

## Irbene RT32 Station Report, 2011 August

### *Receivers*

C band receiver is still uncooled. A number of routine measurements of the C band feed antenna pattern and the effectivity of aperture had been made. The antenna pattern still has two uniform side lobes, so it's evident the fault of the secondary mirror disadjustment.

327 MHz feed had been installed in the primary focus onto one of the "leg" supporting the secondary mirror. The sensitivity of whole system increased about to 10 db, but the antenna pointing needs offsets about 6 degrees for both of axes. A number of test sources observations are made for antenna pattern, pointing offsets and pointing precision measuring.

### *DBBC/Mark5B*

DBBC had been shipped at June and installed into the recording terminal. Some autocorrelation tests using monochrome and noise signals were made.

### *Field System*

The anten.c module is developed and tested. The Field System is workable but some problems of devices IP addresses assignment have to be solved.

### *Tracking and pointing system*

One more crash of the azimuth amplidyne happened during the observation on April. The crashed amplidyne had replaced for the last one. As a result the antenna drive is workable but has a half of initial power. The time of electromechanical transients became at least twice longer - the setting of the source needs about 1 minute (to wait when antenna is oscillation about the precise source position). The tracking and pointing system still realizes the precision of 20 arc. second for each axis.

The present electromechanical drive based on the set of valve amplifier + amplidyne is absolutely obsolete and needs a permanent maintenance, adjustment and repairing.

### *GPS/H2 maser*

GPS time server and H2 maser are OK. The counter Agilent for GPS H2 1 pps shift monitoring still is out order, the shift is measured by Rodhe&Shwarz oscilloscope. As short interrupts of the electricity supply at the radiotelescope still happens rather frequently (a fault of a local electrical network) the maser is supplied via UPS and its local accumulator supply. Nevertheless the synchronization of H2 maser 1pps is sensitive to interrupts and has to be checked permanently.

### *Correlator*

The JIVE software correlator is installed and is under test now.

### *VLBI activity*

The first fringe test Irbene –Torun for C band had been performed on August, 5, unfortunately with no positive result.

*Other interferometry activities*

Two 327 MHz band tests with NIRFI, Nizhniy Novgorod, Russia had been performed. The set of Mark2 video converter+ NRTV terminal and DBBC2-Mark5B for the second test (8 MHz bandwidth, 1 channel, USB) were used.

The space debris interferometry radiolocation project as a part of the project “The Technology of Processing of Earth Artificial Satellites Signals” is going on. The algorithms of auto- and cross-correlation for space debris observation data (experiments VBLR 08.1 and VBLR 10.1) is worked out and tested.