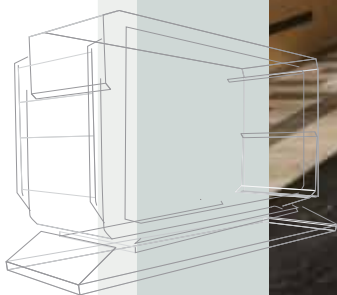


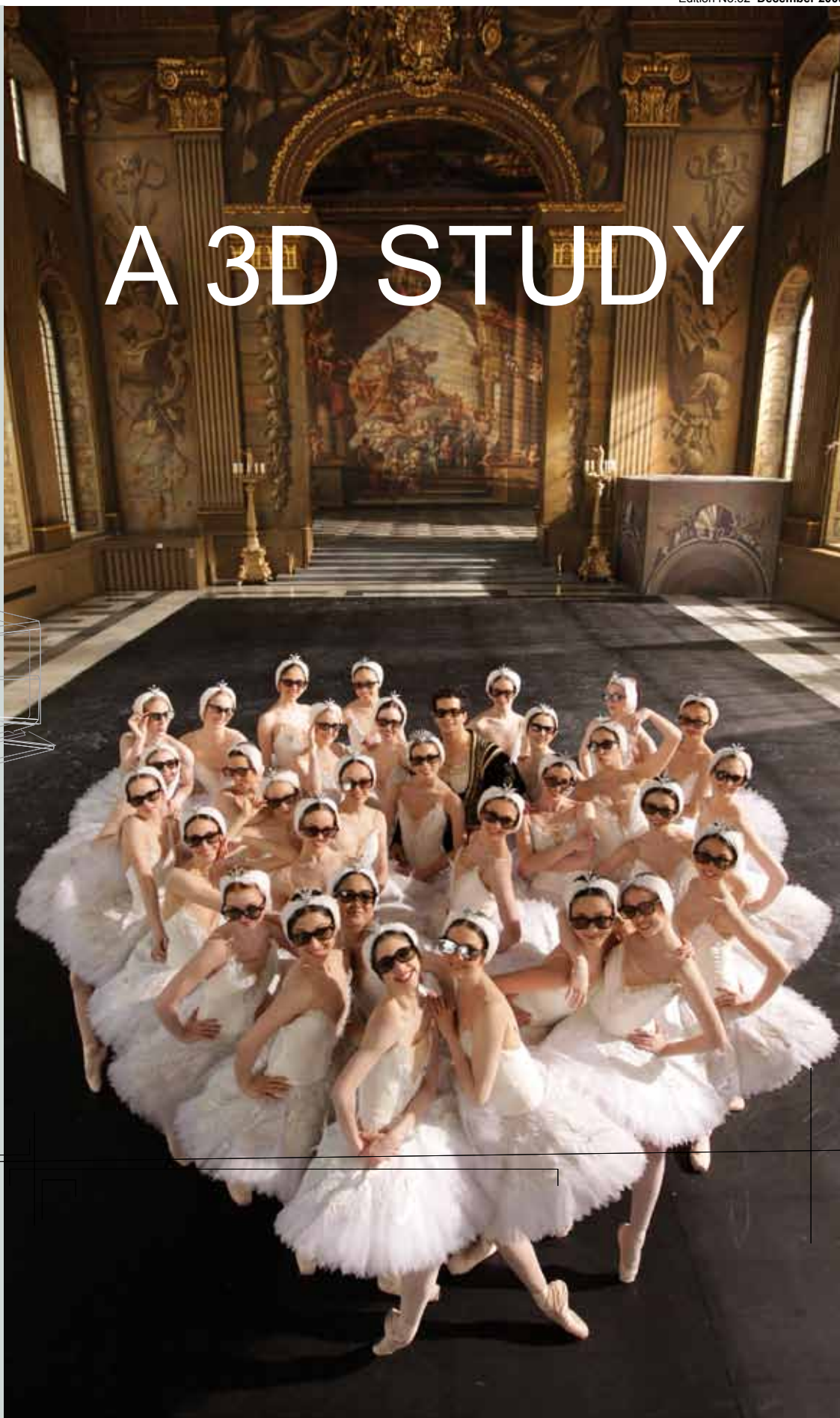
Tune in to Digital Convergence

DVB-SCENE

A 3D STUDY



32



DVB®

The Standard for the Digital World

This issue's highlights

- > The Digital Dividend Question
- > Indonesia Update
- > 3D TV Study Mission
- > Open Internet TV Study Mission
- > T2 Licensing Terms
- > STB Focus
- > Market Watch

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POSING THE QUESTION

Who wants the digital dividend?

Phil Laven, Chairman, DVB Steering Board

The digital dividend is currently a hot topic for regulators in Europe and elsewhere. But there is little agreement about its definition – or, more importantly, how it should be used. One definition might be the spectrum left over after the existing analogue terrestrial TV services have been replicated by digital terrestrial TV transmissions. Digital terrestrial TV transmissions use the spectrum much more efficiently than analogue TV – for example, an 8 MHz RF channel can accommodate one analogue TV service or a DVB-T multiplex delivering 18 – 24 Mbit/s (enough for 4 – 6 TV services using MPEG-2 compression). Consequently, a single DVB-T multiplex would be sufficient to deliver 4 – 6 analogue TV services – leading

spectrum should be withdrawn from broadcasting – backed by claims that such reallocations would result in economic benefits of, for example, up to €100 billion. The economists responsible for such studies frequently add “health warnings” about their results – for instance, stating very clearly that their figures do not take into account the public and social value of free-to-air broadcasting. Such very honest disclaimers underline the shaky foundations of these economic assessments, but people frequently overlook these crucial statements and simply remember the headline claim of “many billions”! Even more efficient use of the spectrum is possible if the digital TV services use the latest technologies: for



them something new. I guarantee that the concept of spectrum efficiency never crosses the minds of most consumers... so how can we persuade them to upgrade to the latest technologies? Remember that, in this case, we are not concerned with “early adopters”. In fact, the real problem with changing technologies is caused by “reluctant purchasers” who are happy with their existing services and see no reason to change. Given the inevitability of better technologies and the need for spectrum efficiency, broadcasters must find some way of persuading consumers to adopt the latest technologies. Mobile phone companies achieve this objective by heavy subsidies on the prices of mobile

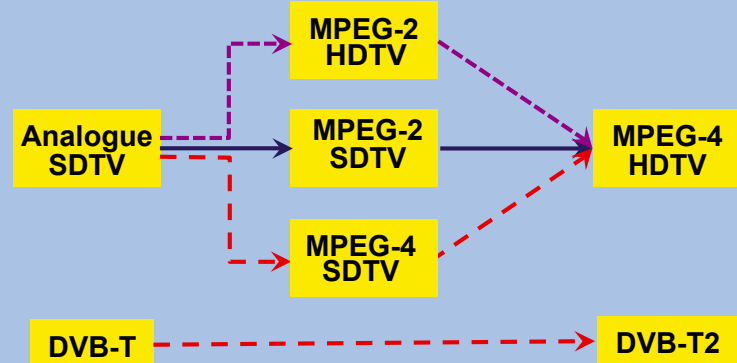
“Why should individual consumers be asked to pay for new TV equipment that will permit spectrum to be reallocated to new services?”

to a considerable digital dividend. However, the reality is that consumers are unlikely to spend money buying new digital equipment to get exactly “the same as before”. Obviously, some incentive is required to persuade consumers to “go digital”: countries such as Japan and the USA decided to use the digital switchover to offer HDTV services, whilst most countries in Europe decided to offer many more digital-only standard definition services. This tactic has been generally successful because most consumers seem happy to buy a digital TV set-top box to get an extended range of free-to-air TV services. In effect, new digital TV services have used much of the digital dividend. It is surprising to discover that digital terrestrial TV is now the dominant platform – and that this lead is expected to increase to a ratio of 4:1 or more within 5 years. As a result of this success, most EU countries will have closed down their analogue TV services by 2012 – in accordance with long-agreed plans. Although the ITU’s Geneva 2006 Plan included assignments for digital terrestrial TV throughout the whole of UHF Bands IV and V (470 – 862 MHz), many EU countries have recently agreed to withdraw broadcasting services from 790 – 862 MHz thus creating a harmonised sub-band of great potential value for mobile phones or for wireless broadband services. Telecoms operators are now suggesting that even more

example, DVB-T2 can deliver 40 Mbit/s or more within an 8 MHz channel, whilst MPEG-4 AVC compression offers improved performance over MPEG-2. In the interests of spectrum efficiency, it seems logical that these new technologies should be used as soon as possible. Whilst most consumers seem to have accepted the idea of making the transition from analogue to digital TV, they would probably not be happy to learn that this transition is just the first in a series of digital switchovers (see diagram). As mentioned above, most consumers will buy new equipment only if it offers

handsets – but this option is simply not feasible for free-to-air broadcasters. Indeed, we should ask the fundamental question “Why should individual consumers be asked to pay for new TV equipment that will permit spectrum to be reallocated to new services?” If substantial economic gains can be achieved by reallocation of some of the spectrum currently used for broadcasting, it is obvious (at least to me) that the users of such spectrum should be required to pay for all of the costs incurred in such digital switchovers.

DIGITAL SWITCHOVER(S)

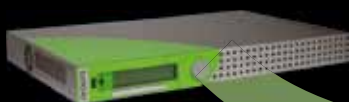


The first digital TV services were based on Standard Definition TV using MPEG-2 video compression – this transition from analogue TV was the first of several digital switchovers in which consumers will need to change to newer and better technologies.

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ON THE PATH TO DIGITAL

Terrestrial Digital TV Broadcasting Implementation In Indonesia

Lily Rustandi - Broadcast Technical Advisor in Indonesia

Since its introduction in 1962, terrestrial TV broadcasting has grown to cover more than 40 million households in Indonesia. During this period, we have witnessed the evolution from black and white to colour, from limited coverage to nationwide coverage, and from terrestrial only to satellite, cable and even mobile TV.

The country's free-to-air (FTA) offering has grown from one government owned channel to one national public broadcaster, several regional public TV broadcasters, 10 national private commercial broadcasters, and more than hundreds of local/regional private commercial broadcasters. Presently FTA broadcasts reach 80 percent of the population while cable and satellite pay

nations. In 2005, the National Digital Broadcasting Team was established consisting of broadcasters, industry experts, regulators, and consumer representatives.

The official announcement to adopt DVB-T was made by the Minister of Communication and Information on 21 March 2007. This was followed by the setting up of three working groups to prepare the digital broadcasting migration plan: Policy and Regulation, Frequency Master Plan and Technology. The first DVB-T field trial was conducted in Jakarta by the public broadcaster TVR1 in August 2008. The limited coverage trial lasted four months and enabled the evaluation of the technical parameters of the system.

the introduction of mobile TV, IPTV and DAB radio. Full analogue switch-off and the arrival of the digital dividend is scheduled for 2018.

For a country with a population of more than 230 million, spread over more than 13 thousand islands, with a wide ranging income per capita, digital migration is a challenge. The cost of digital conversion should be reduced as much as possible, especially for low income households, of which there are many. The affordable set-top box (STB) is a key factor for successful digital migration. Research indicates that an affordable STB should be less than 25 USD. To this end, the government has encouraged and supported local industries to produce affordable basic

“The affordable set-top box is a key factor for successful digital migration.”

TV services are around 10 percent. The migration to Digital TV will offer greater spectral efficiency and will thereby help us meet the growing demand by applicants for television channels. Indonesians will benefit from not only an enhanced multichannel FTA environment, but also improved picture and sound quality.

Digital switchover will offer broadcasters a way to deliver services more efficiently and effectively. In the case of DTT, the upper band V UHF frequency freed up from the analogue switch-off, considered as the 'digital dividend' will be utilised for new services such as HDTV, cellular networks, broadband wireless access services, an early warning system, as well as other useful purposes.

In the year 2002, the Ministry of Communication and Information (MOC) set forth the first action plan engaging all stakeholders involved in digital broadcasting. A comparative study was carried out by visiting other countries that included Singapore, Malaysia, Australia, Japan, Korea, China, United States and several European

A second, more extensive DVB-T trial began in February of this year taking in the suburban areas of Jakarta. The scope of the trial is to determine an appropriate business model, evaluate the technical parameters as well as test public reaction. The trial which is set to last up to a year is being conducted by consortia formed by TVR1 and the Indonesian telecommunication company PT. Telekom, and the six broadcasters SCTV, TransTV, Trans7, ANTV, TVOne and METRO. More recently in October, the MOC issued the FTA DVB-T Business Model Basic Framework Regulation, for broadcasters to prepare their migration plan. The regulation indicates a horizontal licensing scheme for content service providers and infrastructure network providers. Licences are expected to be granted for FTA DVB-T services in early 2010.

The MOC, supported by the stakeholders, began actively promoting the move to digital earlier this year through workshops, consultations, television advertising and public information literature. 2010 should see

standard STBs (able to view FTA channels without restriction), and so far the industries have managed to produce Standard Definition, MPEG-2 STBs that are priced as low as 20 – 25 USD. Whilst MPEG-4 has technical advantages over MPEG-2, especially for delivering HDTV, the first phase of migration will see the use of MPEG-2. After digital migration is completed, an upgrade to MPEG-4 or possibly DVB-T2 might be introduced. Currently, there are basic standard DVB-T STBs available from Jakarta retailers. At the higher end, advanced/premium STBs, equipped with more additional features and integrated digital TV receivers are also being introduced to the market.

The active participation of all stakeholders in the broadcast industry is required; government, regulators, broadcasters, receiver and STB manufacturers and retailers should all co-operate to ensure that viewers are kept well informed. This will make sure that when and where the various stages of switchover take place everyone will know exactly how to prepare for it.

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STUDYING

3D

It's not often that a DVB paper delves into the 3rd generation whilst we have only just started to consider what we might do with 1st generation technologies. However, such is the nature of 3D television that this is exactly where we find ourselves. At IBC this year, there were many demonstrations of Stereoscopic Television (so called 1st Generation 3D), but we all have visions of something much more akin to the holodecks on the Starship Enterprise, or the 3D projection of Princess Leia in Star Wars. So, we can certainly speculate as to what might be possible in years to come and that is precisely what the 3D Study Mission report sets out to do.

The study report starts with a discussion about the history of 3D, of which Anaglyph is the most well

“Another thing to consider is the debate about backward compatible 3D.”

known...remember the Red/Green sweetie wrapper glasses, Jaws 3D in the cinema and maybe even the 1993 episode of Doctor Who, 'Dimensions in Time' using the Pulfrich effect? We then go on to discuss 2nd generation Multiview 3D in which either multiple pairs of L/R images, or a 2D image with a depth map are transmitted. Finally we get into a discussion that is perhaps pure science fiction, recording the so called 'Object Wave' and playing this back in a way that exactly replicates the viewed scene in the consumer's home, that being said, if you saw the NICT demonstration of holographic scan and display at NAB, or their demonstration at IBC of 'Touchy Feely' TV, perhaps it is not so far into the future as I thought? The main bulk of the report addresses the rather more practical approach that is currently being taken by the industry, and in the terms of DVB's activities. It looks at current technology and what is possible now with HD Frame Compatible Stereoscopic TV, and in the near future with 2D plus depth, or 2D plus L-R difference perhaps. A number of broadcasters are looking at HD Frame Compatible Techniques, since these require very little over and above their current HD platform to bring 3D to their viewers' homes now. The consumer will have to invest in a 3D capable display, using either passive or active glasses, but a competent HD capable platform can deliver the content today.

For these systems to work, the consumer will need one of two types

A Report From The 3D Study Mission

David Daniels, BSkyB & Chairman TM-3D

of display device. Either it will display the 3D image by alternating a line from the left picture and a line from the right picture, with a circular polarising filter over the display, the viewer, wearing polarised 'passive' glasses will have the left and right images delivered to their respective eye. Or, the display will alternate one frame of the left image followed by one frame of the right image. In this case, the viewer will need LCD shutter glasses (so called 'Active'), the shutter on each alternately opening and closing in sync with the on-screen images, again delivering the respective left and right images to the correct eye. The nature of the HD images transmitted will combine left and right images into a single HD frame, with either the images for left and right eye 'squashed' horizontally so they appear on left and right sides of the frame or

'squashed' vertically so they appear at the top and bottom of the frame. The display, having been signalled which of these it is receiving, will then pick apart this structure and display it according to the 'Active' or 'Passive' capability of the display.

At this stage then, it is perhaps apposite for the DVB to look at the framework in which these formats will be delivered: the signalling (do we mirror the HDMI 1.4 standard for instance?); the

encoding (are there benefits we can gain from clever use of AVC?). There is also the question of metadata for 3D. It seems inevitable that we will need to consider how we provide depth information even with frame compatible 3D, since we may need to set subtitles or other STB generated graphics at a depth that makes them comfortable to view while concentrating on the action on screen. In addition, this depth data might be used to allow certain viewers to limit the depth range the screen displays to reduce eye fatigue.

Another thing to consider is the debate about backward compatible 3D. Some say it is essential, others that it is impossible to satisfy a 2D and a 3D audience simultaneously. Hollywood filmmakers claim one third of a drama shot for 3D can be used for 2D with adjustments and one third cannot be used at all. We have yet to see how this translates to 3D shot for television, but it is something for us to consider.

No doubt this is an interesting topic, with a long way to go before the true 3D of science fiction, but in the meantime, I hope it sparks debate in the Commercial Module, creating work items on which the Technical Module can bring their inestimable expertise to bear.



Mitsubishi LaserVue TV With 3D-ready Viewing Technology

LICENSING TERMS

Progress In The Formation Of The DVB-T2 Patent Pool

At this year's IBC, Sisvel, the patent pool coordinator for the DVB-T standard (EN 302 755), announced that it had been coordinating meetings with the owners of patent rights. The participants have all been evaluated by independent experts as essential to the standard.

Leading broadcasters, network operators, consumer electronics companies, R&D centres, as well as service providers have been participating in these meetings. They include the BBC, DTVG Licensing (a subsidiary of DIRECTV), ETRI, France Telecom, LG Electronics, Nokia, RAI, Samsung, SIDSA, TDF, and Telecom Bretagne. The overall objective of the meetings is to establish a patent pool to make DVB-T2 technology accessible to all users on fair, reasonable, and nondiscriminatory terms and conditions.

The patent owners have already agreed not to have a fee for DVB-T2 broadcasting and fixed a royalty rate not exceeding one Euro per standard DVB-T2 television set or set-top box. Early adoption and volume-based incentives are being considered. If in the future the DVB-T2 standard is implemented in additional product categories, the patent owners will discuss and decide an appropriate royalty schedule for such products.

Nick Wells, Chairman of the DVB TM-T2 Group, commenting on the progress said the early patent pooling initiative is widely supported giving certainty and confidence to countries and organisations considering the adoption of the DVB-T2 standard for new digital TV services. He added that he is very pleased with the progress that the patent owners have been able to achieve, and hopes that the efforts will lead to the early and wide adoption of the DVB-T2 standard to the benefit of consumers and broadcasters.

Further information regarding DVB-T2 licensing can be found by visiting www.sisvel.com.

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Padrão dos Descobrimentos or Monument to the Discoveries on the north bank of Lisbon's Tagus River celebrates the Portuguese who took part in the Age of Discovery, or the Age of Exploration, of the 15th and 16th centuries.

DISCOVER DVB WORLD

After a series of successful DVB World events in cities such as Dublin, Budapest and Berlin, DVB World 2010 now takes us to the sunny city of Lisbon, Portugal. The DVB World 2010 conference will take place at the Lisbon Congress Centre from Monday 8th to Wednesday 10th of March.

Over the years, DVB World has become the biggest annual gathering dedicated to DVB standards, services and technology. It attracts hundreds of delegates from around the world from both DVB member and non-member companies. The conference offers an unequalled opportunity to hear about the latest developments, with an emphasis on useful information and informed analysis rather than commercial pitches.

DVB World 2010 will open once again with a series of flagship presentations that will set the tone for the following days. These sessions will include topics such as the second-generation DVB standards, 3D TV, hybrid broadcast broadband, next generation mobile TV, international DVB deployments, and many other DVB related topics.

Newcomers to the world of DVB or those looking for a refresher course will welcome the opportunity to register for an additional 'DVB Masterclass' taking place ahead of the conference. Prof. Ulrich Reimers, chairman of the DVB Technical Module, will present 'An Introduction To Second Generation DVB Standards'.

The full conference programme and information on how to register and book accommodation can be found on the event's website: www.dvbworld.org.

See you in Lisboa!

ABU VISITS MONGOLIA

John Bigeni Reports

In October this year, the Asia-Pacific Broadcasting Union (ABU) annual general meetings occurred in Ulaanbaatar, Mongolia. The Mongolian National Broadcaster (MNB) did everything they could to make delegates feel at home in the city at the foot of barren hills wrapped by the famous blue Mongolian sky, some dotted with gers, the traditional, button like tents of this ancient population. The ABU is a non-profit, non-government, professional association of broadcast organisations, formed in 1964 to facilitate the development of broadcasting in the Asia-Pacific region and to organise co-operative activities amongst its members. It currently has over 200 members in 58 countries, reaching a potential audience of about 3 billion people. The ABU covers the largest geographic area of the world. ABU interests cover a range of areas including technical standards. DVB is an affiliate member, a category that is open to organisations connected to broadcasting that wish to have an association with the ABU. The ABU has a wide range of members, many of which are from developing countries.



Therefore, ABU serves a very useful need to provide guidance, and in some respects regional standards associated to broadcasting.

In this respect DVB is served well by its membership of the ABU in that it provides for DVB an ideal forum to communicate its standards and other developments to all regional broadcasters in a very efficient way. The annual general meeting of the Technical Committee and other fora such as ABU organised seminars bring high level technical personnel from all its membership under one roof at the same time. Such meetings provide the ideal opportunity to assist broadcasters by efficiently providing technical and other information related to the DVB standards. The regions covered by the ABU membership have all generally adopted and in many instances implemented services based on DVB standards.

The Technical Committee meetings held from the 1 – 3 October were extremely well attended and most member

broadcasters were represented. There was a range of issues discussed including cutting edge technologies such as Hybrid Broadcast Broadband (Hybrid TV). Other key topics included HDTV, 3D TV, server-based production technologies, metadata and archiving, and low cost broadcast systems. Clearly, however, digital broadcasting and related issues were the dominant focus as most broadcasters are now seriously addressing digital transition as a priority issue.

Also discussed at these meetings were two specific issues which have significant relevance to DVB These were:

- the Emergency Warning Broadcasting Systems on which DVB has significant capabilities through DVB-SI
- the proposed preparation of ABU guidelines for content protection for digital broadcasting including copyright and broadcasters rights to which the work of DVB-CPCM has high relevance.

DVB - SCENE - 11

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DVB-H DVB-T

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INSIDE THE BOX

Cost Structure Of IP & Hybrid STBs

Samina Husain, Business Development - STB, Albis Technologies Ltd

Together with the high cost for premium content, the costly investments in the infrastructure play a major role in the IPTV business case. Within the infrastructure, major investments are the headend equipment which scales with the number of subscribers, and the STBs that grow linearly with the number of subscribers, and hence does not scale. Typically, operators will spend a significant part of their overall IPTV investment on STBs, consequently a key component of interest for the operator.

Based on data available from commercial deployments plus the assumptions that the IPTV system has been operational for the last five years and that the number of subscribers has consistently grown, 325k over these years, the CAPEX cost structure was analysed. The CAPEX split indicates the STB to be the highest contributor,

“...the drastic cost decrease of memory, RAM and flash components rank as number four on the list.”

nearly 70 percent, the middleware represents about 20 percent and finally the DRM, headend and VOD system take up the remaining 10 percent. The STB's large contribution is a result of the number of subscribers, and the fact that investment in the STB grows linearly with subscriber growth. Second and third contributors are the middleware and DRM, for both the main cost factor is the subscriber licence fee. Finally, investment in headend and VOD system is relatively small, because these components scale well. Looking more closely at the STB, the vendor invests in development efforts, production as well as sales and marketing. Development, sales and marketing costs are fixed costs and independent from the number of units sold. Variable costs are related to the production cost. These can be broken down into Bill of Material (BoM) and the manufacturing cost.

The BoM includes all the necessary components to build a STB:

- System on Chip (SoC)
- RAM and flash memory
- Printed Circuit Board (PCB)
- Power supply circuitry
- Housing
- Connectors

In addition, a high end version of an IP/hybrid STB will also include:

- Hard Disk Drive (HDD)
- DVB S/T/C demodulators for broadcast reception

Furthermore, the STB will be provided with accessories like:

- Remote control including batteries
- Cables
- External power supply
- User instruction manual
- Packaging

Finally, the BoM will also include cost for software, licences and necessary taxes. For example, when importing STBs into the European Union 14 percent of tax on the value of the STB will be added. Licences have to be paid for third party software, typically for the Java Virtual Machine and the embedded browser. In addition, there are licences for using technologies such as:

- Audio coding schemes
- Video coding schemes
- Copy protection (e.g. Rovi, HDCP)

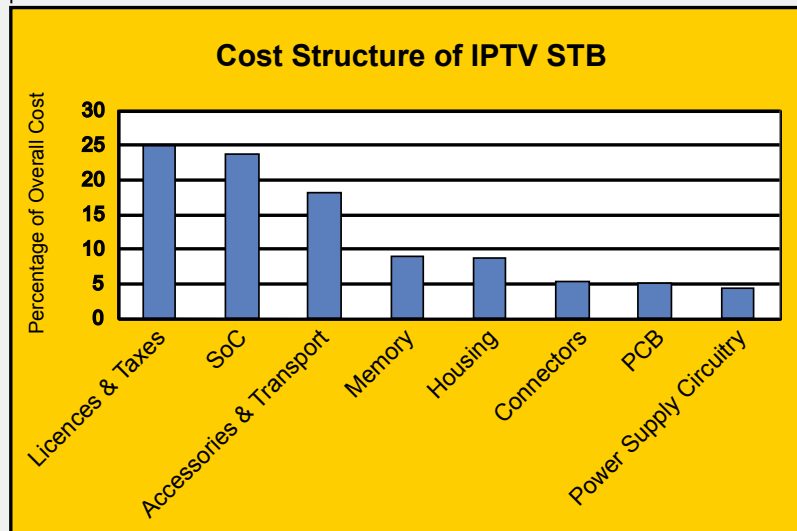
A typical distribution of these components is shown in the figure

below. The main contribution comes from licences and tax followed by the SoC. Together, this covers about 50 percent of the overall cost. Third next relevant cost factors are the accessories like remote control or external power supply. Finally, due to the drastic cost decrease of memory, RAM and flash components rank as number four on the list.

The second contribution to the production cost is manufacturing. Typically the manufacturing costs are added to the BoM as a percentage. This add-on also has to include the profit of the manufacturer.



Will the STB become significantly cheaper over time? The BoM consists of two variables, one group which will become less expensive over time, and the other group where the cost will be constant or will change in a non-predictable manner. The first group includes the SoC and the memory components which according to Moore's Law will become cheaper over time. For the other group an equivalent to Moore's Law does not apply. Some components like the housing costs are linked to the price of the respective raw material, for other components it can be assumed that the prices will stay constant. This applies especially to licences and taxes, which contribute a significant part to the cost of a STB. The outlook for IPTV business is positive, with the technical preconditions met, commercial drives stimulating the market and the availability of cost effective STBs. The next generation of SoC for IP/hybrid STB will further enable new applications. However, a further price decrease of STBs is challenging, as licences and taxes have become main cost drivers.



MARKET WATCH

The **Harris** Platinum VLX liquid-cooled transmitter is designed for higher-power VHF transmissions of up to 28.2 kW. Based on the company's PowerSmart technology, the model incorporates the software-definable Apex M2X exciter for switching between multiple modulation schemes including DVB-T and DVB-H; both the VLX and Apex M2X are DVB-T2 ready. The exciter also provides signal integrity using real-time adaptive correction technology. It features an integrated eCDi remote control and monitoring system with in-depth diagnostics. www.broadcast.harris.com

Harris Platinum VLX UHF Transmitter

DMT's SL line of TV transmitters and repeaters, up to 1.0kWrms, is especially suitable for medium to small sites. The compact single-PA models deliver 50Wrms (SL1 PA unit, 1U) or 200Wrms (SL2 PA unit, 2U), whereas the multiple-PA models provide a high-redundancy alternative to single box configurations, with single phase mains input. SL models include the company's advanced signal processing units, MER better than 34dB, and are available in a multistandard configuration (digital and analogue). www.dmtonline.com



DMT SL Transmitter

DekTec introduces the DTE-3114, a compact four-channel QAM modulator with IP input. The unit is fully agile up to 1GHz and supports DVB-C, QAM-B and C, with 2D FEC decoder according to SMPTE 2022-1. The modulator can draw its power from the Ethernet network. The unit supports SNMP management and web-based user interface for configuration purposes. Up to 48 QAM channels can be generated from within a 3RU rack space. www.dektec.com



DekTec DTE-3114 Quad QAM Modulator

The new software version S110 for **TeamCast's** DVB-T2 modulator - the Power4-T2 now supports the T2-MI input stream interface as well as the SFN operating mode. The software provides the capability to operate SFN networks in full compliance with the DVB-T2 standard. The design consists

of the T2-MI modulator input interface in compliance with the ETSI TS 102 773 specification, and the integration of the synchronisation mechanisms required for the SFN. www.teamcast.com

EchoStar Europe in conjunction with Cyfrowy Polsat has introduced two new set-top boxes for the Polish market - the DSB-7200 HD STB and the DVR-7400 HD DVR. In addition to having access to channels in high quality HD format, Polish consumers will also be able to record programmes, pause live TV and watch one programme whilst recording another, creating a personalised television experience. Both units, which are compatible with DVB-S2 broadcasts, enable Cyfrowy Polsat to develop its high definition service. www.echostar-europe.com



EchoStar DVR-7400 HD DVR

The **TechniSat** HDT 4 is designed for the reception of unencrypted and encrypted digital terrestrial TV in SD as well as in HD (MPEG-4) quality. The device includes an integrated CONAX decoding system with Smartcard reader. The user-friendly OSD-menu is available in 10 languages: English, Hungarian, Polish, Slovenian, Portuguese, Lithuanian, Latvian, Russian, Estonian and Rumanian. The STB is particularly well suited for Poland, Hungary (MinDig TV) and other European markets. www.technisat.com



TechniSat HDT 4 Set-Top Box

ENENSYS has introduced a DVB-T2 solution with the release of its NN6-T2Gateway. The end-to-end DVB-T2 broadcasting and testing solution includes a dedicated T2-MI analyser. The unit encapsulates MPEG-2 Transport Streams into a DVB-T2 multiplex, synchronises all the modulators for SFN broadcasting, provides an in-band configuration and outputs T2-MI packets over ASI or IP networks. www.enensys.com



ENENSYS NN6-T2Gateway

Verimatrix has announced VCAS 3, the next generation of the company's Video Content Authority System, which supports modern adaptive streaming protocols, enabling pay TV services leveraging 'over the top' (OTT) networks. OTT delivery, as part of the system for DVB Hybrid deployment, allows operators to deliver broadcast content over DVB, while in parallel

enabling 'Internet TV' services (to multiple household screens) via any available IP link, all under a single VCAS 3 headend. www.verimatrix.com

The new VQNet Video Service Assurance Manager software product and IPM400A Network Probe from **Tektronix** help cable, telco and broadcast operators to proactively detect and resolve customer impacting problems across their IP networks. The software allows rapid identification of the location and root cause of service delivery problems and presents an integrated network view. The network probe provides simultaneous verification of IP and transport stream integrity on all IP video flows on a GbE link. www.tek.com



Tektronix IPM400A Network Probe

Spectracom's Epsilon Clock, model EC20S, is now available with a built-in Rubidium atomic reference for reliability in the case of GPS loss. The unit provides accurate time and frequency signals for synchronising digital broadcast systems. In normal operation, the GPS satellite signals provide the required accuracy. When GPS is unavailable, the clock with the built-in reference meets the accuracy required by SFN broadcasts for a much longer time than similar equipment with a quartz reference. www.spectracomcorp.com

Latens, the software conditional access and middleware specialist, has extended its portfolio with a new Secure Distribution System (SDS). Latens SDS software-based encryption solution allows content providers and pay TV network operators to securely transport content via DVB-S, IP or Fibre from distributor origin to the operator headend. Sharing many of the cost and scalability benefits of Latens software CAS, the SDS also provides proactive content monitoring via a sophisticated diagnostic platform interface. www.latens.com

Latens Secure Distribution System



MARKET WATCH



Newtec 4CPM

At IBC 09, **Newtec** launched what the company claims to be a new revolutionary, highly advanced modulation and coding scheme called 4CPM, which increases the speed and bandwidth efficiency of the return link of its Sat3Play consumer IP Satellite Broadband system. The system enables return rates of 1Mbps and higher, making it a suitable fit for both consumer and professional markets. It also boosts return-link bandwidth efficiency resulting in significant lower cost satellite capacity. www.newtec.com

The **Televes** H45 Field Spectrum Analyser has been designed to obtain instantaneously all the information from radio/television signals through

the development of mathematical algorithms. Up to 20 MHz digitally captured in less than 10 milliseconds. The digital processing engine allows the system to provide advanced measurements for the signal that were traditionally reserved for high-end laboratory equipment. Real-time sweeping speeds and mathematical preciseness delivered in a portable 2Kg format. www.televes.com



Televes H45 Field Spectrum Analyser

The **Pixelmetrix** TSP120 solution for satellite operators provides TS monitoring for high bit-rate transponders, supports H.264 and

extensive SI/PSI information analysis. For content aggregators, it allows verification of SLAs for H.264/MPEG-2 SD/HD content – presenting visibility into the TV broadcast workflow. Key features include freeze-frame and blackout checks for unencrypted video services, service thumbnail view for remote confidence monitoring, video back-hauling for quality verification and on-air service validation. www.pixelmetrix.com

When protected by the new R&S KGO880 outdoor housing, broadcasting transmitters from **Rohde & Schwarz** become all-in-one solutions for efficient outdoor deployment. Network operators who want to provide fast, comprehensive mobile reception or close coverage gaps can now set up transmitters outside fixed transmitting stations. Since the outdoor solution is largely independent of the existing infrastructure, it can be installed quickly even at undeveloped locations. All the company's transmitters in the low- to medium-power range can be integrated. www.rohde-schwarz.com



Rohde & Schwarz R&S KGO880

Lisbon Congress Centre
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