

===== CRT/Tianlai/BAORadio teleconf (10 January 2013) summary =====

Attendance: R. Ansari, J.E. Campagne, J.Peterson, A. Stebbins, P.Timbie,
A.S Torrento, Jiao Zhang, Le Zhang

Note: NAOC colleagues were not able to attend due to technical network problem

A- Tianlai Tests report (J. Peterson)

A more complete report will be presented at the next teleconf by NAOC/X. Chen.

Meanwhile, J. Peterson give a brief review of the work accomplished in December tests,
at the Optical observatory site Xinglong , 100-150 km North-East of Beijing

(40°23'39"N 117°34'30"E , www.xinglong-naoc.org/)

5m dishes with feeds & LNA were assembled and tested (see report_tianlai_JP.pdf)

- 5m dishes assembly (see document/dish_assembly.pdf)
- Feed: modified 4-square feed in a 'coffee can' (see slides/institute_54_broadband_feed.pdf)
- Institute 54 LNA (see (+ filters)
- Measurements made using spectrum analyzer
- 10 dB deflection when pointing to the sun
- 7 deg. beam @ 700 MHz
- 2 dB noise figure, because of additional filters than had to be put in (the best narrow part of the spectrum)

- Receiver board (LO/IF ...) - see slides/receiver_inst54.pdf

- FPGA-correlator, similar to two Xilinx demonstrator boards assembled together

10 bits Or 14 bits ?) ADC daughter boards with FMC connectors

see document/correl_fpga

- Optical Analog transmission:

has not been tested - Jeff mention possible problems with such a system : variable attenuation introduced by the connectors, sensitivity to optical cable bends ...

R. Ansari mentions that using long RF or IF cables (+ connectors) introduces structure in the spectrum through multiple reflections. It is suggested to have signal digitization very close to the LNA/Receiver and use optical digital transmission.

Quoting from the report (report_tianlai_JP.pdf) :

The 5 m dishes are easily assembled and pass all tests. They work well. The I 54 feed works well.

The CMU feed is a useful backup.

The LNA works well but should be modified to drive RG--6.

The receivers work but need changes to the filters.

The correlator hardware works but the software has fatal errors at this point.

B- Collaboration with CASPER

Participation of Institute of Automation, which is a national institute is important for the Tianlai project. Collaborating with CASPER project would be helpful.

- Fung Chen is going to spend three weeks in Berkeley
- Jeff & Peter suggest that he uses the time to assemble a CASPER system in order to learn
- Jeff will try to visit Fung Chen in California

C- Site testing and site selection

This issue should be discussed at the next teleconf.

A possible site would be at Da Shan Gao, near the 21CMA (/PAST) site, near ULASTAI
7km end of power line. >1000 people at ULASTAI, road, railroad. (~ 43° 30' N 87°30' E)
Cafeteria and office buildings could be built there.

D- NSF-MRI proposal

NSF-MRI pre proposal submitted to UW.

Full proposal due for February. up to 4 M\$,

two possibilities, build and test feeds / LNA or build a CASPER based FX-GPU correlator.

See (slides/NSF_MRI_prop_timbie_peters.pdf)

Unfortunately, the pre proposal has not been selected by UW (P. Timbie mail on 15 January)

The main concern of the reviewers seems to be the risk of building an instrument overseas rather than on campus.

AOB

o The next teleconf would not be on the second thursday of february (chinese new year)