**REDUCTION OF THE ACQUISITION AND TRACKING THRESHOLDS FOR SPREADING CODES**

Procedure for the reduction of acquisition and tracking thresholds for the spreading codes of an orbiting spectrum

---

**Technological advantages**

- Improved acquisition of spreading codes
- Reduction of the spreading code acquisition and tracking threshold by a minimum factor of 100
- Reduced acquisition time
- Improved robustness of geostationary satellites and satellites in survival mode

**Compatible with all types of satellite**

- Proven technology on more than one hundred orbiting satellites
- Compatible with LEO, MEO, GEO or HEO orbiting satellites.

**Summary of the invention**

Reduction of the spectrum spreading code acquisition and tracking thresholds received in orbit by a satellite receiver accessing an orbital navigator, such as a Kalman filter which can be installed directly inside the receiver or ECU of the carrier satellite.

The receiver is installed with a code loop, responsible for the acquisition or tracking of pseudo-random codes. The orbital navigator is the source of the precise accuracy of the satellite receiver speed and enables the acquisition and tracking threshold to be reduced significantly.

**Commercial benefits**

- Instant installation and benefits
- Compatible with existing and future receivers: GPS, GLONASS, Globalstar, Galileo, COMPASS, Egnos, GNSS and IRNSS
- Compatible with spread spectrum remote control receivers used in ground stations or relay satellites
- No modification to equipment is required.

**Potential applications**

Space industry

---

Patented invention, available under licence

TRL: 9

© ESA/CARRIL Pierre, 2011 – all rights reserved.