Project Achievements

Services to Wireless, Integrated, Nomadic, GPRS-UMTS & TV, handheld terminals

Wing TV

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Partners

Åbo Akademi University Turku, Finland

Antenna Hungaria, Hungary

DIBCOM, France

DIGITA OY, Finland

Elektrobit Ltd. , Finland

Mier Comunicaciones, Spain

Nokia Corporation, Finland

Nozema Services, Netherlands

Philips Research, Netherlands

RAI (CRIT), Italy

Retevisión (Abertis Telecom), Spain

Rohde&Schwarz, Germany

SIDSA, Spain

Tampere University of Technology, Finland

TeamCast, France

Technical University Braunschweig, Germany

Telefónica I+D, Spain

Thales Broadcast & Multimedia, France

T-Systems International GmbH Media&Broadcast, Germany

University of Turku, Finland

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Project web site

www.celtic-initiative.org/projects/WING-TV/

Wing TV has tested and verified in detail the DVB-H specification. The purpose was to check the interoperability of appliances and to constitute requirements in order to guarantee a successful deployment of services. The mission of the Wing TV project was to help in speeding up the worldwide adoption of the DVB-H standard by validating the technology and providing adequate inputs to forums and standardization bodies.

Main focus

DVB-H provides a coherent set of features (time-sliced service transmissions, additional link layer protections, new physical layer modes and signaling, etc.) to efficiently serve handheld terminals, thus fostering network co-operation between terrestrial broadcast and mobile telecommunication and materializing the vision of wireless broadband access anywhere, anytime. Once the technology was officially standardized in 2004, the next step was to validate the technology by means of exhaustive lab and field trials. The Wing TV project and the corresponding consortium were created with this purpose as well as to provide an in-depth view of all the capabilities of the new technology.

The main outputs of the project for the industry and for standardization bodies are the following

- Validation of the DVB-H suite of standards by means of simulation activities, laboratory tests and field trials in different countries.
- DVB-H equipment and network testing methodology and quality criteria.
- Update of the "DVB-H Implementation Guidelines" with the outcomes from lab and field trials.
- Provide objective information to the public community regarding the performance of the technology by means of dissemination activities in forums and standardization bodies.

Figure 1: Wing TV Consortium

Figure 2: Common lab test session in Turku, Finland

Approach

The Wing TV consortium included a broad scope of knowledge and capacities. The consortium was formed by 22 European members including operators, manu-facturers, and universities from 8 European countries: Finland, France, Germany, Hungary, Italy, Netherlands, Spain and Sweden. The participating organizations did not only form a well-balanced consortium in terms of the project needs, but also included many of the leaders in the broadcast industry and in telecom research in Europe.

This consortium performed field trials and lab tests which helped to generate a deep knowledge on the capacities and performance of the tested standards. Each company contributed with indepen-dent, country-specific field trials and individual lab tests. In addition, regular common test sessions, both in the laboratory and in the field, were organized in Turin, Barcelona, Turku, The Hague, and Rennes. The key issue was the collaborative worked performed within the project, where the 22 partners, in some cases competitors, worked together with a common goal: drive DVB-H toward success.

Achieved results

The main achievements of the project can be summarized as follows:

DVB-H standard validation: The standard has been fulfilled by means of exhaustive lab tests, field trials and simulation activities which, in addition, have provided a deep comprehension of the standard. The interoperability between equipment was also tested. Individual field trials were carried out in the context of demonstrations and pilot services in Finland, France, Germany, Hungary, Italy, The Netherlands, and Spain.

New channel models for pedestrian environment: Wing-TV recognized the necessity of a more accurate pedestrian channel model and added this item to the work plan of the project. The Finnish partners performed an extensive measurement campaign to develop new channel models for these environments. These channel models have been tested in the laboratory and aim to become a reference.

Wing TV reference receiver: The project agreed on a reference implemen-tation of a generic Wing TV receiver, in terms of minimum robustness and per-formance. It can be seen as a minimum specification for network planning and receiver testing. This work has been done in coordination with MBRAI (Mobile and Portable DVB-T/H. Radio Access Interface Specification).

Product development: During the project the performance of the prototypes which include receivers, modulators, IP encapsulators or gap-fillers, has improved significantly, thus allowing to deliver updated figures of DVB-H performance.

Contribution to standardization bodies: Wing TV has contributed to standardization and technical bodies like DVB TM-H, MBRAI or ITU. Public papers and deliverables have been published to provide a better understanding of the influence of several physical and link layer parameters in the performance of the technology.

Impact

The Wing TV project has performed the technical validation of the DVB-H technology providing updated figures of the performance of this technology for the different modes and configurations. The results of lab tests and field trials performed within the project helped manufacturers to develop competitive equipment fully compliant with the DVB-H standard and with better per-formance. Furthermore, a new channel model for pedestrian reception has been developed. The results of the project have been contributed to several standardization bodies and will help net-work operators, broadcasters and other media industry players to deploy DVB-H networks and develop the content-to-mobile-users business opportunity. The dissemination activities performed by the project have resulted in the wide spread of the DVBH technology, which is currently competing with other technologies in an increasing global world. The Wing TV project has set the basis for a strong European consortium, which will continue the R&D activities of the emerging broadcast technologies in the Celtic B21C project, in accordance with the strategy promoted by the European Commission, Celtic, and the NEM Technology Platform.

About CELTIC

Celtic is a European research and development programme, esta-blished as Eureka cluster, to strengthen Europe's competitive-ness in telecommunications through short and medium term collaborative R&D projects. Celtic is currently the only European R&D programme fully dedicated to end-to-end telecommunication solutions. Launched in November 2003, Celtic (Cooperation for a sustained European Leadership in Telecommunications) was founded and has been supported by major European telecommunication play-ers, both vendors and operators. Celtic fills the gap between public R&D programmes not specifically focused on telecoms and short-term R&D efforts by the telecoms industry

Timeframe: 8 years, from 2004 to 2011

Total budget: in the range of 1 billion euro, shared between governments and private partici-pants

Participants: companies from the telecommunications industry (small, medium and large), univer-sities, research institutes, and local authorities from all 35 Eureka countries may participate in Celtic projects.

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