



# FP6-IST Network of Excellence



## ACE - Antenna Centre of Excellence

### Activity 2.2: Small Terminals and Smart Antenna Systems

## Objectives

#### 1.- Unifying research

- Bring together Europe's leading institutions in the field of small terminal and smart antennas to merge their excellence and insight into future needs for the development of a common research basis.
- Establish closer links between the institutions spread all over Europe
- Enable the partners to define common research projects, which can only be treated by the common effort of the different institutions.
- Find a common basis in terms of knowledge, methods and perspective of the future.

#### 2.- Unifying research on small terminal antennas

- Define the state of the art in the field of small terminal antennas, concerning the partners but also in all Europe.
- Analyse the different methodologies in small terminal antenna design, such as simulation tools and technological solutions.
- Benchmark the existing antenna measurement facilities, and suggest improvements to adapt them to new requirements, including special test procedures and techniques for measuring radiated power, receiver sensitivity, diversity or MIMO antennas. overview the status of such measurements
- Identify new lines of research and future technologies for next generation terminals

#### 3.- Structuring research on reconfigurable- and MIMO systems

- Coordinate the development and use of smart antenna systems in wireless communications.
- Gain further insight on the advantages of structures such as reconfigurable and MIMO transceivers.
- Optimise smart antenna networks from the system point of view (networks and terminals with enhanced performance, intelligent applications, diversity schemes...)
- Advance in algorithm development; signal processing, network administration and service quality.
- Provide background for future network deployments or standardisation procedures.

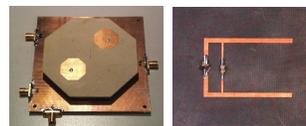
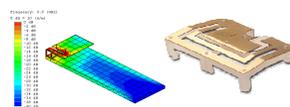
#### 4.- Spreading of the obtained results

- Use state of the art multimedia technologies such as internet platforms or an online-forum within the general dissemination scheme of the ACE VCE.
- Organise workshops and courses, and participate in conferences to help spread the knowledge gathered within ACE
- Enhance the collaboration between partners, to lead to common research work and publications.

## Results

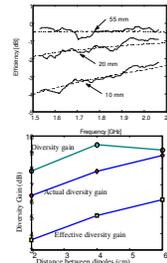
#### WP 1: Small terminals antenna technologies

- Review of the proficiency of the partners to assess their competence and identify common research lines
- Report on state of the art in terminal antennas
- Identification of important european players
- Organisation of joint Workshop ACE/CNRS AS 167 at JINA 2004



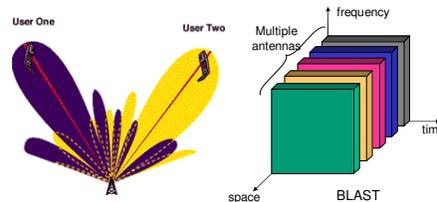
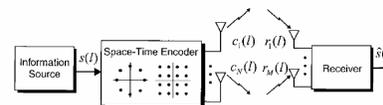
#### WP 2: Benchmarking of small terminal antennas measurement facilities

- Review of the existing measurement facilities
- Definition of test objects and parameters for benchmarking activities
- Planning of the "round-robin" measurement campaign



#### WP 3: Advanced, Re-configurable MIMO Transceivers

- Advanced receiver architectures
- Reconfigurable transmission schemes
- Jointly optimised MIMO transceivers
- Antenna technologies for re-configurable multiple antenna schemes



#### WP 4: System Level Smart Antenna Strategies

- System level re-configurability strategies for Smart Antenna networks
- Cross-layer optimisation strategies
- Context aware optimisation strategies
- Deployment of Smart Antennas- Business models



## Participants

- Teknillinen Korkeakoulu (HUT), Finland
- Groupe des Écoles des Télécommunications (ENST), France
- Société D'applications Technologiques à l'Imagerie Micro-Onde (SATIMO), France
- Centre National de la Recherche Scientifique (CNRS-LEAT), France
- Institut d'Electronique et de Télécommunications de Rennes (IETR), France
- IMST GmbH (Germany)
- Universität Karlsruhe (Germany)
- Inst. of Communication and Computer Systems, National Tech. Univ. Athens (ICSS/NTUA), Greece
- University of Piraeus Research Center (UPRC), Greece
- National Centre for Scientific Research "Demokritos", Greece

- Instituto Superior Técnico (IST), Portugal
- Instituto de Telecomunicações (IT), Portugal
- Universitat Politècnica de Catalunya (UPC), Spain
- Universidad Politécnica de Madrid (UPM), Spain
- Universidad Politécnica de Valencia (UPV), Spain
- Telecommunications technological Center of Catalonia (CTTC), Spain
- Kungliga Tekniska Högskolan (KTH), Sweden
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