PROJECT

GAMMA-A

Galileo Receiver for Mass Market Applications in the Automotive Area

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

**Duration:** Jan 2009 - Jun 2011

**Status:** Complete with results

**Total project cost:** €2,859,799

**EU contribution:** €1,999,390

**Call for proposal:** FP7-GALILEO-2007-GSA-1

CORDIS RCN: 99271

**Background & policy context:**

Development of a new satellite navigation receiver for mass market automotive applications.

**Objectives:**

The objective of the project was to develop a new dual frequency GALILEO/EGNOS/GPS satellite navigation receiver concept for automotive applications and to push the state-of-the-art of GNSS receivers forward by elaboration of relevant core technologies.

**Methodology:**

The project would consider the FP6 achievements in the development of single frequency mass market receivers and expand and explore these on new features, such as the use of MBOC for the open signal, OS authentication and dual frequency reception of L1- and E5/L5 band for the use in automotive applications, such as driver assistance systems.

**Related Projects:**

The GAMMA-A project has identified (mass) market segments and promising applications. See for example the GENEVA project, which addresses vehicle collision avoidance making use of satellite navigation, environmental perception and extended digital maps. See also, for example the ASPHALT project that deals with high precision applications in road construction (i.e. paver steering).

GENEVA: [www.geneva-fp7.eu](http://www.geneva-fp7.eu)

ASPHALT: [www.asphalt-fp7.eu](http://www.asphalt-fp7.eu)

**Parent Programmes:**

FP7-TRANSPORT - Transport (Including Aeronautics) - Horizontal activities for implementation of the transport programme (TPT)

**Institute type:** Public institution

**Institute name:** The European Commission

**Funding type:** Public (EU)

**Lead Organisation:**

Frauenhofer Gesellschaft Zur Foerderung Der Angewandten Forschung E.v.

**Address:**
**Partner Organisations:**

**Robert Bosch GmbH**

**Address:**
Robert-Bosch Platz
70839 Gerlingen-Schillerhoehe
Germany

**Organisation Website:**
http://www.bosch.com

**EU Contribution:** €82,100

**Oecon Gmbh**

**Address:**
Hermann-Blenk-Strasse 22
38108 Braunschweig
Germany

**Organisation Website:**
http://www.oecon-line.de

**EU Contribution:** €104,825

**Eads Secure Networks**

**Address:**
Boulevard Jean Moulin, 1 - Zac De La Clef Saint Pierre
78990 Elancourt
France

**EU Contribution:** €179,953

**Ecole Polytechnique Fédérale De Lausanne**

**Address:**
Batiment Ce 3316 Station 1
1015 LAUSANNE
Switzerland

**Organisation Website:**
http://www.epfl.ch

**EU Contribution:** €90,000

**Imst Gmbh**

**Address:**
CARL FRIEDRICH GAUSSSTRASSE 2
47475 KAMP LINTFORT
Germany
<table>
<thead>
<tr>
<th>Organisation</th>
<th>Address</th>
<th>EU Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong><a href="http://www.imst.de">http://www.imst.de</a></strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EU Contribution:</strong></td>
<td></td>
<td><strong>€311,250</strong></td>
</tr>
<tr>
<td><strong>Tpi Srl/gmbh</strong></td>
<td><strong>Address:</strong> Via Leonardo Da Vinci 2/a</td>
<td><strong>€74,980</strong></td>
</tr>
<tr>
<td></td>
<td>39100 Bolzano</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Italy</td>
<td></td>
</tr>
<tr>
<td><strong>Alma Mater Studiorum - Universita Di Bologna</strong></td>
<td><strong>Address:</strong> Via Zamboni 33</td>
<td><strong>€80,750</strong></td>
</tr>
<tr>
<td></td>
<td>40126 Bologna</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Italy</td>
<td></td>
</tr>
<tr>
<td><strong>Organisation Website:</strong></td>
<td><strong><a href="http://www.unibo.it">http://www.unibo.it</a></strong></td>
<td></td>
</tr>
<tr>
<td><strong>EU Contribution:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Thales Alenia Space France</strong></td>
<td><strong>Address:</strong> 26, AVENUE JF CHAMPOLLION</td>
<td><strong>€110,000</strong></td>
</tr>
<tr>
<td></td>
<td>31037 TOULOUSE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>France</td>
<td></td>
</tr>
<tr>
<td><strong>Organisation Website:</strong></td>
<td><strong><a href="http://www.thalesaleniaspace.com">http://www.thalesaleniaspace.com</a></strong></td>
<td></td>
</tr>
<tr>
<td><strong>EU Contribution:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inposition Gmbh</strong></td>
<td><strong>Address:</strong> Jagerweg 15</td>
<td><strong>€80,788</strong></td>
</tr>
<tr>
<td></td>
<td>9435 Heerbrugg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Switzerland</td>
<td></td>
</tr>
<tr>
<td><strong>EU Contribution:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>The 425 Company</strong></td>
<td><strong>Address:</strong> Blake Cottage Green Lane</td>
<td><strong>€82,003</strong></td>
</tr>
<tr>
<td></td>
<td>Hambledon</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PO7 4SY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>United Kingdom</td>
<td></td>
</tr>
<tr>
<td><strong>EU Contribution:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Teleconsult Austria Gmbh</strong></td>
<td><strong>Address:</strong> Schwarzbauerweg 3</td>
<td><strong>€309,616</strong></td>
</tr>
<tr>
<td></td>
<td>8043 Graz</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Austria</td>
<td></td>
</tr>
</tbody>
</table>
Technologies:
Satellite navigation
Dual frequency GALILEO/EGNOS/GPS satellite navigation receiver concept

Development phase: Research/Invention

Key Results:
Applications for multi frequency receivers have been identified. Examples being: e-call service, ghost driver emergency stop, automatic driving, green driving, automatic lane keeping, lane departure warning, along track guidance, etc. Their requirements with respect to accuracy, integrity, continuity (etc.) have been defined. Markets for desired applications have been described, including advice regarding their market introduction.

Different core technologies have been studied. This knowledge has been used to build a development base and to achieve the necessary performance under application specific environments.

Innovation aspects
The GAMMA-A receiver is also able to receive the broadband L1C and E1bc and E5a/L5 GPS/Galileo and E5b Galileo signals.

Strategy targets
Innovating for the future (technology and behaviour): A European Transport Research and Innovation Policy

Documents:
GAMMA-A public presentation on project outcomes v1.0 (Project presentation)

STRIA Roadmaps: Network and traffic management systems
Transport mode: Road transport
Transport sectors: Passenger transport
Geo-spatial type: Other