

Quasar VLBI network stations report 2011-2012/Q2 EVN TOG meeting – Onsala 2012

General Information

Quasar VLBI network is a part of the Institute of Applied Astronomy (IAA) and includes three stations: Badary (Bd), Svetloe (Sv) and Zelenchukskaya (Zc). These stations are equipped with 32-m fully steerable radio telescopes. During the reporting period in all Quasar stations the standard maintenance work with servo, receivers and cryogenic systems were carried out. Technical problems and improvements are presented below by topics.

Antenna

In May 2012 the antenna driving (EPA) and control (RSKU-3) systems have been improved in all Quasar stations. The velocity regime of pointing was changed – slewing velocity was reduced as shown in *Table 1*. The schedule of EVN experiments should take into account the new limits on slewing velocities.

Table 1. Upper limits of slewing velocities of Quasar radio telescope.

Station	Slewing velocity [deg/sec]	
	Azimuth	Elevation
Bd	0.99	0.50
Sv	1.00	0.50
Zc	1.07	0.54

In 2011 the rail track alignment was conducted at Badary station. A number of tasks to improve the antenna design were carried out at Svetloe. Correction of subreflector initial position is scheduled for June/July at Zelenchukskaya and is to be finished to the beginning of EVN 2012 Session 3.

Receivers

The frequency convertors of the geodetic S/X receivers, as well as their local oscillators, were combined in a single device in all Quasar stations. Their control system was updated too. The K-band at Badary has not available yet. The problem with C-band cryogenic system was appeared at Svetloe station during the EVN 2012 Session 2, so the experiments were observed with warm C-receivers. It is planned to solve this problem to the beginning of October-November Session.

Backends

From February 2012 the IAA data acquisition systems R1002 are put into operation in all Quasar stations. Now they are used in all VLBI observations, including IVS, EVN, RadioAstron and domestic programs.

Recording system

The Mark5B+ system is used as data recording system in all Quasar stations.

H-masers

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 developed by "VREMYA-CH" JS company is a modern, high-performance maser with low phase noise option. It uses the up-to date technologies, including Stand-alone Auto Cavity Tuning (external reference is not required), remote IP control, monitoring and self-diagnostics.

Disk purchase

The Quasar network as a single EVN unit should provide at least 150 TB to the EVN disk pool. In 2011-2012 the IAA has already purchased 80 TB (10 packs of 8TB) for the EVN disk pool. Another 80 TB (10 packs of 8TB) should be purchased to the end of 2012.

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June 18 2012*