

Metsähovi station report Q2/2015

EVN TOG meeting – Robledo

- 1 – EVN sessions 2015
- 2 - Receiver status
- 3 - H-masers
- 4 - BBC/DBBC status
- 5 - Disk recorder developments
- 6 - Software versions

1) EVN sessions in 2015

EVN session I

Metsähovi participated in the Q-band experiments EG086A and EG086B. When sending the data to Bonn, we noticed that all the scans were empty. The reason for this is still under investigation.

EVN session II

Metsähovi participated in the Q-band experiments N15Q1, GB075C and GA032C. In N15Q1 Metsähovi got fringes with Effelsberg. Polarizations were swapped throughout the session. Data is e-transferred to JIVE. We also recorded with our flexbuff, but there was no room for that data in JIVE.

2) Receiver status

The new 86 GHz receiver has been suffering from instability issues and it will be repaired during 2015. According to recent tests in the lab, front-end works nicely in room temperature, and so does the phase-lock. Tests in the lab continue, and hopefully we can test the receiver in antenna before the end of 2015. The 43 GHz receiver appears to work fine, even though the polarizations are swapped. The 22 GHz and S/X receivers work fine. LO of X-band receiver was repaired in January, 2014. Continuous calibration is implemented for 22 GHz, and was tested in the lab. We will use it in the next EVN session with experiments at 22 GHz.

3) H-masers

We purchased two Kvarz H-masers via Russian debt conversion, which arrived to Metsähovi in early 2015.

4) BBC/DBBC status

Our old analog BBCs have now been retired. We have switched to using DBBC + Mark5B+ combo in June 2013. We ordered a DBBC from Hat-Lab, and it arrived in September, 2012, with a standalone FILA10G. Fila10G works nicely. We have learned that calibrating the DBBC after hardware modification and after changing the firmware is highly important. We still continue to have problems with our DBBC. The latest feature is that over time it goes out of sync. Also sometimes uploading the firmware fails, and the firmware is uploaded in one or several of the Core boards in a wrong way. This results in negative Tsys values for the BBC channels related to the Core board(s) in question. There are also some issues with DBBC power levels.

5) Disk recorder developments

We have developed a new DAQ system, flexbuff, using COTS components during the NEXPREs project. We recorded with our FlexBuff in parallel during the Q-band NME and user experiment in EVN session III 2014, and in EVN session II 2015.

6) Software versions

We have installed FS 9.11.7, SDK 9.2 and jive5ab 2.6.0. We are using DBBC firmware versions DDC v 104_2 and PFB v 14. We will install the latest jive5ab version in the near future, and test new DBBC firmware.