CTTC / NR UE TECHNOLOGY FOR NTN

LUNARIS

A configurable 5G NR UE for NTN research

Developed at CTTC, Lunaris combines an observable PHY-to-IP research stack with satellite-aware timing and Doppler mechanisms. We welcome collaboration on joint experiments, interoperability campaigns and technology development.

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.

COLLABORATE WITH CTTC

We welcome invitations from research teams, industry and consortia to include Lunaris in joint projects. Together we can develop capabilities, integrate systems and design reproducible experiments. Access and intellectual property arrangements are agreed as appropriate to each collaboration.

Explore: lunaris.castle.cloud | Contact: pol.henarejos@cttc.es