

Station report for EVN TOG meeting,

September 4, 2025.

Irbene station, Ventspils.

Irbene Ir – RT-32 radio telescope

Upgrade works were put throughout 2025 to adapt the antenna for space communications. The cryogenic C/X (4500 - 8800 MHz) band receiver (TTI) has been permanently relocated from the receiver cabin center to an offset position, which may reduce efficiency. The ambient L-band receiver remains operational, with plans to replace it with a cryogenic one in Q1 2026.

There are concerns that the adjustable secondary mirror may not be installed precisely at the center. Further investigation and potential adjustments are therefore required.

Irbene Ib – RT-16 radio telescope

In 2025, the telescope operated in C/X-band mode as usual. It served as the main instrument for EVN during 2025 due to ongoing works on RT-32. A scheduled replacement of the C/X cryogenic receiver with a communications X/Ka (8025 -8500 & 25500 -27000 MHz) receiver is planned for Q1–Q2 of 2026. As a result, RT-16 will no longer be available for EVN observations in the future.

In autumn 2024 surface measurement & alignment session was performed by OHB, improving RMS error from 1.19 to 0.27 mm

Developments

cryogenic L/S (1100 - 2400 MHz) receiver for RT-32

RT-32 surface alignment planned for 2026

VLBI equipment status

RT-32:

Field System: 9.13.2 (Debian Wheezy), planned upgrade to FS10

DBBC: 4xADB3L, Internal Fila10g, DDC v107;

Continuous calibration: implemented on RT-32 C/M/X band receiver.

RT-16:

Field System: 9.13.2 (Debian Wheezy), planned upgrade to FS10

DBBC: 4xADB2, External Fila10g (only one VSI connection right now), DDC v107

Flexbuffs:

1. Capacity: 32 TB, jive5ab: 3.1.0 64bit on Ubuntu 24.04.2 LTS

2. Capacity: 288 TB (36x8TB), jive5ab: 3.1.0 64bit on Debian 12 Bookworm.

Planned increasing disk space of both flexbuffs by replacing 8TB HDD with 16TB in 2026

All EVN recordings are done with Flexbuffs and data transfer to Irbene Flexbuff at JIVE works fine.

Backup units: two Mark5c+ Glapper, jive5ab: 2.8.1 64bit, AMAZON,10GbE;

If there is no space left on Flexbuffs, older recordings can be transferred to the LOFAR data server (~39 TB HDD, up to 2 PB magnetic tapes) and kept there until transfer to JIVE is done.

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VIRAC, Irbene 02.09.2025.