

Station report to the EVN TOG
Irbene station, Ventspils.
2016.02.09.

In the second half of 2015 VIRAC continue refurbishment works of radio telescopes RT-32 and RT-16.

Main refurbishment activities on the RT-32 finished by October 2015:

- Installed new motors, angular sensors, stow pin mechanics;
- Installed new Antenna Control Unit;
- Renovated RT-32 antenna backup structure and vertex room;
- Installed conditioning system for receiver's room;
- Installed broadband cryogenic receiver 4.5-8.8 GHz, including cryogenic system and dry air generator, two channels (RCP and LCP), intermediate frequency convertors, local oscillators, noise diodes and Pcal calibration units. Measured system temperature for RT-32 ~30 K.
- Installed "warm" L band receiver (one channel).

After renovation greatly increased antenna max speed (Azimuth - 2.8 deg/s; Elevation - 2.1 deg/sec); pointing and tracking accuracy (< 5 arc sec).

From October 2015 RT-32 participated in several test observations at L, C, M and X bands in EVN October - November session. From December RT-32 participating in C and L band RadioAstron observations.

Currently main activities focused on:

- RT-32 primary and secondary mirror adjusting and improvement of antenna efficiency (for this moment RT-32 efficiency still less than 50%)
- ACU, Mark5b, DBBC2 and receiver system linking with FS.
- ANTAB file generation and antenna SEFD measurements.

On the end of December 2015 in the RT-32 Mark5b system crashed OS, we manage to install only RedHat version, new version of OS and SDK have problems with Amazon board.

Radio telescope RT-16:

Main refurbishment activities on the RT-16 finished by December 2015:

- Installed new motors, angular sensors, stow pin mechanics;
- Installed new Antenna Control Unit;
- Completely new carbon-fibre antenna;
- Installed conditioning system for receiver's room;
- Installed broadband cryogenic receiver 4.5-8.8 GHz, including cryogenic system and dry air generator, two channels (RCP and LCP), intermediate frequency convertors, local oscillators, noise diodes and Pcal calibration units.
- Ordered new DBBC2 system for RT-16.

First observational tests on RT-16 scheduled for March-April 2016.