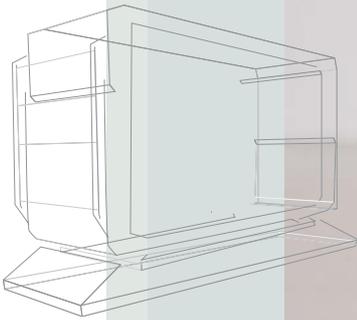


Tune in to Digital Convergence

DVB - SCENE



10



ASIA matters

DVB[®]

The Standard for the Digital World

This issue's highlights

- > IDTVs & PVRs
- > DTTV in Taiwan
- > South Korea & MHP
- > ASEAN common STB
- > Growing in China
- > Content protection progress
- > The tale of two codecs



A word from the DVB Project Office

LEAVING LAS VEGAS

The ad says "What goes on in Vegas stays in Vegas". Whilst NAB '04 happens in Las Vegas, its repercussions definitely don't stay there. Welcome to another DVB SCENE focusing on DVB related news from around the world. And from Vegas.

NAB '04's highlight this year was probably HDTV again. The US HDTV market appears to be improving, and this show saw the launch of lots of 'glue' essential to turn pretty pictures and sound into a broadcast digital service. By and large, such products already existed, but are now becoming mainstream. On the other hand, comments from prominent US visitors indicated that the area of mobile TV was not well covered. Except on the DVB stand. DVB hosted examples of DVB-H equipment as well as an end-to-end demonstration of MHP/OCAP on cable.

Another highlight has to be the interest shown in DVB-S2. Combined

with DVB-H, these newly approved specifications are the first new physical layer systems from DVB in some time. The interest generated is reminiscent of the days when DVB-T was first approved and demonstrated. DVB-H in particular has made a very rapid transition from DVB approved specification to shipped product. Indeed, the standard is not yet finally approved in ETSI, and yet vendors are actively delivering equipment.

The timing of DVB-H and DVB-S2 will depend to a certain extent on the availability of commercial MPEG-4 Part 10/AVC and associated audio encoding and decoding equipment. DVB members are anxious to ensure that the licensing regime which will be proposed by the licensors of MPEG-4 Part 10/AVC, in particular, presents a tenable blueprint for commercial AVC services. The sooner this is released, the better for DVB-S2 and DVB-H services alike.

This DVB SCENE concentrates on the Asian region with reports from Taiwan, China, South Korea and the South East Asian Region. ASEAN is a point of particular interest as the broadcasters and manufacturers from various countries work to harmonise set-top box specifications across the diverse language and economic climates. Such efforts to ensure affordable consumer terminal equipment are an important part of ensuring the success of digital terrestrial television.

Inside, you will also find a report on the development in the DVB Copy Protection domain. This is an area which is vitally important as traditional broadcasting converges with other transmission media and content is no longer spread across one network. The world's content industry is watching the DVB CP/CM activities, and the working groups are striving to rise to this significant challenge.

NEW MEMBERS

AdCoCom GmbH • Arris International • Cardinal Information Systems
DURSI-Generalitat de Catalunya • Frontier Silicon Ltd. • Kreatel Communications AB
Latens Systems Ltd. • LM Ericsson • Osmosys SA
Secretaria de Telecomunicacions i Societat de la Informació

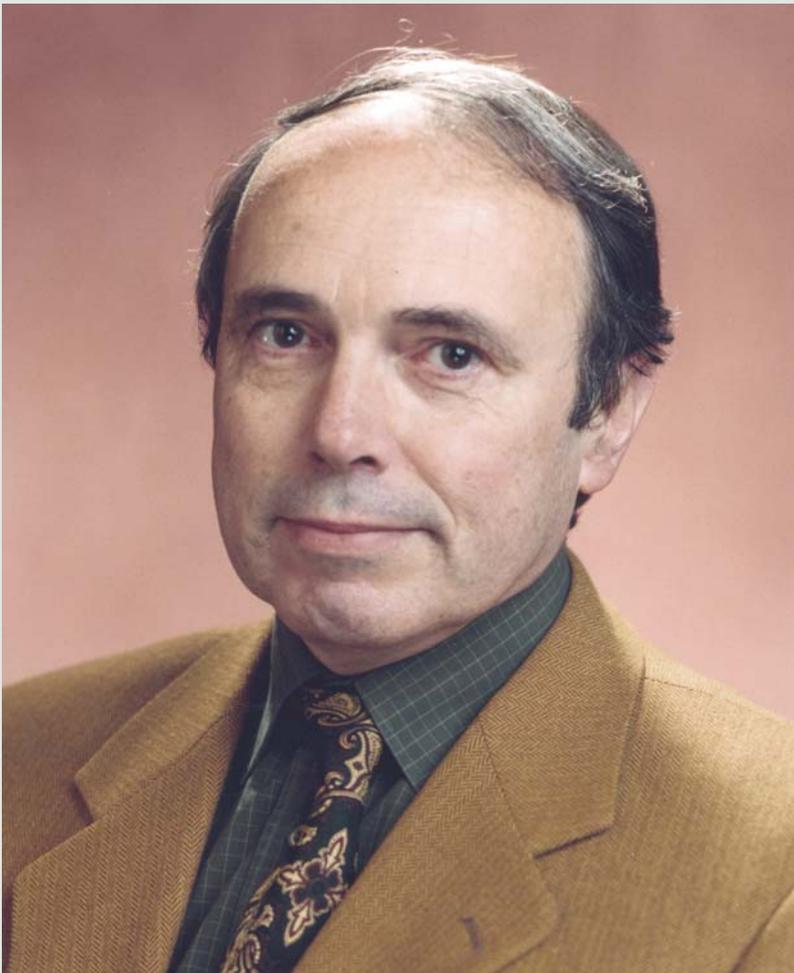
The views expressed in this newsletter are those of the individual DVB members or guests and are not necessarily the views of the DVB Project Office or Steering Board.

Published by the DVB Project Office,
c/o European Broadcasting Union,
17a Ancienne Route,
CH-1218 Grand Saconnex, Switzerland.
www.dvb.org & www.mhp.org

Editors: William Daly, Harold Bergin
Editorial and Advertising enquiries to: WHD PR
Email: news@whdpr.com
Telephone: +44 (0)20 7799 3100

All rights reserved. No part of this publication may be reproduced without prior consent of the publisher. All content correct at time of printing. (c) DVB-SCENE 2003. DVB an MHP are registered trademarks of the DVB Project. Certain other product names, brand names and company names may be trademarks or designations of their respective owners.

Printed by Lithmark Limited.
Design by GyroGroup.



DIGITAG A NEW TEAM AT THE TOP

After seven years at the helm of DigiTAG, Herman van Wijk has handed over the leadership to Daniel Sauvet-Goichon from France. Simultaneously, the two Vice-Presidents, Truls Langeggen from Norway and Göran Wahlberg from Finland, have stepped aside and Alex Mestre from Spain was elected Vice-President (a second one remains to be elected to represent the interests of manufacturers). Herman will now share his retirement time between his two favourite countries, the Netherlands and Italy - perhaps it was the prospect of DTT having been launched in both countries this year that led to him feeling happily satisfied with his efforts at DigiTAG and able to pass the work over to someone else.

Daniel Sauvet-Goichon will represent the broadcasters of the EBU, at a time when there is some

mixed press about the plans for DTT in France. The launch is due for late next year, but there is a lot of pressure for delay and persuasive sounding arguments about the potential role of DSL in delivering TV are being made by the most successful commercial broadcasters. Daniel will be keen to see that the prospects for wired technology are not overstated - DTT has some wonderful wireless features that make it a uniquely important delivery medium.

Alex Mestre has a background originally in manufacturing and more recently with Retevisión, the Spanish DTT Network operator. The Spanish government, in close discussion with the several autonomous regional governments, is in deep consultation on how to ensure that the relaunch of DTT becomes a popular success. Alex will bring many skills to his role as Vice-President, especially his

passion and enthusiasm for DTT and his awareness of the crucial nature of the communications role it must play in his country.

DigiTAG's most important topics for the next couple of years are the analogue switch-off which has started to become a reality since the DVB-T Berlin launch in 2003 and is a priority topic in the European Commission e-society frame, and frequency spectrum issues, with the 2004-2006 ITU Planning Conference in charge of preparing an all-digital frequency plan for the next forty years!

How can one anticipate the services that will be needed in the future and their needs? What after DVB-T, DVB-H...? How can one country manage a fast transition to the all digital position when neighbouring countries prefer a slower paced transition and wish their existing analogue programmes to remain protected from interference? Should the frequency spectrum become a commodity that you can buy or sell or should broadcasting remain outside of this area? And what should we do with the 'digital dividend' which is left when no analogue broadcasting remains?

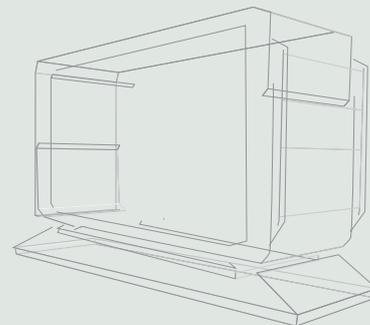
All these are challenging questions where DigiTAG can help by brain storming, reacting and lobbying for all those who support DVB's success with its terrestrial applications.



Alex Mestre,
Vice-President of DigiTAG

IDTV & PVRs

A MATCH MADE IN HEAVEN?



Paul Bristow, Chairman of the DVB-PVR group.

Interactive digital TV has been a long time coming, but more and more we are hearing that interactivity is one of the key differentiators between old fashioned analogue television and the digital DVB kind. Innovation in broadcasting has led to new types of television shows that are simply more fun if you have the interactive digital version. Everything from play along quiz shows to sports programmes, where you can choose your preferred commentary, are becoming everyday features for DVB viewers. Personal Video Recorders (PVRs) hit the world in 1998, and are starting to really take off, where Electronic Programme Guide (EPG) data is available for them. But many of these devices are analogue-in/analogue-out, only working with audio and video, something DVB left behind a long time ago. This means that all the interactive TV services disappear when you record a television programme – the same as happens with a VCR. To combine the rich experience you have with today's interactive digital television with the convenience of having your television programme recorded for you, we need a new kind of recording device - the MHP Personal Digital Recorder (MHP-PDR). The DVB-PVR group, after finalising the requirements for non-interactive PDRs, moved on to define the requirements for an integrated MHP-PDR. In DVB terms, the MHP-PDR specification will be an

Paul Bristow joined Philips in 1997 and has worked as a Strategic Technologist since January 2000. Currently working in the 'Connected Planet' group of the Philips Consumer Electronics CTO office, he specialises in the business implications of digital TV and broadband. He currently represents Philips' interests in the DVB Commercial Module, MHP, Home Networking, Regulatory and IP Television DVB sub-groups, as well as chairing the DVB Personal Video Recording sub-group.



extension module to MHP 1.0.3 and up. This means that some additional API calls will be available to the application developers in MHP-PDR-compliant products. These new functions will, for the first time, allow broadcasters to make use of the PDR functionality in a product. The first, and most obvious use is for broadcast EPGs to facilitate easy, one button, recording. A more interesting use is to have the EPG use prerecorded video clips from the hard disk to give previews of upcoming programmes. TV- Anytime metadata, when available, will allow broadcasters to provide far more flexible recording capabilities to viewers, but the MHP-PDR specification is being designed so it can work even where TV- Anytime data is not yet available.

A second example would be an additional feature to the interactive sports viewing we have today. An MHP-PDR application can ask the hard disk to start buffering at the start of the game, and when something exciting happens, offer the viewer an instant replay directly from the exact moment it started.

Virtual channels have been suggested since PVRs were first launched. The MHP-PDR specification will make it possible for broadcasters to present their own virtual channels, individually personalised for each viewer – all controlled by a simple MHP application. Another great promise of PVR technology is targeted advertising. At last, the MHP-PDR solution will give broadcasters the infrastructure to use interactive advertising to deliver different advertisements directly from the hard disk.

Finally, we should be able, using MHP-PDR, to record and playback interactive television. Viewers do not understand why this is difficult, although the engineers working in DVB do! As television programmes become increasingly interactive, we simply must be able to record them, without losing the accompanying interactivity. MHP-PDR is a great example of the DVB toolbox approach working well. It has been easy to keep the MHP specific parts separate from the more generic PDR specifications, and to add these new specific APIs to the MHP specifications, without disturbing any of the work that has gone before.



TV-ANYTIME FOR THE UK

Allen Mornington-West

When the TV-Anytime Forum (TVA) started life at the end of the DAVIC project some five years ago it set out to enable the consumer to access media content any time, any place and any how. Now ETSI is adopting their work as a standard whilst the DVB-SI group – now renamed the GBS group – has drafted methods for content signalling and metadata carriage across the range of DVB delivery systems. Back at the start of 2003 the DTG PVR group initiated a proposal for a TVA test bed project. With the scoping study phase passed the next stage of the project, the test bed itself, is now under way. But it's useful to review the background in order to understand the significance of this project.

The old tape based VHS machines are on the way out. Indeed a number of the mainstream consumer manufacturers are no longer involved in their production. High capacity, high reliability hard-disc drives and DVD recorders are already in the consumer market but they will only be able to work with the old analogue teletext based PDC signalling. This is a less than perfect method particularly for DTT systems in which there is no DVB teletext stream and it is one which is severely out of touch with the wide range of ways in which viewers will wish to identify and access content in the future.

There's a risk that the simple features of the PVR become accepted and that the opportunity to engage the greater flexibility of TVA which allows viewers more power over selection and recording would be lost. Service providers will lose the chance to forge

and maintain a closer contact with an audience. There's also the risk that proprietary methods could deeply fragment the market whilst making it uneconomic for service providers to provide the quality of signalling and information which would make the service attractive.

One other, but very important, threat and that is that the basic PVR enables viewers to skip across adverts at will but provides no features which would enable service providers to attract viewers to the all important advertising which drive the funding of any television service. TVA can make viewer selection of content more pleasant and reliable but it also provides a small number of powerful tools which could be used creatively by advertisers.

It's the creative use of these tools which will allow advertisers to attract the attention of the viewer even in a

“...how service providers and content producers can provide the signalling and the metadata to maximum effect...”

free to air market. They'll be able to work more closely with viewers needs and, even in the open market, this can all be done whilst fully respecting the viewer's privacy and without the need for any phone connection.

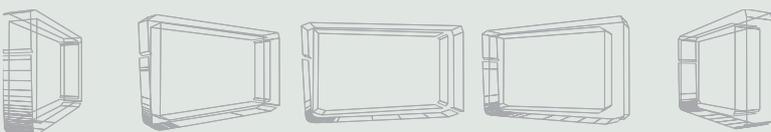
The UK DTG has now set up a TVA test bed project which brings together companies who represent a number of the players in the end to end value chain including content rights owners, service providers, data service providers, multiplex operators and receiver manufacturers. A number of



non UK broadcasters have also shown an interest in taking part. The test bed is an essential step in charting the path leading to establishing a commercial service which is based on TVA data and signalling. The key outputs of the test bed will be a detailed understanding of how service providers and content

producers can provide the signalling and the metadata to maximum effect and how manufacturers can design a range of receivers which can enchant the viewer. The effort required to mark up content is not negligible and meeting the challenge to ensure that the signalling and metadata can be ported onto other delivery systems with minimal effort is essential. A wider participation in this commercially oriented project is particularly welcomed.

In the case of implementation on the DTT platform there's also an evolutionary approach at work because the core of the service on the DTT platform is the reliance on the cross carriage of the service information. The backbone is the ongoing work by the multiplex operators which will deliver the basic eight day schedule to DTT viewers based on the use of DVB service information. The TVA test bed will be working on the practical consequences of tying this elemental service to the rich metadata and signalling which TVA signalling provides.



Allen Mornington-West is a chartered engineer, MIEE and Fellow of the Institute of Acoustics, Member of the Royal Television Society, Association of Project Management and the Audio Engineering Society. He joined the Independent Television Network to guide the digital terrestrial network architecture for the 16 independent commercial television companies in Britain. He has operated as a consultant since 2000. He is an active member of a number of international and national groups including ITU-R, EBU, DVB, and DTG.

RACE FOR THE SUMMER OLYMPICS



DVB-SCENE: 06

Dr. Yih-Sien Kao,
Computer and Communications
Research Labs, ITRI, Taiwan

With an area of about thirty six thousand square kilometres, Taiwan has a population of twenty three million (or approx. 6.3 million households) inhabiting less than 30 percent of its land surface. More than 80 percent of the households receive their television service through cable systems, and about 15 to 20 percent has terrestrial broadcasting as the

only means to receive television services.

Digitisation of the broadcast media in Taiwan began in 1998. After a series of technical assessments and field trials, the five terrestrial television broadcasters (four commercial stations plus one public station) finally settled on DVB-T as their preferred transmission standard in June 2001. One year later, the broadcasters started a trial of digital terrestrial television broadcasting (DTTB) in eastern Taiwan. In April 2003, the trial was extended to cover the entire island. Since then, the five terrestrial television broadcasters, with financial assistance from the government, have been steadily building up transmitting stations and broadcasting facilities.

Head-end Deployment

The DTTB coverage for the whole island is provided by nine clusters of transmission towers for nine broadcast coverage areas, with each tower cluster consisting of at least two transmitting towers. Six of the nine transmitting tower clusters are upgraded from the existing analogue broadcasting. Of the three new transmitting tower clusters set up following the start of the DTTB trial, two (coverage areas 2 and 5) are still being worked on. Additional gap fillers will be installed to improve the coverage. To reduce operating costs, the DTTB broadcasters are jointly forming a new company to operate the transmission networks.

Eleven DTTB channels, including digitised versions of the five existing analogue ones, are being broadcast in the Taipei metropolitan area (within coverage area 1) since March 3 as a prelude to the upcoming commercial operation. Signal coverage in other areas is progressing as the construction of the transmission network moves on.

The five terrestrial broadcasters plan to launch their DTTB commercial operations in June 2004 when the transmission networks are mostly ready. By the end of 2004, according to the plan, all twelve to thirteen DTTB channels will be able to be received by most households in the nine broadcast coverage areas. The DTTB is aimed at both stationary and mobile receivers. With about six million vehicles on the road, mobile reception is a nascent market with potential business opportunities that DTTB broadcasters cannot afford to ignore. Automated playout centres have been set up by all the broadcasters as part of their efforts to be ready for the commercial launch in June.

The DTTB signals being broadcast are

all in 16QAM modulation but different guard intervals and error correction code rates are used by different broadcasters. The broadcasters are doing this in order to identify the most suitable sets of parameters that would allow them to meet diversified DTTB requirements including stationary reception, mobile reception, and possibly HDTV reception. In addition to this, localised Single Frequency Networks are being tested in northern Taiwan.

The technical challenges are interesting, but the real test is the business. For commercial terrestrial television broadcasters in Taiwan, currently their only revenues are derived from advertising. Although digital provides them with increased transmission capacity, they need new revenue sources to match the increased cost of providing multichannel programming.

Conventional Pay TV services based on the use of a Conditional Access system have been considered, but are unlikely to be adopted at the early stages of the DTTB commercial

operation, given the current financial position. The DTTB broadcasters need to find a more cost effective way to establish their customer base in a market dominated by cable TV operators. It seems that the most feasible business model, at least for the time being, is the free to air broadcasting business model that is aimed at both the stationary and mobile reception market segments.

Although all DTTB channels are in 480-line standard definition television interlaced scanning format for the current trial and for the commercial launch in June, the broadcasters have another thing in mind: HDTV programmes. Sounds odd at this early stage of DTTB deployment, but is understandable if you have been

"The technical challenges are interesting, but the real test is the business."

standing in front of a 50 inch flat panel display watching the pictures and making the comparisons: HDTV does make a lot of visual and psychological impact. Even more, HDTV was the first love for the digital scenario and in which they had made considerable investment before settling on DVB-T. Many believe that, after the initial kick off of DTV, it is HDTV that will really make the difference.

Receiver Deployment

DVB-T receivers in the market generally fall into three categories with each having a different price

“The target is to have one hundred thousand DTTB receivers in place before the Summer Olympics...”

range. Stationary reception STBs are priced from 3,800 New Taiwan Dollars (NTD) to 6,000 NTD (or approximately 95 to 150 Euros). Portable or mobile reception STBs are priced from 7,000 to 12,000 NTD (or 175 to 300 Euros). USB Tuner Boxes or PCI-Cards are priced from 3,000 to 4,500 NTD (or 75 to 113 Euros). Currently there are about fifteen thousand mobile receivers installed in buses, taxis and private vehicles, and about eight thousand stationary reception STBs in homes.

The DTTB broadcasters and the receiver manufacturers are planning to adopt MHP as the middleware standard. However, it is most likely to happen two or three years after the commercial launch in June. Even so, the implementation of MHP will be in gradual steps.

Promotion of DTTB

The broadcasters and receiver manufacturers are starting to make all the necessary efforts to promote DTTB. Larger sized (32 inch and above) screen displays and STBs have been set up in thirteen out of twenty six rest areas on

major highways on the island. Here we show a Sampo 50 inch PDP installed in a rest area on a national highway within broadcast coverage area 2. The first big event this year will be the Summer Olympic Games in August. The broadcasters will provide full DTTB programme coverage of the entire Summer Olympics. To make sure that there will be enough DVB-T receivers to receive their programmes, the broadcasters are helping to promote sales by setting up new sales channels around the



island. The target is to have one hundred thousand DTTB receivers in place before the Summer Olympics starts. Starting June 1, consumers may be able to buy or to order DVB-T STBs in convenience stores such as Seven-Eleven.

As in most countries, the government of Taiwan has been playing a critical role in the development of the DTV industry and services. It is now pondering the adoption of a DTV Phase-In Policy to speed up the digital transition of television services. If adopted, it would require that TV sets with larger screen sizes be equipped with a DTV receiver by as early as 2006.

Conclusion

After years of preparation, Taiwan's DTTB is finally about to take off. With a 'start simple' approach, Taiwan will initially concentrate on bringing SDTV programmes to stationary and mobile receivers, and will add other flavours one at a time as the market develops. To reach the target of one hundred thousand receivers by mid-August is a tough challenge, but as the track record shows, anything is possible in Taiwan.

Dr. Yih-Sien Kao is a senior R&D engineer and a Digital Content Task Force leader in the Industrial Technology Research Institute (ITRI), Taiwan. He has been involved in the promotion and policy advisory of DTV in Taiwan since 1999. He joined the Computer and Communications Labs. (CCL) of ITRI in 2001 and currently leads the R&D work on DRM technologies.

DVB-SCENE : 07



DVB-T Signal Coverage



In an effort to improve the government General Election processes in the Republic of Korea, Alticast, SkyLife, and KBS offered Touch 2004, an MHP interactive TV election service, to the nation's citizens from 24 March 2004.

SkyLife, a digital satellite service provider in Korea, provided the Touch 2004 service, which was developed by Alticast, free of charge to its 450,000 subscribers. In conjunction with this service, KBS, a major Korean public TV broadcaster, presented the relevant TV programming prior to the April 15 election date, as well as publicising the vote tally procedures and results.

"Thanks to Alticast's Touch 2004 service, SkyLife can continue to provide our subscribers with the best services that MHP can offer, from entertainment to education to culture," said Mr. Keon-Young Lee, General Manager of SkyLife.

The Touch 2004 service enabled viewers to participate in candidate debates televised by KBS with enhanced TV services. This portion of Touch 2004 provided informative content to introduce the debate panels.

SOUTH KOREANS ELECT WITH MHP

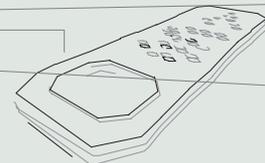
In addition, SkyLife subscribers could use their MHP set-top boxes with return channel support to actively contribute their opinions regarding each debate candidate through enhanced polling services, as well as survey the public's opinions from the poll results.

In addition to enhanced iTV services, SkyLife continued to leverage its MHP offerings for educational purposes by providing important background information on each election candidate through Touch 2004. Viewers could use their remote controls to conveniently search and retrieve information about the political and professional background of each candidate. Touch 2004 users could further educate themselves about each

political party in order to help them confidently cast their votes.

The finale of the Touch 2004 service was the publicised ballot counting broadcast by KBS on the date of the election. This vote tallying service informed viewers with the election status in real time. Users could navigate through menus to see details of the ballot numbers by district, candidates and government parties. The Touch 2004 interface further offered convenient graphs and animations so that users could easily view the most current circumstance of the election.

"The contribution of our Touch 2004 service was momentous to the welfare of Korea's government and society," said Mr. Seung-Lim Jee, CEO of Alticast Corporation. "This service helped to support the increased transparency of the nation's government, and demonstrated the boundless benefits of MHP technologies to society."



SVT TAKES INTERACTIVE STEPS

The Swedish public service broadcaster Sveriges Television (SVT) is taking the first step towards a common technical standard for interactive services. SVT is launching

a new platform based on MHP. The first service, a digital teletext service, began broadcasting on 12 March 2004, and more services are planned. The new services are broadcast from SVT's own playout system and interwoven with the audio and video. Meaning that the same signal goes out to all SVT's digital operators regardless of whether they are broadcasting on the terrestrial network, cable network, or by satellite.

"By launching the digital teletext service and collaborating with operators and set-top box manufacturers, it is our hope and

belief that MHP can be established as a common technical standard. Our viewers can thus benefit from greater access to set-top boxes at lower prices," says Håkan Öster, Head of SVT Corporate Development.

With the launch of MHP, SVT is taking the first step in the NorDig migration plan signed in October 2002. The aims of the migration plan are to migrate to a common API for the whole Nordic region, with the intention of creating an open and standardised market with horizontal competition. NorDig is a cooperative organisation consisting of Nordic television and telecom companies.



A COMMON TERRESTRIAL STB SPEC FOR SE ASIA?

Ken McCann, ZetaCast



Southeast Asian broadcasters have begun to investigate the possibility of creating a common set-top box (STB) specification based on DVB-T that could be used in all 10 ASEAN countries: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.

The Association of Southeast Asian Nations (ASEAN) was first established in August 1967. By April 1999, membership had grown from the original five to the current ten member countries. The ASEAN region has a total population of about 500 million and a combined gross domestic product of about US\$737 billion.

One of the aims of the ASEAN Declaration is to accelerate the economic growth, social progress and cultural development in the region through cooperative endeavours. It has been recognised that digital terrestrial TV is a potential area where such a joint approach could be beneficial. The

combined ASEAN region clearly represents a large enough market to produce healthy competition between multiple STB suppliers and hence drive down prices. The individual ASEAN countries acting alone may lack sufficient size to produce the required economies of scale.

Following an initiative from Radio Television Brunei of Brunei Darussalam and MediaCorp of Singapore, the first ASEAN Digital Broadcasting Meeting was held in Brunei Darussalam on the 15th and 16th March 2004. There were over 80 participants in the meeting, comprising broadcasters, regulators and industry players from the ASEAN countries and beyond. This is the first of a series of meetings to bridge the knowledge gap by sharing the latest information and experiences and then formulate common approaches.

After hearing about practical experience with DVB-T in Europe and elsewhere in the world, the critical success factors were identified as:

- Availability of STBs at a price that the customer is willing to pay
- Creation of content that offers something more than analogue terrestrial broadcasts (primarily additional channels, but other factors could be widescreen displays, mobile reception, interactive services or HDTV)
- Formulation and endorsement of a coordinated action plan involving broadcasters, industry and governments to market digital TV
- Clear communication of the action plan to the end customer to promote the benefits of digital TV.

The main challenge is to produce a common STB specification that meets the needs of all of the ASEAN countries without being over-burdened by excessive complexity. Some complexity issues are unavoidable, such as the need to support the various language characters used in the region. Other complexity issues may be best dealt with by defining different variants of the basic STB specification. For example, the variants could be:

- Low cost 'basic zapper' that will decode multichannel TV services, but not interactive services
- Interactive STB based on MHP to support interactive services
- Personal Digital Recorder including hard disk to provide greater flexibility

There remain many key specification issues to be resolved. For example, should the possibility of adding Pay TV services be supported by providing a Common Interface slot in all STBs, or is the cost of this prohibitive?

All these issues will be explored further at the second ASEAN Digital Broadcasting Meeting, which is planned to be held on the 14th of June 2004 in Singapore, just before Broadcast Asia 2004.



GROWING IN CHINA

John Bigeni reports

Speculation about China's choice of a terrestrial DTV system and whether its own research and development would lead to a new Chinese standard continues.

A number of DTV proposals have been put forward and from the original six, two have survived.

Both ADB-T (Advanced Digital Broadcasting Terrestrial) which is an offset QAM single carrier system from Jiao Tong University in Shanghai, said to have better performance than the US 8-VSB system and DMB-T (Digital Multimedia Broadcasting Terrestrial) a multicarrier system from Beijing's Tsinghua University, resembling the DVB-T system are being further investigated and trialled.

The delay in announcing a DTV system choice for China is also causing some concern in Hong Kong which previously recommended DVB-T. Broadcasters are now understandably reluctant to implement services before mainland China has made its decision.

Minimising the additional cost of intellectual property rights (IPR) associated with existing DTV systems is one of the major drivers for a unique Chinese system. As for China, DVB's founders considered the thorny question of IPR as a key to enabling DVB's deployment. DVB's IPR policy is a strict set of guidelines governing contributions to the Project and the behaviour of members as specifications are approved and products and services launched. Indeed it is entirely possible that the homegrown systems in China could, ironically, lead to higher IPR costs as they will not benefit from such stringent policies, let alone the global, market-led approach, of the world's television industry. Ultimately, it is Chinese consumers who could suffer with higher IPR costs from Chinese systems leading to higher receiver prices.

The growing demand to provide mobile services cannot be satisfied by a

Chinese system until a choice is made and there are now a number of trial DVB-T systems implemented within China and this number is growing. The most developed system exists in Shanghai where TV news, sport, stock exchange reports and commercials from 11 Shanghai TV stations are being delivered to some thousands of metropolitan buses. Similar services are now being trialled in many cities throughout China including Beijing, CheungSha, Shenzhen, Guangdong, Nanjing and Chengdu. Mobile services are seen to have great potential in China. Beijing alone has 2.5 million cars whilst Shanghai has around 1.6 million. Indeed it has been reported that Mobile TV may be the brightest spot in 2004 making it the year of Digital TV. (Cinfomedia Forum).

Of course DVB standards are already used extensively throughout China.

Satellite services, are totally based on the DVB-S standard and delivered to more than a million digital households.

DVB-C cable systems are the fastest growth area and DTV delivered in this way seems to be one of China's most important social and economic objectives. China has over 340 million TV households which includes 100 million cable subscribers mainly concentrated in cities. Over 30 million DTV set-top boxes are expected to be deployed during the next 2 years.

Currently there are approximately 49 digital cable TV trial cities in 26 provinces and this number is projected to exceed 100 by the end of 2004.

The overall conversion rate of analogue to digital services in China is unprecedented and given a high priority by the government. Such a rate of development matches the general growth in this vast country and it is clear that DVB is helping to contribute to this change.



Left to Right: DVB's Peter MacAvock and John Bigeni, He Jinchi Vice-President, Shanghai Broadcasting Laboratory and Ma Chang Hua, General Advisor, Digital TV Standard Working Group, State Administration of Radio, Film and Television (SARFT)

RISING ANTICIPATION FOR MOBILE PHONE DTV

In My Opinion - Masaharu Tanaka



Masaharu Tanaka, Deputy Editor, Nikkei Electronics,
Nikkei Business Publications, Inc.

In Japan, over the air digital TV broadcasting will begin during 2005 specifically for mobile terminals.

Although this service will target all sorts of mobile terminals, the main target will be mobile phone handsets.

There are portable TV sets on the market already that can receive analogue broadcasting, but the number of users is very small and the market is yet to boom. Nonetheless, there is a rising anticipation towards TV-capable mobile phone handsets both in the broadcasting industry as well as among mobile phone and related parts makers. Why is this? Because it is not a mere TV set.

The key factor that divides success and failure is whether the product is

The use of TV capable mobile phone handsets is mostly outside the home and people close by can see that the user is watching TV on his/her handset.

Although it is unlikely that the market of TV capable mobile phones will expand rapidly, it is quite certain that the market will show steady growth each time there is an unexpected incident or a big event.

However, broadcasting is not the only means of offering TV programmes to mobile phone handsets. It makes no difference to the viewers whether the programmes they are watching are delivered via broadcast or the mobile phone network. In Japan in most cases, TVs on the street show terrestrial

i.e., if TV programmes can be seen on a mobile phone handset, users will spend less time communicating, thereby reducing the revenue of the carriers. Presently, studies are under way in Japan and Europe to design a service that will increase communication traffic when users watch TV.

Another problem that surfaced in Japan is the mixed presentation of broadcast content and communication content. If a TV programme and a Bulletin Board System (BBS) screen appear simultaneously on one monitor, viewers could watch TV while posting their comments on BBS. This would increase communication traffic and make the communication carriers

“...it is quite certain that the market will show steady growth each time there is an unexpected incident or a big event.”

just for watching TV or also comes with the mobile phone function. There are probably not so many people who want to watch TV even when they are not in their homes, but whenever an unexpected incident occurs or during the Olympic Games, for instance, TVs on the street attract people's strong attention. At such times, it would be very convenient if the mobile phone handset can show TV programmes. In other words, consumers are not so keen about buying a portable TV to carry around, but they are inclined to watch TV if their mobile handsets can receive TV broadcasting.

broadcasting. For this reason, there is a rising anticipation in the market for mobile phones that can receive over the air digital broadcasting. In some countries, TVs on the street may attract more people when programmes from cable TV or satellite broadcasting are shown. In such countries, users are probably more interested in the service of receiving TV programmes via the mobile phone network rather than via over the air broadcasting.

The problem is not only about the business model. When it comes to commercialising TV capable mobile phone handsets, the issue at hand is the business model of mobile phone carriers,

happy. However, the broadcasting industry worries that if, for instance, slanderous comments are made on BBS regarding a victim in a news programme, viewers may think that those comments are also information from the broadcaster. For this reason, broadcasting stations were even thinking of stopping broadcasts when viewers are accessing URLs other than those that they designate. Now that the patent license issue of the codec technology used in digital broadcasting for mobile phone handsets has been solved in Japan, the broadcasting industry is working to find a realistic solution for this problem.

CONTENT PROTECTION PROGRESS

Chris Hibbert



The German word, zeitgeist, which loosely translated into English means 'the appropriate time and place' applies now, in early 2004. DVB has finished its work on carriage of TV-Anytime metadata and Content Reference Identifier (CRID) to support interoperable broadcast to Personal Digital Recorders (PDR); commercial requirements for MHP-PDR are almost completed, as is the DVB-H specification; low-cost PDRs are appearing, and the DVB has become IP-centric.

providing an inexpensive basic horizontal solution whilst enabling the needs of vertically integrated platform Pay TV operators. Recognition of existing 'legacy' copy protection systems can be met by means of 'mapping' interfaces where commercial arrangements are appropriate.

A unique property of the DVB-CPCM system is the concept of the Authorised Domain (AD) which is defined as 'a distinguishable set of DVB-CPCM compliant devices, which are owned, rented or otherwise controlled by members of a single household'. CPCM compliant devices can be located anywhere; in the home, remote location, or mobile, and the AD can also be extended to portable devices and removable digital storage. This concept takes into account the likelihood that next generation consumer products will have digital interconnectability, which will enable home networking and connection outside the home. Content securely delivered to an AD can be consumed (view and hear) on any compliant device within the AD, and copied or moved between them, if so allowed, but not redistributed outside the AD unless allowed.

It is a requirement that the size of the AD can be limited, should the market

Giles Godart-Brown



Importantly the DVB process has involved companies from all parts of the content 'value chain'. The benefit of including all the constituencies of interest in the specification process is building consensus and, hopefully, market wide acceptance of the eventual specification; however this comes at the cost of the time it takes to resolve the many conflicts of interest that arise.

Reigniting the CP

It has been a close call though. In the early spring of 2003 the CPT group was in deadlock over a number of important features.

The DVB reconstituted the CP group and tasked it, under a new chair, to bring these issues to consensus by September that year. Fortunately the

In 1999 it was very difficult for the DVB to achieve the necessary consensus on the need for any form of content protection, let alone a European standard. It was no mean feat therefore when the Copy Protection commercial sub-group (CP) finally handed over a set of Commercial Requirements and a Glossary of Terms to the DVB

"A unique property of the DVB-CPCM system is the concept of the Authorised Domain..."

Steering Board. Sadly, an accompanying descriptive document which explained the concepts behind the commercial requirements was not presented to the Steering Board because it was considered, by the then CP chair, to not show sufficient consensus.

In retrospect it is surprising that the Steering Board agreed to instruct the Technical Module (TM) to start work on DVB Content Protection & Copy Management (CPCM) with such scant input. But in hindsight it was a very astute move.

It is fortunate therefore that the TM sub group, Copy Protection Technologies (CPT), after four years of wrestling with conflicts within the industry and 'interpretation' of commercial requirements, is close to producing the first elements of a candidate DVB specification for CPCM.

CP group was able to reach such consensus, pass the resolutions through the Steering Board and CPT could commence work again.

The CP continues to review the commercial requirements to make sure they are clear and is now turning its attention to the market implementation issues of deploying devices that comply to the specification when it is finished.

DVB-CPCM is aimed primarily at the horizontal market and intended to provide end-to-end content protection from transmission to consumption, encompassing home networking and storage. However, when required, CPCM may be extendable to proprietary Digital Rights Management or Conditional Access systems by means of a standardised secure interface. This extensibility enables the DVB to meet its objective of

require it, and that under certain circumstances broadcast streams can be constrained, within the AD, to the immediate location of the receiver but, if stored, accessed from a remote location after a specified time.

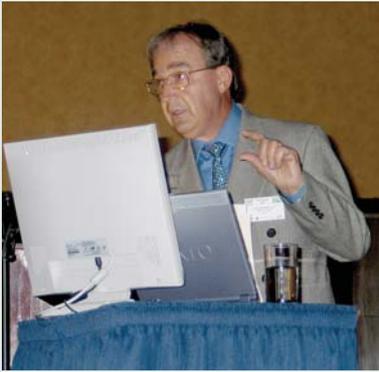
The Usage State Information (USI) which carries the control information for CPCM must be securely protected and bound to the content to which it refers.

Content security within the AD may be provided by scrambling. However, an important factor for public service broadcasters is that they transmit their content 'in the clear' and they have asked for an additional USI signal to inhibit the application of scrambling to any of their content within the AD.

A very important factor to keep in mind is that the DVB-CPCM specification is intended for implementation in the

DVB GOES TO THE DOGS

TV Globo's Fernando Bittencourt



The fourth annual DVB World held in Dublin earlier this year attracted the highest number of delegates to date. 225 participants from 30 countries came to hear the latest updates on the technical, legal, commercial and implementation aspects of DVB. The conference also offers one of the best opportunities to network and establish professional contacts over the three day event.

George Waters, President of the IAB and organiser of the event, opened the proceedings and was followed by further welcoming remarks from Cathal Goan, Director General of RTE.

The 'godfather of DVB', Dr Ulrich Reimers was on hand this year to give the keynote address and gave a progress report on DVB's activities and where its future lies.

With the main theme of the conference 'Delivering the Future with Global Standards' delegates heard presentations on DVB's latest specifications: DVB-S2 for satellite broadcasting and unicasting, and DVB on the move with DVB-H for handheld devices. Experts from esteemed companies and organisations such as TDF, BT, Nokia, IRT, Digita Oy, Disney, BSkyB, Warner Bros., EBU, BBC, Osmosys, Sofia Digital, Philips, Mediaset, European Commission, Euro 1080, SVT, MPEG Industry Forum, Harmonic Inc., Microsoft, RAI, Zetacast and Snell & Wilcox were on hand to discuss and inform on an agenda that included High Definition, Copy Protection, IPR, new Codecs, IP Datacasting, Digital Cinema,

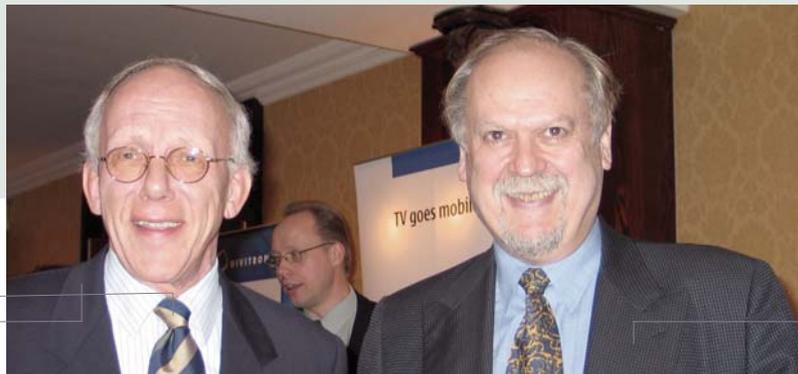


PVRs and MHP. There was also a special address by Fernando Bittencourt of TV Globo giving the conference delegates the latest on the digital TV situation in Brazil.

Dublin once again offered up its charms and provided an ample selection of restaurants and bars to while away the evenings following the sessions. This year's social event included a dinner and great night out at the greyhound races at Dublin's Shelburne Park where everyone had the chance to be lucky.

Next year's date for the conference has already been set for March 2 – 4 in Dublin.

Details on how to obtain the proceedings of DVB World 2004 can be found on the IAB website: www.iab.ch.



DVB Chairman Theo Peek & Helmut Stein, Chairman DVB PCM

competitive horizontal consumer product marketplace. The CP group has therefore decided that it is most likely to be commercially acceptable for DVB-CPCM to be specified in terms of a set of technologies, interfaces, and USI by which approved implementations will be able to interoperate and that it will not be specified in terms of 'a single technology'.

So the CPCM specification will provide:

- a number of 'interoperable' interfaces to allow connected devices from different manufacturers to maintain content security in a network,
- unambiguous USI signals to express usage rights within the secure AD, including moving and redistribution,
- a security tool kit for operation of CPCM in a compliant device.

The CPT group is close to finalising

the USI. With that and the interfaces completed the essential foundation elements of DVB-CPCM will be in place. The CPT group will then turn its attention to completing the remaining elements which include the secure carriage of protected USI, security aspects including the 'tool box', content revocation, and technical compliance rules.

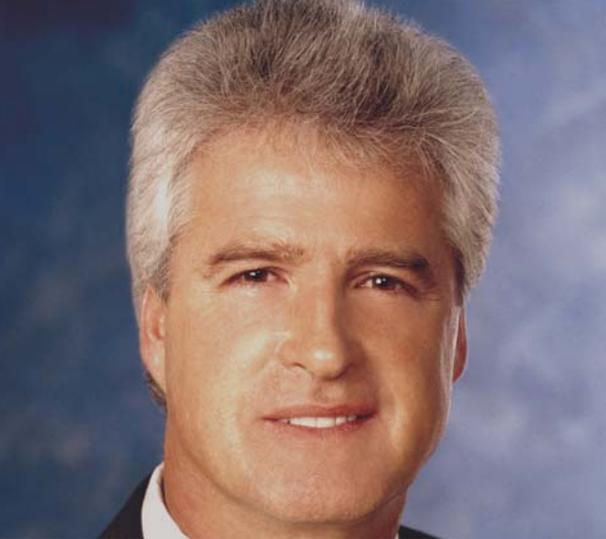
Recent progress towards an agreeable solution has been based on a growing awareness within the DVB membership of the market need for an open interoperable copy protection specification which fits the needs of all the constituencies of interest. Unquestionably this has depended on a willingness amongst the group members to understand each other's positions and a degree of compromise on all sides to achieve a specification which the industry will support – in true DVB tradition.

Chris Hibbert is the chair of the DVB's Copy Protection Technologies Group and a member of the Steering Board.

He has held a number of executive broadcast engineering management posts in the UK including Director of Engineering for ITV Digital. He was made a fellow of the UK Royal Television Society in 1999.

He is Vice-President, Media Technology and Standards, with Walt Disney Television International.

Giles Godart-Brown is Chairman of the DVB Copy Protection Commercial Group and R&D Programme Manager for BSkyB. Before joining BSkyB he was at Liberate for four years, where he represented the company at the DVB and served on a number of committees; MHP (Vice-Chair), IP-Tuner (Chair), TAM, TM, CM, SB, CP, and CPT.



David Price, Vice-President Business Development, Harmonic Inc.

THE TALE OF TWO CODECS

"It is the best of times and it is the worst of times". On one hand we have groundbreaking new codecs finally capable of making video over DSL a reality and easing the bandwidth burden of moving to high definition. But on the other hand we now have multiple codecs and even multiple licensing bodies. A backdrop to a story worthy of Dickens.

MPEG-4.10 (otherwise known as H.264 or AVC) is now available for deployment in real revenue bearing services. Encoders, such as the Harmonic MV100 are now in the interoperability and optimisation cycles and are going to be providing MPEG-4.10 video for operators such as Video Networks Limited by late summer. Similarly MPEG-4.10 set-top boxes, such as those from ADB, Pace, Thomson and Motorola are entering

"...the key discriminator in the end will almost certainly be the acceptability of their respective licensing terms."

interoperability testing and will be deployed in the same timeframe. At the same time Microsoft has been aggressively bringing Windows Media 9 Series to market. Initially with Main Profile, which was really focused on streaming media to the PC, but now with Advanced Profile which brings interlaced and 4.2.0 support for more conventional video services to the consumer's television. The Advanced Profile is part of an open specification quasi-standardisation effort for Windows Media 9 Series through SMPTE. This is referenced as VC-9. This specification finalisation is actually behind that of MPEG-4.10 (which was frozen in December 2002) but VC-9 is catching up fast.

Both codecs are excellent in terms of video performance. Perhaps the power of the extended tool set of MPEG-4.10 may, in the end, result in a slightly superior picture quality for a given bitrate. Some side by side comparisons have been done in the past, but the industry at large is keen to see truly representative and rigorous codec performance comparisons being made

public. The work being done by the Society of Cable Telecommunications Engineers and the comparative testing done on their behalf by bodies such as Dolby and Sarnoff are hopefully going to result in truly impartial and comprehensive testing results for each of these two codecs. After all is said and done the key discriminator in the end will almost certainly be the acceptability of their respective licensing terms. Although both MPEG-4.10 and Microsoft's VC-9 are both now subject to a call for essential patents and the resultant agreement on licence terms from the patent licensors are both controlled through patent pool bodies such as Via Licensing and MPEG-LA, the proportion of Intellectual Property owned by Microsoft in VC-9 is likely to result in preferred licensing terms for

that codec. That is, unless the licensors of MPEG-4.10 see the error of their ways in terms of participation fees, as eloquently pointed out by both the EBU and WBU.

In addition, another key determining factor is perhaps the ability for each of these codecs to lend itself to a new paradigm emerging regarding the way in which video assets are delivered to, and more importantly distributed within, the consumer's home. The ability for an integrated suite of tools such as DRM and in-home caching / DVR / media centre capabilities to enable a truly portable video experience may be another key discriminator. A readily available solution that seamlessly allows the viewer to, say, be authorised to

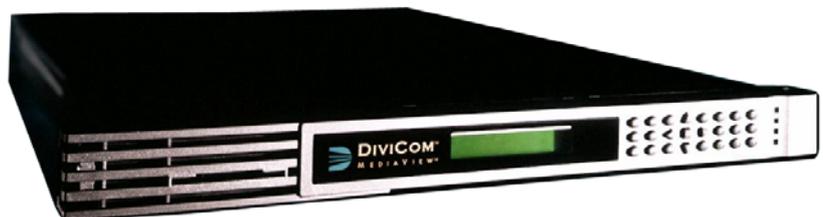
make a copy for his or her laptop and, for example, finish viewing the movie on the plane can make all the difference in service operators new revenue generation models.

One factor that is often mixed into the equation but is frankly irrelevant is that of the processing power difference needed between the two codecs. The fact is that Moore's Law has moved on to an extent that both codecs are easily and cheaply enabled by current (let alone next year's) silicon.

At the end of the day there will always be people with an innate distrust of any solution that gives one entity so much control of the future of a new technology. There are others that will risk that and go with codec technology that is part of a complete suite of solutions, especially if that brings vastly superior licensing terms.

So we live in a multi-codec world and to again repeat the analogy of a Tale of Two Codecs, "it is a far, far better technology that we now have than we have ever had before"... (profuse apologies to Mr. Dickens).

David Price is currently Vice-President, Business Development at Harmonic Inc. He was previously Vice-President with TV/COM International, which produced the world's first MPEG-2 DVB video encoding systems. Originally from the UK, David moved to the US as Vice President of M/A-COM Linkabit, now Hughes Network Systems. David has over 19 years experience in the telecommunications industry.



Harmonic's MV100 MultiCodec (MPEG-2, MPEG-4.10 and Windows Media 9 Series Advanced Profile) professional real time video encoder

MARKET WATCH



EasyWatch MobilSet

Satelco, a company of the Kathrein group, has introduced the EasyWatch MobilSet, a mini receiver, embedded in a small module for the PCMCIA interface. It enables mobile reception of digital terrestrial television programmes and interactive multimedia applications on a laptop or tablet PC.

Release 2.0 DVB-RCS Hub



EMS has launched a new DVB-RCS hub. The Release 2.0 DVB-RCS hub is designed to support thousands of terminals, hundreds of megabits of outbound and inbound traffic, and powerful features such as a bidirectional performance enhancing proxy. It uses less than half of the hardware used in EMS's existing Release 1.5 hub. The hub has been field tested for several months with beta customers, and is now available for commercial service.

Snell & Wilcox, compact 2RU, CPP1000 Prefix-HD is a new multi-standard high definition compression preprocessor that provides the dual benefits of improved picture quality for viewers and lower bandwidth usage for cable, satellite, and terrestrial TV broadcasters.

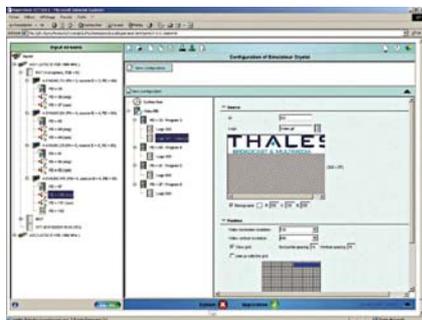
Prefix-HD CPP1000



Thales has introduced Crystal, a new DTV logo inserter, that brings a new and cost effective approach to logo insertion and channel rebranding for DVB digital television markets.

Crystal works directly in the MPEG-2 compressed video domain, completely avoiding the costly decoding / re-encoding process. This technology is also best suited to preserve the quality of the original video signal, avoiding artifacts generated by multiple decoding / re-encoding processes. Crystal can also perform multichannel and multi-logo insertion, in standard as well as high definition.

Crystal DTV Logo Inserter



R&S DIP010 Data Inserter



Rohde & Schwarz is expanding its range of datacasting products. In particular, the company offers solutions for inserting and broadcasting data according to the latest standard, DVB-H. Thus, multimedia content such as television can be transmitted to mobile terminals.

To support IP-based data services according to DVB-H, Rohde & Schwarz is adding time slicing and forward error correction (FEC) to its data inserter. Furthermore, Rohde & Schwarz has developed the R&S Enhanced Datacasting System (EDS), which allows proprietary datacasting platforms to be integrated into content management and content editing systems of other manufacturers or into systems that are already in use. With the new options, the Rohde & Schwarz datacasting platform now supports all major applications for DVB, such as DVB-T, DVB-S, DVB-H and DAB.



EN5930 encoder

Tandberg has launched its Intelligent Compression Engine (ICE) for advanced encoding. ICE is a powerful and sophisticated video and audio compression platform that provides a flexible and upgradeable solution for high quality implementations of Windows Media 9 Series Advanced Profile and MPEG-4 part 10 (H.264/AVC) technologies. The ICE card is included in the new Tandberg EN5930 encoder.

Fujitsu Siemens Computers has introduced an advanced set-top box for digital satellite reception that is an all in one, easy to use home entertainment system. With the Active Media Center viewers can use the time shift function to pause and replay live TV and record up to 240 hours of programmes to the hard drive and archive them later to DVD. The Active Media Center is also a sophisticated media player for listening and watching DVDs, CDs, MP3s and archived family photos. The system enables high speed Internet access for surfing the web and can be integrated with a PC to play stored files.

Active Media Center



Microtune, Inc. has introduced a single chip tuner that the manufacturer claims cuts RF costs by 25%, space by 25% and power by 40% compared to its previous generations. The MicroTuner MT2060 enables cable operators to deliver primary line telephony. It can also be integrated into consumer devices like multi-tuner digital DVB-T and DVB-C STBs, PC/TVs and flat-panel LCD TVs.

MicroTuner MT2060





**Scientific
Atlanta**

Better Quality. Greater Efficiency. More Control.

Your Broadcast Network.



Austria
BeNeLux
Bulgaria
Czech Republic
France
Germany
Hungary
Ireland
Italy
Poland
Portugal
Romania
Russia
Scandinavia
Slovakia
Slovenia
Spain
Switzerland
United Kingdom

Asia
Australia
Middle East
North America
South America

Broadcast any content via terrestrial or satellite networks. Contribute your content from studio to studio. Create a solid platform for on-going growth. And make your broadcast network more reliable, more flexible and more efficient.

You can do it with the knowledge and experience of Scientific-Atlanta.

At Scientific-Atlanta, we know how to squeeze the most out of the bandwidth/quality ratio. Our advanced compression technology, extensive product range and proven solutions are compatible with all the leading service and network interfaces. And we know digital. Which means that you can improve your network efficiency and performance while you deliver maximum service quality and uptime for your viewers.

If that's what you want, contact us. We can help you make it happen.

www.saeurope.com/solutions

EMEA Headquarters +32.56.445.445