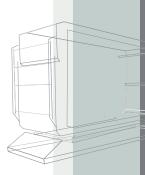
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## Mobile Multimedia



25



The Standard for the Digital World

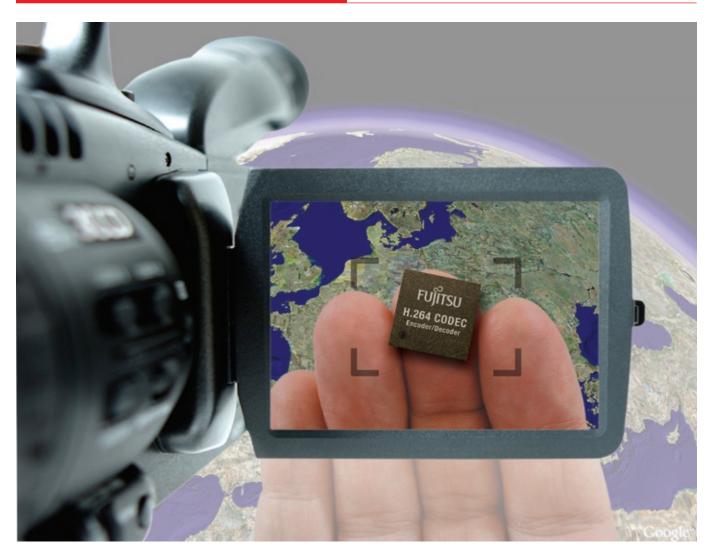
#### This issue's highlights

- > Handsets for DVB-SH
- > WRC-07 Spectrum Issues
- > IPTV Profiles
- > Challenges for Open Internet
- > DTT Evolution in the UK
- > HD in France
- > Market Watch





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# HIVE OF PROMISING ACTIVITY



#### A word from the DVB Project Office

Welcome to the first issue of 2008 and the 25th issue of DVB-SCENE. It's been some time, and those of us close to the DVB Project have seen a lot of changes since the first issue back in April 2002, but the DVB Project continues to be a significant force in the development of convergence technologies.

2008 is no exception, and indeed promises to be one of the most exciting. We'll see a draft DVB-T2 specification produced this year - probably the most significant single development since the original DVB-T system was completed in 1994. Indeed, it was pointed out recently that there are an unprecedented 60 separate DVB member organisations actively involved in the sub-group meetings developing the specification. And the e-mail generated requires a full time person just to read it.

Also in this issue is the ever-important IPTV. We continue to see a trend favouring standardised solutions in this space as the operator offerings become more and more complex to be addressed by single vendor solutions. DVB's work is being done in close conjunction with other similar standards bodies in this space - a necessity for such complex work as no one organisation can tackle the whole problem with all the various commercial interests involved. Our next step will be to finalise home networking provisions, and optimise guidelines for the existing set of specifications.

The relationship between IPTV and Open Internet TV is one which will dominate conferences and exhibitions through the year. It's difficult to predict how each will fare, but it's important for DVB to ensure that the work it's doing on IPTV can also have applications in the Open Internet TV domain where appropriate. Franc Kozamernik is a recognised expert from the EBU on this topic.

Finally, it will be interesting to read the analysis by Myra Moore on the relationships between the broadcast services providers delivering HD services seeking to compete with the two HD packaged media formats.



DVB is changing the way it manages its mailing list and is migrating to an automated subscriber list management service for DVB-SCENE. This change will allow you to decide if you would like to continue receiving a printed copy of DVB-SCENE or alternatively you can opt to receive an e-mail that will notify you when the next issue of DVB-SCENE is published and ready to download as a PDF. If you would like to keep receiving DVB-SCENE magazine, either electronically or by post, please take a minute to visit: www.dvb.org/subscribe and fill in the short address form and select how you would like to receive DVB-SCENE. If you don't complete the subscription renewal process, you risk not receiving the magazine in future. Subscriptions for printed copies are limited so don't delay, act now. Please note that this applies also to registered users of the DVB website.

















Satellite image on cover - credit: Artist's view of Eutelsat's W2A satellite(© Thales Alenia Space)

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## **SPECTRUM**MATTERS

#### **WRC-07: Increased Pressure on UHF Spectrum**

Daniel Sauvet-Goichon, DVB-TM Vice-Chairman & DigiTAG Chairman



The World Radiocommunication Conference 2007 (WRC-07) met in November 2007 to discuss the worldwide use of radio frequencies and modify the Radio Regulations, the ITU framework governing the use of frequency spectrum. The Conference brought together 164 nations divided into regions representing Europe, the Middle East and Africa (Region 1), the Americas (Region 2), and Russia and Asia Pacific (Region 3).

A key issue for broadcasters concerned the allocation of mobile services in the frequency band 470-862 MHz traditionally reserved for broadcasting. Some countries had requested that mobile services be given co-primary status alongside broadcasting in this band.

Two complementary resolutions were adopted.

The first recognises the primacy of the GE-06 Agreement in Region 1 and calls for the protection of broadcast services from any interference caused by IMT services. Thus, the resolution safeguards broadcast services from the introduction of mobile services. The second resolution calls on the ITU to study the impact of the use of the frequencies 790-862 MHz by mobile applications. These studies will be presented at the next World Radio

While broadcasters had requested that their status as the unique primary service in the VHF and UHF frequency bands remain unchanged, they now face the possibility that IMT services

Conference in 2011

is not established by policy but rather by the market.

Following WRC-07 and the European Commission's Telecom proposal, Europe's broadcasters (European Broadcasting Union, Lagardère active, Groupe Canal +, ProSiebenSat.1 Group, RTL Group, five, VPRT and AER) warned that opening up broadcasting bands to mobile telephony could create significant interference problems.

"Interference is not a trivial problem.
Viewers and listeners who have
invested in digital equipment must
be guaranteed stable reception and
high quality sound and video", said
the broadcasters. Interference from
mobile phones could cause sudden and
complete loss of picture and/or sound.

## "Flexibility and spectrum trading may limit efficient use of the spectrum and the plurality of the offer."

For the United States doing so would enable the development of wireless services worldwide without fear of market fragmentation. All countries in Region 2 and several countries in Region 3, including China and India, agreed to this position and accordingly have allowed mobile services to use the frequency range 698-862 MHz, equivalent to over 27 television channels.

In Europe, the question raised heated debate. The final agreement allows for mobile services in the frequency band 790-862 MHz from 17 June 2015. This date corresponds to the end of the analogue digital broadcast transition period as established in the Geneva 2006 (GE-06) Agreement.

International mobile telecommunication (IMT) services have been identified as one of the possible uses. IMT services include IMT 2000 (3G technologies, UMTS, CDMA 2000, WiMAX) as well as IMT advanced services (4G).

may be introduced in the upper parts of the UHF band.

Several reasons guided this decision by national administrations.

First, administrations made the assumption that the switch of broadcasting from analogue to digital will make it possible to free up frequencies for new services. Second, some may be coveting the potential revenue that may be generated by an auction for these frequencies. It is estimated that the auction of frequencies in the 698-806 MHz in the United States will bring the government up to \$15 billion. Finally, some administrations wish to align themselves with the position of the European Commission (EC) which has called for the introduction of new rules to govern spectrum policy. In its proposed 'Telecom Package', the EC advocates the principle of 'service neutrality' in which the type of service

provided within a given frequency band

Furthermore, broadcasters believe that "market-based management of radio spectrum in the broadcasting bands is a threat to Europe's broadcasting systems". Flexibility and spectrum trading may limit efficient use of the spectrum and the plurality of the offer. If spectrum is designated to add value, it should not only be about money. While broadcasters are pleased that the Commission recognises the need to allow for exceptions to the principle of service neutrality, this is not enough. The structures of broadcasting and media markets around Europe differ widely, as do public needs and expectations. Therefore, "Member States must retain their freedom to decide on spectrum use in the broadcasting bands, in order to promote their audiovisual policies, media pluralism, cultural and linguistic diversity", the broadcasting industry said



## Elements to Systems

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DVB was one of the pioneer organisations to start standardisation work on the delivery of TV services over IP (Internet Protocol) networks. The TM-IPI working group (Internet Protocol Infrastructure) was set up back in 2000. Seven years later DVB released its third revision of the 'Transport of MPEG 2 TS Based DVB Services over IP Based Networks' specification, also referred to as the DVB-IPTV 1.3 handbook, and published by ETSI in October 2007 as TS102 034 v1.3.1. IBC 2007 saw the first demonstration of interoperability of DVB IPTV 1.3 with six different companies involved in the platform shown on the DVB stand. DVB is led by commercial requirements which have evolved over time as services have been introduced and deployed and this

DVB-SCENE

taking into account the access network capabilities such as limited bitrate. As an example, they may initially deploy only one type of IPTV service (e.g. only Live TV or only Content Download), or they may want to mix a DVB-IPTV 1.3 compliant IPTV service with a proprietary IPTV service (e.g. a DVB compliant live TV service, and a proprietary Video on Demand portal). The DVB-IPTV 1.3 specification did not define subsets and this meant that a HNED needed to support all the mandatory technologies specified in the DVB-IPTV 1.3 handbook to claim compliance. It became evident that a small set of service oriented profiles was required to facilitate and maximise the stepwise deployment of IPTV services. This is essential for lower cost with legacy SI/PSI metadata support.

- Content on Demand profile to build On-Demand IPTV services carried over unicast transport, RTSP connection, and requiring BCG discovery with TV-Anytime metadata support.
- Content Download profile to build services of content available for download either in push or pull modes. The structure used to define a profile is presented in more detail in the diagram. The general philosophy of technology support with the DVB-IPTV handbook is maintained through the definition of profiles. When several technical options are possible for a specific functionality within a given profile, the HNED needs to support all of them while the targeted DVB-IPTV service still has the freedom to use only one of these options.

#### "The definition of profiles provides finer grain visibility..."

has led to continuing updates of the DVB-IPTV specifications.

The DVB-IPTV 1-3 handbook specifies the protocols and mechanisms that shall be supported on the interface to the Home Network End Device (HNED), for example a set-top box, and covers several types of IPTV service such as Live Media Broadcast or Content on Demand. Operators require the flexibility to deploy IPTV services according to their market requirements and business models,

and differentiated services that don't require full implementation of the DVB-IPTV handbook.

DVB Blue Book A118 defines four service oriented profiles:

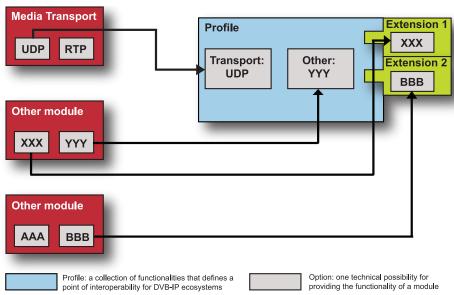
- A basic profile to accommodate existing IPTV deployments of Live TV services. This is the first step to achieve a basic degree of DVB-IPTV compliance.
- Live Media Broadcast profile to build live IPTV services carried over multicast transport and using SD&S for discovery

This philosophy has always guaranteed interoperability between the population of home devices and the available services. The definition of profiles provides finer grain visibility about possible DVB-IPTV service deployment while keeping a high level of interoperability among the several actors of the IPTV ecosystem. IPTV continues to be a very active and evolving activity in DVB with many stakeholders involved both in the technical and commercial groups. 2008 will see the release of many new and exciting features including the Remote Management and Firmware Upload Service, Content Download Service, Retransmission for error correction and the much awaited DVB Home Network specification building on the DLNA (Digital Living Network Alliance) guidelines.

Muriel Deschanel is a standards program manager at Microsoft. She has been working on Digital TV for 15 years and on IPTV since 2002 and is the chair of the DVB's TM Ad-Hoc Group on Internet Protocol Infrastructure (DVB TM-IPI).

Jean-Baptiste Henry has been working for Thomson, Corporate Research for 7 years. He is involved in broadband IPTV and Home Networking and participates in DVB-IPTV standardisation activities (DVB-TM-IPI and DVB-CM-IPTV groups).

#### Relationship Between Profile, Module, Option and Extension



Module: a set of options (protocol and media format) for fulfilling a given functionality of the DVB-IPTV handbook

Extension: a non-mandatory option that can be added to a profile to enhance it

## O P E N INTERNET CHALLENGE

Franc Kozamernik, European Broadcasting Union

The delivery of television and radio content over the Internet usefully complements traditional broadcasting systems. However, the present streaming, based on a unicast paradigm is very expensive, as broadcasters have to pay for each transmitted stream, thus the more users, the higher the costs. A new generation of peer-to-peer (P2P) technologies are of particular interest to broadcasters as they may potentially lower the barriers to the introduction and operation of cost efficient Internet

Many broadcasters have been developing their own branded application interfaces akin to the hugely popular BBC iPlayer. These application interfaces allow users to view almost all television for free on a PC monitor for a limited period of time, coining the term

based distribution systems. In order to

is conducting a P2P trial, powered by

Octoshape<sup>1</sup>

test the P2P delivery approach, the EBU

raised regarding the Open Internet:

- Should DVB be involved in unmanaged services such as the Internet?
- · If yes, is there any standardisation needed for these unmanaged services? Responses to the above two questions revealed that DVB members are interested in studying Open Internet issues although support is not unanimous. As for the second question, it was felt that the purpose of any standardisation within the context of the Open Internet is to introduce interoperability and to facilitate a viable ecosystem within the open Internet across which services can be delivered from provider to client. It was further assumed that an OICD consumer appliance should only require a minimum of general Open Internet access via a broadband connection. at a level typified by today's ADSL and cable providers, in order to locate and

consume OICD content and services.

functionality should be considered a

part of a DVB-IP managed system or

on a standalone basis to a consumer

Internet, e.g. Internet radio appliance.

DVB should provide a common profile

service over the Open Internet. Content

creators and service providers should

Any OICD specification prepared by

of the necessary protocols and data

formats required to deploy a DVB

be able to use this profile to target

content at OICD compliant devices

and the profile should be practical to implement in mainstream appliances.

I strongly believe that DVB is uniquely

appropriate and competent to develop

the OICD specifications based on,

and complemented by, existing and

new DVB technologies. However, this

work should be performed quickly and

efficiently, otherwise other international

bodies may adopt different solutions.

A further boost will no doubt be given

sport events taking place this year (European Football Championship in

to Open Internet solutions by the major

June and the Beijing Olympic Games in

August) as well as the US elections in

appliance connected to the Open

Furthermore, it was assumed that OICD

Open Internet video distribution?

- What elements need to be standardised, given that software defined consumer devices, e.g. Linux OS micro laptops, are becoming low cost?
- Do we need to standardise the Open Internet distribution system, e.g. a CDN or P2P based distribution system?
- Will DVB audio and video codecs be commercially successful on the Internet, as they will face competition from 'native Internet' codecs such as Flash?
- Will DVB be able to define improved Internet searching facilities based on semantic web for Internet TV/radio content (both streams and files) as well as related metadata indicating recommendations, ratings, rights and costs, e.g. Powerset, Hakia?
- How will DVB cope with usergenerated content which is becoming very popular on the Open Internet?
- How will security, safety and rights issues be addressed?

While there is reason to be enthusiastic about the growth and importance of Internet technologies and applications, we must remain realistic about the surrounding hype. Joost can be taken as an example. Launched last year amid much publicity, Joost currently struggles with its technology and insufficient quality.

Many of the issues touched on above will be discussed at the upcoming EBU Seminar 'Media Distribution over Open Internet'<sup>3</sup> on 17 and 18 March 2008 at EBU headquarters in Geneva. This event has been organised in conjunction with the DVB Project and is open to DVB members.

## "...programmes for free from a PC for a limited period of time, coining the term 'catch-up TV'."

'catch-up TV'. It is perhaps noteworthy that BBC Worldwide is discussing with other public service broadcasters a plan to develop a pan broadcaster iPlayer codenamed 'Project Kangaroo'2 The Internet impacts multiple media platforms: home networks, TV/radio receivers and personal devices. Most modern, converged receivers have broadband connectivity which allows access not only to IPTV services but also to the Open Internet. Apple TV, for example, enables the user to download content from the Internet and display it on their TV screen. Personal touch screen devices, such as iTouch and iPhone are revolutionary as they provide mobile Internet access to news, sports, drama and movies wherever and whenever users want them, albeit on a very small resolution (CIF) screen. Game consoles, such as Nintendo Wii or Sony's PlayStation 3, have also become valuable and relatively affordable devices for accessing television, even HDTV. The DVB community has only recently

The DVB community has only recently recognised that Open Internet services may have some value for DVB. In May 2007, the CM-IPTV Group, chaired by Ralf Schaefer (Thomson), set up the Open Internet Content Distribution (OICD) Study Group which identified more than 30 use cases. However, two questions have been

the autumn.
Some outstanding challenges may be encountered in this work. They include:

What are suitable business models for



<sup>1</sup> http://www.ebu.ch/members/EBU\_Media\_portal\_Trial\_1.php

<sup>3</sup> http://www.ebu.ch/en/union/news/2008/tcm 6-56752.php

<sup>&</sup>lt;sup>2</sup> http://networks.silicon.com/webwatch/0,39024667,39168980,00.htm



## NEW & IMPROVED

#### The Evolution of DTT in the UK

**Gregory Bensberg, Ofcom** 

The UK has played a leading role in the development and use of digital terrestrial television (DTT). It launched the world's first DTT service in 1998 and the launch of Freeview in 2002 represented a significant breakthrough in consumer acceptance of the DTT service and brought about a rapid expansion in demand for DTT products. According to the latest Ofcom (the regulator for the UK communications industries) update there were 9.3m DTT homes in the UK in the third quarter of 2007.

When DTT services were first launched in 1998 each multiplex was only capable of carrying four standard definition services. This meant that the six multiplexes were only able to offer viewers a maximum of 24 services. Due to improvements in MPEG-2 coding the platform is now able to carry over 34 simultaneous television services together with a wide range of radio and interactive streams. It is expected that this number will be further boosted at digital switchover when all six multiplexes are expected to adopt the 64QAM transmission mode (which two multiplexes currently use, the remainder use 16QAM).

However, even with this additional capacity it is obvious that the UK DTT platform will face difficulty in carrying high definition services due to their need for higher bit rates and the use of MPEG-4 coding.

The UK's broadcasters are very keen to have the opportunity to carry HD services on DTT and have been actively lobbying for more capacity to enable this to happen. Ofcom is also very keen to see the DTT platform develop and offer viewers access to a wide range of new services. We are also concerned to see that the platform

can evolve to take advantage of technological developments in line with other digital television platforms. With this in mind Ofcom published a consultation last November1 which proposed a route whereby the UK DTT platform could adopt new transmission and coding technologies which taken together could allow HD services to be launched on DTT as early as 2009. The consultation proposed that one of the multiplexes currently used to carry public service content (and which will be universally available post switchover) will be cleared of all of its existing services and converted to use the emerging DVB-T2 standard. It is expected that these services will be carried on other multiplexes so the

then be available as switchover is rolled out across the rest of the UK, completing with a fourth HD service being available by 2012. Digital switchover can offer the UK an opportunity to manage this change more positively. It is expected that large numbers of UK viewers will be adopting digital television in the coming years and allowing new services to be launched at the time will allow them to make an informed choice over which level of services they want. It is possible that delaying the launch until after switchover could mean that they will have to upgrade their equipment when the new services are launched. Manufacturers and retailers will obviously be key to this upgrade. They

## "...the use of DVB-T2 is expected to result in 30 percent uplift in the capacity of the multiplex."

viewers should not see any reduction in their current choice of services. It is also proposed that any services carried on this multiplex will be coded using MPEG-4.

Based upon the latest work being carried out within DVB we expect that the use of DVB-T2 is expected to result in a 30 percent uplift in the capacity of the multiplex. We also expect that the use of MPEG-4 will over time allow a near doubling in the number of services that could be carried compared with the existing MPEG-2 standard.

Taken together we believe that it should be possible to carry three HD services on the multiplex by 2009 .Therefore, the upgrade could be adopted in time for digital switchover in the Granada television region (North West England), which is due to take place in late 2009/ early 2010. The new services would will need to develop and launch new products incorporating MPEG-4 (both HD and SD) and DVB-T2 by the end of 2009. We are talking to a wide number of manufacturers and silicon vendors to get a better understanding of any issues and expect that they will be responding to our consultation about these important matters.

Overall we believe that our proposals represent a golden opportunity to allow the early launch of the DVB-T2 standard which could result in a transformation in the range and quality of services offered by DTT to viewers.

Pictured: The UK's Digit Al with the 'digital tick' logo which identifies equipment designed to work before, during and after switchover.

Image Credit: VisMedia

## FRENCH STYLE

## Introducing HDTV on DTT in France: No Need to Wait for the Digital Dividend

Alain Komly, Head of DTT and Switchover projects, TDF

There has always been a strong desire to introduce HDTV on the DTT platform in France: programme providers and manufacturers tried to persuade the politicians as early as 2003/04 that the right way to introduce digital TV was to go directly to HDTV with MPEG-4. The final consensus was to launch free-to-air standard definition programmes encoded in MPEG-2 on 30 March, 2005, and pay TV programmes encoded in MPEG-4 a few months later. Three years later, it is obvious that the conditions are very favourable for the introduction of HDTV:

- DTT is a big success in France 23 percent of the population is now equipped with DTT receivers and a further 1 percent is added each month.
- The flat screen revolution is also underway – more than 2 million HD ready television sets were sold in 2007.
- More and more programmes are produced in HD and all the content providers broadcast HD programmes on satellite.





On 5 March, 2007, a new law, 'TV of the Future', was adopted that concerned the introduction of HDTV on the DTT platform in France. The law clarifies policy goals by setting HDTV as a priority issue. Preference is clearly given to the simulcast of channels broadcast on DTT in standard definition. And, last but not least, the law requires manufacturers to integrate MPEG-4 decoders in all HD television sets no later than 1 December, 2008. Two rounds of HD DTT trials were authorised by the CSA (Conseil supérieur de l'audiovisuel) in 2006/07, in which coding and multiplexing premises were operated by TDF. The transmission was also provided by TDF on available channels in Paris, Lyon, Marseille, and Bordeaux and Rennes for the second trial. Ten different broadcasters were involved in at least one of the trials. For both trials, HD DTT set-top boxes were made available to the public and several thousand were sold (some of the boxes distributed by ISPs could also receive HD DTT). For the first trial, two HDTV services were allowed in one multiplex (broadcasters used different time slots), and three HDTV services were allowed during the second trial. The following conclusions could be drawn from the

- Video quality proved to be very impressive, but some artefacts were noticeable at a coding rate of 10 Mbps (for video only) with actual MPEG-4 real time encoders. Big improvements are still expected.
- Compatibility between coders and decoders was a real issue, and the French HD Forum decided to set up

an HD platform to test a complete system including coding, multiplexing, transmission and HD receivers. The CSA issued a call for tenders on 12 June, 2007 to select three high definition services to be multiplexed and broadcast on the so-called 'multiplex R5'. Multiplex R5 is in fact one of the six DTT networks for which the CSA issued a complete frequency plan for more than 100 stations covering 80 percent of the French population. France 2 was chosen by the French Minister of Communication, Christine Albanel, for the reserved programme service slot for public services, and TF1 and M6 were chosen on 20 November, 2007 for the two other slots.

The launch of the three HD services is expected this June in time for the European football cup, EURO 2008, and the Olympic Games this summer. What's next? The CSA announced that it would like to increase the number of HD services on the DTT platform to eight by the end of this year. This will be done with the existing multiplexes, using MPEG-4 and also a planned second DTT network for broadcasting HD services.

France is strongly committed to introducing HD services on the very popular DTT platform as soon as possible. It is believed than within less than ten years, all programmes will be in high definition for the mutual benefit of consumers, broadcasters and manufacturers.



#### **DVB-SH Devices – The Technical Challenges and Advantages**

#### Herbert Mittermayr, VP Marketing, Alcatel-Lucent Mobile Broadcast

With the testing of DVB-SH currently under way with H3G and RAI in the Turin area, and a recent demonstration of ICO's 'mobile interactive multimedia' (mim) system, using DVB-SH during the International 2008 CES in Las Vegas, the buzz is growing worldwide about the potential of this new hybrid mobile TV solution. This being the case, it is interesting to take a closer look at the development of DVB-SH capable terminals and how they will differ from existing mobile TV handsets. Today, practically all major terminal vendors are evaluating DVB-SH, recognising that they are able to integrate DVB-SH into a 3G terminal while leveraging previous DVB-H

## "...this technology drastically enhances receiver performance..."

developments. The antenna systems within terminals are working on 2 GHz already, so managing the integration of a TV system at 2.2 GHz is a reasonable objective. To be clear, to benefit from the services linked to DVB-SH and to enhance the user experience, there are a number of novelties in a DVB-SH handset compared to previous mobile TV handsets.

Leading chipset manufacturers like DiBcom and NXP (ex Philips) are providing DVB-SH chipsets, while early movers for handsets within the



**DiBcom DVB-SH receiver prototype** 



Sagem DVB-SH ready handset during the DVB-SH experimentation by Alcatel-Lucent and SFR in Pau (France)

'Unlimited Mobile TV' ecosystem supported by Alcatel-Lucent include Samsung Electronics and Sagem Mobiles.

Sagem Mobiles' VP 3G & Advanced Technologies, Yves Portalier explains that there are two key differences when it comes to DVB-SH: "One is the chipset for DVB-SH, which integrates both DVB-H and DVB-SH technology in order to allow the consumer to access the wide range of networks available. A powerful and newly standardised turbo-decoder is used in the receiver. Another important factor is in the antenna structure of the handset, called antenna diversity. This means including two antennas inside the same device, analysing and combining in real time the signal received by the two different antennas simultaneously: this technology drastically enhances receiver performance in terms of sensitivity. These receivers benefit the terrestrial network link as well as the satellite link. As handsets become smaller, everything also has to be more compact, and this amounts to a lot of

antennas in one set, when you count the multiband GSM, 3G, Bluetooth, Wi-Fi, DVB-H and now DVB-SH with dual antennas. This creates a number of technical challenges when designing handsets for DVB-SH."

In terms of timeline, Sagem Mobiles are being both vigorous and pragmatic. "Our target is to be ready when the market is ready," says Portalier. "We have already experienced mobile TV services on handsets through various consumer tests that have driven us to optimise the user experience. We are developing the latest technologies in order to have them fully optimised when it's time for the product launch. The target is to build terminals that will be compatible with both DVB-H and DVB-SH, giving more flexibility and to be better adapted to the various deployment schedules on the markets. There are some countries that have already launched DVB-H that may launch DVB-SH afterwards. Countries that haven't yet launched mobile TV initiatives could be very interested in DVB-SH because of its capacity

to cover territory quickly with a large network at a reasonable cost, and with the possibility to co-locate DVB-SH repeaters with existing 3G sites making terrestrial deployment cheaper.' While a great deal of attention is being given to handsets, other kinds of terminals are also actively under development. In a demonstration during the CES show, ICO and Alcatel-Lucent delivered mobile high resolution live television programming to DVB-SH monitors provided by Fujitsu located in a moving vehicle. The ICO mim service will address a wide variety of consumers' entertainment, information, and two way communication needs, providing multiple channels of high quality mobile video to portable, larger screen (4.5 to 10 inch) in-headrest displays. Hughes Network Systems will provide the terminals for the ICO mim's alpha trial planned in Las Vegas and Raleigh this year. Other players, such as Archos for multimedia players, or Delphi for GPS devices, are also undertaking DVB-SH developments. DiBcom was first to come up with a DVB-H chip in 2005 that was then mass produced for the commercial launch of mobile TV during the 2006 FIFA World Cup in Italy. The company also led the 'in-car' DVB-T market, working with brands such as Mercedes, Audi, BMW, etc. offering them reliable reception with the use of diversity and the highest Doppler (good TV reception at high speeds). When the 'Unlimited Mobile TV' initiative was launched in France the company was perfectly positioned to develop a chipset for DVB-SH



ICO mim service on a Fujitsu in-car monitor during the International 2008 CES in Las Vegas

receivers. In an initial phase, DiBcom has been supplying the S-Band tuner to the ecosystem members, enabling trials and the building of related systems and demos. In the meantime, the company has built the 'real' component, including dual tuners and demodulators. This component will be included in upcoming pilot handsets being produced by companies like Sagem and Samsung. "This is a handful", says DiBcom's V.P. of Marketing and Business Development, Azzedine Boubguira. "It is a highly sophisticated mobile TV component to develop, because to support DVB-SH, the unit has to include antenna diversity. Before, the

way we achieved this was by taking two different complete components, tuner and demodulator, and putting them next to each other at a system level, making them work together in unison to implement this diversity algorithm. For the 'Unlimited Mobile TV' initiative based on DVB-SH, we have made this diversity embedded in one single component, and that's where DiBcom's technical expertise comes into the picture: not only will this chip be the first DVB-SH component, it is also the first all-in-one, guad band, multimode, diversity component, and the most complex mobile TV chip ever built."

## ModulCast® now includes DVB-SH Mobile TV

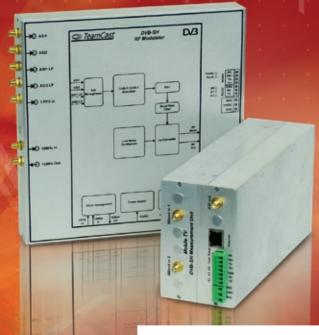
**New** DVB-SH transmission solutions from Teamcast comprising:

- New MSH-2000 RF modulators,
- New RSH-2000 RF demodulators.
- New SSH-2000 signal generator.

#### The Modulcast® family of OEM products -

all the essential OEM functional blocks needed to build up DVB compliant Mobile TV transmission systems with the most competitive pricing:

- DVB-T/H Modulators,
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- DVB-S/S2 Demodulators
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- MIP Inserters





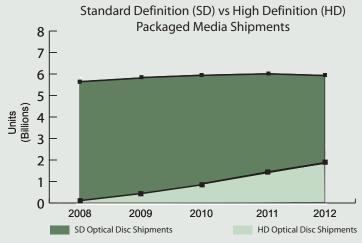


**Moore Analysis** 

### MARKET **LESSONS**

What TV Service Suppliers Can Learn From the HD Packaged Media Market

The breathless industry commentary about the HD-DVD/Blu-ray format war has been much ado about nothing. It's not that DTC doesn't recognise that the apparent victor will cook up some tasty royalties, but the high definition packaged media business will never be the giant that is the DVD business. The more important war is the one commencing between packaged media and electronic distribution of HD and SD programming. Traditional pay TV service providers, as well as Internet and mobile service providers, have a lot to gain or lose as consumers weigh their future options for acquiring programming. The increased bandwidth afforded by AVC/H.264, as well as upgrades in network infrastructure, should aid traditional pay TV providers in convincing consumers to get more of their TV and movie programming through their HD VOD



Source: Digital Tech Consulting (DTC)

consumers from acquiring enough of their programming from the Internet to have a significant negative impact on the pay TV business.

Internet business models are still being tested, bandwidth optimisation is still occurring and content protection/ tracking technologies are still being tested. This gives traditional operators a little breathing room to convince consumers to receive their electronically distributed programming from their networks, but, just like those in the packaged media business, pay TV providers can count on the Internet eating into some of their business. It may not be an exact blueprint for the future of pay TV services, but analysis of the current digital SD packaged media market vs. the emerging HD packaged media market, can illustrate how shifting consumer behaviour and emerging technologies impact an established market. DTC believes that

although the 170 million HD discs it estimates to ship in 2008 represents the early life of the new format, it seems unlikely, given the plethora of HD programming distribution options consumers will have, that high definition DVD will eventually evolve into the giant that is the SD DVD industry. That some consumers are turning to the Internet to receive TV/video programming is a fact. That the practice will grow and have an erosive impact on incumbent video delivery systems is a foregone conclusion. The only unknown is the degree of erosion.

Myra Moore is chief analyst for Digital Tech Consulting (DTC), a market research firm that tracks and analyses the consumer digital video marketplace. More information on the company and its latest research is available at www.dtcreports.com



### CELLMetric Intelligent infrastructure

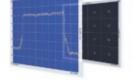
## Modus 2

RF player/modulator



#### Modus 3 **DVB-H DVB-TT-DMB/DAB**

Mobile Video RF Network



#### Modus 2 & Modus 3

- Sales Demonstration
- In field commissioning
- Product Development
- Production test









deployment















waterproof high performance cost effective lightweight portable

#### Mass Market for Mobile Broadcast TV in Europe Still Unclear

Alexander Shulzycki, Senior Media Analyst, EBU

Mobile broadcast television will likely see a surge in customers in 2008, but can the growth be sustained? Mobile network operators have already been delivering video to mobile users for several years across European markets using existing cellular technologies. Broadcast solutions have emerged because of the inevitable capacity limits of UMTS networks; the need of mobile operators for differentiation and value added services in a highly competitive environment; and the widespread belief that consumer demand for broadcast services will grow.

So far, the growth of mobile broadcast television services in Europe has been limited and the real potential is still unknown. Slow development is the result of a shortage of spectrum in many key markets (e.g. UK); a lack of consensus on business models (e.g. Finland); and difficulties in many countries in establishing the regulatory framework needed to launch (e.g. Spain).

The most advanced market in Europe is Italy, which launched full commercial services in 2006 and now has approximately 800,000 DVB-H subscribers. Finland, UK, and Germany also have launched services but with less success, together accounting for several tens of thousands of mobile viewers.

This year several key markets will launch including Austria, Switzerland, Netherlands and probably France. Capitalising on the Olympics and Euro 2008, these high profile launches may encourage a period of optimism, but if this initial spurt of subscribers is not followed by steady growth there is a chance for stagnation until 2012-2015

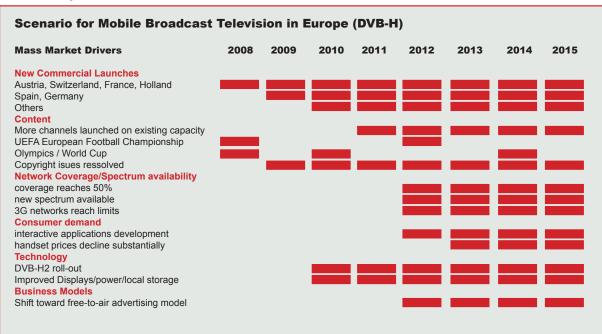
when certain key drivers kick in (see chart). Much will also depend on when the remaining large markets are able to get their DVB-H launch plans off the ground. Smaller countries are more in a wait-and-see mode and may move forward if results from other launches prove positive.

Lessons from beyond Europe are not necessarily encouraging. Korea's much heralded success with mobile TV using the DMB standard reveals that the main driver is not broadcast television but applications like traffic information. The United States remains in early stages of development with total mobile broadcast service subscribers less than half a million.

Meanwhile, mobile network operators continue to advance their multimedia offers on their existing networks. Most mobile phone operators have implemented 3G television services with a wide variety of pricing schemes as they continue to develop content, roll out services, and refine business models. At the same time wireless network improvements like HSDPA and MBMS are being implemented and will alleviate to some extent the unicast constraints on those networks and allow for some expansion of usage. It all comes down to consumer demand. Early trials of mobile broadcast services in Finland, Berlin, and later in the UK, Spain in 2005/06 were encouraging to operators. Willingness to pay ranged from 40 percent to 75 percent, satisfaction was high, and daily viewing averaged about 20 minutes. Recent studies are not as encouraging. In a Gartner study of European consumers published in September 2007 mobile television and video downloads ranked close to the bottom of consumer

interest: 95 percent of Europeans expressed no interest in watching television or video on their mobile phones in the coming year. In the UK new research from BMRB showed that more than half never watched a video clip or downloaded music and 75 percent said they would be unwilling to pay even £5 a month for mobile TV services. InStat, in the US, conducted a survey of 1000 potential users and found that less than 7 percent would pay \$15 per month for television services.

Paving for TV content is not a mass impulse. If drawing the parallel is valid, then the development of cable and satellite pay TV in Europe may teach us that penetration rates will remain low and grow to either a natural ceiling or a limit above which growth will be extremely slow. In Europe this level has historically remained below 50 percent in most markets. Moreover, the type of content that has been successful on pay TV is very specific - exclusive content, primarily sports and films and also thematic channel packages. Feature length films are unlikely to be consumed by mobile customers, leaving the implication that sports, as the key single driver, and a bouquet of premium thematic channels represent the content that can boost the chances for pay mobile broadcast television. Looking forward, a mass market can only develop when content is widespread, most of the population is covered, and consumer equipment passes certain lower price points. In most European markets all these criteria are unlikely to be met for several years to come.





Dr. Helmut Stein studied Physics and Radio-Astronomy at the University of Bonn, Germany where he received a Ph.D. in Elementary Particle Physics. His professional career started at Robert Bosch. Later he was appointed board member for R&D at Blaupunkt and Nokia with global responsibilities for labs all over the world. In 2001, he joined German pay TV operator Premiere as COO to help restructure the company. He has been on the board of important European research projects like Eureka 95 (HDTV), PALplus (16:9) and a founding member of DVB in 1991/1993. Since then he has been a member of the **DVB Steering Board and Chairman of the Promotion and Communication Module** (PCM) since its creation.

Today he is running his own company ISDM (International Strategies for Digital Media) in Düsseldorf, Germany.

#### In My Opinion - Helmut Stein

### IN THE WIRELESS WORLD

The global world of digital media is characterised by a few mega trends, e.g., Internet, digital broadcasting, virtual reality, etc. But one development had the most direct impact on people's everyday life – wireless technologies. Nobody likes cables and anyone that has installed a cable from the telephone socket in one room to the PC or TV two rooms away knows perfectly-well what I mean.

Digital telephone systems for home (DECT) or mobile use (GSM) paved the way into a wireless world. 'Wireless' is also called 'nomadic', 'portable' or 'mobile', mainly depending on the speed of the device in operation. What was DVB's contribution to this

GSM for push services. In 1999 at the 'Internationale Funkausstellung' (IFA) in Berlin, Nokia presented a prototype of a battery powered DVB-T receiver with a 12 inch LCD screen, a GSM phone and integrated Internet browser, called the Nokia Mediascreen. This device, as a real convergence product, is a milestone that offers a better understanding of how DVB became an important part of the future of mobile communications.

From that point onwards mobility became a requirement for a terrestrial broadcast system and DVB developed DVB-H, a system for handheld devices with improved transmission robustness, reduced power consumption and

## "...new standards will constantly replace existing ones..."

development? It really began with DVB-T. Here, interestingly enough, mobile reception was not a part of the commercial requirements of the new system, despite the demand from several companies. At the time mobile reception seemed to be the domain of only mobile telephone operators. That all changed when RTL in Germany (Cologne) decided to put a DVB-T settop box in a car and, disregarding all scientific concerns, tested the system successfully in both downtown Cologne and on the autobahn. It was also tested at speeds above 200 km/h in a car borrowed from F1 driver Michael Schumacher. Experts quickly judged that DVB-T was very well suited for mobile use which since then many tests have confirmed. Suddenly a robust broadband data transmission system was born to perfectly complement

lower resolution needs according to the requirements of mobile devices. As well as the physical layer, IPDC (IP Datacasting) was included to support services with appropriate software. At the same time, backwards compatibility was engineered so that DVB-H multiplexes could be mixed with DVB-T transmission and also use the main benefits of the system.

Now, DVB-SH has become the latest kid on the block for mobile use. Different to the already established DVB-S standard, reception becomes possible by mobile handheld devices, which creates a major change in application. DVB-SH can be received directly from a satellite with a line of sight or by a terrestrial gap filler network using the same S-Band frequencies. With all these standards and the fact that each system is built as a toolbox

where the operator can optimise the transmission parameters for his individual application, DVB has become an integral part of the mobile media landscape.

How will the DVB project develop in the future? First of all, the fundament of all digital developments is still Moore's Law, which predicts a doubling of the number of transistors per area every 18 months. This empirical prediction is expected to last another 8-10 years. As a consequence, increasing computing power will allow further enhancement of existing solutions. On one side, the spectrum efficiency will increase while the A/V codecs will give the same quality with reduced data rates. That's why new standards will constantly replace existing ones always with a better performance. We can expect DVB-T2 with higher data rates, more robust transmission and even better suited for the mobile world. DVB-H might be upgraded in a similar way, where possibly less backwards compatibility will allow more powerful results.

All in all, DVB has found its role in the mobile world. No other standard for mobile TV is part of such a family of solutions that the user can so perfectly tailor for his needs. Furthermore, DVB is ensuring the constant evolution of its standards at a speed that justly reflects the state of the art in technology. The global landscape sees countries in different phases of introduction of digital media standards. The newcomers, of course, always select the latest systems whereas those countries that already have DVB solutions in place can enjoy robust and efficient operation and add new systems at a later stage.

DVB - SCENE



#### **Tektronix MTM400A MPEG Transport Stream Monitor**

Tektronix' MTM400A MPEG Transport Stream Monitor enables broadcasters and network operators to detect signal degradation caused during transmission and distribution and find and diagnose errors more quickly to prevent viewers from experiencing loss of signal. It features a new FlexVuPlus user interface that helps deliver simplified DTV monitoring and diagnostics. www.tektronix.com

The new **Ateme** Kyrion file encoder is an MPEG-4 encoding/transcoding file-to-file solution for VOD assets production. Through the support of all common input files, multi-audio as well as DVB Subtitling/Teletext, it aims to create high-bandwidth efficiency multi-tracks SD/HD contents. Supervision SDK options offer the capability to integrate the encoder into 24/7 automated media management systems. www.ateme.com

The NP5 **Neotion** processor is a genuine environment friendly MPEG-4 processor designed for building a whole range of ultra low-power DVB MPEG-4 receivers. This single chip is also capable for comprising secured silicon based CAS implementation, IP hybrid DLNA capabilities, and SD card based DVR functions. www.neotion.com



#### Neotion NP5 Processor

Verimatrix now supports hybrid DVB-IP STBs utilising ST710x chips, e.g., Tilgin's Mood 400. This enables dual pay TV network reception using a single STB, e.g. DVB-T in combination with broadband IPTV, without smartcards. The company's Video Content Authority System (VCAS) decrypts both DVB-CSA and AES scrambled services. www. verimatrix.com

TeamCast's GFX-0300 is for applications in multi- and single frequency broadcast networks, including gap filling, network densification, repairing coverage 'holes' and improving in-building reception. Using technology developed by the BBC it is designed for implementing DVB-T and DVB-H On-Channel-Repeaters, in 6 or 8 MHz channels, across the entire VHF or UHF bands. www.teamcast.com



The Epsilon Board Model EBO3 from **Spectracom** is a compact OEM board designed for transmitter synchronisation of digital broadcast signals particularly for single frequency networks. The EBO3 offers accurate, stable and reliable time and frequency synchronisation by generating synchronised 1PPS and 10 MHz references from GPS. EBO3 includes remote IP management.

www.spectracomcorp.com

Spectracom Epsilon Board

Motorola announced its mobile TV DVB-H compatible DH0I device at CES in January. The lightweight, pocket sized personal media player allows consumers to watch live TV, on-demand clips and programmes saved on a DVR whilst on the go via its high quality 4.3 inch Wide Quarter Video Graphics Array Screen. www.motorola.com



Motorola Mobile TV DH01

ProTelevision announces the Q2 release of the Adaptive Precorrector function PT2754 for the PT2090 Digital Repeater. PT2754 facilitates fast and trouble free installation of new repeater sites and it eliminates the need for later manual realignment if the HPA/filter characteristic changes over time (fully automatic and continuous precorrection of HPA and antenna-filter/combiner characteristics). www.protelevision.com

#### Rohde & Schwarz Broadcast Test Transmitter R&S SFE100

Rohde & Schwarz launches the R&S SFE100, a new single standard broadcast test transmitter, with models available for all common digital and analogue TV standards as well as a number of sound broadcasting standards. The compact and reliable instrument can be equipped with a power amplifier for production test systems. www. rohde-schwarz.com

Scientific Atlanta is shipping its new MPEG-4/MPEG-2, DVB-S/S2 Advanced Program Receiver Model D9854. It provides satellite bandwidth efficiency improvements, with HD-SDI, ASI or IP outputs and supports PowerVu and DVB Common Interface based decryption and many other features suitable for digital turnaround, programme

distribution, decode for re-encode, private networks and monitoring applications. www.saeurope.com
Following successful pre-commercial DVB-SH mobile TV trials in Europe and US, **UDcast** is launching an industrial DVB-H / DVB-SH IP Encapsulator. As the key component of mobile TV headends, and featuring the innovative iFEC (interbursts Forward Error Correction) technology, UDcast IPE-10 enables reception of television from satellite on mobile devices. www.udcast.com

#### Comtech EF Data Media Router S2

Comtech EF Data introduces its next generation Media Router S2, the CMR-5975, which enables DVB-S and DVB-S2 IP based multimedia content to be delivered over satellite and distributed to remote devices connected via an Ethernet LAN. The CMR-5975 provides a DVB-S or S2 input and Ethernet output.

OMITECH

www. comtechefdata.com

The **Pixelmetrix** DVStation-Mini TSP is a cost effective way for terrestrial, cable and satellite operators to maintain visibility of network quality and performance. Designed with portability in mind, it has a rugged shock mounted hard drive in a compact 1RU chassis. It provides comprehensive TS monitoring and is optimised for remote site deployment. www. pixelmetrix.com

## ENENSYS GigaCaster

New from **ENENSYS**, GigaCaster is a high density MPEG-2-TS over IP Video Gateway that provides up to 8x DVB-ASI ports and supports SFN Networks. Also released, CastXplorer is a network probe for validating quality of service delivered to subscribers. Compact and robust, it can be placed anywhere on the network to help anticipate failures. www.enensys.com

UBS's advanced GPS Receiver, specifically designed for mobile video distribution, consists of up to eight 10 MHz and eight 1pps outputs. The unit is fully SNMP managed, with web GUI which displays all satellite status and alarms. With standard RS232 protocol for UTCx10 and available as an OEM board or as a standalone version. www.uniquesys.com

UBS GPS Receiver

UBS TIMES, FEBRUARY 2008 TODAY: LIGHT SNOW, -1 C°

## CLASSIFIEDS

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Complete Terrestrial and Mobile DVB Solutions | Professional Services

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#### **IP Encapsulators**

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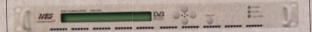
#### **OEM GPS Receiver Module**

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