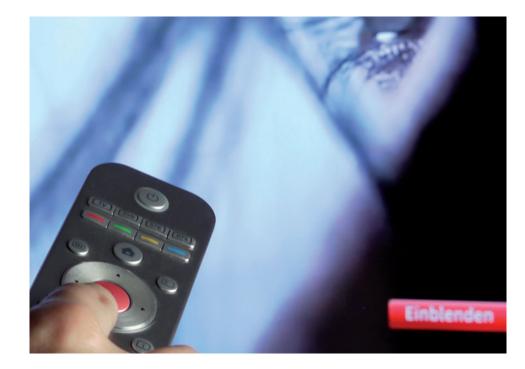# Fraunhofer
FOKUS

FOKUS SmartTV Lab

Testbed Environment for
HybridTV and HbbTV

At a Glance

The SmartTV Lab bundles Fraunhofer FOKUS' expertise in the area of Hybrid TV, connected TV, IPTV, future web technologies and rich media convergence. The lab offers a comprehensive test and development environment for cutting-edge Hybrid TV technologies and devices, new TV formats, interactive content, HbbTV and cross-platform applications. We provide support for both application and content providers as well as CE manufacturers to test and validate their solutions against standards (HbbTV, CE-HTML, OIPF) and in regard to interoperability.

Overview

Hybrid TV, connected TV, Smart TV, all those synonyms are currently used to describe a new kind of TV devices, which came up with integrated Internet connection. These devices provide web-based applications and services parallel to traditional digital TV offers. Programs are enriched with additional content related to the TV channel. Most popular services are portal pages, online video libraries, or Sketch up TV databases and HD Teletext, which is the next expansion stage of the well-known teletext. All those hybrid services have one thing common – they combine traditional TV offers with value added web-based content coming from the Internet. The content is web-based and rendered by a web browser with extensions for CE devices (CE-HTML and HTML5 with TV extensions).

Several standardization bodies are currently working on Hybrid TV platforms. The most important are HbbTV (Hybrid Broadcast Broadband TV), W3C with its Web and TV interest group, the OIPF (Open IPTV Forum) and ETSI. Fraunhofer FOKUS actively supports all three standardization efforts with contributions and proof-of-concept implementations as well as interoperability testing. Our goal is to drive standardization towards converged environments incorporating managed and unmanaged solutions. We push co-operation of telecommunication companies, broadcasters and consumer electronics manufacturers to enable real convergence between communications, web and content to foster new services and applications.

About the FOKUS SmartTV Lab

Fraunhofer FOKUS has established a SmartTV Lab to build an independent development and testing environment for Hybrid TV technologies and solutions. The SmartTV Lab addresses interoperability issues as much as device and solution specific testing and integration. Our approach is to provide a testbed, that is:

- open for all interested players from industry, the research community and academia
- based on open standards (CE-HTML, HbbTV, OIPF, etc.)
- independent of vendors and providers
- a communication, networking and marketing platform

The FOKUS SmartTV Lab incorporates diverse solutions ranging from IPTV service platforms, web-based applications towards hybrid broadband broadcast solutions as HbbTV to future technologies as HTML5 and cross platform app and service provisioning.

Technical Environment

The FOKUS SmartTV Lab provides a professional infrastructure and is equipped with state-of-the-art and market leading solutions comprising:

- multiple DVB-S2/DVB-C/DVB-T digital TV receiving installations
- HD enabled TV and IPTV headend
  - DVB to IP Multicast/Unicast turnaround
  - multiple HD DVB-S2/C receivers & HD MPEG 4 encoder
  - various and highly flexible software streaming servers
- HbbTV playout system
  - creation of self-maintained red–button-applications
- development platforms and SDKs
  - all major Smart TV platforms (vendor specific as well as standard compliant through CE-HTML, HbbTV, W3C), and HTML5
  - managed and unmanaged IPTV platforms
- Hybrid TV devices
  - full range of state-of-the-art connected TVs and set-top-boxes from all major manufacturers
  - mobile devices as smartphones and tablets for 3-screen-services
  - prototypes of e.g. HTML5 enabled TV devices and STBs

Prototyping and Proof-of-Concept Development

We are building applications and services that comply to standards such as HbbTV, CE-HTML and Open IPTV Forum (OIPF).

Current examples include:
- HbbTV Car Configurator (interactive red-button-application)
- services for the German ID Card (Video-on-Demand, bookstore, eGovernment services)
- FOKUS Megastore (cross-platform app store for web apps)
- CE-HTML compliant service portals for various partners (print media, broadcast, content providers, online catalogues, weather etc.)
- interactive games for Hybrid TV (single and multiplayer)
- comprehensive white label portals

Contact

Dr. Stefan Abanowski

+ 49 (0)30 3463 7197
famecontact@fokus.fraunhofer.de

Fraunhofer Institute for Open
Communication Systems FOKUS
Kaiserin-Augusta-Allee 31
10589 Berlin, Germany

www.fokus.fraunhofer.de

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Service Enabler & Application Server (FOKUS Open IPTV Ecosystem System)

Encoder & Transcoder

IPTV & Hybrid TV Headend

HbbTV Playout Server & INfrastucture