

# Technology Coordinator Report

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**Abstract** The main activities of the IVS Technology Coordinator in the period 2021–2022 are summarized. The main parts were related to the organization and support of VTC teleconferences, technical support of IVS stations, maintaining the VGOS Equipment Tables for improving technical compatibility, and communication with the EVN. This period was greatly affected by the Covid-19 pandemic restriction, and this had an effect on the missing in-person visits, which otherwise could have been done.

## 1 VTC Activities

In 2021–2022, organizing teleconferences and supporting the VGOS Technical Committee (VTC) activities were a large part of the Technology Coordinator activities. Due to the pandemic, virtual conferences were the only way many colleagues working from home could participate.

Monthly Zoom teleconferences have seen a large number of participants interested in giving a contribution based on their particular field of expertise.

The two most prominent topics presented in the agenda were related to the two working sub-groups already defined for:

a) the study of shorter integration periods (proposer and sub-group leader B. Petrachenko), with a number of RD observation sessions; additionally (proposed by H. Hase and actively supported by B. Petrachenko),

starting from the need to get protected from RFI, frequency slots in the full VGOS band have been evaluated for possible new observing frequency schemes.

b) the effects of source structure and a possible process for correction (sub-group leader P. Charlot).

At the last VTC meeting in 2022 a complete report of the activities by the two sub-group coordinators was given. These activities will continue in 2023, but those are expected to have an impact on the observations and the data process.

A third sub-group which will take care of the RFI mitigation efforts from several IVS groups was established (under the leadership of L. Hilliard). Its activity is expected to provide shared solutions to face the increasing problem of observing in RFI environments, particularly in the lowest part of the VGOS spectrum.

Finally, antenna calibration efforts were spent (under the support of E. Varenus) in order to assure that any VGOS station would attend to the knowledge and tools for maintaining antenna calibration data.

## 2 VGOS Equipment Tables and Technology Coordinator Web Pages

The VGOS tables are maintained with detailed information about relevant equipment of existing VGOS stations and those under construction. This is felt to be useful for promoting compatibility within the IVS network and as a guide for new and upcoming stations.

This data was placed in dedicated Technology Coordinator web pages (<https://www.ivs-technology-coordinator.info>) where additional information related to the VTC activities are even reported.

INAF-Istituto di Radioastronomia and Max-Planck-Institut für Radioastronomie

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Registered users can download the recorded VTC teleconferences at: <https://www.ivs-technology-coordinator.info/recordings/>.

### **3 Firmware Development for the Network**

The DBBC3 is largely diffused in the IVS network, as in EVN. Several stations are demanding the possibility of performing the polarization conversion from linear to circular within the backend system. The VGOS broadband feeds are linearly polarized, and the conversion has to be performed using a quadrature hybrid inside the dewar or at a later stage during the data process. An alternative solution can be offered by providing the conversion inside the backend, and this is possible in the DBBC3 with a dedicated firmware. A project was then defined to be carried out by the DBBC team in order to provide this possibility to stations requiring this solution.

### **4 Liaison with the EVN**

Periodic meetings were performed on a regular basis with EVN Technical and Operations Group (TOG) Chairman Uwe Bach in order to maintain an exchange of information about any technical element worth being shared between the two networks.