



AMISS - Active and passive MICrowaves for Security and Subsurface imaging

Francesco Soldovieri (1), Evert Slob (2), Ahmet Serdar Turk (3), Lorenzo Crocco (1), Ilaria Catapano (1), and Francesca Di Matteo (1)

(1) Istituto per il Rilevamento Elettromagnetico dell' Ambiente, Consiglio Nazionale delle Ricerche, Napoli, Italy (soldovieri.f@irea.cnr.it, +39 081 5705734), (2) Technische Universiteit Delft - The Netherlands, (3) Yildiz Technical University - Turkey

The FP7-IRSES project AMISS - Active and passive MICrowaves for Security and Subsurface imaging is based on a well-combined network among research institutions of EU, Associate and Third Countries (National Research Council of Italy – Italy, Technische Universiteit Delft - The Netherlands, Yildiz Technical University - Turkey, Bauman Moscow State Technical University - Russia, Usikov Institute for Radio-physics and Electronics and State Research Centre of Superconductive Radioelectronics “Iceberg” - Ukraine and University of Sao Paulo - Brazil) with the aims of achieving scientific advances in the framework of microwave and millimeter imaging systems and techniques for security and safety social issues.

In particular, the involved partners are leaders in the scientific areas of passive and active imaging and are sharing their complementary knowledge to address two main research lines. The first one regards the design, characterization and performance evaluation of new passive and active microwave devices, sensors and measurement set-ups able to mitigate clutter and increase information content. The second line faces the requirements to make State-of-the-Art processing tools compliant with the instrumentations developed in the first line, suitable to work in electromagnetically complex scenarios and able to exploit the unexplored possibilities offered by new instrumentations.

The main goals of the project are:

- 1) Development/improvement and characterization of new sensors and systems for active and passive microwave imaging;
- 2) Set up, analysis and validation of state of art/novel data processing approach for GPR in critical infrastructure and subsurface imaging;
- 3) Integration of state of art and novel imaging hardware and characterization approaches to tackle realistic situations in security, safety and subsurface prospecting applications;
- 4) Development and feasibility study of bio-radar technology (system and data processing) for vital signs detection and detection/characterization of human beings in complex scenarios.

These goals are planned to be reached following a plan of research activities and researchers secondments which cover a period of three years.

ACKNOWLEDGMENTS

This research has been performed in the framework of the “Active and Passive Microwaves for Security and Subsurface imaging (AMISS)” EU 7th Framework Marie Curie Actions IRSES project (PIRSES-GA-2010-269157).