

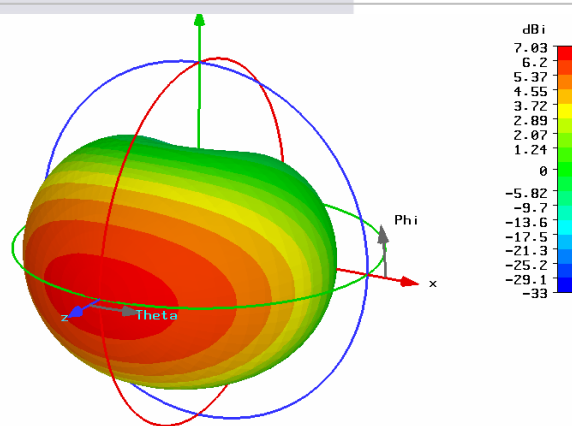


Project Acronym: **SAFETEL**
 Project Reference: **IST-2002-506829**
 Contract Type: **Specific Targeted
 Research Project (STREP)**
 Start Date: **01/01/2004**
 Duration: **30 months**
 End Date: **30/06/2006**
 Project Cost: **1.75 Mio €**
 Project Funding: **0.95 Mio €**

SAFETEL

*Safe Electromagnetic
 Telecommunication on Vehicle*

SAFETEL aims at improving the design standards of equipment and systems in the automotive world providing advanced tools for prediction, design and testing, in order to enhance the susceptibility hardening of motor vehicles against electromagnetic (EM) disturbances.



Type = Farfield
 Monitor = farfield (f=50) [1]
 Component = Abs
 Output = Directivity
 Frequency = 50
 Rad. effic. = 1.001
 Tot. effic. = 0.9456
 Dir. = 7.025 dBi

More information:

<http://www.safetel-project.com>

Contact us:

Name: Giovanni D'ANZIERI

Organisation:

SYSTEM DESIGN AND RESEARCH
 ASSOCIATION S.R.L

Tel.: +39-011-5069781

Fax. +39-011-0081015

Email: giovanni.danzieri@sydera.it

Objectives

SAFETEL takes into account the Commission Communication for Safe and Intelligent Vehicles COM(2003) 542.

The application of the Project results will improve road safety and support competitiveness of the European automotive industry. Higher levels of safety than imposed by current standards for internal and external EM environments will be achieved. A simulation and test strategy will be defined and an advanced set of design tools will be provided in order to guarantee the proper functioning of the electronic equipment in the presence of new complex receivers and transmitters such as GPS, GSM, Bluetooth and Time Modulated Ultra Wideband.

The Project therefore aims to pursue the following scientific and technological objectives:

- to define the EM environment as a requirement for design;
- to reach a quantitative definition of immunity safety margins;
- to define EM hardening rules;
- to define suitable test methods and procedures;
- to design and demonstrate a HISS test setup;
- to define and set-up a design environment devoted to rapid prototyping for vehicles;
- to define a risk assessment model.

Description of the work

The work is organized in technical work-packages aimed at implementing the technical and research activities and achieving the research objectives specified here-above

Topics are:

- EM characterization of commonly used electronic components;
- EM characterization of vehicles' equipment and systems;
- Design methodologies (i.e.: antenna to antenna coupling, EM field to cable coupling, EM field to equipment coupling and others);
- New High Intensity Susceptibility Signals (HISS) test methods to measure safety margins and related quantitative evaluation criteria;
- Design environment to anticipate susceptibility problems at an early stage of system design;
- HISS test facility to perform interaction tests both in internal and external EM environment.

Envisaged technological advances comprise analysis, testing and design of criteria in order to investigate and define:

- Present and future EM automotive environment based upon a quantitative approach and accurate definition of amplitudes and frequencies of possible EM threats;
- EM environment for present and future communication systems based on susceptibilities of electronic components, modules and packages;
- Immunity test methods at equipment and system level based upon the safety margin principle;
- Use of simulation tools and virtual prototyping techniques to predict immunity conditions for Rapid Prototyping.

The risk assessment model is the conclusive step of this Project. On the basis of the experimental and theoretical activities carried-out in the previous ones it becomes possible to determine the potential risks due to different input variables such as types of journey, measurement uncertainty, likelihood of encountering a transmitter and so on.

Participants:

- | | |
|--|----------------|
| • SYSTEM DESIGN AND RESEARCH ASSOCIATION S.R.L | ITALY |
| • CENTRO RICERCHE FIAT S.p.A. | ITALY |
| • UNIVERSITAET STUTTGART | GERMANY |
| • DAIMLERCHRYSLER AG | GERMANY |
| • EM SOFTWARE & SYSTEMS GmbH | GERMANY |
| • TRL Ltd. | UNITED KINGDOM |