

LUNARIS

A configurable 5G NR UE for NTN research

Developed at CTTC, Lunararis combines an observable PHY-to-IP research stack with satellite-aware timing and Doppler mechanisms. Build a focused experiment, interoperability campaign or funded development programme.

WHAT IT BRINGS

- Release 17 baseline; FR1 paired FDD for terrestrial and NTN research, with 15 and 30 kHz SCS and 3 MHz support.
- Satellite assistance and SIB19, timing advance and scheduling offsets, orbital geometry and uplink Doppler compensation.
- Access procedures, repetitions and configured-grant mechanisms, with structured diagnostics and IQ capture/replay.

EVIDENCE WITH CLEAR BOUNDARIES

Selected terrestrial and static GEO-delay-emulated RF profiles: 20 accepted trials and 400/400 traffic probes using a single-chain USRP X410, 5 MHz and 15 kHz SCS. Separate software-radio interoperability campaigns exercised access and IP traffic.

These results apply to the documented configurations. They do not establish certification, a live satellite link, moving-orbit validation or universal interoperability.

WORK WITH THE TEAM

Commission a scoped pilot or validation campaign, sponsor a feature or radio integration, or discuss evaluation and technology access. Scope, evidence, rights and commercial terms are agreed for each engagement.

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