

PROJECT

## ARTIC

### Antenna Research and Technology for the Intelligent Car

**Funding:** European (7th RTD Framework Programme)

**Duration:** Apr 2008 - Sep 2010

**Status:** Complete with results

**Total project cost:** €466,544

**EU contribution:** €361,000



**Call for proposal:** FP7-ICT-2007-2

[CORDIS RCN : 87372](#)

#### Background & policy context:

Antenna Research is a strategic enabling technology for intelligent vehicles and road safety services. Car-to-car communications, real time congestions localisation, obstacle and collision radars, on board sensor networks, etc., are based on novel antenna solutions and subsystems integration.

Antenna Research in Europe received great benefits from the structuring efforts provided by the Network of Excellence ACE and its outstanding results, such as the Antenna cutting-edge research, the European School of Antennas (ESoA), the European Conference on Antennas and Propagation (EuCAP), the Virtual Centre of Excellence (ACE-VCE) and the ACE Community (joined by over 300 European institutions and 1600 researchers). Moreover, ACE created the European Association on Antennas and Propagation (EurAAP) to support ACE results beyond the ACE duration (see [www.antennasvce.org](http://www.antennasvce.org)).

#### Objectives:

The Coordination Action 'Antenna Research and Technology for the Intelligent Car' (ARTIC) was proposed to support the transfer of antenna technology knowledge from ACE to the Intelligent Car Initiative and eSafety in particular, in order to enable the best implementation of the future subsystems for improved safety, higher transport system efficiency, reliable information to drivers, etc.

#### Methodology:

ARTIC operated in synergy and cooperation with the COMeSafety FP6 project to distribute information regarding the latest radio links technology to the stakeholders, to present the best practices on antenna software and measurement procedures, to provide industrial training by the ESoA and to support dissemination by major International Conferences. In addition, the ARTIC achievements were spread to the stakeholders, scientists and the citizens by a dedicated section of the ACE Virtual Centre of Excellence.

The Consortium was comprised of top level organisations in European antenna research and was joined by representatives from the Car-to-Car Communication Consortium.

#### Parent Programmes:

[FP7-ICT - Information and Communication Technologies](#)

**Institute type:** Public institution

**Institute name:** European Commission

**Funding type:** Public (EU)

#### Lead Organisation:

**I.d.s. - Ingegneria Dei Sistemi - S.p.a.**

**Address:**

Via Enrica Calabresi 24  
56121 Pisa  
Italy

**EU Contribution:** €204,820

## Partner Organisations:

### Universita' Degli Studi Di Siena

**Address:**

Via Banchi Di Sotto  
53100 Siena  
Italy

**Organisation Website:**

<http://www.unisi.it>

**EU Contribution:** €12,573

### Asc Antenna Systems Consulting Aps

**Address:**

Selsmosevej 12  
2630 Taastrup  
Denmark

**EU Contribution:** €13,964

### Ecole Polytechnique Fédérale De Lausanne

**Address:**

Batiment Ce 3316 Station 1  
1015 LAUSANNE  
Switzerland

**Organisation Website:**

<http://www.epfl.ch>

**EU Contribution:** €20,812

### Nokia Uk Limited

**Address:**

740 WATERSIDE DRIVE AZTEC WEST  
ALMONDSBURY BRISTOL  
BS32 4UF  
United Kingdom

**EU Contribution:** €11,460

### Karlsruher Institut Fuer Technologie

**Address:**

Kaiserstrasse  
76131 Karlsruhe  
Germany

**Organisation Website:**

<http://www.kit.edu>

**EU Contribution:** €16,211

**Imst Gmbh****Address:**

CARL FRIEDRICH GAUSSSTRASSE 2  
47475 KAMP LINTFORT  
Germany

**Organisation Website:**

<http://www.imst.de>

**EU Contribution:** €14,124

**Ruag Space Ab****Address:**

Solhusgatan  
40515 Goteborg  
Sweden

**EU Contribution:** €27,766

**Katholieke Universiteit Leuven****Address:**

Oude Markt  
3000 Leuven  
Belgium

**Organisation Website:**

<http://www.kuleuven.be>

**EU Contribution:** €15,997

**Universidad Politécnica De Madrid****Address:**

Avda. Ramiro de Maeztu, 3  
28040 MADRID  
Spain

**Organisation Website:**

<http://www.upm.es>

**EU Contribution:** €12,359

**Universite De Rennes I****Address:**

Rue Du Thabor  
35065 Rennes Cedex  
France

**Organisation Website:**

<http://www.univ-rennes1.fr>

**EU Contribution:** €10,914

**Technologies:**

Safety systems  
Antenna technology for road safety

**Development phase:** Implementation

## Key Results:

The objectives of the ARTIC project have been achieved within following five work packages:

- In work package 1, the Antenna Experts Groups (Millimetre-wave and integrated antennas, Small terminal antennas, Wideband and multi-band antennas, Reconfigurable antennas, Array antennas and Smart antennas) provided a full transfer-of-knowledge of the latest antennas technology available for vehicle to vehicle communications, real-time information on traffic and congestions, on-board sensors for vehicle efficiency etc.
- In work package 2, the ACE best practices was promoted in order to improve simulation and measurements of radio links in vehicle to vehicle and vehicle to infrastructure communication, networks of in-vehicles sensors, measurement of vehicle antenna systems, etc. An Electromagnetic Data Interface (EDI) was provided to the automotive researchers, for data exchange.
- In work package 3 events were organised to spread antenna technologies related to latest evolutions in vehicle to vehicle and vehicle to infrastructure communication. ARTIC sessions on antennas for automotive and annual workshops were organised at EuCAP, in order to disseminate the information towards the scientific community.
- The work package 4 provides the ARTIC Virtual Centre, hosted by the ACE NoE Virtual Centre of Excellence.
- In work package 5 a specific course on 'Antennas for the Intelligent Car' was developed, where scientists and manufacturers in vehicle to vehicle communications will be trained on latest antenna technology.

## Innovation aspects

ARTIC played an important role in creating interactions between Industry and Universities and in increasing the relevance, the efficiency and the quality of the antennas for automotive applications, producing an expected high impact on vehicle safety and traffic efficiency.

## Strategy targets

- An efficient and integrated mobility system: Acting on transport safety: Saving thousands of lives
- Innovating for the future: technology and behaviour: A European transport research and innovation policy

Documents:

 [Deliverable D1.1 Smart car antenna needs review \(Other project deliverable\)](#)

**STRIA Roadmaps:** Cooperative, connected and automated transport

**Transport mode:** Road transport

**Transport sectors:** Passenger transport

**Transport policies:** Decarbonisation, Safety/Security, Societal/Economic issues

**Geo-spatial type:** Other