RFI Mitigation for FAST

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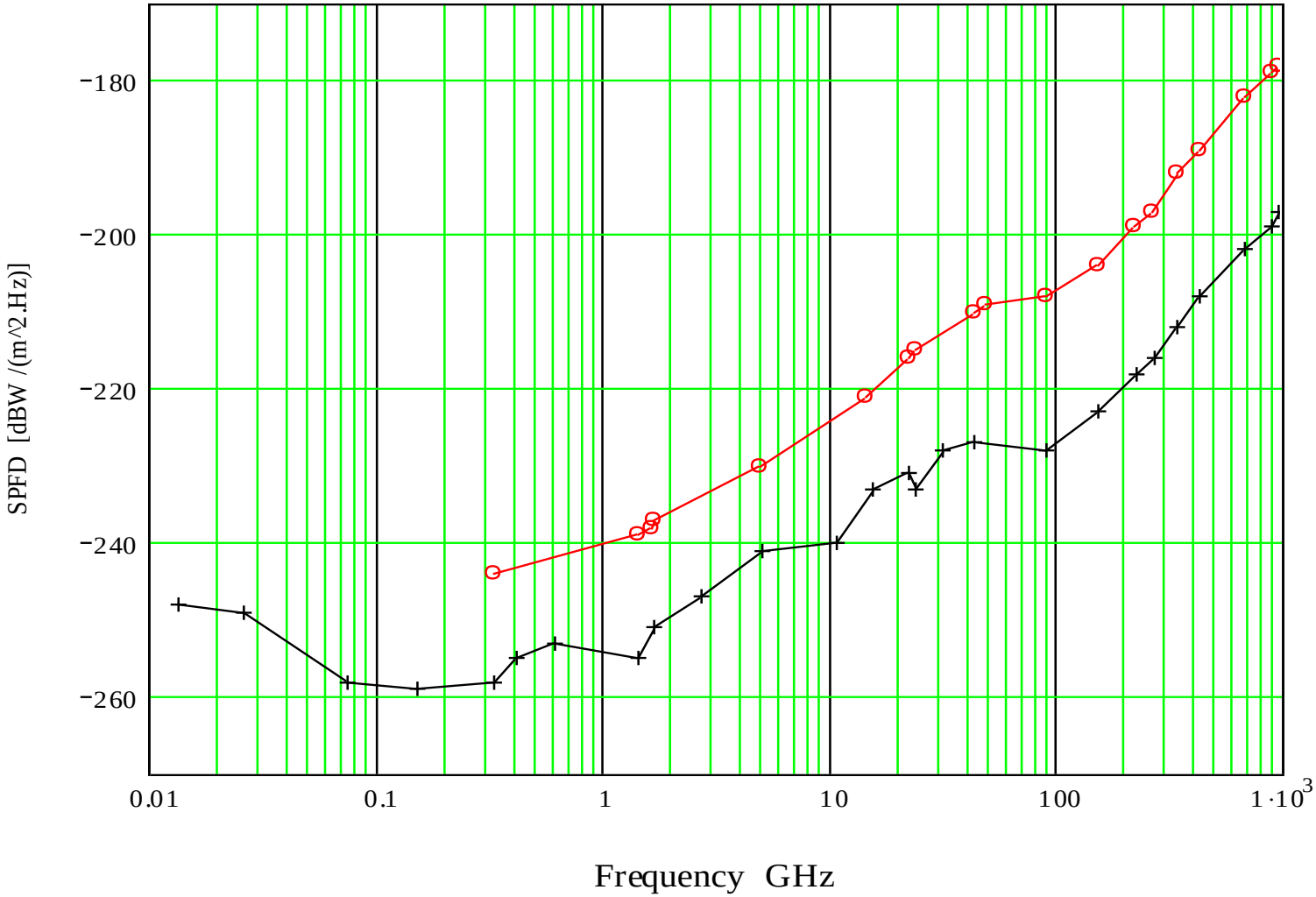
Outline

- Introduction
- FAST RFI mitigation
  - ✓ Radio quiet zone
  - ✓ Telescope & observatory
- Future work

Introduction



ITU-R RA.769 threshold values of spfd, continuum (crosses) & spectral line (circles) (Ref. RA handbook)

Introduction --RA Facilities in China

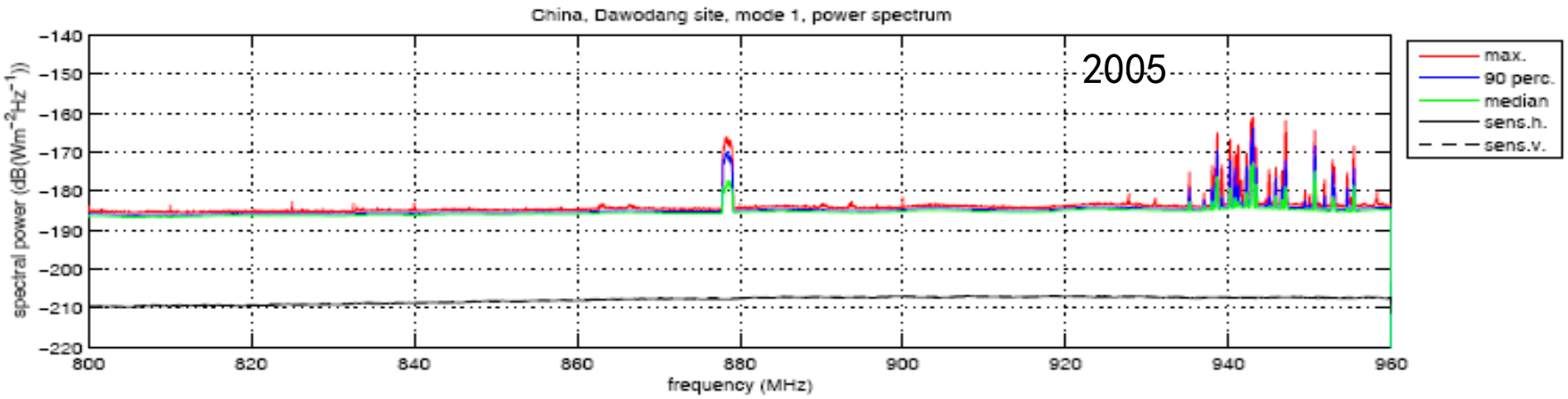
FAST RFI mitigation

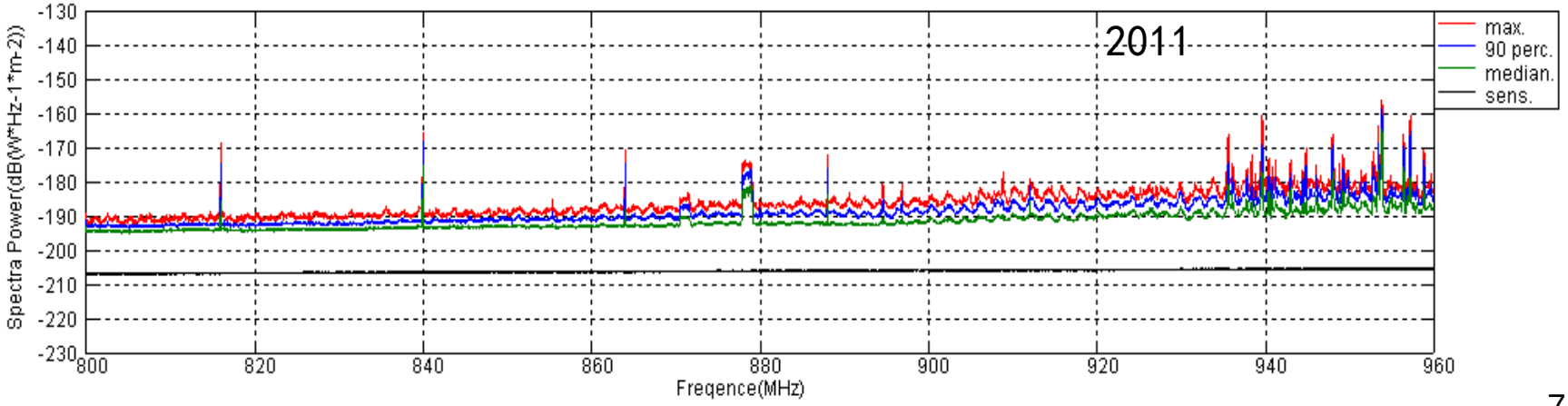
Goal：protect FAST from radio frequency interference (RFI)

- ✓ **Radio quiet zone (RQZ)**
- ✓ **On site (telescope, observatory)**

FAST site, 2015

FAST site radio environment measurements

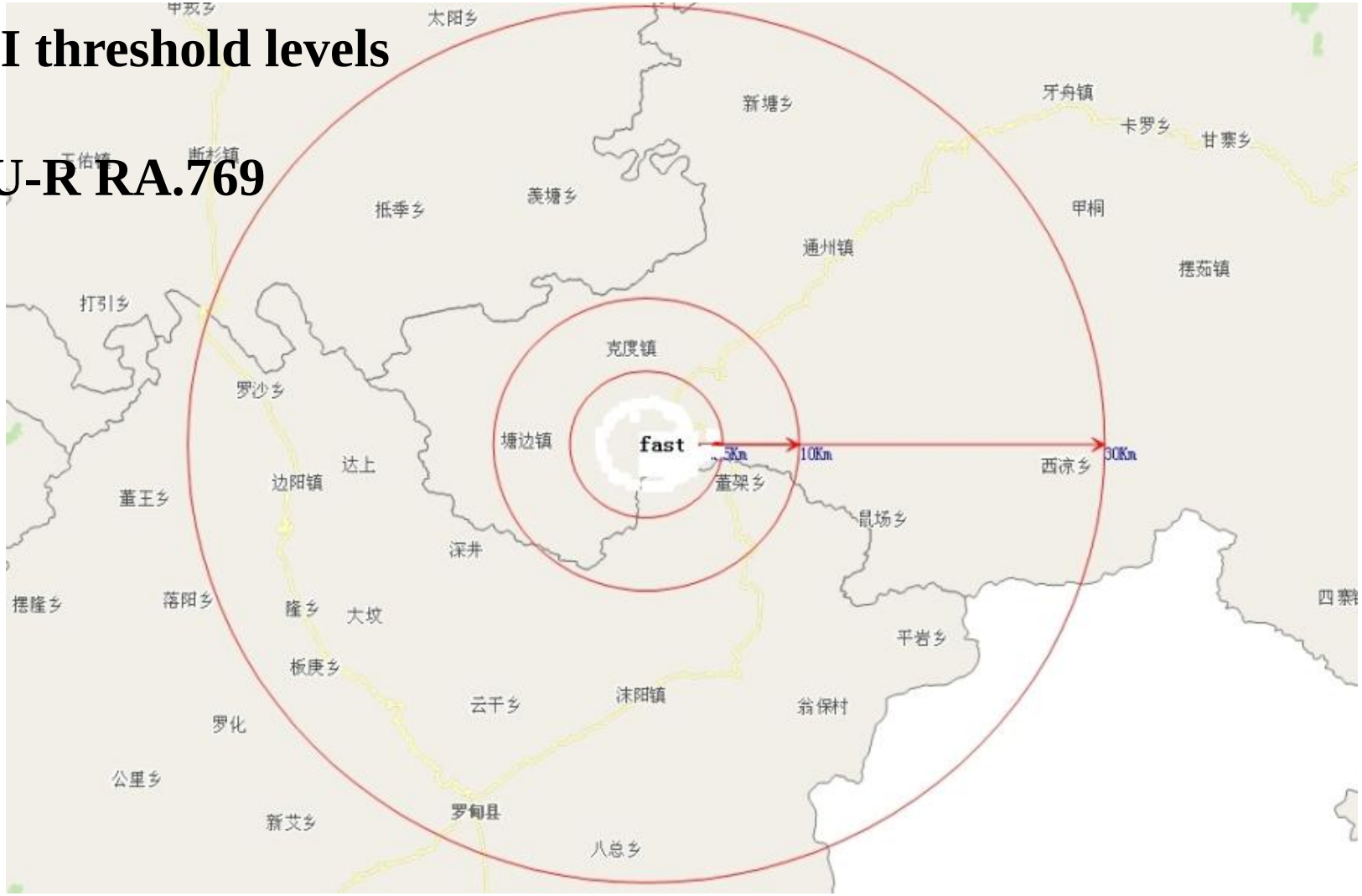




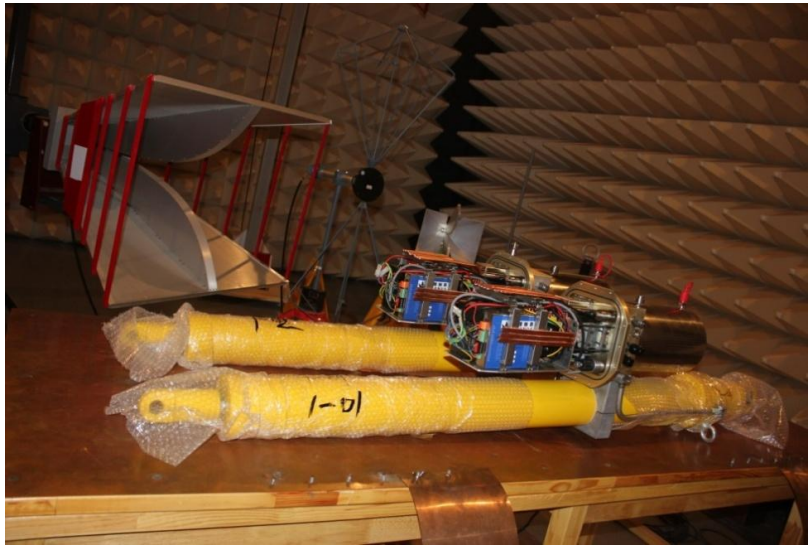
Radio Quiet Zone of FAST

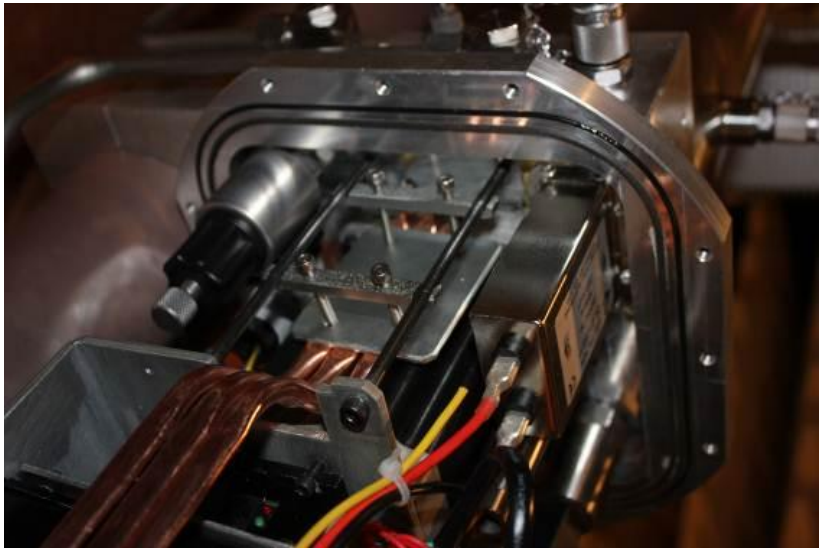
RFI threshold levels

ITU-R RA.769

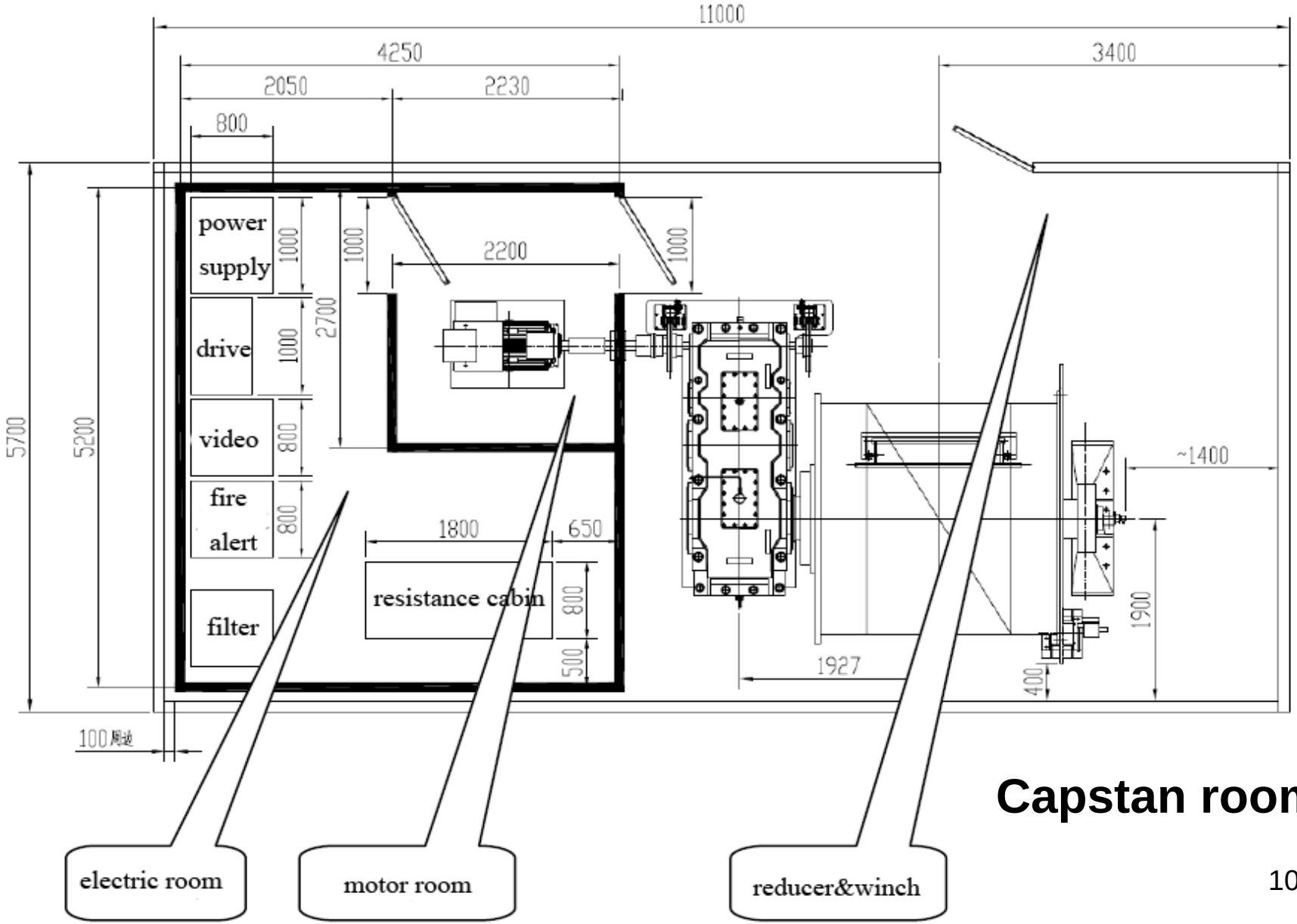


EMC design of hydraulic actuator





EMC design of cable suspension

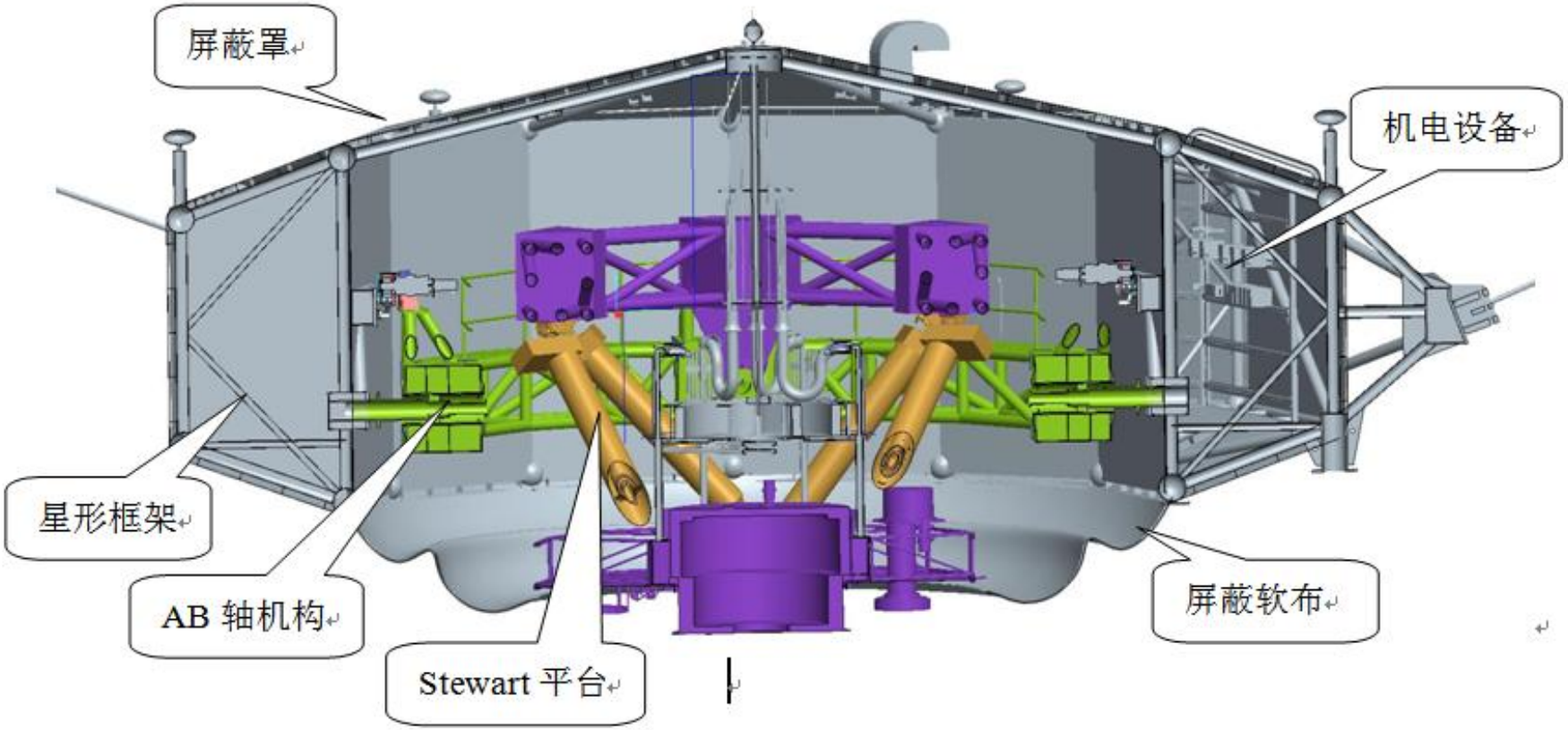


Capstan room

EMC design of cable suspension

- ✓ **Shielding efficiency measurements of capstan rooms at the site**

EMC design of feed cabin



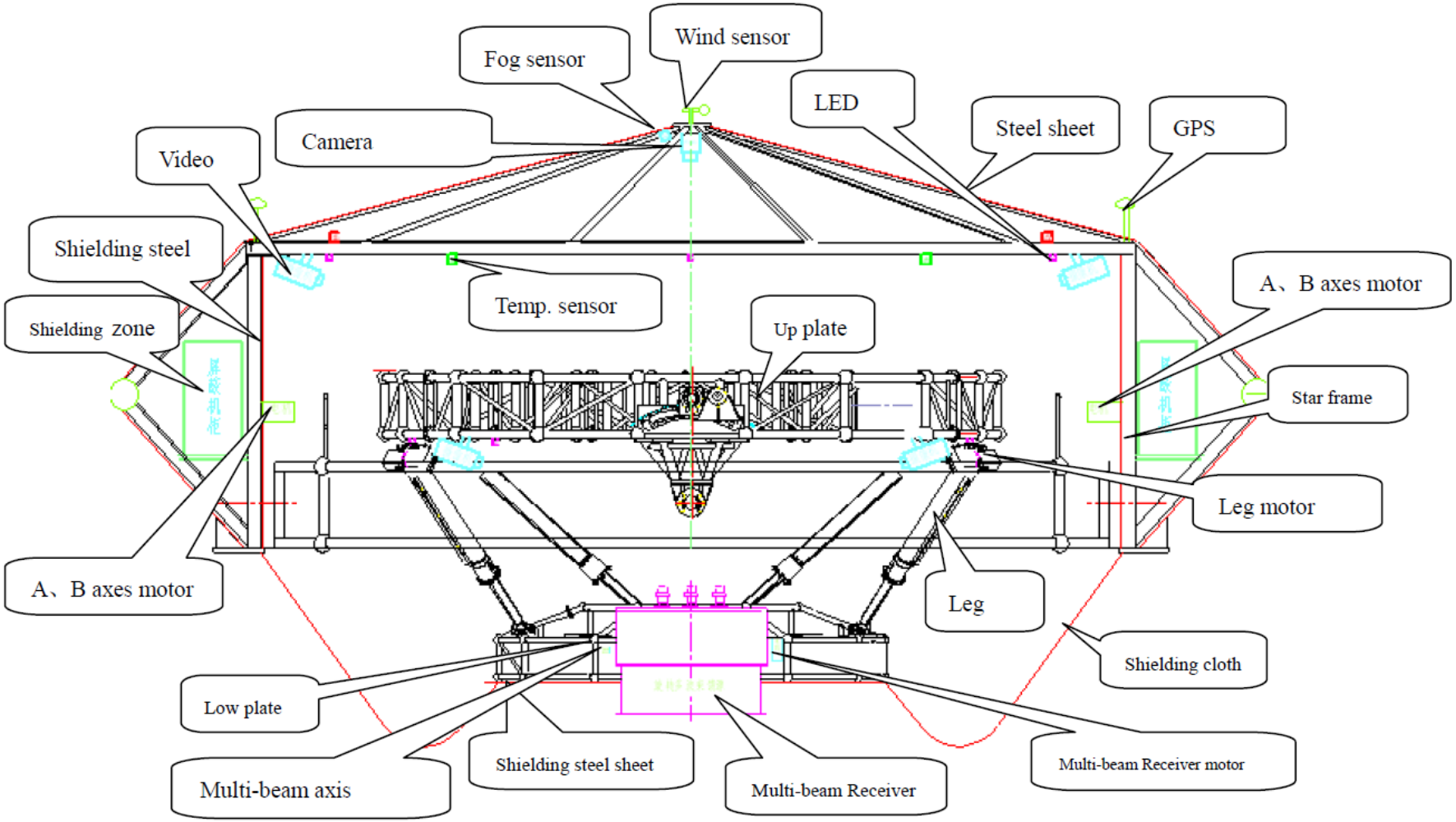
6 cables to the tower

AB axes provides more tilt for the platform

Stewart stabilizer

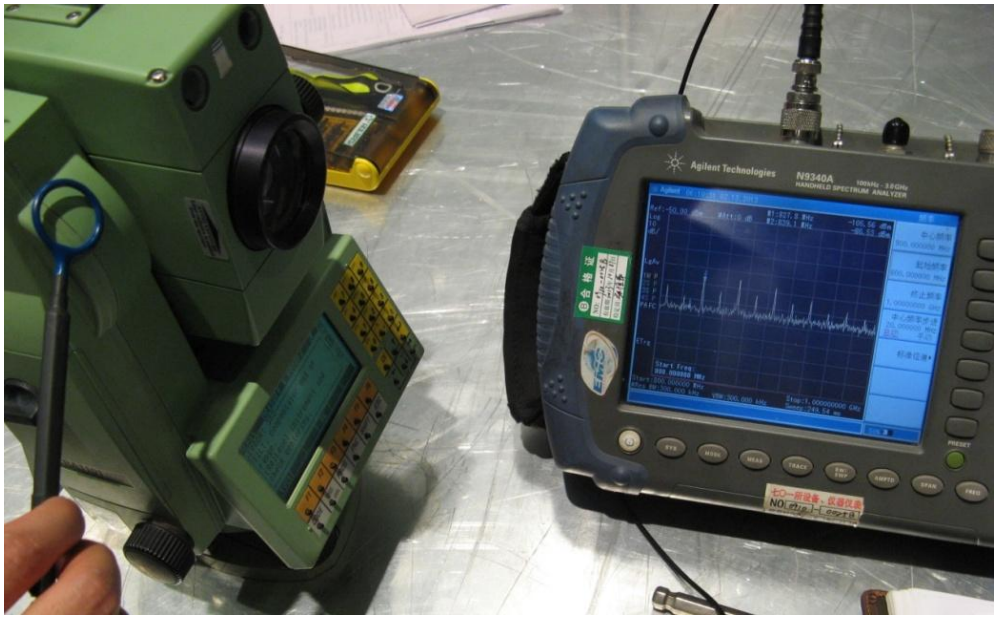
7 sets of receivers

EMC design of feed cabin



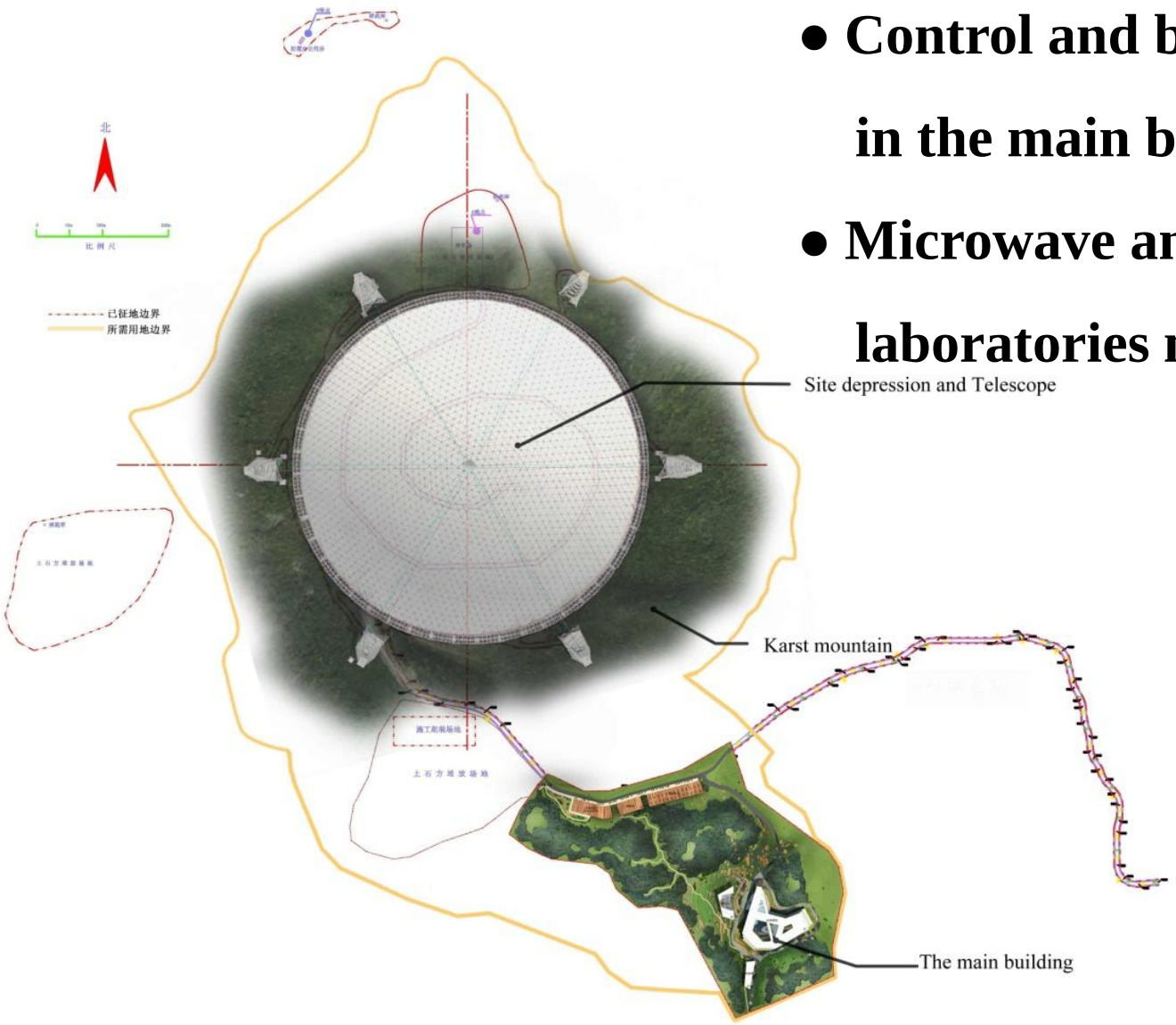
- ✓ **Cabin cover (sheet steel & shielding fabric)**
- ✓ **Three shielding zones in the cabin**

EMC issue of total station



EMI leakage measurement: gap of the pillar, screen and lens

EMC design of observatory



- Control and backend rooms in the main building
- Microwave and electric laboratories near the road

Future work

- ✓ RQZ operation
- ✓ EMC designs and construction of FAST
- ✓ Collaboration closely on the joint research of FAST RFI mitigation


Thanks!