

## Internship

**Subject :** « Design of a reconfigurable antenna for polarization diversity in loRa technologies »

**Key words :** Internet of things, reconfigurable miniature antenna, LoRA

**Advisors :** L. Lizzi et F. Ferrero

**Place :** LEAT, Sophia-Antipolis, France

**Subject:** Development of LPWAN technologies (Low Power Wide Area Network) is extending M2M connectivity. In France, several network providers have started to deploy a LoRa network for IoT market. Base station antenna used for LoRa network have a vertical polarization. However, most of the LoRa node can be placed in various positions, thus leading to strong polarization mismatch. The objective of this internship is to develop a reconfigurable antenna for 868MHz frequency with ability to switch between different linear polarization. The choice of the best polarization will be based on the accelerometer information. This study will be realized in collaboration with Semtech company.

The first part of the internship will be dedicated to the study of the different possible topology for polarization reconfiguration.

The most promising solution will be selected and used to fabricate a first prototype.

Measurement in anechoic chamber and test-field will be performed to validate the prototype.

The candidate is expected to hold or to be a student in a MSc degree in Telecommunication or Electronic Engineering. A specialization in electromagnetics and or antennas is an asset. Good command of English orally and in writing is required. French is optional.

**Salary:** About 500€ / month, the air plane ticket can be funded by the lab.

**Contacts :** [fabien.ferrero@unice.fr](mailto:fabien.ferrero@unice.fr)