

## Stations report for the EVN meeting

2020 November

*Period 2020/04 – 2020/11*

### General Information

Quasar VLBI network is a part of the Institute of Applied Astronomy (IAA) and includes three stations: Badary, Svetloe and Zelenchukskaya. These stations are equipped with a 32-m fully steerable radiotelescopes RT-32 marked as Bd, Sv and Zc respectively. IAA stations are also equipped with a 13-m VGOS radiotelescopes marked as Zv, Bv and Sw, which at present are in test operation.

During the reporting period in all Quasar stations the standard maintenance work with antennas, servo, receivers and cryogenic systems were carried out. Technical improvements and problems are presented below by topics.

### EVN session 2 in 2020/05/28-06/18

Quasar successfully participated in **17 experiments** at X, C, L and K bands. A single one hour pause during EVN experiment EN006D was planned because of priority IAA intensive experiments Ru-I at Bd and Zc stations. The total volume of session was about 35.2TB in Bd, 53.4TB in Sv and 41.9TB in Zc.

### EVN session 3 in 2020/10/19-11/05

Quasar successfully participated in **28 experiments** at X, C, L and K bands. Seven one-two hour pauses during EVN experiments was planned because of priority IAA intensive experiments Ru-I at Bd and Zc stations. The total volume of session was about 49.6TB in Bd, 50.2TB in Sv and 55.3TB in Zc.

### Out of Session experiments

Quasar supported: one EVN e-VLBI sessions in 2020 April 7-8 and upcoming experiment in November 17-18; three OoS experiments (RZ001C, RL007, EX009).

### Antenna (!)

During reporting period on all RT-32 Quasar antennas the panels of secondary dish was replaced with new: Zc on August 18-31; Sv on September 7-15; Bd on September 23-30. Also was upgraded the antenna control systems.

### Receivers *(no changes)*

All RT-32 Quasar radio telescopes are equipped with receivers in the next bands: L, C, S/X and K.

### Backends *(no changes)*

From 2012 February the IAA data acquisition systems R1002M is fully functional at all Quasar

stations and using in all VLBI observations, including IVS, EVN and domestic programs.

### **Recording system** *(no changes)*

The Mark5B+ is the data recording system at all Quasar stations. At May 2014 Mark5B+ software was upgraded to SDK 9.3.

### **H-masers** *(no changes)*

Since July 2011 the new Active Hydrogen Masers VCH-1003M were put into operation in all stations of the Quasar network. The H-maser VCH-1003M is a modern, high-performance maser with low phase noise option. It uses the latest technologies, including Stand-alone Auto Cavity Tuning (no external reference required), remote IP control, monitoring and self-diagnostics.

Another two Active Hydrogen Masers VCH-1005 (old models) are in reserve in Sv and Zc.

### **Disks** *(no changes)*

IAA provides 160 TB (8TB×20) for the EVN disk pool and 80 TB (10TB×8) for the Flexbuff for JIVE correlator.

### **Field System** *(no changes)*

Release 9.10.4 is used at all Quasar stations.

### **Personnel**

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