

Metsähovi station report Q1/2016
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1) Receiver status

The new 86 GHz receiver was tested at the very first time in real use during the GMVA session 9/2015. The receiver's phase-lock board was working only some part of the time during the session, thus we observed fringes only at the beginning and in the later part of the session. The board was sensitive to the ambient temperature variation. The phase-lock board is now modified and it should be working more stable in next sessions. In addition the receiver's feed horn and some transition waveguides will be replaced to more sensitive ones. However, during the experiment we got a confirmation that receiver's concept and principle is workable. Other Metsähovi's VLBI-receivers (2/8, 22 and 43 GHz) are working fine without any problems.

2) DBBC status

We have been spending a lot of time learning how to perform a proper and repeatable calibration of the DBBC. The calibration procedure is now clearer. Better calibration improved the system and negative Tsys values are remarkable less frequently. Still, also sometimes uploading the firmware fails, and the firmware is uploaded in one or several of the Core boards in a wrong way. In addition there are also some issues with DBBC power levels.

3) Mark5B+ and other recording systems

No any special notices about recording systems.

4) Software versions

We have installed FS 9.11.8, SDK 9.2 and jive5ab 2.7.0. We are using DBBC firmware versions DDC v 105_1 and PFB v 14. The DBBC firmware version DDC v 105_E proved not to be working in our DBBC.

5) Other issues

- Phase coherence tests will be done prior to every session.
- Continuous calibration (80 Hz) is implemented to 22 GHz-VLBI receiver but not yet tested during observations.
- New subreflector control system will be installed in later part of this year.
- New hydrogen masers (arrived 1/2015) are now finally stabilized and they have been working without any failures.
- All motors of the Metsähovi's main radio telescope were replaced at 1/2016.

6) Personnel

EVN VLBI Friend of Metsähovi starting from December 2015 is Juha Kallunki (email: juha.kallunki@aalto.fi)