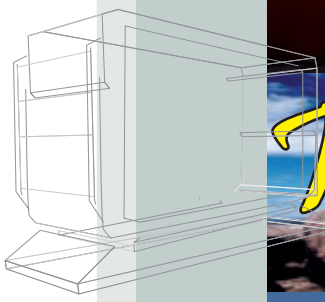
Edition No.24 **December 2007**

DVB-SCENE

Tune in to Digital Convergence



Welcome to Uruguay

24

DVB®

The Standard for the Digital World

This issue's highlights

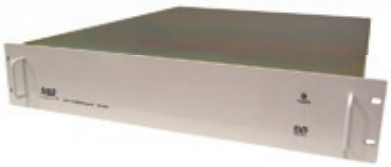
- DVB-T Return Channel
- Uruguay Adopts DVB
- DVB-T in Norway
- CPCM
- MHP in Spain
- Market Watch

DVB-SH

PRODUCT LINEUP

Success with UBS

DVB-SH IP Encapsulator



The DVB-SH model adds the additional SHIP synchronization packets for DVB-SH compliance.

The UBportIPE DVB-SH IP Encapsulator incorporates the same class leading architecture of the UBportIPE DVB-H model with features such as:

- *Dynamic Time Slicing for highly efficient bandwidth utilization*
- *Internal SI/PSI table editor, parser, compiler and generator (UBS SI/PSI TDL)*
- *Internal SFN adapter*
- *Internal stream recorder and player*
- *Remote setup and monitoring through WEB GUI or SNMP*
- *Compact, reliable, solid state design. No moving parts.*

DVB-SH Modulator

The UBwaveDVB-SH modulator is a fully DVB-SH compliant modulator with all of the required timing and modulation modes for DVB-SH head end and repeater sites.

- *OFDM and TMD modulation modes available*
- *Up to 3GHz output selectable in 1Hz increments*
- *High performance MER (>43dB)*
- *Built in test signal generator*
- *Remote setup and monitoring through WEB GUI or SNMP*

DVB-SH Terrestrial Repeater

The UBpupDVB-SH is a fully self contained compact outdoor terrestrial repeater for DVB-SH. The entire system is designed to be easy to deploy in space constrained sites such as tight urban areas and cellular co-locations.

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- *GPS synchronization*
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- *High performance LDMOS S-band amplifier*
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- *High performance forced air cooling system*

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COMPLEX OPTIONS

A word from the DVB Project Office

Peter MacAvock, Executive Director

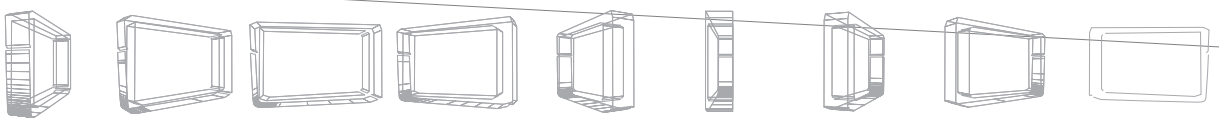
Welcome Uruguay. As the debate on digital terrestrial television in Latin America continues, Uruguay has taken a decision for DVB-T following extensive assessment of the options. We're delighted to welcome Uruguay to the family, and will be working closely with our colleagues there in the coming months to ensure a successful launch of DVB-T there. Importantly, Uruguay has chosen to adopt both DVB-T and DVB-H at the same time - one of the first countries to do so. As they move to deploy DVB-T, the options for launching become more complex. With H.264 trials in HDTV going on in France, and Norway, Estonia and New Zealand using H.264 for their DVB-T services from the outset, the decision on which hardware to use is no longer just a question of middleware or conditional access.

Issues such as these will be on the agenda for DVB World 2008 - particularly as our new hosts Hungary are in the midst of considering their options for a DVB-T launch. The programme for the conference will also deal with issues such as CPCM, IPTV and of course, the upcoming DVB-T2 specification. It promises to be an exciting venue and a conference where topics at the core of DVB's future work will be discussed.

Finally, as this is to be the last DVB-SCENE of 2007, I would like to extend warm wishes from the Project Office to all our readers.

NEW STANDARDS

TS 102 606 V1.1.1 "Generic Stream Encapsulation" (Published 10/07)
TS 101 154 V1.8.1 "Implementation guidelines for the use of MPEG-2 Systems, Video and Audio in satellite, cable and terrestrial broadcasting applications" (Published 08/07)
TS 102 816 V1.1.1 "Personal Video Recorder (PVR)/ Personal Data Recorder (PDR) Extension to the Multimedia Home Platform" (Published 09/07)
TS 102 817 V1.1.1 "Digital Recording Extension to Globally Executable MHP (GEM)" (Published 10/07)
TR 101 211 V1.8.1 "Guidelines on implementation and usage of Service Information (SI)" (Published 09/07)
TR 102 005 V1.3.1 "Specification for the use of Video and Audio Coding in DVB services delivered directly over IP protocols" (Published 08/07)
TS 102 034 V1.3.1 "Transport of MPEG-2 TS Based DVB Services over IP Based Networks (DVB-IP 1.3)" (Published 11/07)
TS 102 592 V1.1.1 "IP Datacast over DVB-H: Electronic Service Guide (ESG) Implementation Guidelines" (Published 10/07)



DVB® WORLD

12 - 14 March, 2008
Budapest, Hungary
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See page 13 for more information

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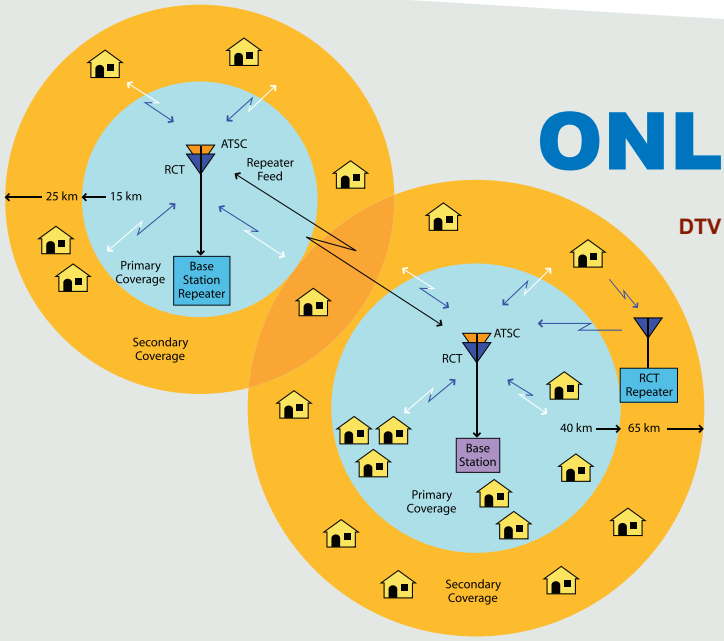
ONLINE OUTREACH

DTV & DVB-RCT (Return Channel) for Rural Area Internet Access

D. Prendergast, Dr. Y. Wu, G. Gagnon, C. Nadeau:
Communications Research Center (CRC),Ottawa Canada



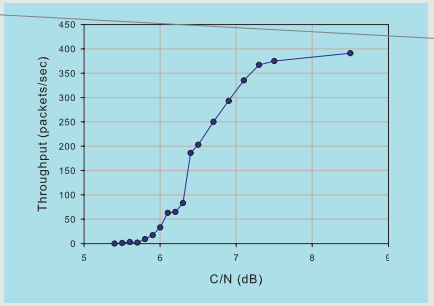
In seeking a way to fulfil the government of Canada's obligation to provide every Canadian with broadband access, a programme for Rural and Remote Broadband Access was initiated at the CRC. Internet Multimedia Service (IMS) to rural areas is difficult to provide at reasonable cost using current technologies because of the sparse population found in the rural and remote areas. Common to all of these areas is at least one public television broadcaster with Digital Television (DTV) capability. CRC determined that a possible way of providing a broadband access capability to these areas was to provide a return channel that would allow full duplex operation of the ATSC DTV system. After studying many alternatives, CRC decided to use the ATSC DTV system for the downlink since DTV infrastructures are replacing the NTSC analogue ones; and DVB-RCT for the wireless return channel. In this dual standard approach, the challenge is to create the interface through all peers of the OSI (Open Systems Interconnection) model to ensure a successful implementation of the system.

The diagram above shows the overall concept of a return channel implementation for DTV. In this implementation, two service areas are defined, a primary service area consisting of the base station and its associated coverage area and a secondary service area featuring a base station repeater. Within each service area there is a primary coverage region where 8-VSB modulation is used for the forward channel. Here, users are provided with a set-top box (STB) or data transceiver through which they can obtain broadband access for IMS services via a wireless RF channel and a base station connected to an Internet gateway. Two types of STBs could be made available: a reduced cost one supporting IMS only services without video and audio decoders where broadband IMS data packets would be extracted from the transport stream and sent to a PC via an Ethernet connection and; an upscale version of the STB supporting both IMS services and video/audio programmes. For users requiring both the DTV and IMS services, the STB would be capable of demultiplexing the IMS data as well as providing video and audio output for DTV use. In either case, the data would be transferred to and from the computer by an Ethernet link, while for the upscale STB, the video and audio would be fed to the monitor/speakers. This return channel technology would have to be implemented in the base station, STB and data transceiver.

For the secondary coverage areas, or area far away from the DTV transmitter/base station, a similar STB/transceiver operation may be implemented. However, the return channel throughput may be reduced because of a lower uplink output power capability of the STB coupled with added propagation impairments and a lower level of modulation. In case of severe propagation impairments due to the range of the secondary coverage area, trees etc., On Channel Repeaters (OCR) may be deployed in order to improve the return channel performance and hence the system gain. A network of OCRs may be deployed in the secondary service area to facilitate the collection of return channel data.

This data may then be transmitted to the base station by a directional antenna. It provides the advantage of being cost effective and spectrum efficient in that it uses the same frequency as the return channel. Base station repeaters may also be useful in extending the coverage range beyond say, a valley village to another valley village separated by distance or a hill, as depicted in the secondary service area in the diagram. Here an OCR may again be used to extend the local coverage as required in the valley village. A full duplex link will also be required between both valley villages to ensure access to the Internet through the main base station gateway.

STB terminal equipment would be capable of operation in either the primary (8-VSB) or the secondary (2-VSB) coverage areas for the forward channel. The return channel using DVB-RCT would use QPSK in the secondary coverage zone, while in the primary coverage area where the STB is close enough to the base station, 16-QAM may be employed. In the interim however, before deployment in a North America context, the ATSC DTV system would require some modification to the protocol stack in the form of a downlink control channel to enable user terminal uplink channel access and power control, etc. Because of the time needed to modify the ATSC system to work with DVB-RCT, CRC first conducted a proof of concept phase using DVB-T as a downlink to which DVB-RCT is already compatible. The graph below shows the results of a laboratory evaluation where the throughput performance of DVB-RCT was measured with respect to carrier to noise ratio in QPSK mode when subjected to Additive White Gaussian Noise. TCP packets were transmitted on the return channel as fast as the channel could sustain while the C/N was varied. A maximum throughput of about 4 Mbps was obtained. This value falls off as the C/N drops below 8.4 dB and declines to zero at a C/N of about 5.4 dB. This is an expected result since for QPSK a C/N of 8.4 including coding generates a BER of about 10^{-4}. This BER increases as the C/N degrades, hence the shape of



the curve in the graph. In light of these results and by considering a noise floor of -104 dBm, a practical range of about 30 km is expected. A similar curve is expected for 16-QAM and 64-QAM but with a higher throughput. These modulation levels may be realizable for STBs closer to the base station since a reduction in path loss would allow a higher signal to noise ratio and greater throughput.

CRC developed a field trial infrastructure to evaluate the performance of an IMS using the digital television broadcast facility as a forward channel and the DVB-RCT system as a return channel. This process will allow the confirmation of the simulation results regarding the system throughput performance with range and terrain. Preliminary results with DVB-T and DVB-RCT are encouraging.

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David Wood is currently Head of New Technology at the European Broadcasting Union's Headquarters in Geneva, Switzerland. He is British by accident and Belgian and Swiss by adoption. David worked for the BBC and the IBA in the UK before moving to join the EBU in Brussels and latterly in Geneva. He has managed many activities in the EBU, the European Commission's IST programme, and standards bodies such as the ITU. His standards' achievements include ITU Rec 500, 601, and Rec. 709-3, the Recommendation for High Definition Television. His favourite subject is psychophysical methods of picture and sound quality evaluation, but he knows that he is one of only five people who are so interested, so he works in other areas too.

In My Opinion – David Wood

BRAD PITT, WIRELESS BROADBAND, AND THE INEVITABLE

Go to the 'Second Life' website. You see that guy who looks like Brad Pitt, and dances like John Travolta? It's me. The idea of giving people a chance to be who they would like to be is an episode of Star Trek. It's a great idea, and Second Life is a great success. But after a while something tells you this is not right. After a while you realize that all the people, the buildings, and the furniture in it are clunky models. They are sort of human beings, who 'only just' look or move like human beings. I sit at the PC with my Swisscom broadband connection and understand. There is just nowhere near enough information and detail available.

from the broadcast bands for wireless broadband services. It is really obvious. Any spectrum sold for broadband services will only have a short useful life.

The demand for broadband bit rate goes up and up. Probably to make Second Life look HDTV-good you might need (say) a 140 Mbit/s connection. Is there ever any way this bit rate could be delivered by an interactive digital wireless telephone channel to throngs of different people all at the same time? There is only a limited amount of space in the airwaves. Point-to-point connections are always congestion limited.

be a 'cross over point', when wireless broadband runs out of steam. Beyond that you need hybrid fibre coax and fibre optic. In-home networks (yes, in this case wireless) will carry it around the house.

Digital telephones work great because only a few percent of the public wants to use them at the same time. This is not going to be the same with broadband interactive entertainment. In the evening masses of people will want to use it at the same time. Usage patterns for telephones and media entertainment are not the same.

So please, let's use the broadcast bands for broadcasting – the services that can never suffer from multi-user congestion. The service that is non-exhaustible. Let us use it to provide services which lots of people want at the same time… whether they are HDTV or CIF (for a handheld)…

Above all – governments – please think about future demands and not just about today's needs. Please ask yourself about the future consumption model. Spectrum belongs to all of us – the people. We are entitled to ask that. If you don't, I will leave a message for your grandchildren saying it was your fault.

> **"...how long will it be before the public demand has outgrown the capacity of the system to deliver?"**

There is nowhere near enough bandwidth. I want something with a reality at least as good as 'Doom', and I've got 1930s Mickey Mouse.

And wherever you go on the web you see the same thirst for bandwidth. The trend, that we may have forgotten, is staring us in the face. We never have enough bandwidth because applications just keep on growing in sophistication, and video and audio inserts keep on growing. Think how far we have come from a 4 kbit/s modem connection to today's 2 Mbit/s DSL – let's say a 500 fold increase in 15 years. Why would this trend – forever upwards – stop suddenly and stay where it is? Silly, but that is what some people want you to believe.

By they, I mean the people who want to talk governments into selling spectrum

Yes, there will be a massive demand for broadband connectivity. Yes, many people will spend their evening using it. But if they all want it at the same time, and they all want a lot of it, it cannot be done by wireless broadband.

The future of broadband is fantastic, but it can only be provided by fibre optic connections into every home – never by wireless. Work it out on the back of an envelope – fibre optic is the only way we will get 140 Mbit/s connections all with different data to millions of people at the same time.

Sure, you can start broadband wireless services, and yes, you may make some money for a bit. But how long will it be before the public demand has outgrown the capacity of the system to deliver? Ten or fifteen years? Then this precious public resource is lying idle. There will

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DECISIONS, DECISIONS

Jorge Lepra, Minister for Industry, Energy and Mining, Uruguay

Making the announcement, pictured L – R: León Lev, President, URSEC; Jean-Claude Moyret, French Ambassador in Uruguay; Eng. Maria Simón, President, ANTEL; Eng. Martin Ponce de León, Under Secretary for Industry, Energy and Mining; Jorge Lepra, Minister for Industry, Energy and Mining; Luisa Bastos de Almeida, Portuguese Ambassador in Uruguay; Juan Victor Monfort, First Counselor of the European Commission; Lech Kubiak, Polish Ambassador in Uruguay; Hugh Salvesen, UK Ambassador in Uruguay; Filippo Romano, First Secretary, Embassy of Italy in Uruguay.

Uruguay has adopted the DVB-T/DVB-H standard for the implementation of digital television. The decision was taken following long and detailed work on the matter, lasting several months, focussing on one central issue: What is the best solution for increasing the possibilities for technological development?
And when we refer to technological development, we are thinking of a number of plans which are already underway, from generic audiovisual productions, advertising, cartoons, games, etc. Digital terrestrial television is a technology offering the possibility of greater diversity of content and the delivery of broadcast services, more options and greater competition in the sector, as well as opportunities to develop new services and associated technological enterprises, including interactivity between the public and the media.
This is a country which places an enormous importance on innovation and technology and therefore is heavily backing this move. It is a positive leap forward for both the country and for the quality of life of its people by improving the conditions for something that we find in our homes everyday. We want to take this step in the best possible way, which will allow us to develop greater options for more work and the potential for growth in an area where there is a lot of room for expansion. The idea behind it is for everyone to benefit. Latin American countries are only just starting to think about their digital futures. Uruguay had to make its decision at the best possible time for itself. Resolving the matter now will allow us to progress at a rapid pace, and it is now that we need to get things moving. We want to get a foot in the door right from the start, because that will help us learn a great deal, create more employment and enter the twenty first century on a strong note.
The first DTV pilot programme took place in the city of Montevideo in October 2006, and provided a detailed comparison between analogue and digital systems. The trial consisted of television screens placed in the city's main shopping centres, several public areas with plenty of through traffic and also in some of the bus routes around the capital.
On a closely related matter, work is already underway on the Ceibal Plan, which will provide each child at school with a computer for personal use, both inside and outside the classroom. This plan will be fully operational by 2009.
Within this framework, Uruguay took the decision to adopt DVB-T/DVB-H and is now due to implement the technological developments, software, content and associated equipment as quickly and as far as possible.
This process is yet one more change to open up opportunities to everyone in a country that is attempting to be productive, with innovation, growth and equality.

Key Criteria

The important decision was reached after a long and professional process of assessment of the alternative digital television standards. This process was conducted by the National Committee for Free-to-Air Digital Terrestrial Television. The committee had a mandate to advise the Government on the benefits of the different digital television standards in a fair comparative process.
The Committee concluded on the superiority of DVB-T and DVB-H in a significant number of criteria, including:

- **the provision for both fixed and mobile TV and HDTV services**
- **interactivity**
- **the diversity, availability and cost of equipment**
- **technical quality of service**
- **spectrum efficiency**
- **strategies for digital inclusion**
- **development of national technologies**
- **development of the audio visual industry**

The selection of a DTT system is now at a critical stage for a number of countries in the region, including Argentina, Colombia, Peru (which recently announced the launch of a DVB-T trial in Lima), Venezuela and Chile. During recent months, significant efforts have been made by the DVB community to propose DVB-T and DVB-H as the best options for the transition to DTT in Latin America.

SWITCHED ON NORWAY

Torgald Sørlie, Norges Televisjon in cooperation with Truls Langeggen, Telenor Broadcast Holding AS

Vaagen Harbour, Stavanger

The launch of Norway's Digital Terrestrial Television (DTT) took place on the 1st September 2007 in the country's 'petroleum capital', Stavanger in the county of Rogaland. Oslo followed a few days later, and by mid November 70 percent of the 2.14 million primary households had access to the service.

All of Norway will have DTT by November 2008. Rogaland is earmarked for the first analogue shut down in March 2008. The analogue network will be switched off region by region by 2010. To facilitate this plan each region will simulcast analogue and digital services for 6 – 12 months.

Norges Televisjon AS (NTV) was granted a 15 year DTT license by the Norwegian Parliament (Stortinget) in June 2006. The owners of NTV are NRK and TV2 (national public service broadcasters) and Telenor Broadcast Holding. NTV is the platform operator with responsibility for implementation of the network and maintenance of the DTT platform. In addition, NTV is also responsible for educating the public on the digital transition.

As well as providing online information (www.ntv.no), NTV has embarked on a regional information tour timed for the introduction of the digital service and also at the time of switch off. A comprehensive media campaign was backed up with information delivered directly to households.

The Norwegian Parliament mandated that the digital network must cover 95 percent of primary households and 70 percent of holiday homes. The full cost of implementing the network is estimated at NOK 1, 5 billion (195 million Euro), with no financial aid from the government.

Viewers need a UHF aerial covering the frequency band between 470-790 MHz and an NTV validated and approved set-top box to receive the service. The price of the set-top box was limited by Parliament to NOK 1500 (195 Euro), but by the time of the launch the price was down to NOK 995 in larger retail outlets. Subscribers to RiksTV could buy a set-top box for NOK 1.

With cable and satellite TV having a strong base in Norway, DTT is only expected to provide for around one third of the audience.

Having chosen MPEG-4 as the compression standard for vision and sound, the digital network is ready for HDTV. Currently there is no HD offering and none is expected until 2010, when analogue shutdown is complete and more frequencies are available. A consequence of choosing MPEG-4 is that only two decoders were available for sale in October 2007 (Grundig and Sagem), but more are expected to follow before the end of the year, including MHP enabled set-top boxes. Sony has already announced an IDTV for the market.

The digital network consists of 452 transmitters covering the country – 44 high power and 408 low power. Single Frequency Networks (SFN) are used in some regions. The northern islands of Svalbard are not covered, however, each area will have a regional service from NRK, as well as private local TV stations, and 16 radio stations mostly operated by NRK.

The parliamentary mandate of providing 95 percent coverage acknowledged that the remaining 5 percent, which would cost as much again, was not deemed economically feasible. Most Norwegians in this category already have a satellite dish. However, Norway's topography of steep mountains, deep valleys and northern location (low angle to GEO), means that approximately 12,000 inhabitants in 5,200 households (0.25 percent), are unable to receive a satellite signal. They live in areas with satellite shadow, and where cable TV or IPTV is not an option. The digital license requires NTV to offer digital TV for this population with one multiplex carrying NRK services. This will mean 4 TV channels and 13 radio channels, whereas today many of them only receive NRK 1 and one or two radio services.

Norkring, a subsidiary of Telenor Broadcast responsible for the installation of the main transmitter network, together with the small private company Paneda, were commissioned by NTV to build satellite shadow networks. Norkring used the same terrestrial technology as in the main network, while Paneda downloads satellite signals and remodulates them before transmitting terrestrially. The latter system requires a different type of decoder, but the cost for the end-user will be the same. In some cases transmitters are being set up for only one person!

For households covered by the main network, 3 multiplexes were available from the offset offering 25 TV and 16 radio services. NRK operates one multiplex with 4 free-to-air services (5 including the sign language service). The other two multiplexes are managed by the pay TV operator RiksTV and include a local TV service and a planned non-commercial community service. RiksTV offers a mix of national and international services on subscription with the exception of the main service from TV 2 which until 2010 is free but encrypted. Two more commercial multiplexes are planned following analogue switch off.

WHY CPCM?

Mark Jeffrey, Microsoft Entertainment and Devices, past chair of the CPCM subgroup on Authorised Domain Management

In July, DVB published technical specifications of the CPCM (Content Protection and Copy Management) protocol suite as a BlueBook (A094 Rev. 1). Why has DVB spent so much effort developing a specification for content protection for home networks?

For DVB-CPCM, a lot of work has gone into supporting new models for using content, both free-to-air and pay TV. CPCM recognised early the need for an 'Authorised Domain' (AD, a collection of devices belonging to a household, even when they are away from home) an idea which is beginning to gain wider recognition. The AD concept recognises that tying content to a single set-top box and an attached TV display is not enough in an age of networked entertainment.

Over the years, consumer electronics products have enabled consumers to enjoy their music away from the radio and the gramophone, into the street, the car, and the gym. So it is logical that television is following the same path. For example, there is a clear desire by users to take their 'home' television experience around the house, to their hotel rooms and vacations, and even to their in-car or handheld media players. CPCM takes content from a trusted source, such as a CA system or free-to-air tuner, and protects the received content stream or file, managing how it can be viewed, moved, and copied.

The authors of the CPCM specification (including free-to-air broadcasters, Hollywood studios, chip makers, consumer equipment makers, security companies, information technology providers, and others) decided to allow for many such scenarios from the beginning. CPCM supports a variety of uses of content on a Home Network, and can also manage access to content from remote locations such as a laptop on hotel broadband. By using CPCM, service providers can signal to device manufacturers the permissible scenarios for each type of content and consumers can benefit from greater flexibility.

Many of today's protection methods constrain content to a single point-to-point interconnect cable between the content source device (such as a set-top box) and the digital display device, or permit only streaming across a small private Ethernet or wireless network. CPCM goes beyond this localised protection, giving broadcasters, pay TV operators and content owners the option to allow access by a household member from a remote location such as a hotel during a business trip or a vacation.

> **"...consumers want to share content between devices..."**

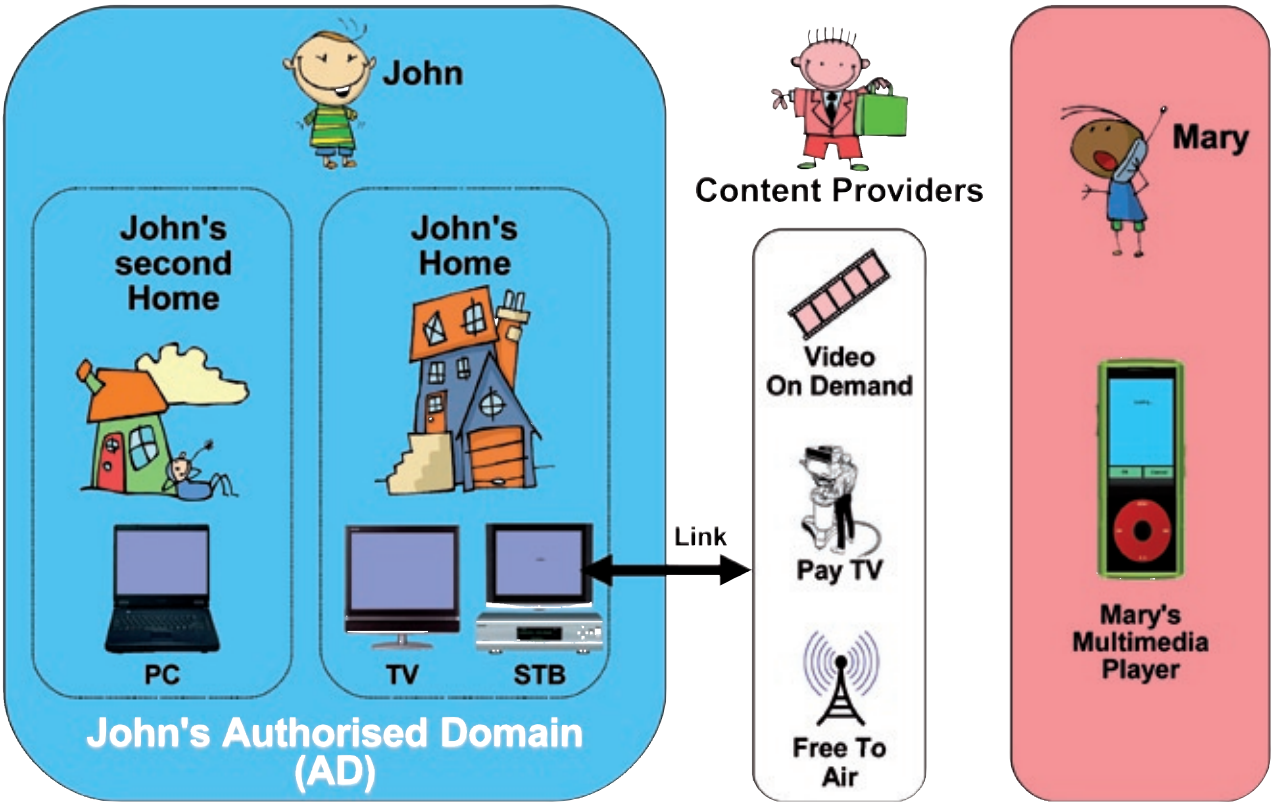
CPCM can also enable users to copy content to portable devices and removable storage such as a DVD. As long as the playback device belongs to the same Authorised Domain, the device will be able to play back the content even when disconnected from the home and the original service provider. CPCM content does not require any online authorisation from a service provider to add or remove devices to/from the Authorised Domain. A content protection system is a tool that doesn't stand alone, but must be incorporated into an overall distribution system. DVB-CPCM can work over any network protocol and thus can be used in a variety of deployments. Most likely, consumers will see it first in devices that follow the emerging DVB-HN (Home Network) standards. DVB-HN takes care of finding the content, and copying or streaming it to the player; DVB-CPCM ensures that this is done within the rules set by the service provider for each content item.

Given that consumers enjoy the freedom of choosing different brands of devices and obtaining content from different sources, there will be occasions where consumers want to share content between devices that may not otherwise share a common format and/or protection system. In this case, implementing DVB-CPCM could provide a 'baseline' of interoperability, reducing the likelihood of content being constrained to a single device. CPCM provides mechanisms to add a new device to your home AD, but leaves room for manufacturers to develop creative ways to make this as easy as possible. CPCM also avoids hard limits on the number of devices a household can use. Rather, it provides a number of tools and capabilities to verify that a new device is a part of the household.

For free-to-air television, CPCM enables the permitted usage of content to be signalled between devices, while leaving the content itself unencrypted. Essential broadcasts will always be accessible even when CPCM is in use.

DVB has worked hard to make CPCM a solution for new use cases in the enjoyment of television. While the technical specification has been published, there is still a lot of work to do before CPCM's market impact can be measured. Like all content protection schemes, CPCM still needs a legal basis of trust (certification, robustness rules, etc.), which is something the DVB Project is not structured to provide directly. With that in place, market forces will take over and success will depend on the level of interest from consumers, content owners, and manufacturers in DVB-HN and in DVB-CPCM.

Why CPCM? Because the DVB feels the future of television services on home networks and beyond requires a new standardised approach to protecting the rights of content owners while enabling consumers to enjoy content at their convenience, and that CPCM can help meet this need.



ONE SOLUTION

Recently, there has been a strong focus by the industry on providing so-called 'end-to-end' solutions. These traditionally refer to solutions that tackle the management and security of content up to the point of acquisition in the home. However, the market now requires a solution for secure handling that takes place after the acquisition device and more specifically in the home network, while enabling managed remote access. DVB-CPCM is a system designed to protect and manage the copying of commercial digital content beyond the end of 'end-to-end'.

On the DVB booth at IBC 2007, FASTCOM Technology SA demonstrated the first functional implementation of DVB-CPCM. Leveraging the characteristics of DVB-CPCM, the demonstration showed attractive business models that can satisfy the desires of everyone, from consumers to content providers and producers. Three use cases were shown which related to, respectively, free-to-air, pay TV and VOD content. Two people, 'John' and 'Mary' were introduced, each with their own devices. For each type of content, CPCM usage rules were defined for multi-device and multi-user networked environments. Functionalities such as simultaneous consumption control, local/non-local management of data consumption, and time-controlled data consumption in the authorised domain were demonstrated, as well as data consumption for CPCM devices outside the authorised domain. The use cases highlighted the significantly improved consumer experience made possible by DVB-CPCM.

AUSTRALIAN HDTV GETS THE BIG TICK

CERTIFIED HD DIGITAL TV

Tim O'Keefe, Australian Digital Suppliers Industry Forum

The Australian Digital Suppliers Industry Forum (ADSIF) has launched a new high definition (HD) certification logo for HDTVs. Based on the European HDTV logo initiative, the HD Tick logo will ensure compliance with Australian and international digital receiver standards and provide for better connectivity with other digital entertainment products.

Australia is leading the world with adoption of DVB-T HD. ADSIF predicts that almost 10 million flat panel HDTVs will be purchased in Australia through to 2012. At this rate, it is estimated that there will be at least one HDTV in the vast majority of Australia's eight million homes.

Compliance with receiver standards is not mandatory for digital television receivers sold in Australia. Therefore the introduction of the HD Tick logo is recognition by those HDTV suppliers who certify their product as complying with the industry-developed Australian receiver standards. In addition these products are also self certified as complying with HDMI and Dolby requirements and are registered with DVB.

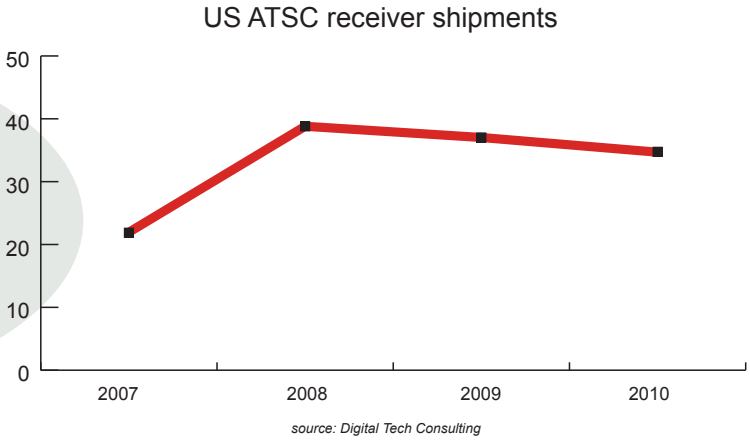
In addition to receiving HD broadcasts, the HDTV screen is the central digital entertainment hub connected to a games console, a digital video recorder, a pay TV set-top box, an AV receiver, a media centre and, increasingly, a PC.

That is why ADSIF included within the criteria for the HD Tick logo the additional connectivity testing requirements of HDMI and Dolby. Such testing provides some assurance that the certified product of one supplier interoperates with the certified product of other suppliers.

This approach is helping to deliver the promised digital dividend to the Australian viewers – interoperability and connectivity in a competitive and convergent marketplace. For more information visit: www.hdtick.com.au

Moore Analysis

STATESIDE VIEW



The world will be watching the US as it engages in the first massive countrywide transition from an analogue to an all digital terrestrial TV system in February, 2009. Although analogue shut-off plans have been executed in some parts of Europe, the US transition will be the first undertaking of large magnitude, and a lot is at stake.

First, the successful execution of technical, distribution, and education plans with minimal disruption to US households is paramount to the transition's success. The failure to do so could potentially delay the reallocation of valuable spectrum and subsequent collection of millions of dollars into the US treasury.

Also at stake are the potential sales of millions of Digital-to-Analogue (D-to-A) converter boxes and Integrated Digital TV (IDTV) sets on the eve of, and immediately after, the analogue shut-off. This represents a huge opportunity for STB, TV and accessory suppliers, as well as consumer electronics retailers.

In 2008, DTC forecasts a 72 percent growth in US ATSC receiver sales as the National Telecommunications and Information Administration's (NTIA) coupon system goes into effect and ATSC receiver suppliers ship millions of D-to-A converters.

The NTIA's D-to-A Converter Box Coupon Program is currently designed to take place between January 1, 2008, and March 31, 2009 with all US households eligible to request up to two coupons, worth $40 each, for purchase of up to two D-to-A converter boxes, while appropriated funds are available.

The opportunity isn't without risk, however. The window of opportunity for industry players is minuscule at best. After the spike in sales between 2007 and 2008 the market for STBs will fall to about 17 million in 2009, a drop of 15 percent from 2008. IDTV sales are forecasted to increase as DTC believes that some pay TV households will likely choose to replace some existing analogue sets with flat panel digital TVs instead of hooking them up to D-to-A converters.

Those replacement sets could be an opportunity for satellite, cable, and IPTV service providers to sell second - and third - set service (especially premium HD packages) into existing pay TV households.

Because profit margins on D-to-A converters will be very slim, retailers will need to treat them like any other 'loss leader' product – as a way to sell consumers other goods and 'stepped-up' products. If they don't succeed in that, then the chance to benefit from the massive amounts of media that will be devoted to 'the end of analogue TV' will have largely gone to waste.

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 market research reports market is available at www.dtcreports.com

ON AIR
Radius 4
DVB-H DVB-T
Micro Base Station
Radius 4
Infill
In buildings - Tube stations
Trials
Emergency deployment
rugged integrated convection cooled waterproof
CELLMetric
Intelligent infrastructure
Modus 2
RF player/modulator
Modus 3
DVB-H DVB-T T-DMB/DAB
Mobile Video RF Network
Modus 2 & Modus 3
Sales Demonstration
In field commissioning
Product Development
Production test
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T +44 (0) 1223 265571

INTERACTIVE SPAIN

Carlos Alberto Martín Edo, Universidad Politécnica de Madrid

All the main Spanish DTT broadcasters (public, private, national and regional) already offer a complete range of MHP interactive services that enables the people to become part of the Information Society. It was TV3, the Catalonian public broadcaster, that pioneered MHP services in Spain in 2002.

RTVE, the Spanish national public broadcaster, has been the driving force behind interactive TV in the country since the relaunch of the new DTT channels at the end of 2005. RTVE MHP services include a launcher and channel change application, information services (weather, traffic, stock exchange), an Electronic Programme Guide, Digital Teletext, an application that provides an environment for searching employment opportunities (named EmpleaT) and a tax payment facility. Some of these services were developed within the framework of the INSPIRA project (supported by public funds), which included user experience research, led by the Universidad Politécnica de Madrid, to check the utility and usability of interactive TV.

EmpleaT advertises thousands of job offers daily and provides detailed information through the return channel. This application is related to the RTVE employment programme (Aquí hay trabajo).

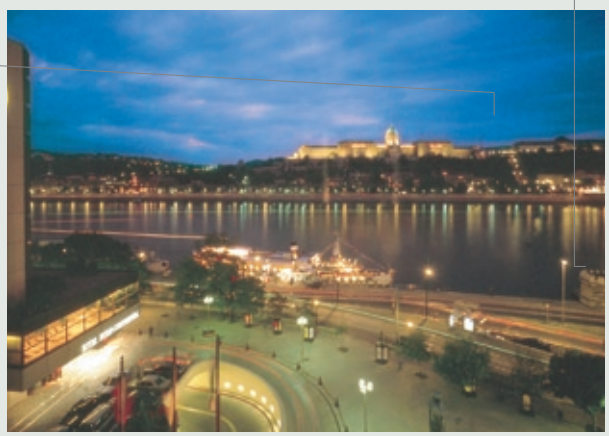
The tax payment application, a notable interactive service, is available in the run up to the end of the tax year. Several Spanish DTT operators provided the general public with the functionality designed to assist with the annual declaration for personal income tax. By simply entering their Spanish ID card number a citizen could request such items as general tax information and their tax declaration.

RTVE has also tested new business models for interactive TV, including sponsored applications such as 'Nieve al día', which provides up-to-date reports on ski conditions.

The Universidad Politécnica de Madrid (G@TV research group) is currently carrying out a groundbreaking test with an interactive high definition channel, called Campus HD. This trial is being conducted as part of the ADI (Alta Definición Interactiva) project, which has been funded by the Spanish Secretary of Telecommunications.

It is anticipated that MHP will gain even wider deployment as new services are being developed to take advantage of the smart card capabilities held inside the new electronic Spanish ID cards.

CONVERGENCE OR DIVERGENCE?



DVB World 2008 - Intercontinental Hotel, Budapest - March 12th to 14th.

In the mid 17th century Bishop Walter Lynch of Clonfert, Ireland, fled Oliver Cromwell's troops and after a long journey through Europe he found refuge in Hungary. A painting he gave to his host is still in the Cathedral of Győr. In mid March 2008 Hungary will extend a welcome to another 'Irish emigrant', but this time the circumstances are, thankfully, somewhat different! After seven successful years in Dublin, DVB World is swapping the banks of the Liffey for the banks of the Danube, as the only annual event dedicated to DVB technologies moves to Budapest.

DVB World 2008 will focus on some of the latest standards from the DVB Project, including state of the art terrestrial broadcasting with DVB-T2, another option for mobile TV, DVB-SH, and DVB-CPCM, the new set of specifications for the protection of content in home networks. The conference will open with a series of Flagship Presentations from high level speakers including Charles Dages, Executive Vice President with Warner Bros., Lieven Vermaele, the EBU's new Technical Director, and Prof. Ulrich Reimers, Chair of DVB's Technical Module.

With work continuing on next generation transmission systems, mobile TV launches gathering pace, and ever greater interest in broadband delivery platforms, keeping up-to-date with the digital landscape becomes more difficult year on year. DVB World 2008 will address the issues facing broadcasters, regulators, operators and manufacturers as they work to take advantage of the many new opportunities brought by DVB's newest standards.

Conference programme and information on how to register: www.dvbworld.eu

MARKET WATCH

DiBcom Diversity Chipset

DiBcom´s diversity chipset enables Portable Navigation Devices to receive TV even at high speeds thanks to its high performance and fully integrated digital TV receiver components (tuner and demodulator). The small size, low power diversity solution (two antennas) brings reliable and high quality DVB-T reception in motion, making it a perfect complement to the popular in-car GPS navigation systems. It is also commercially available for notebooks, allowing for better indoor reception. www.dibcom.com

ADB-5810TWX DVR

Advanced Digital Broadcast (ADB) has launched the ADB-5810TWX digital video recorder designed specifically for IPTV operators wishing to offer their customers the convenience of personal video recording. The hybrid unit is AVC based and compliant with SD and HD transmissions at MPEG-2 and MPEG-4 levels - it also offers the additional benefit of hybrid recording from both DVB-T and IP transmissions. www.adbglobal.com

RGB's Universal Scalable Modulator (USM) enables operators to efficiently deploy scalable, personalised digital video services in switched, on-demand and broadcast environments. The USM breaks the density barrier, supporting up to 96 QAMs in 1RU in 8 MHz QAM channel systems. It supports up to six block upconverted adjacent QAM channels per RF interface, as well as multilevel redundancy options for high reliability and support for both 10GigE and GigE interfaces. www.rgbnetworks.com

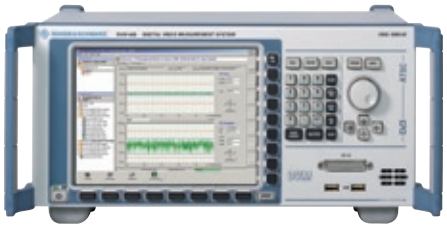
RGB Universal Scalable Modulator

Conexant has announced the availability of the CX24230 DVB-T demodulator and CX24210 worldwide terrestrial and cable tuner. The complete front end solution is targeted at STBs, PC video capture cards, and IDTVs. The CX24230 features an internal microcontroller and memory, 12-bit analogue-to-digital converter, digital adjacent channel filtering, and an enhanced FEC architecture. The CX24210 has several cost saving features and supports multiple worldwide digital and analogue terrestrial standards, and cable specifications including DVB-C. Reference designs are also available. www.conexant.com

Scientific Atlanta MTR Model D9804

The new compact **Scientific Atlanta** Digital Satellite Multiple Transport Receiver (MTR) Model D9804 is designed to provide efficient distribution for DVB-T, DVB-H and DVB-C content by receiving up to four transport streams from multiple satellite carriers, eliminating the need for a separate receiver for each transport stream. The MTR reduces cost, saves space and supports BISS 1 descrambling capabilities, remote reception of tuning parameters from your headend (in-band control) and DVB-S2 modulation. www.saeurope.com

Rohde & Schwarz offers an ESG analyzer for its R&S Digital Video Management family, which is a versatile measurement platform for MPEG-2 transport streams. With DVB-H, the ESG is transferred to mobile user equipment together with the TV content. ESG is a prerequisite for displaying DVB-H services on user equipment. It checks the correct setup of the signals and presents them in an easy to read display. www.rohde-schwarz.com

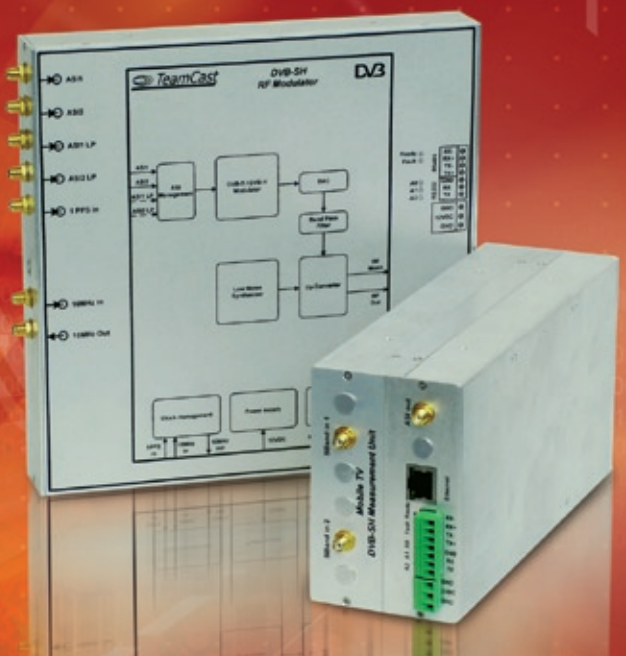


Rohde & Schwarz DVM400

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,
- DVB-T/H Demodulators,
- DVB-S/S2 Demodulators
- MPEG-TS Stream Combiners / Splitters
- MIP Inserters



Idoine - Rennes

TeamCast
Your team for Broadcast

Further information at: **www.teamcast.com**

TeamCast RXS-1020 Satellite Demodulator

To aid transmitter manufacturers build even more compact and optimised products in situations where the transmitter or repeater is fed via satellite, **TeamCast** has introduced the RXS-1000 professional DVB-S/S2 OEM demodulator. The module can be connected to any of the mobile TV / DTV modulators of the ModulCast product range to provide a complete and compact service solution. It integrates dual independent demodulation processes to provide two MPEG-2-TS output streams. www.teamcast.com.

ENENSYS MobiMux

The compact **ENENSYS** MobiMux is a second generation, 100 percent hardware based IP encapsulator offering compatibility with any handset, ESG server and H.264 encoder. Designed for performance and stability it provides all administrative and service platform interfacing facilities required by mobile TV operators. Its output can be directly connected to a distribution network to feed DVB-H transmitters and it is fully SNMP controllable to ease integration with management systems. It is compliant with statistical encoders to leverage available bandwidth. www.enensys.com

Silicon & Software Systems (S3) enables low cost delivery of mobile DTV with the addition of their PC client to their onHandTV product suite. Targeting mobile operators and broadcasters wishing to expand into the PC and laptop market, the S3 client enables reception of broadcast and unicast services using off the shelf DVB-H or DVB-T hardware. Integrated with leading service protection solutions, the flexible application engine is fully customisable enabling service providers to deliver unique branded, vertical applications. www.s3group.com

S3 onHandTV PC client

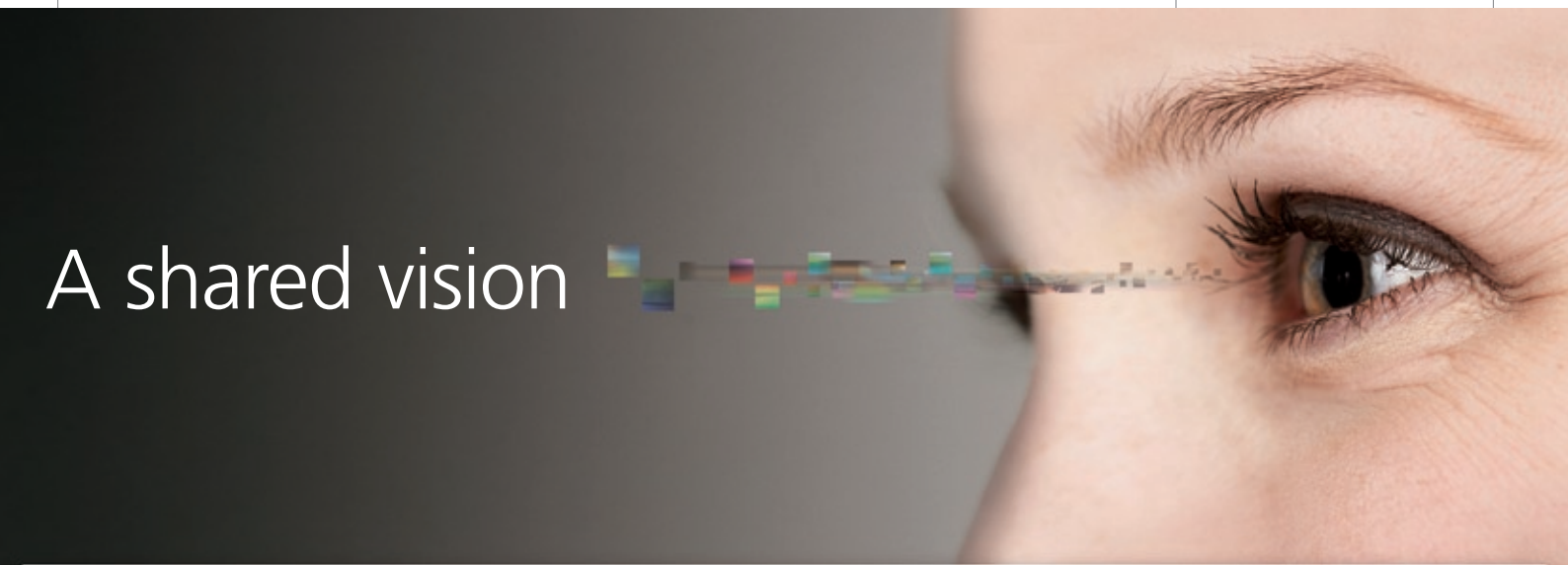
The UBwaveTXi is a new low cost DVB-T/H UHF transmitter from **Unique Broadband Systems (UBS)**. The compact 3RU model includes a DVB-T/H modulator, up converter and 120W output power. Also included is the UBS Web GUI or SNMP software

UBS UBwaveTXi

management and control interface. The transmitter is designed to meet the requirements of low power DVB-T/H transmission and/or repeater sites. An optional DVB-S/S2 receiver/ demodulator module enables it to act as a self contained terrestrial repeater platform. www.uniquesys.com

The **Harris** NetVX ENC-A21 module encodes either standard definition (SMPTE-259M) or high definition (SMPTE-292M) video signals as MPEG-4 Part 10 / H.264. With this module, the NetVX video networking system can provide up to eight identical real-time MPEG-4 Part 10 / H.264 encoded streams from a single input source. The module includes advanced preprocessing, integrated look ahead technology and multiresolution processing to support picture in picture and other ancillary streaming applications in addition to the main HD or SD channel. www.harris.com

Harris NetVX ENC-A21



ADB is the partner of choice for operators looking to optimise profitability from their commercial, digital television service. Our multi-platform experience in supplying award winning hardware and software solutions ensures the delivery of innovative, revenue-generating products time and time again.

In a highly competitive industry, our unique end-to-end knowledge of set-top box technology, coupled with an intimate understanding of the digital television business, ensures that we keep our customers ahead of their competition.

Whatever your unique requirements ADB is dedicated to enhancing subscriber revenues through a proactive and responsive team who share the same vision - to ensure that your pay TV business is as profitable as it can be.

Whatever your technology platform, ADB maintains its position in not just leading the industry but defining it.

Cable | IPTV | Satellite | Terrestrial

ADB. Defining Digital

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ADB

Is DVB-H limiting your mobility?

Mobile carriers know their subscribers expect to have service everywhere; in their homes, offices, outdoors, on the road, on the train…

DVB-H rollouts have shown there is an appetite for mobile TV in many large urban centers, but what about serving users between cities and in small communities? Commuters are increasing traveling large suburban and intra-urban routes; commuters that are your potential mobile TV subscribers.

DVB-SH offers a cost effective way to blanket large geographies with mobile TV coverage using a hybrid satellite/terrestrial SFN. Over the next few years, leading satellite operators are planning launches of DVB-SH services. Now is the time to start planning your DVB-SH strategy.

UBS has launched the first suite of head-end and repeater products for DVB-SH. We have the technology and the mobile TV network experience to help you today with RF coverage design, location planning, technology trials and ultimately a successful rollout!

Tel: 1 905 669 8533
Fax: 1 905 669 8516
Email: sales@uniquesys.com
www.uniquesys.com

UBS
Unique Broadband Systems Ltd.