

tech-i

INSIGHT FROM EBU TECHNICAL

Contents

- 03 Digital Agenda
- 04 PLT Interference
- 05 Internet Governance
- 06 P2P
- 08 DTV4All
- 09 1080p/50 - The Next Format?
- 10 HbbTV in Germany
- 12 IST Projects
- 14 IBC Special
- 15 Diary

Issue 05 September 2010

Looking Forward to 1080p/50



Testing Time at NRK



The mobile satellite company™

BACKPACK BROADCAST

A person in a plaid shirt and jeans is operating a professional video camera mounted on a tripod. In the foreground, a laptop sits on a small table. The background is a scenic landscape with green hills and a clear sky. A bright sunburst effect emanates from behind the word "BACKPACK" in the title.

It's not just for big broadcasters. But everyone. Together with its partners Inmarsat can offer you a simple, affordable, end-to-end live satellite broadcasting solution. From anywhere to anywhere. With a range of guaranteed on-demand streaming rates. One backpack-sized terminal. Flexible, pay as-you-use packages and technical support from our partners around the world. Experience the picture quality by visiting us online.



BGAN

BGAN gives you high quality voice and broadband data connectivity worldwide through a single, small, lightweight terminal that fits easily alongside your laptop in a backpack.

inmarsat.com/livebroadcast/eu

Quo Vadis? A digital agenda for the broadcasting industry.

In May 2010, the European Commission published the 'Digital Agenda' for Europe. This is one of the flagships of the 'Europe 2020' strategy, the Commission's new strategy for economic success in the EU.

Prepared by Commissioner Kroes, the Digital Agenda includes the Commission's action plan for a digital economy (with specific targets and priority actions) for the coming five years. It covers issues crossing different competences like the internal market, copyright, culture, data protection.

Overall, Ms Kroes' strategy is to mobilise the great potential of ICT through a streamlined 'virtuous circle' of digital economic activity. This circle works as follows: attractive content and services need to be made available in an interoperable and borderless internet environment. This stimulates demand for higher speeds and capacity, which in turn creates the business case for investments in faster networks. The deployment and take-up of faster networks in turn opens the way for innovative services exploiting higher speeds.

The Digital Agenda is most welcome, but it could be argued that the content

aspects are under developed. It conveys the impression that what is needed is mainly a strategy to foster broadband deployment – surely not the case.

On spectrum issues, the Commission will propose an ambitious European Spectrum Policy Programme in September 2010 to increase the efficiency of radio spectrum management. This will be a legislative proposal which means the Council and Parliament will be involved. We will be arguing otherwise, but there is a risk that the Commission will call into question the wisdom of the Telecom Package, i.e., different treatment of spectrum used for broadcasting because of its value for society.

Taken all together, the idea of a Digital Agenda is very sound. Alignment and coordination are indeed needed to foster an open and innovative market of media and internet. Public service broadcasting/ media organisations are important stakeholders in this discussion. They



have shown that they have the capacity to innovate and drive new media services. It is crucial that PSMs now set out their digital agenda.

At EBU Technical, via our strategic programmes, we plan to coordinate and work on those issues that need to be resolved for all players in the digital 'ecosystem'. We need an agenda on the evolution of production standards, in order, where possible, to simplify the integration of media production systems, without losing quality or efficiency. We need an agenda on how we will move from a 'hardware' broadcasting production environment to a 'server' based one. We need an agenda on what should be the characteristics and requirements of future broadcasting systems, and how these will be mixed or integrated with mobile and broadband networks. Finally we need an agenda for an 'application' driven world, where radio and TV are also available via 'apps' as part of a wider offer.

Visit <http://tech.ebu.ch> to subscribe to tech-*i* free of charge

'DON'T TOUCH THESE ISSUES, THEY'RE TOO HOT!'

The Unmissable EBU Session at IBC

IBC Conference, Tuesday 14 September, 09:30 – 13:00

The hot buttons for media technology at IBC 2010.

See page 14

Cover: Photo shot during SP-HIPS preparation of 1080p/50 test material at NRK, Oslo.
Right is Per Boehler, NRK seen through the lens testing bench. Left is Roger Miles, EBU.

© tech-*i* 2010

All rights reserved. The reproduction of articles in tech-*i* is authorised only with the written permission of the publishers.

The responsibility for views expressed in tech-*i* rests solely with the authors.

Published by EBU Technical
European Broadcasting Union
17a Ancienne Route,
CH-1218 Grand Saconnex, Switzerland.
Editor-in-Chief: Lieven Vermaele
E-mail: tech@ebu.ch
Tel: +41 22 717 2111

Editors: William Daly, Harold Bergin
Production: WHD PR
For editorial & advertising enquiries contact:
WHD PR
E-mail: news@whdpr.com
Tel: +44 20 7799 3100
Printing: Lithmark Limited

PLT Concerns

Walid Sami reports on whether broadcasters should worry about PLT interference with services in Bands II and III.

Power line telecommunications (PLT) is a technology that uses electrical power lines for the distribution of high data rate telecommunication services. There are two main types of PLT systems: Access PLT that covers the "last mile" between the electricity supply sub-station and the user; and Indoor PLT which aims to distribute data (for example, coming from access PLT or DSL) within buildings via the electricity socket.

A further possible use of PLT is Smart Metering. This is part of a 'green' initiative to monitor the use of utilities and control energy usage. However, PLT is one candidate technology for this application, competing with other wireless technologies.

PLT below 80 MHz: no radiation limits

Initially PLT systems operated in the frequency bands below 30 MHz, therefore

resulting in potential interference to radiocommunication services in the LF (Low-Frequency), MF (Medium-Frequency) and HF (High-Frequency), where AM radio is received.

For several years, different standardisation bodies (CENELEC, CISPR, ETSI) have been dealing with radiation limits for PLT systems. PLT manufacturers have been very active to avoid radiation limits that might be constraining on their systems. On the other side, broadcasters have been working to set limits which would adequately protect licensed broadcasting services from co-channel interference. At the ITU level, the attempts to approve recommendations limiting this type of radiation in the radiocommunication sector, the ITU-R, have so far been unsuccessful. Whilst work is ongoing in all these standardisation bodies, the current lack of a standard for radiation limits applicable to

PLT means that there are no constraints on PLT equipment with regard to the protection of licensed broadcasting. Recently, the European Commission tasked the CENELEC to prepare a European standard, based on the work done so far in CISPR, with the aim to issue a draft standard for Indoor PLT by the end of 2010 and for Access PLT by mid 2011.

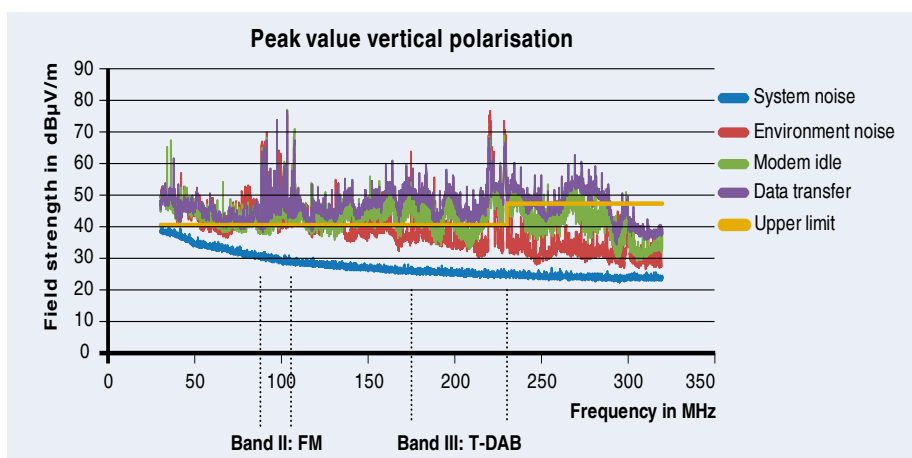
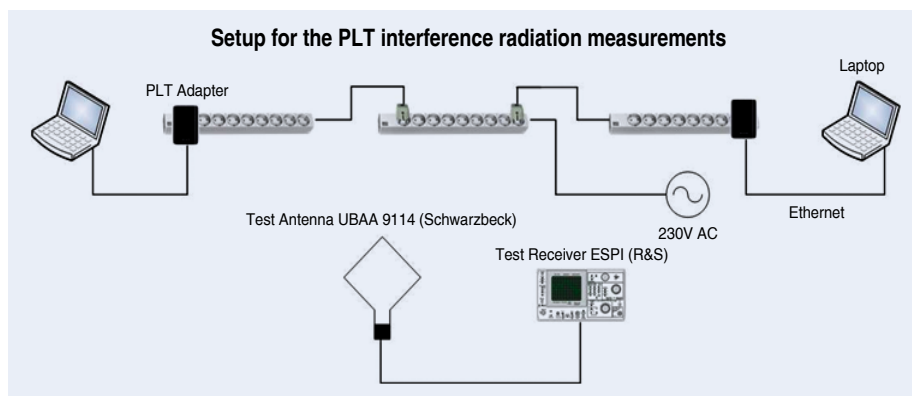
PLT up to 300 MHz: potential interference to FM and T-DAB services

Developments in PLT technology have made it possible for PLT systems to operate up to 300 MHz, thus overlapping with the broadcasting Bands II (87.5-108 MHz) and III (174-230 MHz) where mainstream FM and DAB radio services are located. The standardisation sector of the ITU, the ITU-T, has approved a Recommendation specifying these high speed PLT systems for home networking which, in the broadcasters' view, does not take into account the adequate protection of broadcasting services. Preliminary tests of one commercially available PLT device are very worrying for broadcasters (see YouTube link below). The graph shows measured radiated levels from an indoor mains network transmitting PLT signals. The measured levels are significantly high in all frequencies up to 300 MHz. However, further tests are needed to assess the real risk of interference on the reception of radio services. Coordination between broadcasters is ongoing in order to undertake tests and define common positions on this issue in the relevant standardisation forums.

At the last ITU-R group meeting on the PLT subject, in June 2010, good progress was made with regard to the preparation of a Recommendation on PLT radiation limits in frequencies below 30 MHz. Furthermore, decisions were made to liaise with other standardisation organisations, namely ETSI, CENELEC and IEEE, and to improve the internal coordination with the ITU-T sector on this subject.

Extracts from the ITU-R working document towards preliminary draft new report ITU-R SM. [PLT + 80 MHz] - July 2010.

www.youtube.com/watch?v=z3yVu5lfaEY



Internet Interests



David Wood poses the question of “Who’s in the driver’s seat with broadband internet?”

No doubt about it – media delivery by broadband internet is here. Within five years, 50 percent of broadcasters’ reach in Europe will come via broadband internet. But we are in uncharted waters about many of the things that will shape the services we offer, and define the technology we use to do so. Enter the UN ‘Internet Governance Forum’ (IGF), which meets in September 2010.

Nations, with their constituency of broadcasters, manufacturers, and network facility providers, have always been their own masters of what happens to broadcasting. Decisions about how to use radio spectrum are taken nationally, within the international interference requirements of the ITU. The same is true for regulations on programme content, licences to broadcast, and so on. For tomorrow’s media delivery world via broadband, it’s ‘goodbye to all that’.

With the internet, nations (or regions) are not ‘masters of their own’. The internet is a ‘worldwide’ system of delivery. It is being run by – well, who knows? Will there eventually be the internet equivalent of the worldwide ‘maritime laws’? Will there ever be regulation to ‘level playing fields’ across the world? In whose interests will the technology be?

About six years ago the UN agreed to establish an annual ‘Internet Governance Forum’ open to all with a serious interest, to exchange views across the world, and across the different interest groups. 2010 sees the final meeting of the five-year cycle. The UN will need to decide whether it has been useful, and whether it should be given another term.

One of the triggers for the IGF was the feeling in some countries that the internet was being arranged in the interests of the US, rather than the world. The internet started in the US so it was inevitable that it should be the centre of the internet

universe. The body which controls the addressing system, ICANN, is located in California and is answerable to the US government. One of the achievements of the IGF is to encourage ICANN to be more answerable to the world as a whole.

The technology of the internet comes from a group of open, but rather US centric, bodies, the IETF, the W3C, and the IEEE. For some, they are an example of how worldwide standards can be achieved democratically without government influence – the principle of decisions by ‘running code’. For others, they represent indirect control by the large US blue chip internet companies – the only ones with the financial resources to participate in all the standard’s groups. Almost all of the ten most successful companies on the internet are US companies.

The questions of when and how the world can move to IPv6 are often discussed.

The problem is that many developed countries lack the financial incentive to change because they already have enough addresses, while the countries who would benefit most from the increase in addresses IPv6 would bring, are the least able to afford to introduce it.

Mechanisms for rights protection and copy management are always on the table, together with the means to ensure privacy and protect young people. There is usually some divide between the engineers who know that no technical system can ever be made ‘unbreakable’ and thus call for legal measures as insurance, and the lawyers who argue that obtaining worldwide agreement on legal matters is just too difficult for human beings to achieve, and thus that technology must come to the rescue.

The EBU has participated in the IGF, along with several EBU broadcasters (BBC, NHK, FT) since its inception, and apart from taking part in the general discussions, in

recent years has focused on how to make media, broadcast and internet accessible to those with disabilities. There is a regulatory element to this since there is a UN Recommendation, binding on signatory nations to do all they can to make media as accessible to those with disabilities as to those without. This obligation will fall on EBU Members in future.

There have been five years of IGF, over which time delegates have much better understood the range of internet governance issues. Knowing if there has been much solid outcome from the IGF years is more difficult. Will the seeds planted in the IGF bear fruit, and if so when? No one really knows. At the time of writing, it seems that the UN Secretary General is likely to recommend a further five-year term for the IGF.

“Mechanisms for rights protection and copy management are always on the table, together with the means to ensure privacy and protect young people.”

¹ www.intgovforum.org

Peer 2 Peer

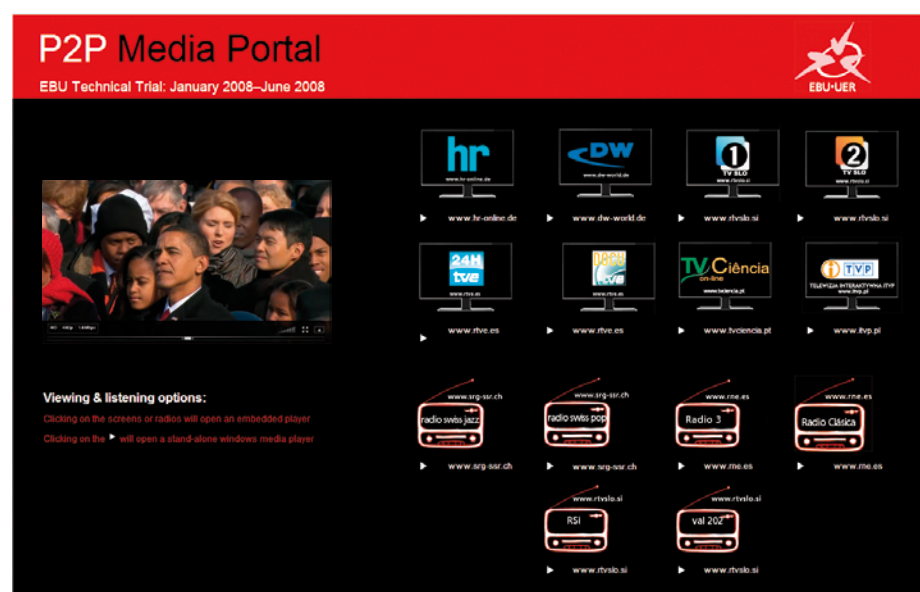
The EBU Project Group D/P2P recently completed its investigation into the new internet-based media delivery mechanism based on gridtype technologies. Franc Kozamernik provides an overview of the Group's findings.

Technical Report 009 entitled "Peer-to-Peer (P2P) Technologies and Services" summarises the studies carried out by the EBU Project Group D/P2P (Peer-to-Peer) since 2006. The Group was tasked to investigate the new internet-based media delivery mechanisms based on grid-type (distributed, serverless) technologies and assess their suitability for broadcasters to distribute large scale, high quality audio visual streams and files to the general public in a cost efficient, reliable, and user friendly manner.

The EBU's involvement in P2P started by preparing an exploration workshop entitled "From P2P to broadcasting" held in February 2006. At that time, P2P technology was still largely associated with illegal file sharing and tainted by its association with copyright piracy as a result of the activities of Napster, Kazaa, Glocster, etc. The usage of internet was exceedingly expensive for broadcasters, as Internet Service Providers (ISP) charged them for each delivered stream (in gigabytes). Broadcasters therefore became victims of their own success: The more popular their content, the more they needed to pay for the distribution of their content. As the situation became increasingly untenable, the EBU Delivery Management Committee launched the D/P2P Project Group which held an exploratory meeting in April 2006. In the three years of its existence, the Group held nine meetings, the last one being held in May 2009 in Geneva. The Group counted 96 members from the public and commercial broadcasters, telecoms, ISPs, CDNs, P2P operators, technology providers, manufacturers, chip developers, universities, and legal experts. The Group examined almost 150 input documents and organised a real life trial of the EBU P2P media portal involving several EBU TV and radio stations.

Today, P2P has become an established service; several broadcasters and portals carry regular P2P services for downloading, VoD and streaming using several commercially available P2P systems. However, these services are not interoperable and are only available via PC. The market trend is that P2P is increasingly being used in conjunction with other delivery mechanisms such as CDNs, as opposed to standalone P2P systems. These hybrid approaches are increasingly popular in the internet distribution market (examples: Octoshape going with CDNNetworks, Joost moving to CDN, etc). It should be made very clear that the adaptive HTTP streaming approach is a very strong candidate, potentially displacing P2P from the number one position. However, it remains to be seen how the promising technology will be converted into a viable market proposition. Pure P2P systems are most successful at

low bitrates (such as live radio/audio only streaming) but, due to the asymmetry of today's broadband networks, high quality video broadcasts (1 Mbit/s or more) are more challenging and require additional mechanisms (super peers, edge caching, CDNs, etc.). P2P is most efficient for local, close area services but seems to be less suitable for inter-domain services involving two or more different ISPs, especially if the broadband network is star based (example: Netherlands, UK, etc.). Several P2P "smart" approaches have recently been developed to understand the broadband network topology, so that media flows can be optimised (e.g. smallest number of hops, shortest latency, lowest transport cost, etc.) – examples: Octoshape, Tribler (NextShare), P4P. Another smart P2P example is libswift developed by P2P-Next. It is lightweight, inexpensive and simple, so that it can be smoothly



EBU P2P Media Portal trial powered by Octoshape



66

There are many excellent solutions now available in the internet media distribution market and there is a good prospect of more solutions to come in the near future.

99

integrated in any "thin client" mobile and portable devices. These systems are able to potentially substantially ease the network load and improve service quality, compared to traditional P2P systems (such as BitTorrent, Kazaa, etc.). It is important to develop, test, standardise and market as soon as possible a smart P2P algorithm which is network topology aware. Such algorithms are being developed by the EC funded project P2P-Next, Napawine and others. (See page 13.)

Advanced P2P systems are attractive for the following reasons:

- P2P is an overlay to the existing broadband network infrastructure and does not require any additional elements
- Relatively low service cost (per GB delivered)
- Low investment and maintenance cost
- Scalability to millions of concurrent users
- High service reliability
- No single point of failure
- Lower server bandwidth and network load (compared to unicast).

It has been shown that P2P clients can be implemented (not only in PCs) but also on low cost consumer devices. Pioneer has already developed a first low cost prototype

P2P enabled STB which is able to perform live TV streaming. However, in order to accommodate P2P enabled CE devices in the market, there is a requirement to standardise P2P algorithms, together with other layers of the stack (e.g., video coding, middleware, metadata, signalling, etc.). This report provides some reflections on how P2P could be successfully introduced in inexpensive consumer electronic devices and home network gateways.

In order to overcome the high asymmetry of DSL type access networks, possible contributions of "passive" or "standby" P2P enabled devices to the aggregate upload capacity would be highly advantageous. It would be important to identify mechanisms that encourage users not to switch-off their devices when they are no longer watching TV programmes. Overall energy consumption of potentially millions of such standby devices should be minimised. All internet TV players should endeavour to establish a suitable legal framework that would disallow unfair blocking or degradation of content, and prevent arbitrary discrimination against particular providers of content, applications, services or devices. ISPs play an important role in this effort and should be able to develop their businesses and obtain the fair revenue streams for them (example: subscription, multi-tier service levels, etc.).

A vision of an "Open Service Sphere" platform that can be used globally to develop any application of user interest is now being promoted by the European Commission. Such an open service

platform will integrate innovative web based services, sensor networks, mobile networks and cloud computing platforms to develop new business applications for the internet. It goes without saying that P2P based network technologies may provide a suitable technology framework for such a platform.

In conclusion, this report states that it is presently not possible to take a clear cut position in favour of using P2P for all purposes. It is not possible to recommend P2P as a single best solution without any reservations. There are many excellent solutions now available in the internet media distribution market and there is a good prospect of more solutions to come in the near future. Nevertheless, P2P is an attractive novel technology, which may potentially revolutionise the business of media distribution over the open internet. P2P technologies are still being developed and refined and will definitely find their place in the media distribution landscape. P2P is highly disruptive but is likely to bring the distribution costs further down. Indeed, it has already brought the prices down by a factor of magnitude. In order to exploit the full potential of P2P, broadcasters need an open, standardised, licence-free P2P solution that could be embedded in a range of consumer electronic devices.

The report was coauthored by 20 EBU and external experts. The document was compiled by Franc Kozamernik. It was proofread and edited by Ed Wilson and Roger Miles (EBU Technical).

Barrier-free TV

Christoph Dosch of IRT informs on the initiative to improve the accessibility to broadcast programmes for all.

Today, 38 million people living in Europe have some form of disability. For them, there are barriers to participation in the information society. And they are not the only ones. Today 20% of the population is above 60, and it will be 30% in 2030. We are faced with the major challenge of facilitating the access to television for individuals with physical, age-related or cognitive disabilities. There are numerous initiatives worldwide to improve the accessibility to broadcast programmes for all. One important example is the DTV4All project funded by the European Commission, which illustrates what is happening today.

DTV4All has seven partners from Denmark, Germany, Italy, Spain and the UK who collaborate to pilot access services and demonstrate technical solutions that could help to improve access to television programmes by all. Associated with DTV4All are the EBU and partners from Japan and Australia.

The objective is digital television for all, regardless of age or disabilities. The use of television should be facilitated for individuals with physical, age-related or cognitive disabilities.

The primary goal is to assess existing access services through comprehensive field tests in four European member states – Denmark, Germany, Italy, and Spain – in order to realise barrier-free access in day-to-day operations on a pan-European scale. The European Commission is thus enhancing its efforts to integrate all people in the Information Society and allow them to partake in the quality of life associated with this access.

There are good prospects to achieve this goal in the switchover from analogue to digital television. After this, services that some public service broadcasters are already offering, such as subtitling and sign language for the hearing impaired, or the additional audio description for individuals with impaired eyesight, will be more strongly established throughout Europe.

New methods for barrier-free services are being developed in the DTV4All project. Hybrid TV receivers that can receive broadband and internet services will enable improved on screen display options and online access via the remote control. Via the internet, textual information or subtitles can be made easier to read. A video signal



of sign language interpreters can be sent over the internet and superimposed onto the broadcast image of the hybrid TV receiver, or a video of the broadcast programme with the signer images already inserted can be pulled from the internet to replace the broadcast programme. The latter method is a simpler method than delivering merely the signer video over the internet since it avoids the need for time synchronisation of the broadband and the broadcast content, as well as the need for a second video player/renderer in the TV set or set-top box. However, superimposing the video of the signer onto the broadcast programme has the advantage that the size and position of the image of the signer on the screen could be determined by the end-users according to their individual needs and preferences. Sign languages are not universal but differ in the way spoken languages do. Thus, in multilingual environments, several sign language videos need to be available for selection by the end-user.

With respect to audio technology, the "clean audio" method is progressing. For better understandability for the hearing impaired, complex audio content can be simplified to "dialogue only". Background noises or music that may be disturbing can be suppressed (ideally, adjusted by the end-user). Generally, aids for people with disabilities can be of help to all TV consumers (signing for the deaf is a notable exception). Given

the individual circumstances of viewing and listening, consumers may benefit from TV and audio subtitles, audio description or clean audio for improved intelligibility. Numerous tests have been carried out with access services for handicapped and non-handicapped users. The findings have been disseminated at a number of conferences and trade fairs. They are reported in public deliverables available from the DTV4All website. An event for members of the European Parliament is scheduled for 28 October 2010, and a Joint Workshop with the ITU and EBU will be held in Geneva 23-24 November 2010 (to be announced on the EBU website).

DTV4All will be finalised in December 2010. It will then be for both the manufacturers and the broadcasters to take account of the developments and conclusions of this important project.

DTV4All is exhibiting at IBC in Amsterdam, 10-14 September 2010. The stand is once again hosted by the EBU in Hall 10.

www.psp-dtv4all.org



Is **1080p/50** the next format for HDTV production and broadcasting?

Dr. Hans Hoffmann looks at the various formats and argues the case for the possible use of 1080p/50 for future use.

Whilst many forums discuss HDTV formats, we see a trend in the professional industry to migrate step-by-step to the next generation HDTV format, the 1920x1080p/50 (or 60) HDTV format.

In the past, for legacy, political and technical reasons, different HDTV formats suited different applications, and the EBU Technical Committee responded to this with the Tech 3299 document, in which four HDTV baseband formats are defined: 720p/50, 1080i/25, 1080p/25, and 1080p/50. The first three formats are in widespread use in programme production and broadcasting. They all have similar bit rates, similar pixel rates, and offer similar basic, in the studio, picture quality.

The EBU Technical Committee suggested that HDTV production equipment should be 'switchable' between these formats, and this has mostly been achieved. The production community has seen several generations of studio compression for these formats.

The EBU Technical Committee included the 1080p/50 format in its set of four because it seemed likely to represent the future of both HDTV production and broadcasting. And this was also mentioned in the EBU Recommendation R112.

1080p/50 programme production would be valuable whatever format was broadcast. Having 1080p/50 for production might not produce a major difference in picture quality when seen in the studio next to a pristine 1080i/25 or 720p/50 picture, but the difference would come in 'processing headroom'. Eventually the viewer would benefit from the quality, just as our audio benefits from recording at super high resolution and sampling frequencies. So, the advantage of 1080p/50 production would come in the 'longevity' of the products made using it, and the additional quality which the viewer would see whatever the broadcast format, after the passage of the signal through post production and distribution to the home. The EBU and major manufacturers are therefore working together on technologies for 1080p/50, via the Strategic Programme SP-HIPS. New

studio compression formats and the 3G SDI interface are being studied. Both are needed for the successful establishment of 1080p/50 in production, so that the user and industry can benefit from a reduced number of formats.

Could we ever broadcast 1080p/50?

This is quite a complex question. When you see side by side 720p/50, 1080i/25, and 1080p/50 pictures in uncompressed form you can see very little difference, and you could wonder if there was ever a need for broadcasting in 1080p/50. But as soon as broadcast compression is applied, the benefits of 1080p/50 (and 720p/50 too) become apparent by allowing higher compression efficiency. The benefits would be as follows:

- 1080i/25 and 720p/50 are very good formats for displays which have a maximum size of 42-46-50". Provided the viewer is seated at 3 times picture height or further back, the eye is, in principle, saturated with detail. But larger screens than this will need more resolution to saturate the eye.

1080p/50 has double the potential resolution of 720p/50 or 1080i/25, and is thus more 'future proof'.

- The compressed bit rate needed by a 1080p/50 broadcast should be the same or less than that needed by a 1080i/25 broadcast, because the use of adaptive compression is more efficient than fixed interlace compression. In other words, broadcasting 1080p/50 should, in terms of broadcast bit rates, be free to those who use 1080i/25 today. It will, however, need about 20% more bit rate than 720p/50.

- Weighed against the advantages of broadcasting 1080p/50, we need to remember that the 'downside' is not the bit rate needed, but the complexity of the receiver's decoder. The decoder has to work at twice the clock rate and have twice the internal storage. Until recently, chipmakers claimed that it was impossible to do this at a consumer saleable price. But it is only a matter of time and Moore's law before the situation changes and 1080p/50 decoder chips become practical in home receivers.



Shooting 1080p/50 test material at NRK, Oslo

HbbTV in Germany

The HbbTV initiative announced in August 2009 its intention to work on the harmonisation of the delivery of broadcast and broadband services through connected TV's and set-top boxes. One year on, IRT's Klaus Merkel gives a progress report.

HbbTV currently lists over 60 supporters on its website from broadcasters, software providers and CE device manufacturers. Following product demonstrations at IFA and IBC, the first HbbTV products began shipping in Germany in December 2009. With the publication of the Hybrid Broadcast Broadband TV standard ETSI TS 102 796 in June 2010 the standardisation process of the HbbTV specification reached a major milestone. During the last year, interest in HbbTV has been significantly growing on the side of the service providers as well as on the side of the CE manufacturers.

For the German market, the state of HbbTV development is regarded mature enough now for a much broader deployment. IFA at the beginning of September in Berlin will be the major milestone in 2010 to start a general market introduction of HbbTV in Germany.

Starting with IFA 2010, all four major broadcasting groups in Germany (ARD/ZDF/RTL/Pro7Sat1) are expecting to provide the first set of HbbTV services. They will include advanced teletext services, catch-up TV services, shopping applications and more. These address clear user demand. But as HbbTV is an open hybrid system that is also suitable for broadband-only services, it provides the opportunity for smaller or completely new operators to provide new services. Some examples of this will also be shown at IFA. On the CE manufacturer side, some 20 manufacturers are working on HbbTV implementations and a number of them will exhibit their products at IFA and aim to bring them to the market before Christmas. More products are expected to appear in the market during 2011.

As the HbbTV feature can be integrated in a very modular way, devices that include an HbbTV option will cover all market segments: HbbTV will be integrated in IDTVs as well as in set-top boxes. For some, it will be combined with a PVR function or with CI+ interfaces.

The combination of broadcasting and internet gives significant added value for all types of broadcast channels. There will be devices on the German market by the end of this year with DVB-S, DVB-C and DVB-T front-ends. Also, under consideration is the application of HbbTV to IPTV systems for the German market.

The HbbTV specification supports broadband-only, internet style applications, including the creation of portals. This broad range shows that the HbbTV concept is not only valid for specific market segments but its commercial value is recognised as fundamental and generic. In order to ensure good interoperability between the various devices and services, the IRT will host a third "HbbTV Interoperability Workshop" before IFA. This event will provide a final technical crosscheck of all developments. Any remaining issues on either side can then be fixed before the show or at the latest, before the actual deployment of the products. Workshops like this offer a pragmatic testing approach as the final



HbbTV test suite is not yet available. Communication to all market participants, both B2B and B2C, is accompanied by an interim licensing regime of the HbbTV logo - the final usage of the logo on HbbTV products will be tied to test suite certification.

The HbbTV consortium and a number of major market players have set the course for a broad and sustained market introduction of HbbTV in Germany - and presumably many more countries.



ETSI publishes HbbTV Standard

ETSI published the HbbTV specification as ETSI-TS 102 796 (ETSI Technical Specification) on 10 June 2010. The body which worked on the standardisation was the EBU/ETSI/CENELEC Joint Technical Committee on Broadcast chaired by EBU Technical Director, Lieven Vermaele. JTC is also the route via which DVB, WorldDMB and DRM standardise their outputs – it is also the body which has standardised MHEG-5 and MHP.

The draft specification was submitted for approval in February 2010, with a deadline of March 2010. Some comments to the original specification were received which led to a resolution meeting to produce a final draft. This was the draft that was ultimately approved and published as TS 102 796 in June. A seemingly complex process, but designed to ensure the quality and acceptance of the final deliverable. Of course, standardisation is only the start, the HbbTV Group – which is in the process of forming – will have to concentrate on implementation issues in order to ensure that HbbTV becomes the commercial success that many expect. One of the first jobs of the consortium will be to enter into partnership with ETSI so that future generations of HbbTV can be standardised through this route.

Peter MacAvock



3D TV – GO DEEPER

3D TV has generated an enormous amount of interest in the industry following the latest success in the screening of a number of prestigious sports events to cinemas. With many of the World Cup games screened in 3D, viewers were able to experience 3D TV in the comfort of their home sooner than expected. Further 3D TV channel launches have been announced and within a very short period viewers will have a bouquet of 3D TV services to choose from.

Ericsson has been active in the 3D TV arena for some time and recently announced that it is providing ESPN, the industry's first 3D sports television network,

with a complete standards based 3D TV video solution featuring Encoders and Professional Receivers tuned for ESPN 3D broadcasts as well as for high quality HD. The complete end-to-end solution supports the highest picture quality from venue to viewer. ESPN has deployed a wide range of Ericsson 3D and HD products including the complete solution for direct-to-home and contribution and distribution of 3D content.

Ericsson's unique 3D contribution solution is based around the latest CExH42 encoder that offers advanced contribution features, such as 4:2:2, 10 bit precision

and 1080p50/60 formats. When fully configured, the encoder can deliver full HD resolution for both left and right 3D channels with a single MPTS output for distribution direct to the studio. Once received in the studio the dual channels are decoded by the RX8200 Professional Receiver in preparation for studio processing. Left and right channels remain perfectly aligned through use of Ericsson's unique Simulsynch-3D technology, an option available on the RX8200 Receiver. When not in use for 3DTV applications, the equipment can be readily re-purposed for other high quality contribution applications.

To learn more about Ericsson's 3D TV contribution and distribution solutions please contact us :

Ericsson Television Limited
Tel: +44 (0) 23 8048 4000
Email: tvsalesemea@ericsson.com
www.ericsson.com/television

MUSCADE - 3DTV with Quadruple Cameras



And you thought stereo 3DTV is a challenge? Then you will be impressed by the European MUSCADE project, which is shooting 3-dimensional content using four cameras per position. Two cameras form a traditional stereo-pair, while the other two are satellite cameras, providing additional information for extra views. Extra angles are needed to watch 3DTV without glasses, on so-called autostereoscopic displays. This summer the MUSCADE team performed its first test shoots in a Fraunhofer studio in Erlangen. 3D pioneer KUK Film productions had built a special rig, which allows for each of the four cameras to be adjusted in six directions (position and angles). The biggest challenge

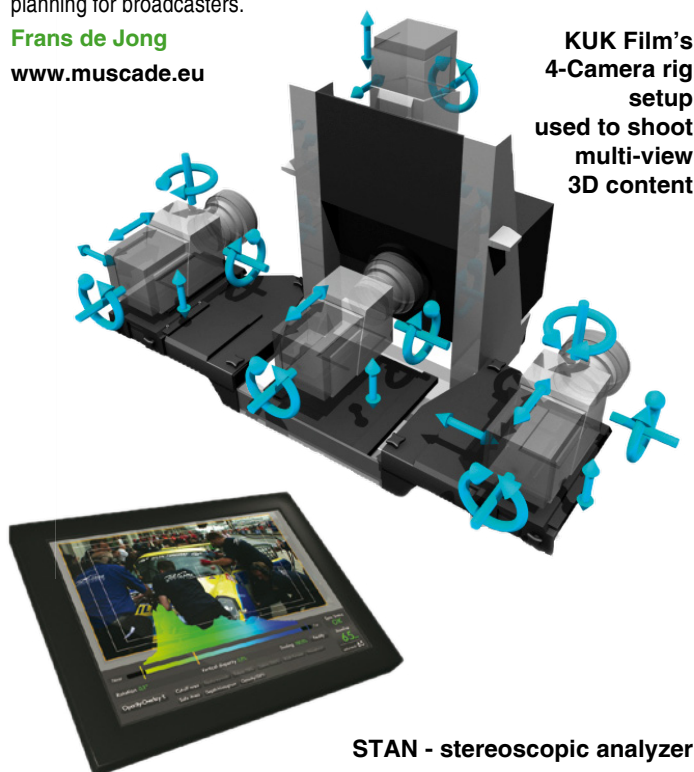
was the setup of the 4-camera rig. To make sure the cameras are well aligned, a software tool called STAN is used. This system, developed by Fraunhofer HHI, tells the crew which camera to adjust and in what direction.

The test shoot in Germany was promising. The STAN system worked well and alignment could be achieved to a good level of accuracy. Next steps in the project include encoding tests, using higher resolution cameras, performing 50 fps shoots (current material is in 25 fps) and extending the STAN software with additional testing options.

The EBU participates in MUSCADE to, quite literally, keep an eye on the direction the 3DTV evolution is taking and to contribute to standardisation efforts early on. While broadcasting multiple 3D views to the home is something for the future, and even current (stereo) 3DTV remains unproven, timely participation in technological innovation is key for strategic

investments and production planning for broadcasters.

Frans de Jong
www.muscade.eu



STAN - stereoscopic analyzer

3D VIVANT - Providing an Immersive Visual & Spatial Sound Experience



The EBU is one of the nine partners, the others being universities, broadcasting research institutes and manufacturers, from seven countries in total, who began the European 7th Framework Programme 3D VIVANT three year project in March 2010. 3DTV in the cinema and lately in broadcasting is proving to be rather popular with a number of satellite services in trial and early phases of operation. The present 3DTV and cinema technology is often described as 3D Stereoscopic since it provides left and right eye views of the scene captured by twin cameras mounted some centimetres apart to simulate the left to right eye spacing. To experience a 3D Stereoscopic scene, the viewer usually wears spectacles, typically of the polarised or shutter type.

The 3D VIVANT project is intent on taking a significant step beyond 3D Stereoscopic, to provide an immersive 3D visual and spatial sound experience without the need for spectacles or headphones and hence viewer and listener fatigue-free. The project is designing a 3D 'Holographic' single aperture camera which will provide real-time capture of 3D scenes. The images will ultimately be displayed on a dedicated 3D display using the principles of holographic geometry for high quality viewing without spectacles.

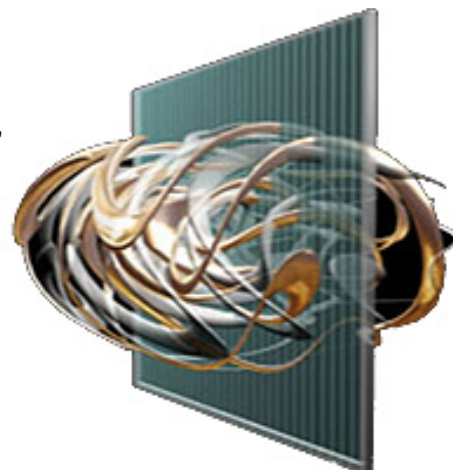
Further parts of the project will take the captured images and process them for 3D object extraction, depth processing, and to provide a scalable 3D Holographic robust video coding for transmission. In

addition to broadcasting, the project is also developing the use cases for applications of 3D Hologscopy to the internet to provide online hyperlinking of 3D objects. The project also plans to develop an appropriate new spatial sound system, to provide a more natural representation of the sound field where the images are captured, and to playback the sounds through loudspeaker arrays which will be acceptably simple to use in a typical domestic home.

The 3D VIVANT Project Coordinator, Dr Amar Aggoun from the School

of Engineering and Design at Brunel University in London, will be presenting a paper on 3D Hologscopy at IBC 2010.

Ed Wilson
www.3dvivant.eu



OCEAN - CDN for Online Multimedia Content



The Open Content Aware Networks (OCEAN) is an EC funded R&D project for online multimedia content delivery using Content Delivery Networks (CDN). This three year project started in February 2010. The project includes nine partners and is led by France Telecom (Orange).

The EBU has joined this project for two reasons. Firstly, broadband networks are increasingly used to carry high definition and 3D content. And secondly, online content traffic is sharply increasing over the internet and CDNs have become the cornerstone of online multimedia content delivery. It is estimated that today about one third of the internet media traffic (150 MB per day, per user) is delivered through CDNs. Yet today's CDNs have several shortcomings, perhaps the most important being the congestion of the "CDN last mile" which represents the major bottleneck and which requires some novel QoS solutions. The CDN last mile is the

network section between the end-user and the closest CDN server, which includes the last mile access, the aggregation network and sometimes even part of the regional network. The second problem which OCEAN is trying to resolve is that of standardisation. Today, CDNs are closed systems with proprietary, vendor specific mechanisms and interfaces, forcing the network operator to deploy multiple proprietary servers (for different CDN operators) next to each aggregation or access node. It is clear that only a standardised system that can interwork with legacy systems and deliver content from any origin is a viable solution. In order to provide high quality multimedia delivery, a content delivery system will have to interact with network level mechanisms from

network operators. Hence, some incentives for all parties involved in the future evolution of network and service infrastructures will have to be strengthened, while being compliant with regulation guidelines. In order to meet these challenges, the project plans to develop a new standardised caching architecture that allows caching content closer to the user than traditional CDNs. Novel dynamic distributed self-learning caching algorithms will be developed to cope with the highly unpredictable location and time dependent consumption patterns. Finally, OCEAN will develop innovative media aware congestion control mechanisms and content-aware media delivery techniques.

Franz Kozamernik
www.ict-ocean.eu

P2P-Next - A Next Generation Delivery Platform



Distribution of radio and television programmes, movies, music, ringtones, games, and various data applications to the public is today possible via a variety of dedicated networks. As broadband internet becomes ubiquitous, all content distribution services will be combined (bundled) and conveyed to the

public via a common pipeline – the internet. Several internet technologies can be used: unicast (client-server communication), IP multicast, content distribution networks, and most recently, Peer-to-Peer (P2P). Possible advantages of P2P, compared to other approaches, are low distribution cost, no investments in the broadband infrastructure networks required, excellent scalability and no single point of failure. The P2P-Next Project is the largest and arguably one of the most important next generation internet

content delivery projects conducted within the EU FP7 Collaborative Research¹. It started in January 2008 and is due to end in 2011. The objective of P2P-Next is to build an open, standardised P2P-based content delivery platform, supporting broadband video portals and delivering content via P2P to television screens and STB sets. P2P-Next involves 21 partners from 12 different countries, including public broadcasting organisations RTVSLO, BBC and the EBU, several SMEs, universities and R&D institutes. The former EBU Project Group D/P2P was one of the prime initiators of the project. The successor to D/P2P, the new ECB-ICD (Internet Content Delivery) community will be actively

involved in the P2P-Next Living Laboratory campaign, with more than 20,000 peers involved and which will take place during the summer of 2010. During the first 30 months the P2P-Next project team developed the streaming video-to-STB solution (exhibited at IBC 2008) and showed the internet HD quality end-to-end streaming distribution of professional content to low-cost STB hardware at IBC 2009. P2P-Next collaborates with the DVB and DLNA projects, so that future television consumer devices and home networks would not only be able to receive satellite, cable and terrestrial services but also broadband services, both live and on-demand.

Franz Kozamernik
www.p2p-next.org

EUScreen - Content Selection & Metadata Framework



With the support of FIAT/IFTA, the European Broadcasting Union and the EDL Foundation, the EUScreen Best Practice Network aims at developing a portal through which over 35,000 items that capture Europe's television heritage (videos, photographs, articles) will be made available online.

EUScreen is designed to be the audiovisual branch of Europeana, the European Digital Library. EUScreen started in October 2009 as a three year research project funded by the eContentplus programme of the European Commission. Fourteen EBU Members and EBU Technical, participate in the project in addition to national audiovisual archives and other distinguished partners. EUScreen has developed a content selection policy and metadata framework that aligns the heterogeneous collections held

throughout Europe and encourages the exploration of Europe's cultural heritage and European television history in particular. Building on the EBU Core metadata schema (EBU Tech 3293) and open web standards, EUScreen is working on standardisation in order to provide the technical solutions needed to achieve interoperability. The EUScreen portal fulfils two functions. It provides an interface through which users look for content of their interest. It is also the point of access for content providers to submit new items from their collections, each of them being documented via an online form. This information is subsequently stored and exchanged, e.g., with other projects such as

Europeana, in the form of EBU Core metadata. EUScreen is also looking at Semantic Web. During its recent project conference on metadata, EBU Technical was invited to present its work in this domain and the harmonisation already achieved around the EBU class model, EBU Core, W3C MAWG (Media Annotation Working Group) and IPTC. EBU Technical is particularly satisfied with its participation in a project where EBU Members are actively contributing. It is also the opportunity to work and collaborate with other partners and institutions of high expertise and reputation.

Jean-Pierre Evain
www.euscreen.eu

What are the 'Hot Buttons' for IBC 2010?



(Aka: Don't touch these issues, they're too hot!)

In a new departure for IBC, the IBC 2010 Conference continues on the morning of Tuesday 14 September 2010. The EBU has been invited to organise the session. Mark your diary now.

Our approach has been to 'look underneath the stones' at the most critical topics for the industry in 2010. Where do broadcasters stand, and why does the industry (sometimes) think they are wrong? Attending the session may even give you all you need to finish your company IBC report.

In the first part of the morning we examine the most critical strategic issues for broadcasters for programme delivery. Peter MacAvock looks at hybrid broadcast broadband. Today we know that new systems continue to be developed, and there are at least six in the world. Peter will ask if there is hope for a common standard. Andy Qusted, who chairs the EBU 3DTV group, will reflect on whether free-to-air broadcasters really need '3DTV'. Radio is not forgotten, and Mathias Coinchon will take a cold look at radio's future. Once aired, two manufacturers will be asked if what they heard makes sense.

In the second part of the morning, we examine the hot issues for production. First of all, one of the most advanced ideas for



IT programme production, the integrated programme bank, will be explained by someone who has actually done it, Sverre Reiten. Secondly, the great 'when will it happen' question for production, which is the use of 1080p/50, 60 is explained by Dr. Hans Hoffmann. Be prepared with large chequebooks. Thirdly, via Florian Camerer, we look at the potential great saviour of viewer and listener patience, the use of

loudness to monitor and set audio levels. Given the background, once again we ask the manufacturers if what they heard makes sense, or was it wishful thinking. The session wraps up with a view of what to look out for the next IBC. Be sure not to miss it.

David Wood

IBC 2010 EBU Session, IBC Conference, Tuesday 09:30-13:00

ARRI Lighting – the way ahead



VISIT US AT IBC

Hall 11 # F21

10.-14.09. 2010, Amsterdam

We will present new products on both the LED and traditional lighting side and our staff will be on hand to discuss turnkey studio solutions.

www.arri.de

ARRI Lighting Solutions GmbH, Ernst-Augustin-Str. 12, 12489 Berlin, Germany, Tel.: +49 (0)30 678233 0, Fax: +49 (0) 30 678233 99

EBU Village IBC 2010

Visitors to this year's EBU stand at IBC (10.D21) will be treated to demonstrations showing the depth of media technology innovation and experience amongst EBU Members.

3DTV is a major technology innovation on display at IBC. EBU Members and staff have been familiar with this technology since the 1980s, and EBU leads part of the DVB's current work in this domain. But much remains to be learnt. How can we build 3D into a modern production chain at reasonable cost? What are the production grammar issues for 3DTV? Are the future systems beyond stereoscopic 3D viable? What is the impact of viewing stereoscopic 3DTV for long periods? The EBU's work will endeavour to address many of these questions to ensure that the viewers' interests are best served by this new and exciting technology.

To aid the assessment of HDTV systems, the EBU has produced a number of test sequences shot in 1080p/50 which will be available for download at IBC '10. 'Barrier-free' access to TV and radio and multimedia remains an important dimension when planning digital and hybrid techniques in production and distribution. Representing public service broadcasters, the EBU gives this domain a high priority and this year's IBC will see Access Services demonstrations from the BBC, RAI, DTV4All and NHK - helping broadcasters address the needs of those with disabilities. Analogue TV switch-off is on the horizon



for many European countries, and Hybrid Broadcast Broadband systems are being deployed now by broadcasters, consumer electronics vendors and IPTV networks. It's an exciting time for the innovations, and IRT, RAI and others will be demonstrating some of the HBB options for TV broadcasters.

Radio is also critically important, and hybrid techniques will have just as far-reaching impact on the radio stations of the future: With the help of Canadian Communications Research Centre and Global Radio, EBU will show an entire radio production chain broadcasting using some of the major digital radio standards and offering hybrid functionality, all for modest capital investment.

Another important issue is that of 'loudness'. The EBU has been successful

in bringing together broadcasters and the audio industry and this will lead to a recommendation that promises to bring real benefits to the viewer/listener. Understanding the impact of the work will be the topic of regular presentations on the EBU stand. It will be something no broadcaster can afford to miss.

EBU is a reference point for industry professionals seeking to understand the details behind the headlines in industry developments. Our remit is to build the communities of industry professionals and to bring tangible benefits to the broadcasting consumer. With 3DTV, Access Services, HBB on radio and TV and our work with loudness, EBU remains at the centre of media innovation.

Peter MacAvock

DIARY 2010



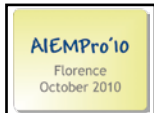
Joint EBU/OCEAN Workshop

7 Sep / Geneva (CH) / No fee. Participate at the joint EBU and OCEAN Workshop on Internet Content Distribution.



MXF Masterclass 2010

21 - 22 Sep / Geneva (CH) / Fee. This 2 day Masterclass in MXF will enable you to gain expert knowledge in MXF in order to better evaluate the operational challenges related to migration.



AIEMPro 2010

25 - 29 Oct / Florence (IT) The third international workshop on Automated Information Extraction in Media Production (AIEMPro) is organised in conjunction with ACM Multimedia 2010.



Forecast 2010

16 - 17 Nov / Geneva (CH) / Members only / Fee. An annual specialised meeting on Spectrum and Delivery technology topics, organised by the Delivery Management Committee and the Spectrum Management Committee.



EBU EUROTRAVEL

17 - 18 Nov / Brussels (B) / Fee. Join the annual Eurotravel Conference which brings together all the major players from the TTI marketplace.

Further information can be found at <http://tech.ebu.ch/events>



Always Innovating. Always There.

At Harris, we're delivering the future today.

For nearly a century, Harris has pioneered the technologies that drive the world's leading television and radio broadcast operations.

Today, Harris is the industry's total communications leader — uniquely merging traditional broadcast and IT systems with powerful media software to streamline your current workflow and unlock all-new markets such as 3DTV, Mobile DTV, digital radio and out-of-home advertising.

Where are we headed tomorrow? Wherever you and your audience want to go.

See us at IBC2010 Hall 7 Stand G20 or visit us at www.broadcast.harris.com.

Europe
+44 118 964 8200
Sales.Europe@Harris.com

UK, Israel, Africa
+44 118 964 8200
Sales.Europe@Harris.com

Southern Europe
+33 1 42 87 09 09
Sales.Europe@Harris.com

North, Central, Eastern Europe
+49 89 149 049 0
Sales.Europe@Harris.com

Middle East
+971 4 433 8250
Sales.MiddleEast@Harris.com

harris.com

HARRIS
assuredcommunications®

Broadcast Communications • Government Communications Systems • RF Communications