

Coordinating the Antenna Research in Europe

CARE is aimed at reinforcing the existing cooperation among the European antenna research teams established by the FP6 ACE NoE and at providing the framework for a better collaboration with the research in NMS dealing with antennas and wireless technologies in Health, Transport, Security and Space applications.

At A Glance: CARE

Coordinating the Antenna Research in Europe



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Funding scheme: <CA>

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EC Contribution: € 497.740,00

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Main Objectives

Starting from the results achieved by the FP6 ACE Network of Excellence, CARE will continue and reinforce the collaboration among the European Institutions involved in antenna research, in particular towards the EU New Member States.

This can only be obtained through an inter-European effort aimed at improving the European excellence by supporting the cooperation and synergies among Institutions located in different countries.

In particular, CARE will reinforce the collaboration among the European Institutions by:

1. researchers secondments
2. international workshops
3. training courses
4. dissemination, by conferences and Internet.

The CARE funding will support the exploitation of the antennas research excellence within the enlarged Europe, in close cooperation with the European Association on Antennas and Propagation (EurAAP), see www.EurAAP.org.

With a two-year duration, CARE will make available to the EU NMS the existing benefits for the antenna researchers:

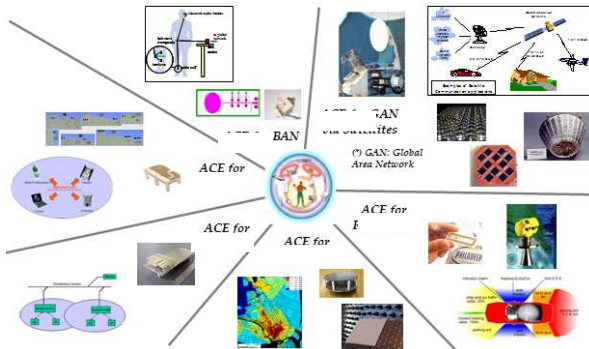
- the Antenna Expert Groups (AEG)
- the European School of Antennas (ESoA), see www.ESoA-web.org
- the European Conferences on Antennas and Propagation (EuCAP), see www.EuCAP2010.org
- the Virtual Centre of Excellence (VCE), see www.AntennasVCE.org
- the European Association on Antennas and Propagation (EurAAP) joined by over 300 European institutions and 1500 researchers

and will pave the way towards a long-term excellence of the European antenna research.

The networking of the antenna research and a better exploitation of antennas R&D synergies in an enlarged Europe is the key aim of the CARE project

Technical Approach

The CARE coordination activities are focused on the antennas subsystems, see figure below.



The CARE Coordination Action concentrates on the antenna function of radio systems. This includes the electromagnetic interface from guided waves to free space radiated waves, the beam-forming functions, whether they are analogue or digital, adaptive systems to change the beam pattern, and other antenna-related signal processing. The radiative coupling to the close surroundings and to a scattering environment, together with system aspects such as MIMO antennas and the related optimisation algorithms are also included.

Key Issues

The key issues of the CARE Coordination action are addressed by the project WPs 1 to 5.

The **WP1** coordinates the European excellence provided by the **Antenna Experts Groups** in:

- AEG 1: MM & Sub-MM Wave Antennas
- AEG 2: Small Antenna & Sensors Antennas
- AEG 3: Wideband Antennas
- AEG 4: Array Antennas
- AEG 5: Smart Antennas

and is focused on the transfer of knowledge towards researchers in Academia and Industry, by **offering researchers secondments and visits**.

In **WP2**, the **Antennas Best Practices Groups** will provide the software tools to easily assemble complex antenna simulation and will distribute the state-of-the-art antennas measurement procedures able to guarantee the highest level of quality in indoor and outdoor Test Field.

In **WP3**, **three CARE workshop** will be organised (in 2010, 2011 and 2012) to present the latest R&D results achieved by the CARE secondment. These workshops will be joined with the major conference in Europe on antennas: the European Conference on Antenna&Propagation (EuCAP), see www.EuCAP2010.org.



The **WP4** is aimed at further improving the content of the **AntennasVCE portal**, by publishing the latest information about technical breakthrough, planned events, books and papers databases, jobs, other projects links, etc. The long term goal is to make it the point of reference of the antenna research in Europe.

In **WP5**, the **ESoA initiative** (see below) will be prolonged in 2010 and 2011, by the contributions of IMST, KIT, IDS, CTU, TNO, UNISI, UPM and EPFL.



Expected Impact

The CARE coordination will have an impact on

- 1) Communications, i.e. in BAN, PAN, LAN, WAN and GAN, meaning body, personal, local, wide and global area networks
- 2) Intelligent Transport System able to provide mobile context aware services, including V2V and V2I communications
- 3) Health applications for diagnosis techniques and remote health control
- 4) Environment applications by sensor networks, including RFID and Smart Tags.

Moreover, CARE will reinforce the networking and the exploitation of antenna R&D synergies by:

- Building long-term sustainable research cooperations and bringing together a wide range of skills, expertise and viewpoints, by researchers mobility
- Improve exploitation of research results by a direct connection with the Industry at national and European level.

A strong synergy is also expected with other FP7 projects, where CARE representatives will present the project results and will exploit the latest antenna technologies.