

Noto Station Status Report

Gino Tuccari

Abstract The Noto VLBI station was fully operational in 2014. A great effort was made to install the frequency agility mechanics and to develop a new SXLP receiver and the VGOS compatible front- and back-end systems.

1 Antenna and Receivers

Frequency agility installation in the antenna has been done after summer with the help of a specialized company. The modification of the single receiver to be adapted to the new environment will be progressively realized, in order to avoid stopping any observational run. A new SXLP receiver has been completed and is under test. Both polarizations for each band are available and X band is expanded up to 1 GHz.

Development of the new VGOS broadband DBBR receiver operating in the range of 1-16 GHz continued. The feed and cryogenic sections were completed. Two new front-end LNAs from Caltech were purchased. This receiver has been developed to operate on a typical 12-m VGOS antenna and will be adapted to the Noto 32-m radio telescope, making use of a tertiary mirror operating in the vertex room. Initially, the DBBC3-L system will be used as a backend, capable of covering the entire range up to 16 GHz with the new developed GCoMo units. A Faraday cage was developed and placed in the vertex room. Its mechanical behavior allows the maintenance of

Istituto di Radioastronomia INAF, Noto

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the DBBC3-L system orientation always independent of the antenna elevation position, to eliminate any possible mechanical stress to the internal contacts and electronic parts.

2 H-maser

Whereas the old EFOS-5 has been modified to be kept still active in parallel with the new one, two masers are now available. Additional pieces of equipment were installed in order to have a continuous comparison between the two atomic clocks and to optimize the clock and timing distribution.

3 e-VLBI

The connection at 10 Gbps was activated in October 2013. Nowadays at the station, e-VLBI observations at 1 Gbps are routine operations.

4 DBBC

The DBBC3 project, a collaboration between IRA (Italy) — MPI (Germany) — (OSO) Sweden, is progressing as expected in the scheduled time. First observations are planned for March 2015 for the Event Horizon Telescope. Two double polarization back-ends are going to be completed, including the FILA40G unit. Its functionality is to receive multiple 10 G connections coming from the output of the

CORE3 boards and handling the data Ethernet packets for different functionality. One of them is the recording capability at 32 Gbps. Two pictures of the DBBC3 with the internal and external views are shown.



Fig. 1 DBBC3-L: internal view



Fig. 2 DBBC3-L: external view

5 Observations

During 2014, seven geodetic experiments were observed: EUR127, T2096, CRF83, EUR129, T2100, EUR132, and CRF85.