Project Information

CELTIC
Telecommunication Solutions

Enabling Next GeneratIon NEtworks for broadcast Services

ENGINES

Project ID: CP7-005

Start Date: 1 January 2010

Closure date: 31 December 2012

The ENGINES project (Enabling Next GeneratIon NEtworks for broadcast Services) aims at constituting a Task Force to support development of the Digital Video Broadcasting-Next Generation Handheld (DVB-NGH) standard. In addition ENGINES shall provide means for the verification and validation of advanced features of Digital Video Broadcasting – Second Generation Terrestrial (DVB-T2) standard and verification and validation for the coming DVB-T2Lite and DVB-NGH standard.

Main focus

There will be two main focus areas within ENGINES. The first focus area will be on the development, verification and validation of technical concepts and elements on the coming DVB-NGH and DVB-T2Lite standards. Another focus area is the verification and validation of full DVB-T2 system and DVB-NGH system. The aim is to work as parallel activity with the DVB Project on all focus areas. The DVB Project is an organization which has separate technical and commercial modules for the different DVB standard areas. The technical work is done within the technical modules and the commercial work is done within the commercial modules. The scope of the DVB related work within the ENGINES relates to the technical work. The DVB module related to the DVB-NGH and T2Lite is called TM-H and the DVB module related to the DVB-T2 is called TM-T2.

Approach

The ENGINES project will form a task force to develop the Next Generation Broadcasting standards (i.e. DVB-T2, DVB-T2Lite, and DVB-NGH) and their implementation for Fixed Portable, Mobile and Handheld reception. The project will work both on technical proposals for Digital Video Broadcasting project as well as on efficient usage of the latest version of the standards. The project will also generate a test framework for a common lab and field infrastructure mainly for DVB but

also for other standards. The project continues the work in line with previous successful Celtic projects WingTV (validation of DVB-H) and B21C (major contributions to DVB-T2 and DVB-SH).

The second generation standard for terrestrial broadcasting DVB-T2 was submitted to ETSI in 2008, and will be taken into operative use during 2010. This second generation system provides about 50% increase of physical layer capacity compared to the previous standards. DVB-T2 is in its first stage targeting for fixed reception. DVB-T2lite based on DVB-T2 modulation techniques provides more flexibility for mobile application based on DVB-T2 signals. Providing the same or better capacity increase for portable, mobile and handheld broadcasts (DVB-NGH), require new technical concepts, where Multiple Input and Multiple Output (MIMO) is the most promising approach. However, the utilization of MIMO techniques in broadcast scenarios for fixed, mobile and handheld use cases is still not well known, and clearly requires both research and system design work. This work is including channel modelling, system architecture, receiver algorithms, simulations as well as lab and field trials. The project will support the DVB-T2Lite and DVB-NGH work,

Partners:

Abertis Telecom, Spain
Åbo Akademi University Turku, Finland
Axel Technologies, Finland
BBC, United Kingdom
Centre National d'Etudes Spatiales, France
Dibcom, France
Digita Oy, Finland
Digialist, Finland
Elektrobit Group Plc., Finland
Enensys, France
France Telecom, France
INSA-IETR, France
Integrasys, Spain
Media Broadcast, Germany
Mier Communications, Spain
Mitsubishi ITE-TCL, France
Nokia, Finland
RAI, Italy
Schneider, Finland
Sony SDC, UK
TDF, France
TeamCast, France
Telecom Bretagne, France
Teleste, Finland
Teracom, Sweden
Thomson Broadcast , France
TUAS, Finland
Tampere University of Technology, Finland
Universidad del País Vasco, Spain
University of Turku, Finland
Universitat Ramon Llull, Spain
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Project Website

www.celticplus.eu/Projects/Celtic-projects/Call7/ENGINES/engines-default.asp

which will start in the DVB Project during Q1 2010. The project will also verify the Time Frequency Slicing (TFS) parts of the DVB-T2 specification and study the use of TFS for DVB-NGH.

The project will also take into account the application level of the systems. The applications define the QoS criteria for the system, and depending on the application, the parameters of the physical level are determined. This will support services providers and networks operators to fast introduce their products after finalization of the DVB-NGH standard.

The ENGINES project objectives are to support the DVB and European industries to keep their leadership position in broadcasting technology and standards worldwide. The project will deliver technical solutions and knowledge enabling partners and 3rd parties to provide next generation broadcasting systems.

Main results

ENGINES will deliver technical concepts to the DVB-NGH standardization as well as to verify and validate the yet unverified and validated features of the DVB-T2 and DVB-T2Lite standard. These results are materialized through a dialogue between ENGINES and DVB Project.

Major results are expected also as a form of Interoperability (IOP) testing infrastructure, including network equipment, prototypes, test streams and test case definition. The ENGINES desires to provide full coverage for the In-
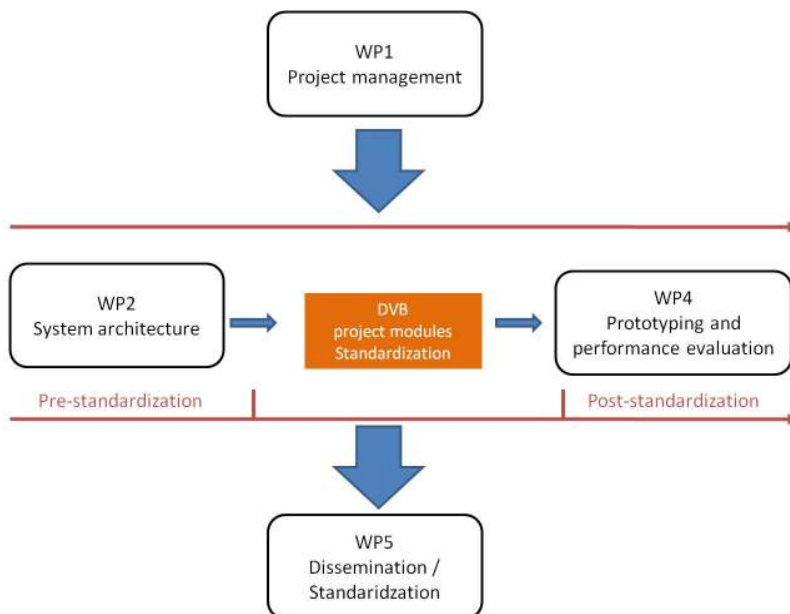
teroperability (IOP) testing of DVB-T2 and DVB-NGH standards, ranging from prototypes to the field tests and trials.

The summary of the main results of ENGINES are provided as follows:

♦ Verification and validation of

functionality for DVB-T2 and DVB-T2Lite

♦ Development, analysis and verification of different technical elements proposed for the DVB-NGH standard

♦ Test cases for DVB-T2/NGH interoperability testing

♦ Laboratory set-up for DVB-T2 and DVB-NGH verification and validation

♦ Field test scenarios and network infrastructure specifications for NGH

All results will be disseminated through Standardisation bodies, white papers, articles in relevant press, Conferences, Seminars, Exhibitions, Demonstrations Shows, etc.

Impact

The expected innovative impacts of the project are:

1) Implementation, modification of existing technological solutions for use in a broadcast environment, such as MIMO and Scalable Video Coding (SVC).

2) Developed technical elements will be incorporated, in collaboration with the DVB project, in DVB-NGH standard specification and implementation guidelines.

Testing activities will bring strategic advantage to partners and European industries for implementing the new standards in products.

The main technical innovation will be the definition of complete end-to-end system containing the technical elements from the previous sections.

The technical work and innovations in this project will give the partners strategic advantage and knowledge to rapidly launch commercial products which are mature and based on state-of-art technological solutions.

About Celtic

Celtic is a European research and development programme, designed to strengthen Europe's competitiveness 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.

Timeframe: 8 years, from 2004 to 2011

Clusterbudget: in the range of 1 billion euro, shared between governments and private participants

Participants: small, medium and large companies from telecommunications industry, universities, research institutes, and local authorities from all 35 Eureka countries.

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