



DRONE TECHNOLOGY AND METHOD FOR THE REMOTE MEASUREMENT, CHARACTERIZATION, INSPECTION AND DIAGNOSIS OF ANTENNAS

TECHNOLOGY OFFER

COMPETITIVE ADVANTAGES

- ✓ **Multiple applications:** radar and radio-navigation system installations, terrestrial and satellite telecommunications systems, antennas on board aircrafts or ships, or terrestrial broadcasting facilities.
- ✓ **Technical and implementation simplicity:** a high investment for development is not required.
- ✓ **Less operating costs:** one operator, low supervision and low expertise needed. Less time for results.

Demo video:

<https://bit.ly/2GUBlam>

PATENTS

- ES patent granted.
- PCT application submitted.

TYPE OF COLLABORATION

License agreement.

INNOVATIVE ASPECTS

- ✓ It can be controlled by just one operator with low supervision and expertise, and it allows the measurement to be done in less time than a manual system.
- ✓ The system and methods implemented allow identifying deformations in the structure of the antenna or malfunctioning antenna radiating elements, apart from providing the antenna radiation pattern and the size of the safe perimeter volume around the antenna or radiating system.
- ✓ No need to interrupt the service of the communication system: measurements are acquired in real operational conditions.
- ✓ The system and methods allows retrieving phase information from amplitude-only measurements, and advantage over existing airborne-based measurement systems.
- ✓ The system provides spatial resolution ≤ 3 cm. between two adjacent positions, and the aerial module is capable of positioning with an accuracy ≤ 3 cm.
- ✓ It allows working with arbitrary geometry trajectories not necessarily adjusted to a canonical measurement surface or volume.
- ✓ It can be implemented with one or more aerial modules.

ABSTRACT

In the field of radio-communications, the **measurement and characterization of antennas** and/or other radiating systems is one of the fundamental aspects for the **verification of the correct operation of a communications system**. The capability of measuring the antenna in **real operational conditions** is of special interest, since it allows the **evaluation of the distortions** that can produce such real conditions in the initial design specifications

This invention relates to an **airborne system** for the remote measurement, **characterization**, inspection and diagnosis of **antennas or other radiating systems**, comprising at least one aerial module, a ground station and a communication system between those elements. The invention also relates to a method of processing the radiated electromagnetic field for obtaining the distribution of the antenna aperture field from which it is possible to perform the **diagnosis of such antenna**, as well as to determine its **radiation pattern** and the **safe perimeter volume**.

The invention is of **interest** for the inspection and testing of **radar and radio-navigation system installations, terrestrial and satellite telecommunications systems, antennas on board aircrafts or ships, or terrestrial broadcasting installations**.

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