

# EBU

OPERATING EUROVISION AND EURORADIO

# TECHNOLOGY & INNOVATION

## ANNUAL REVIEW 2012-2013



EBU Stand at IBC 2012

### HIGHLIGHTS

The EBU is at the forefront of media technology and innovation. Industry recognition came with the award of the 2012 IBC Judges' Prize to the **FIMS** project. The EBU takes a leading role in the development of this media services interoperability specification.

2012 was a key year for the **MPEG-DASH** adaptive streaming system. With support from the EBU, live DASH streaming of the 2012 London Olympics by Belgian broadcaster VRT represented a groundbreaking first public outing for the standard.

More recently, the EBU has been instrumental in the creation of an international **Joint Task Force** to define technologies for an all-over networked production environment that would encompass live and file-based content exchange.

In an ever-changing media technology landscape, the EBU helps public service media organizations to make smart operational and strategic choices to produce and deliver their content. Over the last 12 months EBU experts have collaborated with Members and with the wider industry to develop the guidance, tools and support that they need.

*Integration* has become a key theme. In a world where audiences expect to consume content on multiple platforms and devices, anytime, anywhere, broadcasters need to find new ways of producing, managing and distributing content.

Through our Strategic Programmes and other activities, we've addressed tri-media production, crossing the divide between technical and editorial professionals; started investigating the video and audio world beyond HDTV; looked at more efficient ways of storing and moving files and the metadata attached to them; moved to ensure the value of broadcast platforms is recognized; brought new momentum to digital radio deployment; and explored the evolution of broadband distribution and hybrid services.

## NEW TO OUR LIBRARY

In the last year we've published the reports, recommendations and guidelines listed below. Download them from: [tech.ebu.ch/publications](http://tech.ebu.ch/publications)

### Rec. on Spectrum Requirements for Broadcasting ahead of WRC-15

R 136 - June 2012

### Report on Broadcasting Spectrum Requirements UHF Band

TR 015 - July 2012

### EBU Timed Text Part 1 - Subtitle format definition

Tech 3350 - July 2012

### Carriage of Identifiers in the Broadcast Wave File

Tech 3352 - August 2012

### Benefits & Limitations of Single Frequency Networks for DTT

TR 016 - October 2012

### EBU Class Conceptual Data Model

Tech 3351 - October 2012

### FIMS Media SOA Framework

Tech 3356 - October 2012

### Interoperability Requirements for IP-based Intercoms

Tech 3347 - October 2012

### Television Lighting Consistency Index 2012

R 137 - December 2012

### Frequency & Network Planning Parameters for DAB+

BPN 101 - December 2012

### Case Studies on the Implementation of DRM+ in Band II

Tech 3357 - January 2013

### Rec. on Digital Radio Distribution in Europe

R 138 - February 2013

### EBUCore Metadata Set v1.4

Tech 3293 - February 2013

### EBU Media Storage Framework Model

Tech 3358 - June 2013

## REVIEW OF WORKPLAN 2012-2013

Our Strategic Programmes are established by the Technical Committee to develop policy and provide guidance on topics of strategic importance for Members. Below is a brief outline of the work carried out over the last year.

### MEDIA FUNDAMENTALS & PRODUCTION TECHNOLOGIES

#### Integrated Media Production Strategies

Jointly run with the EBU Media Department, the IMPS programme brought participants on visits to Members that are advanced in tri-media production. An interim results workshop was held and technology and editorial sub-groups were formed.

#### Quality Control

This programme has almost finalized a set of agreed reference criteria to allow broadcasters and vendors to implement robust file-based QC processes. November's workshop was a milestone, demonstrating the considerable level of vendor engagement.

#### Future Networks & Storage Systems

FNS has been overseeing project groups to assist Members in their transition to IT/network-based infrastructures for their production and contribution workflows. Key work has included intercom interoperability, media-optimized SLAs, and storage strategies.

#### Media Information Management

This SP encompasses a range of metadata-related projects, recognizing that information management is crucial for modern media organizations. Recent key deliverables have included the FIMS 1.0 specification, the EBU Class Conceptual Data Model and v1.4 of the EBUCore metadata set.

#### Future TV Formats & Production Systems

Looking towards a post-HDTV world, key activities in 2012-2013 included the creation of UHD-1 test sequences for Members to use and the development of the Television Lighting Consistency Index 2012, enabling assessment of new LED lighting.

#### Future Audio Formats & Radio Production Systems

The Loudness Recommendation has been one of the main successes of recent years and work has continued, specifically on processor issues and bringing R 128 to the radio domain. 2013 has also seen a growing

interest in 3D Audio, with a new project group and a dedicated workshop.

### MEDIA DELIVERY & SERVICES

#### Cooperative Terrestrial Networks

As EBU Members work to create multi-platform, multi-screen distribution strategies, this SP is defining the most relevant media use cases as a precursor to evaluating different strategies, including those using hybrid and cooperative technologies.

#### Spectrum Management

In the aftermath of WRC-12 and ahead of WRC-15, this group has been carrying out studies to support Members' engagement with national administrations. Reports on spectrum requirements have served as the basis of inputs to relevant regulatory bodies.

#### Broadband Networks

Focused on the evolution of broadband distribution technologies, this SP has worked to ensure that EBU Members are active in the development of the MPEG-DASH adaptive streaming standard. Development of guidelines on CDN use is also an on-going activity.

#### TV Platforms & Services

Working in the domain of connected TVs, second screens, etc., this group has been focused requirements-gathering for HTML5, second screen synchronization and future hybrid TV systems.

#### Hybrid Broadcast Broadband Television

This SP has been coordinating interdisciplinary activities across technical, regulatory and content areas of Hybrid Broadcast Broadband services, mostly in connection with HbbTV service launches.

#### Digital Radio Platforms

While work on hybrid radio based on the RadioDNS specifications has continued, primarily in the context of RadioHack workshops, the February 2013 publication of an EBU recommendation on Digital Radio Distribution in Europe was the most notable recent deliverable.

### INTERDISCIPLINARY PROGRAMME

#### Sustainably Technology in Broadcasting

Formerly called Green Broadcasting, this programme has been taking first steps towards giving more prominence to this important topic across the EBU's technical activities and for Members. Clear objectives have been defined and work is expected to intensify in future.

## SEMINARS & WORKSHOPS

We are uniquely positioned to bring broadcasters and manufacturers together in a non-commercial environment for use cases, technology updates, demos and tutorials. The feedback on our seminars and workshops is consistently positive, with the opportunities for networking and exchange highly appreciated.

Presentations and videos are available to EBU Members – just click on Past Events: [tech.ebu.ch/events](http://tech.ebu.ch/events)

*(Events since Technical Assembly 2012)*

### MDN WORKSHOP

June 2012 • 23 participants

*Developers and metadata experts dove deep into information management.*

### NETWORK TECHNOLOGY SEMINAR 2012

June 2012 • 97 participants

*A rendezvous for network experts, whether from the broadcast world or IT.*

### LIBRE SOFTWARE MEETING

July 2012 • 75 participants

*The EBU organized sessions on free and open software for media.*

### CONTENT DELIVERY NETWORKS WORKSHOP

October 2012 • 34 participants

*As an OCEAN partner, the EBU organized this broadcaster-focused CDN event.*

### QUALITY CONTROL WORKSHOP

November 2012 • 88 participants

*File-based QC for broadcasters, with vendors showcasing their solutions.*

### FORECAST'12

November 2012 • 111 participants

*Much discussion around broadcasting and the spectrum it requires.*



Discussion panel at FORECAST'12

### OUT OF THE CLOUD, INTO THE LIGHT?

November 2012 • 52 participants

*A much needed workshop to demystify cloud technologies for broadcasters.*

### IMPS NETWORK & LEARN

December 2012 • 48 participants

*First findings of the Integrated Media Production Strategies programme.*

### PRODUCTION TECHNOLOGY SEMINAR 2013

January 2013 • 129 participants

*Under the theme Inspired by Users, there was a strong focus on tutorials this year.*

### DIGITAL RADIO SUMMIT 2013

February 2013 • 122 participants

*At the heart of EBU Radio Week, which also featured the RadioHack workshops.*



RadioHack workshop participants

### MUSCADE WORKSHOP

March 2013 • 65 participants

*Overview of MUSCADE outcomes in 3D production, coding and transmission.*

### BROADTHINKING 2013

March 2013 • 90 participants

*Updates and discussion on the latest trends in broadband delivery and platforms.*

### IMMERSIVE AUDIO OVER HEADPHONES

May 2013 • 60 participants

*Broadcasters are looking at fresh opportunities for binaural audio content.*

## OUR TEAM

### Lieven Vermaele

Director

### Françoise Davies

Executive Assistant

### Lina Vanberghem

Finance & Administration Assistant

### Eoghan O'Sullivan

Technical Publications, Events and Liaisons

### Geneviève Juttens

Senior Assistant, EU Projects

### Nicole Frey

Senior Assistant, DigiTAG / HbbTV

### MEDIA FUNDAMENTALS & PRODUCTION

#### Hans Hoffmann

Senior Manager

#### Elisabeth Ecoffey

Senior Assistant

#### Frans de Jong

Integrated Production

#### Jean-Pierre Evain

Metadata & SOA

#### Adi Kouadio

Video & Display Technologies

#### Roger Miles

Audio Technologies

#### Félix Poulin

Network & Storage Technologies

#### Yvonne Thomas

Future Television Systems

### MEDIA DELIVERY & SERVICES

#### Peter MacAvock

Senior Manager

#### Filka Hänni

Senior Assistant

#### Mathias Coinchon

Network Technology, Radio & Platforms

#### Elena Puigrefagut

Spectrum Mgt. & Policy, Distribution Technologies

#### Darko Ratkaj

Spectrum Mgt. & Policy, Mobile Technologies

#### Walid Sami

Spectrum Mgt. & Policy, Compatibility Issues

#### Bram Tullemans

Broadband & Television Platforms

#### Michael Barroco

Software Engineering & User Experience

## KEY FIGURES

**207,000** visits to **tech.ebu.ch** between May 2012 and May 2013, a **15% increase** year on year

Currently **7,913** registered users of tech.ebu.ch, of which **3,258** are **EBU Members**

**1,238** new accounts created since May 2012

More than **1,000** participants attending seminars and workshops since June 2012

More than **160** videos of seminar/workshop presentations added to the website in the last year

Contributing to and representing Members in more than **30** regulatory, industry and standardization bodies

## KEEP IN TOUCH

**Web:**  
tech.ebu.ch

**Email:**  
tech@ebu.ch

**Phone:**  
+41 22 717 2111

**Twitter:**  
@EBU\_TECH

**Video:**  
youtube.com/ebutechnical

**Post:**  
EBU,  
Department of  
Technology & Innovation,  
L'Ancienne-Route 17A,  
CH-1218 Grand-Saconnex,  
Switzerland

Published: June 2013

## SPREADING THE WORD

Our quarterly magazine **tech-i** brings the work of the EBU and our Members to a wider audience, with updates from our strategic programmes and events, case studies from around Europe and introductions to the latest standards and guidelines. Each issue is read in print and online by thousands of media professionals around the world.



## ENGAGEMENT FOR INNOVATION

The work done by the Technology & Innovation team is possible only with the active participation of EBU Members. The chairs and vice-chairs of our Strategic Programmes and their Project Groups are drawn from across the membership, and there are varying levels of active participation in these groups.

During the last year our network of **Technical Liaison Officers** has evolved into an effective method of engaging with Members, carrying out three broad functions:

- identifying colleagues that can contribute to EBU activities
- ensuring that EBU outputs are communicated within their organization
- providing input and feedback on the annual workplan

As of May 2013, more than 60 Members have nominated a TLO. We look forward to the network growing further in future.



## OTHER CHANNELS

The **EBU Technical Review** is a highly respected collection of articles on diverse media technology topics. In the last year a dozen articles were published, covering topics such as Loudness distribution, automated file-based QC and carriage of SDI over IP. The Tech Review is available online: [tech.ebu.ch/techreview](http://tech.ebu.ch/techreview)

Our **YouTube** channel is constantly growing in popularity, with more than 35,000 views in the last twelve months. The *David Wood on...* series of explanatory videos has proved popular, with each video gaining thousands of views. (His introduction to UHDTV has a combined total of more than 60,000 views on YouTube!)

[www.youtube.com/ebutechnical](http://www.youtube.com/ebutechnical)

## Technical Committee

The Technical Committee (TC) is responsible for the strategic direction and management of the EBU's technical activities. It oversees the development of the annual workplan and approves the creation of Strategic Programmes and the appointment of their chairs and vice-chairs. It is also required to approve all EBU technical documents for publication or external distribution.

The current TC was elected for a two-year term at the Technical Assembly 2012 in Zagreb, Croatia. Its members, pictured below (L-R) are:

*Igor Orlov (RTR), Egon Verharen (NPO), Per Bjorkman (SVT), Thomas Saner (SSR SRG), Klaus Illgner (IRT, 1<sup>st</sup> Vice-Chair), Kazimir Bacic (HRT), Arild Hellgren (NRK, Chair), Dieter Boen (VRT), Lieven Vermaele (EBU Director of Technology & Innovation), Petr Vitek (CT), Andy Bower (BBC, 2<sup>nd</sup> Vice-Chair), Gino Alberico (RAI), Ferhat Uzaktas (TRT). Not pictured: Pere Vila Fumas (RTVE).*