

**Metsähovi station report II/2021-I/2022**  
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**EVN TOG meeting (virtual), February 8-9, 2022**

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### 1) Receiver status

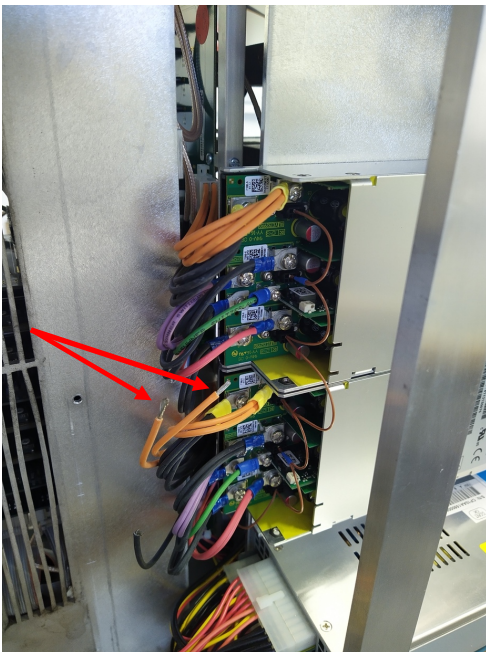
Following Metsähovi's VLBI-receivers are currently operational: 2/8, 22, 43 and 86 GHz. All receivers have been working without any failures. All receivers have 500 MHz wide IF-band. Metsähovi Radio Observatory will not continue with geodetic VLBI-observations anymore (from the beginning of 2022). The future status of the receiver (S/X) is not yet solved. The receiver is own by Finnish National Land Survey Institute.

Some final tunings for 86 GHz receiver were made. The tunings concerned on mainly receiver's quasi optic control. These changes were tested successfully on October 2021 GMVA session.

The open competitive tendering for a new wide-band (triple-band) receiver (for K-, Q- and W-bands) will be published within next month. The deadline for tenders is early summer.

### 2) DBBC status

In the summer 2021, we met problems with dBBC2's cooling. The main axial fan stopped in the middle of EVN session (6/2021). Rising temperature caused peculiar behavior of the sampling clock. In addition, we noticed – when we changed the fan – that power supply wirings were badly assembled (see picture below, red arrow). It is not recommended to put several wires under a single crimp connector. This (power distribution issue) could partly explain some peculiar behavior of dBBC2 in the past.



*Figure 1. Disconnected power supply wires in dBBC2.*

After repairs, the dBBC2 worked normally.

The new dBBC3 has been ordered. The system is almost ready for the delivery. The expected delivery time of the dBBC3 unit is 3/2021.

### **3) Flexbuff and other recording systems**

Flexbuffs have been used successfully both in EVN and GMVA sessions. Two new Flexbuff units (hostnames: *lucky Luke* and *rintintin*) were purchased in the year 2021 with totally 1.296 petabytes of hard disk space. Older local Flexbuffs are available with the space capacity of 196 TB (primary Flexbuff 144 terabytes and secondary Flexbuff 52 terabytes). Therefore, the total disk space capacity is 1.492 petabytes. All astronomical VLBI-sessions are recorded to Flexbuffs. Mark5B+ is currently only working as a back-up system.

### **4) Network**

Metsähovi network infrastructure is upgraded to 100 Gbps optical Ethernet, to match the upgraded CSC/Funet 100 Gbps Internet connection (external network).

### **5) Software versions**

We have installed FS 9.13.2, SDK 9.4 and jive5ab 2.8.1 (Mark5B+) and 2.8.1 (Flexbuff). DBBC firmware versions DDC v 106, DDC v 107\_300119, DDC v 107\_281019, and PFB version v 16\_2 are available. In addition, FILA10G version v3.3.2\_1 is in use. The latest dBBC's firmware version 107\_281019 is the most commonly used version.

### **6) EVN sessions in 2021 – 2022**

Metsähovi Radio Observatory (MRO), Aalto University participated in following EVN-sessions with this period of time (II/2021 – I/2022):

- 6/2021: K-band
- 10/2021: K-band

MRO also participated in GMVA session (October 2021).

### **7) Other issues**

One of our hydrogen masers is still waiting spare part for broken 5 MHz oscillator. The expected delivery of the spare part is a spring 2022.