

ELECTROMAGNETIC CHARACTERIZATION OF MATERIALS, COMPONENTS AND SYSTEMS

Innovations and Benefits - Characterization of electromagnetic properties of materials and antennas by different experimental methods.

Experimental measurement by resonant cavities, waveguide, open probes and free space. Measurement of shielding effectiveness of materials.

Experimental measurement of antenna radiation patterns, gain and radar cross-section.

Uses - Applications to military, industrial, security, medical and biomedical areas of interest. Applications in medical diagnostics and therapy, food fraud counter-action, agriculture, safeguard and protection of cultural heritage, automotive. Research and development activities.

Past and Present Activities - Collaborations with "La Sapienza" University of Rome for the development of:

- Electromagnetic characterization of biological and ceramic materials in the framework of a project on microwave thermoablation
- Innovative system for measurement of dielectric complex permittivity of liquids.
- UWB radar system for remote detection of human breathing (medical and aerospace applications).
- Radar system for detection of objects and people behind barriers opaque to visible radiation ("Through-the-wall" radar).
- Study of microwave methods to determine the humidity of stone materials for applications to the safeguard of cultural heritage.
- Study of electromagnetic emissions from fast charge stations for electric vehicles.

