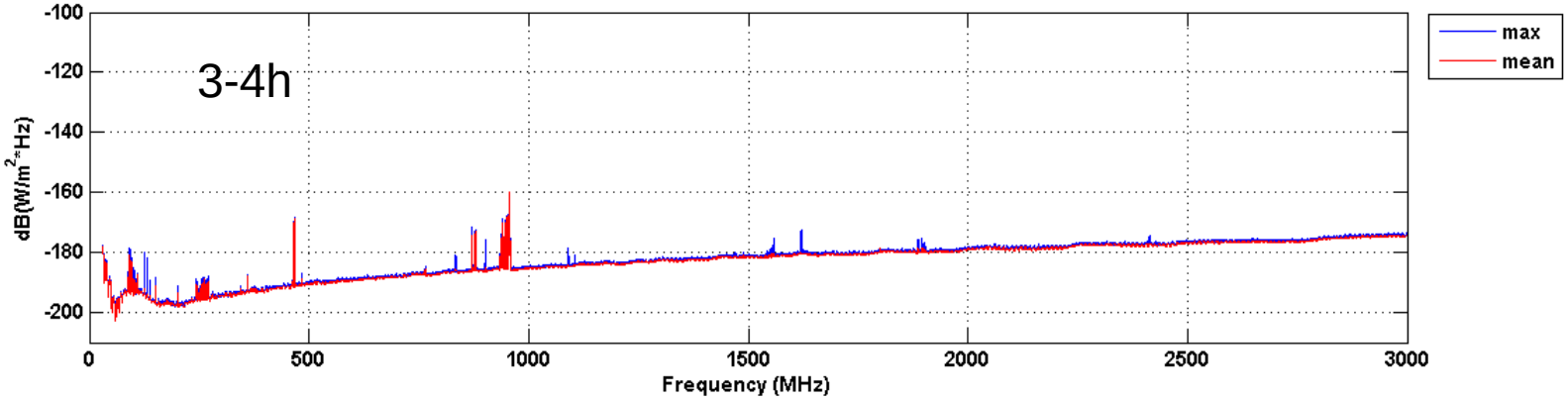


EMC control

RFI environment monitoring

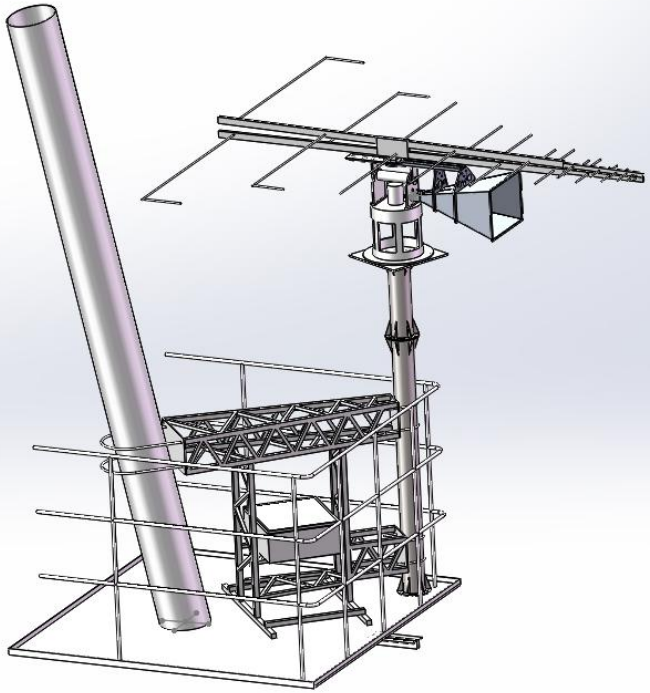
2016-11-08 RFI testing results





Set up the RFI moritoring station

Freq: 0.07-2GHz, 1.5-5GHz



Reflector surface

- Surface Accuracy target <1.5mm

Date	Start_time	End_time	Measuring_ points	RMSE (mm)
10.25	19:56:45	21:12:07	2256	1.1595
10.26	09:07:11	10:23:39	2256	1.2366
10.26	16:24:56	17:35:15	2256	1.4851

- Measurement efficiency：<180 min

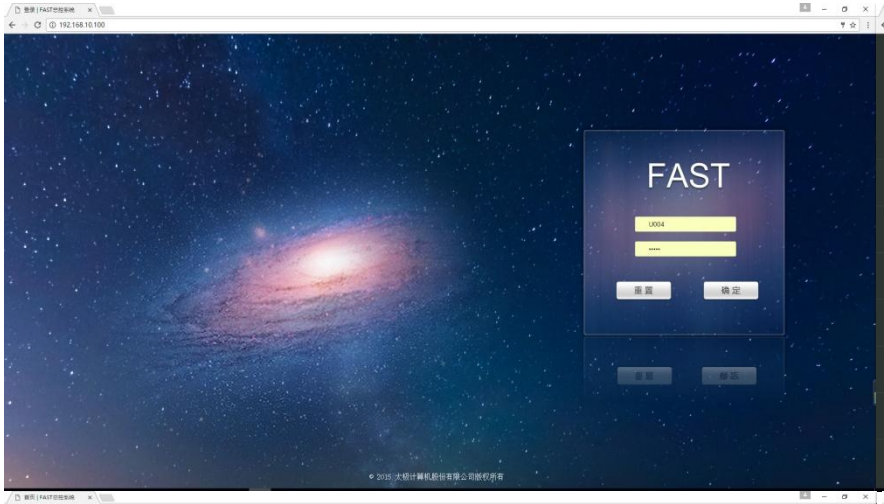
⑩

Date	Start_time	End_time	Measuring_ points	Time_used (min)
10.25	17:27:43	18:40:38	2221	73
10.25	21:51:15	23:03:57	2221	73

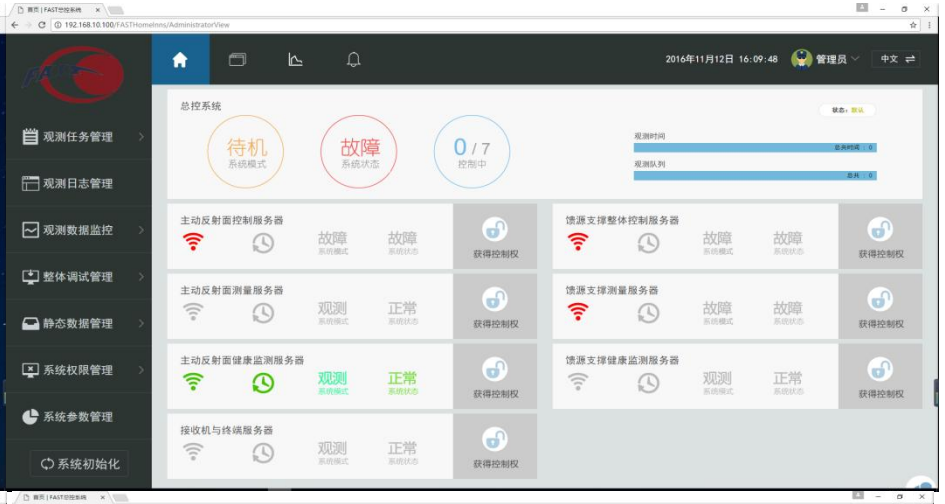
Telescope Control system

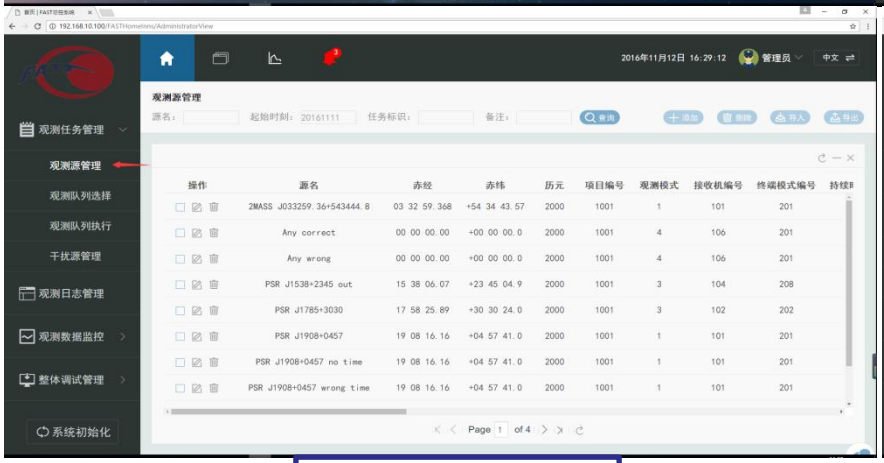
Interface

Login interface

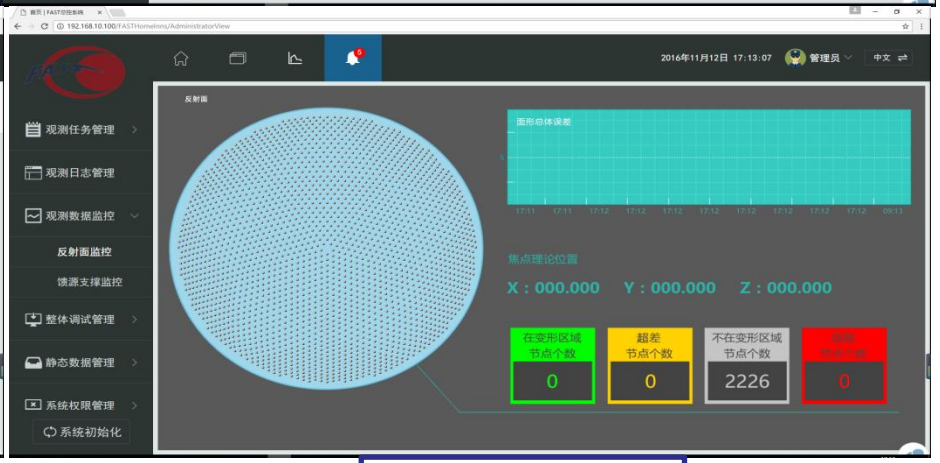


Control Panel





Obs Task monitor



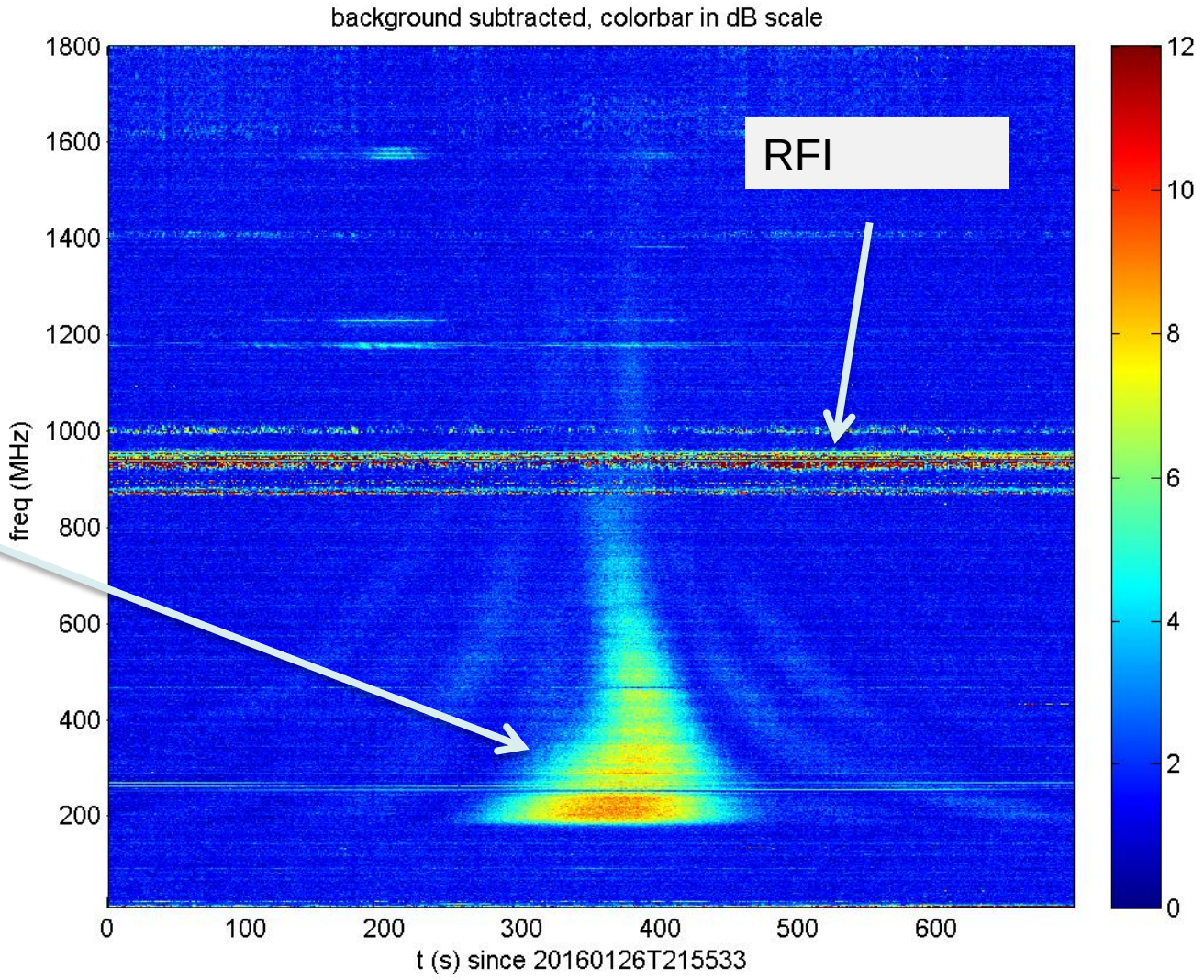
System data monitor

Early Science and test observations

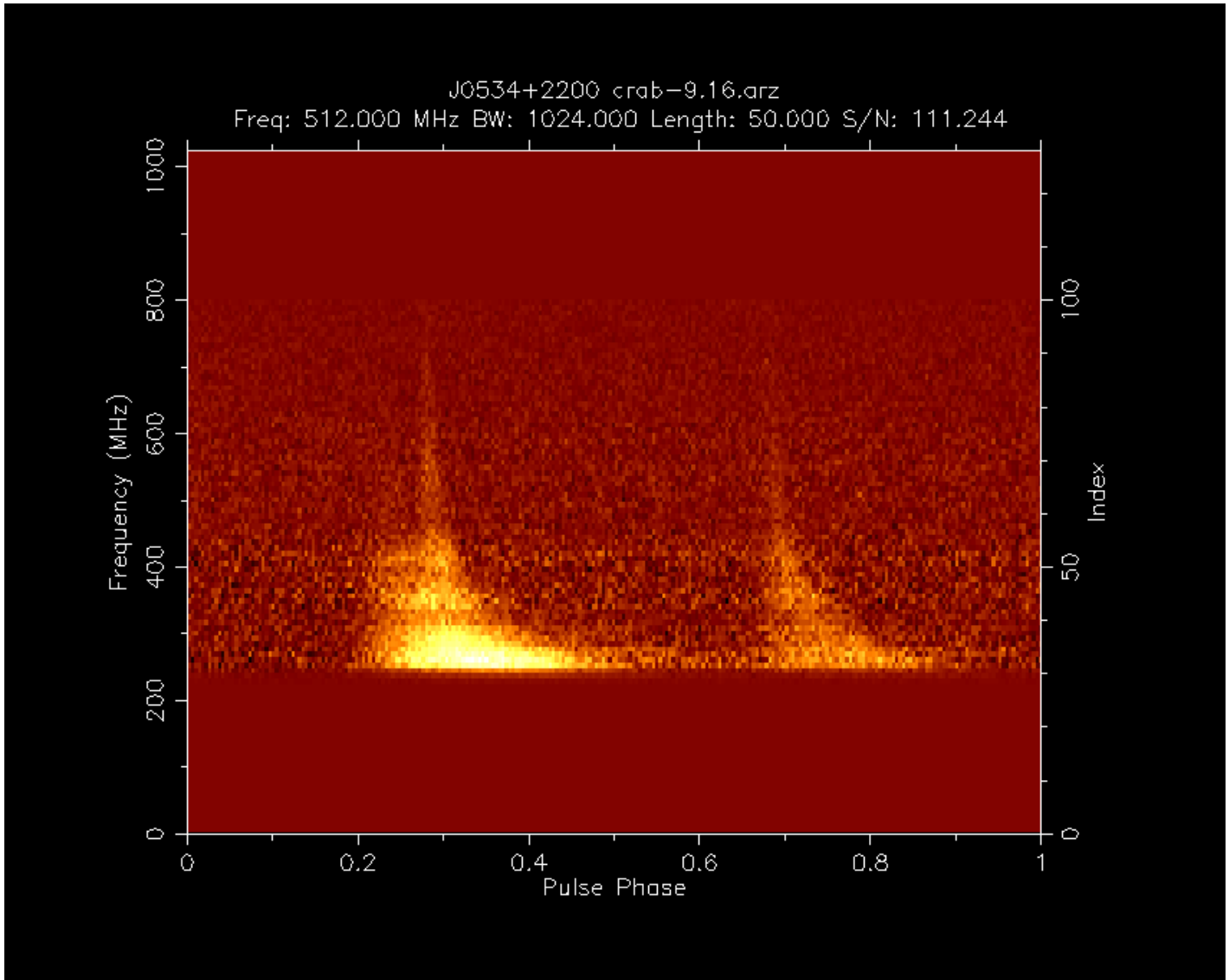
- Pulsar observations
- Continuum sources
- Pointing and Focus calibrations
- Flux calibrations
- Commensal observations

Crab Nebula and pulsar

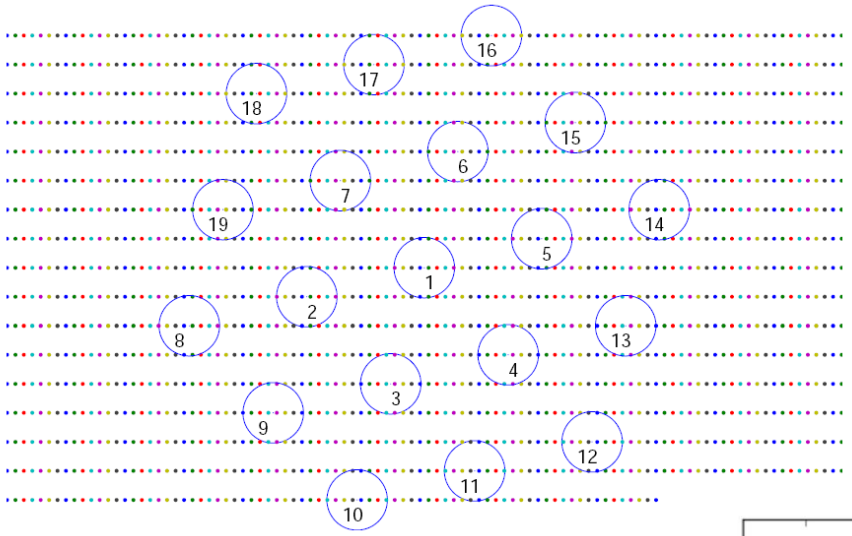
20160126
crab
nebula
continuum
emission

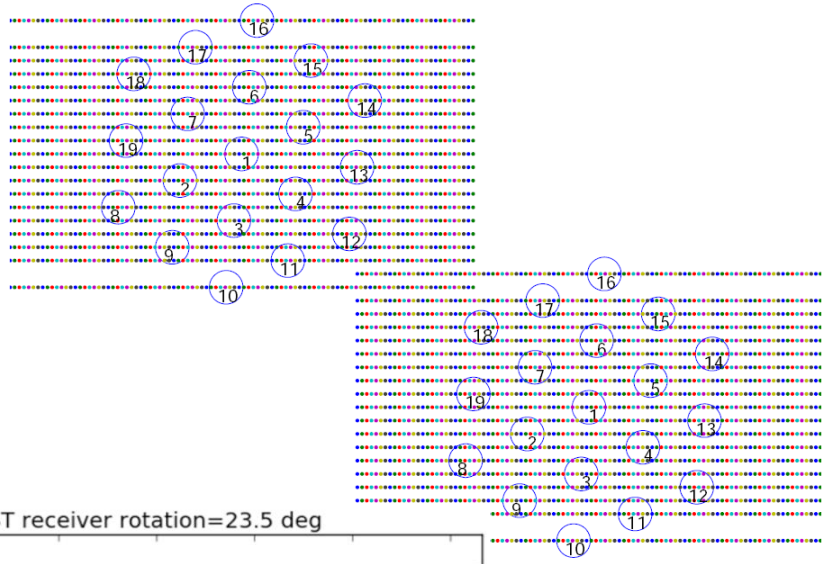


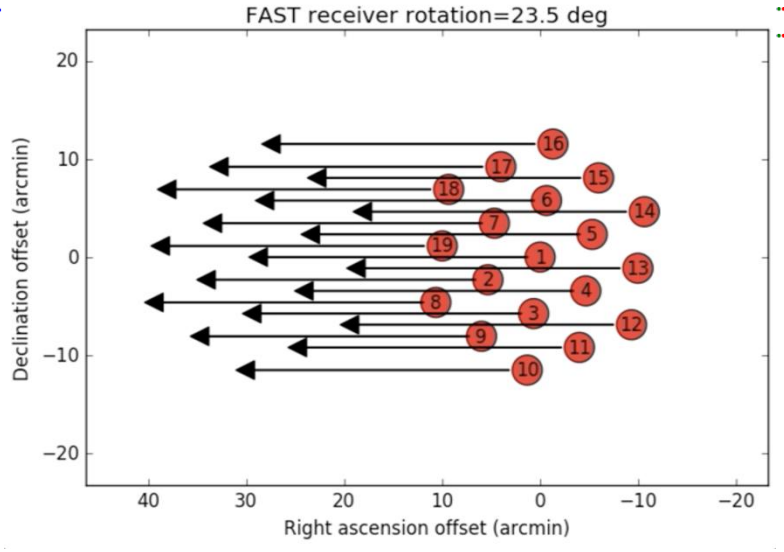
B0531+21 Crab



FAST drift scan configuration







Qian， Staveley-smith et al. 2017 in preparation

Data center

1.6PB on site and 1.4PB at GNU

Summary

- FAST Commissioning
  - Intensive work for at least 1yr
  - Still need major developments of the Receiver systems, Data reduction pipeline, control software systems, etc.
- Early Science with FAST
  - Pulsar and FRB searching
  - Commensal observations setup