3DTV takes off

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POSSIBILITIES
AND THE SATISFACTION OF EFFORTLESSLY BRINGING
ALL YOUR HOME ENTERTAINMENT TO YOUR TV
I AM INTERNET
ON YOUR TV
AND THE JOY OF VIEWING THOUSANDS OF VIDEOS
WHILE CHATTING
WITH FRIENDS ON YOUR FAVOURITE SOCIAL NETWORK
I AM WIRELESSLY
CONNECTED
TO YOUR PC AND YOUR MOBILE
AS YOU SHOW OFF YOUR FAMILY PHOTOS
I AM THE LATEST IN
ENTERTAINMENT
TECHNOLOGY USER-FRIENDLY AND EASY TO DEPLOY
I AM THE OPTIMIZED PLATFORM
READY NOW TO ROLL-OUT SERVICES THAT WILL BE INVENTED TOMORROW
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Autumn Agenda
A Word From The DVB Project Office

IBC will soon open its doors again, which is always a clear indicator that the summer holidays are over. The months leading up to the summer break were a busy period for DVB. Phil Laven, the Steering Board Chairman was re-elected for another two-year term. Congratulations go to him with many thanks for the good work he has done over the last two years.

The month of June saw the approval of the Commercial Requirements for DVB-3DTV. DVB is committed to contributing its part of the necessary 3DTV standardization. The technical group is working full speed ahead to deliver, by the end of this year, the specifications for 3D signaling and subtitles.

Another important item on the item agenda was the successful registration of the DVB sub-brand logos. In the past, many manufacturers wanted to use the sub-brand logos, such as DVB-T or DVB-T2, to clearly state the capabilities of their devices. From the 1st September, manufacturers can register to use DVB sub-brand logos to clearly identify the DVB standards that relate to their products.

The Project Office has also been busy supporting implementation and promoting DVB standards. The African island nation of Mauritius has successfully implemented DVB-T and a delegation from the South African Development Community recently met with a number of DVB members in Paris and London to discuss their implementation of Digital Terrestrial Television. During these discussions we were able to demonstrate the flexibility of DVB standards and the economies of scale achieved by their worldwide deployment.

Hot on the heels of the UK, Finland and Sweden have made specific plans to roll out the new DVB-T2 standard. Many other countries, including some outside of Europe, are seriously considering migrating to digital with DVB-T2.

Peter Siebert
Executive Director

Looking to IBC, as Director of the DVB Project Office I would like to invite you to visit our stand (D81) in Hall 1. We will be demonstrating the latest developments of DVB's second-generation broadcast standards and highlighting the work that we have been doing on 3DTV. I look forward to seeing you there!

In the meantime I hope you enjoy reading this latest issue of DVB SCENE in its redesigned format.

New Standards

TS 102 905 Ver. 1.1.1: Technical Specification for DVB Services in the Home Network Phase 1 (DVB-IPI-HN Phase 1)(28/05/10)

TS 102 542-4 Ver. 1.3.1: Guidelines for the implementation of DVB-IPTV Phase 1 specifications; Part 4: Remote Management and Firmware Update (IPTV Implementation Guidelines)(18/06/10)

New Members

SENSIO Technologies Inc. - Develops and markets stereoscopic 3D digital compression, decompression, and display formatting technologies. Its solutions are deployed on a global scale by content creators, games developers, broadcasters, specialty channels, and digital cinemas. **www.sensio.tv**

Agilent Technologies - Provides standard and customized electronic measurement instruments and systems, monitoring, management and optimization tools for communications networks and services. **www.agilent.com**

Mitsubishi Electric R&D Centre Europe - The European Research and Development Centre of the Corporate R&D organization of Mitsubishi Electric. **www.mitsubishielectric-rce.eu**

DVB WORLD 2011

**7 - 9 March
Hotel Le Meridien
Nice, France**

www.dvbworld.org

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Number Crunching
Screen Digest to supply data support service for DVB

Tom Morrod

Tom Morrod
Senior Analyst, Head of TV Technology,
Screen Digest

DVB is the most widely implemented technical standard for transmission, both in terms of absolute receivers in the market and usage of receivers. In total, DVB's major three standards groups, DVB-C, DVB-S and DVB-T, account for almost 60 percent of all active receivers worldwide at the end of 2009 (including both set-top boxes and integrated digital televisions (IDTVs)). By comparison, ATSC comprises less than 30 percent of the global installed base, ISDB slightly more than 10 percent, with the balance of one percent held by DMB in terrestrial and satellite in China.

DVB's strength in the market comes from the range of deployments across so many more locations than any other standard, as well as its positioning across all platforms: cable, satellite and terrestrial. DVB has been deployed or adopted in 127 different geographies compared to 6 for ATSC, 11 for ISDB and only 3 for DMB. And these deployments are well spread across technologies: approximately 40 percent of all DVB receivers in use are DVB-S or DVB-S2, 35 percent DVB-T or DVB-T2 and 25 percent DVB-C.

This data comes from recent research carried out by Screen Digest looking at the technical deployments of set-top boxes and IDTVs by country across the world. Screen Digest is the pre-eminent global media research firm and employs a unique approach to its research. Every operator is tracked individually for details of the installed base of set-top boxes, shipment volumes of set-top boxes per year, connections within the household, and the list of technical standards, deals and relationships pertaining to that particular platform. In total this includes 'bottom-up' research into each of around 500 individual operators and platforms in 70 different markets. Screen Digest recently announced an agreement in principle to be acquired during 2010 by the leading technology research firm iSuppli Corp., a powerful combination that will provide the industry's most complete analysis of the entire technology, media and telecommunications value chain.

In agreement with DVB, Screen Digest will be providing regular analysis of key data points to DVB members from IBC 2010 onwards. The intention will be to provide coverage of DVB's market position relative to other technologies. All of this research will be subject to operator-by-operator scrutiny of technical deployments, shipments of receivers and current installed base of active receivers. This will include pay TV for satellite, cable and terrestrial, as well as free-to-air satellite and terrestrial. We believe this will represent the strongest data set yet made available to DVB members to understand the market opportunity and positioning of DVB technologies.

Over the course of the next year, Screen Digest will provide information relevant to the vendors of set-top boxes, TV sets, conditional access systems, platform-level middleware and transmission architecture. As future technology markets develop, Screen Digest will be well positioned to provide analysis on home networking,

over-the-top content delivery, hybrid-IP-broadcast platforms, multi-screen distribution and alternative security and software standards processes. The hope is that this marks the beginning of a long and fruitful relationship between Screen Digest and DVB and its members.

Total Receivers Active (2009)

DMB 1%
ISDB 13%
ATSC 28%
DVB 58%
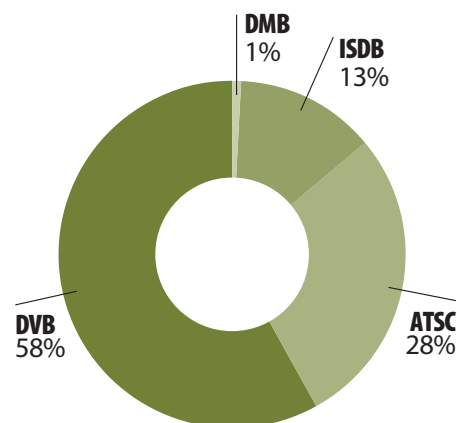
DVB Receivers By Platform (2009)

Terrestrial 34%
Satellite 40%
Cable 26%
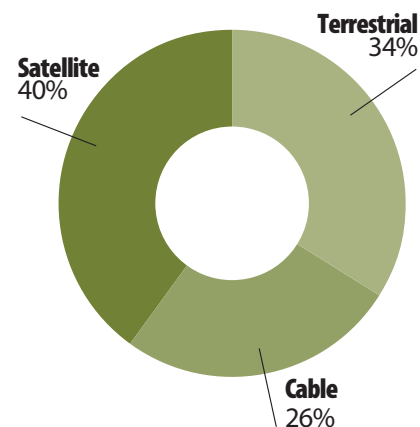
screendigest

Growing Interest
DVB-T2 – a progress report

Prof. Dr.-Ing. Ulrich Reimers

Prof. Dr.-Ing. Ulrich Reimers
Chairman DVB Technical Module

Any idea what Finland, Germany, Kazakhstan, Sweden and the UK may have in common? No, it was not their participation in the 2010 FIFA World Cup. What they do have in common is their interest in DVB-T2, the second-generation terrestrial digital television broadcast system developed by the international DVB Project and its 240 plus member companies.

DVB-T2 has been in operation in the UK since December 2009 where it is used for delivering HDTV content to viewers. Terrestrial television is still growing strong in the UK, as is the case in many other countries in Europe. Therefore, it is understandable why in the UK the decision was taken to use the occasion of analog switch-off for the introduction of HDTV using the most advanced terrestrial broadcasting standard in the world - DVB-T2. In just a few months since the launch of the first DVB-T2 services, about a dozen different set-top boxes (ranging in price from 80 GBP) and a large number of IDTVs are available in retail stores.

But, is the UK the only country which has an interest in DVB-T2? Not at all, and here are some examples of countries which today are working on plans for the introduction of DVB-T2 services in the near future.

Finland and Sweden are two Scandinavian countries where, owing to their geographical situation, satellite broadcasting is not very popular. The elevation angle of reception dishes pointing at geostationary satellites needs to be quite low. In order to receive signals from the very popular satellite position 19.2 degrees east, the elevation of a dish in Stockholm needs to be as low as 22.9 degrees. The situation gets worse if one goes further north to areas where the population density is quite low and cable is not an economically viable alternative. Consequently, terrestrial television plays a significant role in Scandinavian countries, and again HDTV over DVB-T2 is the most obvious choice for the introduction of the new viewing experience. In Finland and Sweden, the plan is to start regular services in early 2011. In Finland, the network operator DNA owns the licence for two VHF multiplexes and a second network operator, Anvia TV, will provide DVB-T2 over two UHF multiplexes – one of which will offer HDTV. In Sweden, in June 2010, nine services were granted HDTV licences. Five will be transmitted via DVB-T2 over one UHF channel and the other four over a combination of one VHF and one UHF channel.

Germany is a country with a very high population of satellite and cable homes. On average 11.3 percent of the 34 million households use DVB-T as the primary means of receiving TV programs. This rises to a high of 20 percent in certain metropolitan areas such as Hamburg. This results in some 26 million DVB-T receivers having been sold and is such a significant number of devices that any deviation from DVB-T requires careful planning. HDTV has already been introduced over satellite (DVB-S2) and cable (DVB-C, DVB-C2) and the introduction of HDTV over DVB-T2 is therefore not quite as obvious a goal as in other countries. Additionally, several million portable DVB-T receivers and approximately 1.5 million in-car DVB-T receivers are in use. In Germany, DVB-T is considered the perfect delivery medium for secondary TV devices. Many of them are used with PCs and laptops. So what could the role of DVB-T2 be in Germany? DVB-T2 is currently being tested in a field trial in the northern part of Germany. These tests are concentrating on features of the standard which are not used in the UK such as its capability to support Single Frequency networks or its ability to support various services with different robustness requirements. This is what the Physical Layer Pipes in DVB-T2 have been developed for. It is likely that in Germany DVB-T2 will become a universal broadcast medium – used for portable, mobile and stationary reception and for various types of content, from HDTV to mobile TV (and radio?).

And what about Kazakhstan? This huge country currently has no digital terrestrial television, but a plan exists to introduce either DVB-T or DVB-T2. DVB-T has the advantage of being a proven system for which modulators, transmitters, etc. are available from a plethora of manufacturers. Set-top boxes and IDTVs are being offered by practically all consumer electronics vendors and the prices of receivers have fallen to incredibly low values. DVB-T2 is still in the relatively early stages of market introduction but it offers significant gains over DVB-T in terms of capacity and/or coverage area. Therefore, DVB-T2 may be the correct choice for a country that has no plan to introduce digital terrestrial television next year but has some time before a launch. This is the situation for Kazakhstan and for several other countries – Serbia and Montenegro seem to be in a similar state of discussion.

Making Room for HD
First live Danish DVB-T2 trials on air

Kenneth Wenzel, CEO Open Channel

Based in Copenhagen, Open Channel, a subsidiary of U-Media, distributes free-to-air television programming on UHF channel 35 / MUXKBH. The company has been conducting DTT trials since 2006 in the Greater Copenhagen area. The coverage area of MUXKBH consists of over 700,000 homes, equal to 28 percent of all Danish households. Over this period, it has broadcast several 24 hour channels seven days a week.

Within the next few years, high definition will become the new TV standard in Denmark, and it is therefore imperative that the DTT network has the necessary capacity for TV channels to be broadcast in HD. If these steps are not taken, the DTT network will be left behind by the satellite and cable operators.

Currently, however, there is no room on the Danish DTT network for transmitting HDTV services, therefore it is necessary to move to the next generation terrestrial TV standard, DVB-T2, to provide around double the broadcasting capacity compared to DVB-T. DVB-T2 also provides some new technological opportunities such as the possibility of broadcasting on the same frequency TV channels via traditional antennas and other TV channels for handheld receivers etc.

On the May 6, Open Channel has, after several months of preparation, started broadcasting using DVB's second-generation digital terrestrial TV standard, DVB-T2, on UHF Channel 67 / MUXKBH-2 in the Greater Copenhagen area.

The purpose of the DTV trial is partly about determining how to implement a full DVB-T2 setup so Open Channel can transmit a high definition service. The trial will also give local TV companies and other entities the possibility to prepare for the digital HD set up. This will ensure that these players in the market have a reason to start the necessary upgrading of their equipment and production routines to adhere to the HDTV production environment.

The trial is being conducted with the cooperation of a couple of DVB member companies – the Danish company, ProTelevision A/S and the

Dutch company DekTec Digital Video. The DVB-T2 transmission uses DekTec's Modulator DTA-116 with DVB-T2 Signal Generator Software DTC-378 2Xpress and ProTelevision Technologies' PT2000 Terrestrial Gateway which now is upgradable through firmware to DVB-T2.

We definitely feel we have entered into new territory with this DVB-T2 project. First of all, we had to build our own transmitter with innovative and affordable technologies. In the initial trial phase the broadcast is from a single antenna setup with 600 Watt ERP, 100 meters high, from the TDC Tower on Borups Alle in the center of Copenhagen. The TV channels are the same as on UHF Channel 35 / MUXKBH - Kanal København, Familie TV, the English language news channel France 24 and the computer and video gaming channel, G-TV.

At present, there are no DVB-T2 integrated televisions or set-top boxes available in the Danish market, but they are

expected to be in the retail stores by the end of the year. At that time, Open Channel plans to expand the broadcast setup to include several broadcasting positions in Roskilde and/or Hillerød in a SFN network with the broadcasting capacity increased to 2 kWatt ERP.

DekTec's Modulator DTA-116 with DVB-T2 Signal Generator Software DTC-378 2Xpress

ProTelevision Technologies' PT2000 Terrestrial Gateway

Kenneth Wenzel monitoring the quality of the received DVB-T2 signal with DekTec T2Xpert DVB-T2 Receiver

Standard Dimensions

DVB approves Commercial Requirements for 3DTV

David Wood, Chair CM-3DTV

We are in a race. Walk into many a large TV store across the world and there, enticingly, is a '3D' TV display - just waiting for your credit card. There is a 3DTV Blu-ray standard and 3D Blu-ray players on sale (though alas, it is said, fewer 3D Blu-ray discs on sale than different logos for 3D televisions). There are 3DTV satellite channels on air in the United States and Japan, demo channels on Eutelsat and Astra in Europe, a 3D IPTV channel from Orange in France, the BSkyB 3DTV satellite channel, trials in Australia, and more. The world needs to focus this incredible enthusiasm for 3DTV into a common open standard, particularly for the first pay TV services, so we can protect the investments of both broadcasters and the public. It has to be done carefully and with due diligence. But the reality is that it has to be done quickly. It is being achieved.

It may seem that there is a random assortment of bodies developing overlapping 3DTV standards, but the real situation is that those involved are pieces of a large jigsaw puzzle, that actually fit together quite well.

The standard's jigsaw

The DVB project is a pre-standardization body developing standards for the broadcast or cablecast of 3DTV. The SMPTE is developing standards for the file format that will be used for the production of 3DTV. The IEC/ISO MPEG community is largely developing compression technology for future 3DTV systems. The ITU-R hopes to prepare worldwide Recommendations for 3DTV from inputs it receives. We should also remember the HDMI consortium of set makers, which has developed the physical interface between a 3DTV set-top box and the display. And we also look to the 3D@home consortium, hoping they will rationalize the (crazy) differences in standards used for active 3D viewing glasses. Not too bad a jigsaw?

Since February 2010, the DVB project has been working on 3DTV standards. First Commercial Requirements are prepared, and then the technology to provide them is found, which is back-checked that it will do that is asked of it. Sub-groups on 3DTV in both the Commercial Module and the Technical Module are in action.

Steering Board approval

At its meeting on July 2, 2010, the DVB Steering Board approved the Commercial Requirements for 3DTV. This represents a major step forward which should lead, all fingers crossed, to a DVB 3DTV specification before the end of 2010.

The 20 Commercial Requirements are tailored to a particular business environment, where you need to provide 3DTV by making use of an existing population of set-top boxes. This is often the case for pay TV operators, who will be the first with their feet in 3DTV waters. This is not the only commercial situation, but it is the one covered by the DVB Commercial requirements now agreed.

The job to be done here is to deliver two images, the Left and Right eye signals, so that they can be seen properly with depth on a 3D display, using special glasses. If, as here, you must use existing HDTV set-top boxes, the signal must appear to the set-top box to be an 'HDTV' signal. The set-top box decodes it as a normal HDTV picture, and passes it to the display. The display then unravels the picture to create the Right and Left eye images for display. This is the 'Frame Compatible' approach. Viewers will need a new display but not a new set-top box – though possibly an upload may be needed.

The Frame Compatible approach

The Commercial Requirements for this environment, stated simply, are that the baseband signal broadcast must come in, and then be 'passable' over the connector between the set-top box and the display. Fortunately, much work on this connector has been done by the HDMI consortium that we can draw on for our broadcast signal.

There is a range of different ways of arranging a Frame Compatible signal, but in essence it is a 'spatial multiplex' of the Left and Right images, which together forms an HDTV image frame. The ways of doing so include the 'Side-by-Side' approach, where the Left and Right pictures are sub-sampled and anamorphically squashed in width.
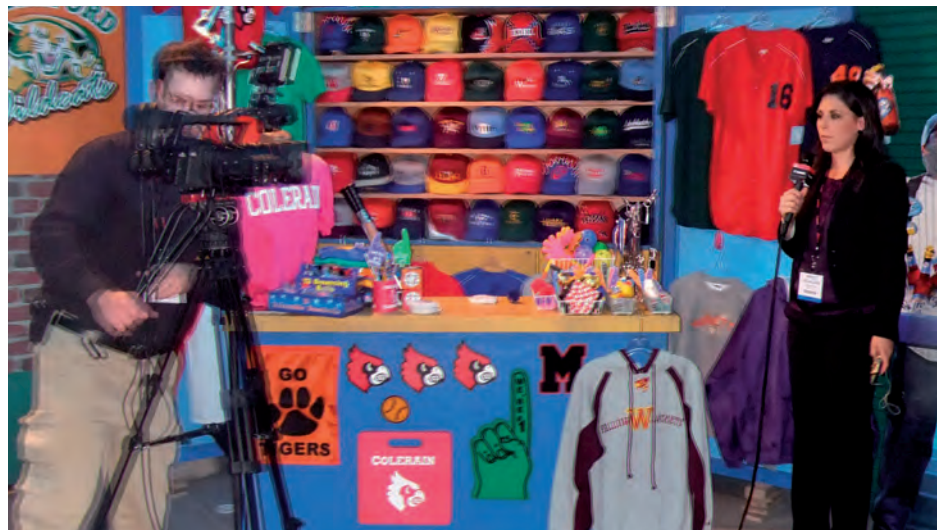
Will 3DTV include reports with more depth? The cameraman would be perceived by 3D viewers forward of the TV screen here.

They also include the 'Top and Bottom' approach where the images are sub-sampled vertically, anamorphically squashed in height, and placed one above the other. When deciding what to allow in a broadcast system we have to take into account that there are four HDTV formats, all in use, and that in different cases the Side by Side or Top and Bottom approach can deliver the higher picture quality. In the CM-3DTV discussions we have tried to make sure that the formats allowed would meet worldwide needs.

The eight formats

There are eight formats listed in the Commercial Requirements, which is actually a small subset of all the possible combinations of field rates, picture rates, scanning algorithms, and lines/screen. They are as follows:

- a.) 720p@50Hz Top & Bottom
- b.) 720p@59.94 Hz Top & Bottom
- c.) 1080i@50Hz Side by Side
- d.) 1080i@59.94/60Hz Side by Side
- e.) 1080p@23.97/24Hz Top & Bottom
- f.) 720p@50Hz Side by Side
- g.) 720p@59.94Hz Side by Side
- h.) 1080p@23.97/24Hz Side by Side.

The formats a) to e) above are given in the relevant HDMI specifications as mandatory formats for all displays. The last three are listed in the HDMI Primary formats so they cannot be guaranteed for all 3DTV sets in the short term.

The format being broadcast needs to be signaled to the receiver, and the Requirements call for the signaling to be extendible, to include other formats if needed.

The Requirements also call for a system that will allow exclusively 3DTV programs and mixed programs, but suggests that the switch from one to the other should only take place during program transitions.

Provision should be made for identification of 3D programs.

Subtitling, captioning, audio, and pixels

One of the stickiest areas for television engineers in 3DTV is how to cope with subtitles, captions, and other multimedia items that are meant to be overlaid on the picture, but are not broadcast embedded in the picture. The 3DTV must be able to signal where a subtitle should go with respect to the stereoscopic picture. As an example, it might signal the position of the sub-title in the 'z' or depth plane, via the 'disparity' between the left and right images. The specification should also provide a mechanism that allows on-screen graphics to be best positioned on the screen. We might normally expect such things to be placed just

3DTV pictures make available Left and Right eye pictures simultaneously. A combination of 'depth cues' create 'volume' behind the screen.

The further the scene retreats, the greater the disparity. Vanishing point lines reinforce the dept.

forward of the most forward object in the scene, but this is not necessarily always the case. Default behavior is also needed where there is no positioning information available.

It should also be possible to signal that a simulcast in 2D of a 3D broadcast is available.

It should be possible to signal pixel arrangements for the two images in the frame, though the HDMI specification may not carry all pixel arrangements.

The signaling that should be broadcast is one of the most important elements, and this must include all the eight formats above, but equally allow expansion. An annex to the requirements asks the DVB Technical Module to investigate a format often termed 'tile framing' and to provide guidance on its advantages and disadvantages.

The audio system was the subject of some discussion. In practical terms the only choice, and only sound technology available, is that associated with HDTV today (surround sound etc.) so support for this is included in the requirements.

Finally, we should not forget the

requirement that nothing proposed in the signaling or distribution video formats for the 3DTV specification should prevent future expansion to support new encoding technologies.

The first part of the journey

The Requirements can be found in full in the DVB 'Blue Book' which is available on the DVB website, together with a number of guidance and informative notes, and a glossary of terms. The DVB Technical Module is now actively working on a specification to meet these requirements. If you want more, try the 3DTV webinar on the DVB website. The recently published 3D production guidelines from BSkyB is worth downloading from its website *(see page 10).*

Our hope is that there is now a signal to all those interested in 3DTV that specifications are 'in hand'. This work should also provide useful input to the other bodies listed in the first paragraph. We believe the die has been cast on ordered and standardized broadcast and cablecast 3DTV for the Frame Compatible community.

Production Code
3D Production Guidelines

BSkyB has made available, what many see as very valuable guidelines for 3DTV production. The full guidelines can be downloaded from the BSkyB website (see link below). Some of the more general points included in them are summarized here, because of the importance of early recognition of high production values for 3DTV.

The prime objectives of the requirements are to deliver content of both a high technical quality and of high production values. 3D High Definition needs the highest quality to be captured at the point of creation and initial storage together with the minimising of re-code or trans-code processes within the production chain that have the potential to degrade the content when delivered to the end-user in HD.

To enable the 3D program to retain the highest quality throughout, a minimum of 75 percent must be 'native' 3D footage. Where non HD or non 3D footage is used, it should be within the editorial context of the program. Any 2D originated footage must be HD, not exceed 25% of the total program, be of segments not exceeding 5 minutes in any 15 minute period, converted in a suitable manner to fit the true 3D content and be of shots where there is minimal benefit from a true dual camera 3D acquisition.

For the avoidance of doubt:

- Automated conversion of 2D HD programs to 3D is not acceptable as 'original 3D content'. Any proposed 2D to 3D content conversions may only be by prior agreement with understanding of the scene specific editorial decision process, techniques and conversion processes involved.

These guidelines are for the final program content being displayed on screen sizes in the range of 46" to 70":

- Main subject point should nominally be within a "depth budget" of 2% (% of screen width) within the limits below;
- Positive disparity or image separation at distant points (into the screen) should not exceed 2% for majority of shots;
- Negative disparity image separation at close points (out of screen) should be used with care and not nominally exceed 1% for shots. Care should be taken for images breaking the frame edges with floating windows utilized where appropriate.

These are guidelines that aim to deliver managed and comfortable stereoscopic viewing. As such, these limits can be exceeded for specific editorial needs, (such as prime vision graphic content or short term visual impact), managed appropriately and in line with 3D production practice. Such instances should be constrained to 4% Positive (into screen) and 2.5% Negative (out of screen).

Graphics within vision should be aligned to the base content – there should be no differential exceeding a 2% depth budget from the main viewpoint and main graphic image (ancillary graphic imagery may be greater).

Dual video stream post production tools designed for discrete stereoscopic image processing should be utilised for finalizing and conform of stereoscopic images.

Image streams should be managed in a discrete manner throughout to maintain the quality threshold.

Content acquisition where electronic should be by identical camera pairs utilizing a three ½" (or greater) sensor array and:

- With a native resolution of 1920 by 1080 pixels and at a frame rate of 25 Frames Progressive or 25 Frames interlaced with 50 fields;
- Small format, single chip or sub ½" sensor cameras may be utilized by prior agreement for editorial needs and for content sections but not entire programs;
- All Stereoscopic content must be high definition. As such safe areas should be maintained to 16:9 guidelines only.

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http://introducingsky3d.sky.com/a/bskyb-3d-tech-spec/

English National Ballet being filmed for Sky Arts 3DTV.
Photo courtesy of the English National Ballet.
Oli Scarff/Getty Images

Look for The Correct DVB Logos

New sub-brand logos available to "Authorized Users"

Désirée Gianetti, DVB Events Co-ordinator

For more than a decade providers of professional broadcast components and consumer electronics manufactures have used the DVB registered trademark to indicate that their product complies with DVB standards.

Over the years, the DVB family of open standards has grown, giving rise to specific logos relating to each standard. This explains the appearance of the various DVB sub-brand logos. Today, there are 48 sub-brands and in order to streamline the administration of these sub-srands a single logo design has been registered that can be repurposed to clearly indicate the individual sub-brands.

Now, starting on September 1st and for the first time the DVB Project is enabling the authorized use of its family of sub-brand Logos, which can be used to specifically identify the DVB standard that relates to the product or service.

It is quick and easy to become an "Authorized User" of the DVB trademark and sub-brand Logos. Once a user has entered into a "DVB Trademark Authorized User Agreement", and paid a one-off administration fee of 100 Euros, they have the right to use the logos on their relevant products, packaging, brochures, advertising, website, etc. By entering into the agreement, a vendor undertakes to ensure that any product bearing a DVB sub-brand logo complies with that specific DVB standard.

So, now that we have made the registration procedure even simpler and

Désirée Gianetti
DVB Events Co-ordinator

faster than ever before, there is no excuse for not registering to use the new logos. Make sure that you are up-to-date with the logos you are using. Register today!
For further information, please visit **www.dvbservices.com** or contact **gianetti@dvb.org.**

DVB3DTV® **DVBS2**® **DVBT**®
DVBC2® **DVBIPTV**® **DVBT2**®

Island Dream
ASO in Mauritius

Amoordalingum Pather

According to the GE-06, adopted by RRC-06 of the ITU-R bureau, all countries listed in Region 1 (Europe, Africa & Middle East) have to migrate to the adopted system B (DVB-T) for digital terrestrial television broadcasting and must shut down their analog transmitters in the UHF bands (470-862 MHz) by 2015 and those in the VHF bands by 2020.

Mauritius, an island in the Indian Ocean and in Region 1, will switch off its analog transmitters in the VHF/UHF bands before the end 2012. By then more than 95 percent of the households on the territory of Mauritius will be equipped with a DVB-T set-top box to receive the digital channels of the Mauritius Broadcasting Corporation (MBC), the nation's public service broadcaster.

Mauritius was the first country in Africa to officially launch DTT on 30 September 2005. In fact, feasibility studies began in 1999, with DTT experimental tests in 2002 and a soft launch on 12 March 2003.

The actual STB penetration in Mauritian households is around 80 percent, which has been very encouraging in spite of the low purchasing power of a good percentage of the population and the lack of value-added services on the digital platform. This was mainly due to:

- The open market policy adopted to retail the set-top boxes in 2005
- The falling price of the FTA box down to 25 USD
- No custom duties on set-top boxes
- Integrated television receivers on the market
- MBC telecasting 12 FTA channels (including the three PSB analog channels)/ four radio and an EPG on two public service multiplexes
- The craze for plasma/LCD/LED flat screens to receive the English Premier League football and horse racing
- All 64 2010 FIFA World Cup matches broadcast in digital by MBC
- Crystal clear pictures and CD quality sound
- No increase in the license fee

The migration to digital was further aided by communication and marketing strategies delivered by radio, television, and the press. Meetings were held with retailers, distributors and antenna riggers. Talks were also hosted in community centers, universities and schools supported by exhibitions, pamphlets, a dedicated website, e-mails and a 24 hour hotline.

In a presentation at the Maseru Workshop, Lesotho, for the SADC/CRASA group in April 2010, I emphasized that infrastructure and technology are no longer a headache for broadcasters. DVB-T/MPEG-2 is a mature technology that has been adopted by most countries around the world and therefore offers great economies of scale. In addition, with DVB there is the choice of DVB-T/H.264 or DVB-T2/H.264 for SDTV/HDTV. DVB also has many ITU endorsed sub-standards such as MHP, return channel, mobile TV, IP, etc.

The focus for a smooth transition to digital should be on low-price set-top boxes, capacity building in terms of having competent software engineers and programmers, and more importantly on the production of quality content at low cost.

While having the right infrastructure, such as the head-end and transmission systems, the right technologies, the right frequency plan, receivers at affordable prices, the right awareness campaigns are important to speed up the digital switch-over, quality content is also a key success factor. FTA quality thematic television channels and value-added services to entice the population at large helps to accelerate STB penetration, particularly in countries where consumers have to buy the set-top boxes.

The analog switch-off is not the end of the game. Value-added services are required. The evolution of MPEG-4/DVB-T2, SDTV/HDTV, mobile TV, mobile broadband, multimedia services, IPTV, the Digital Dividend, broader-casting, 3DTV etc, has painted a new broadcast landscape for Mauritius. This is a landscape for multiple operations jointly between mobile broadband and TV groups for sustainable economic growth and to allow society to reap the full social and economic benefits of the Digital Dividend within the 200 MHz and 1 GHz spectrum.

Amoordalingum Pather is a senior consultant in broadcasting and management. He was Director of Engineering at MBC and CEO of MCML.

Penetration of Households
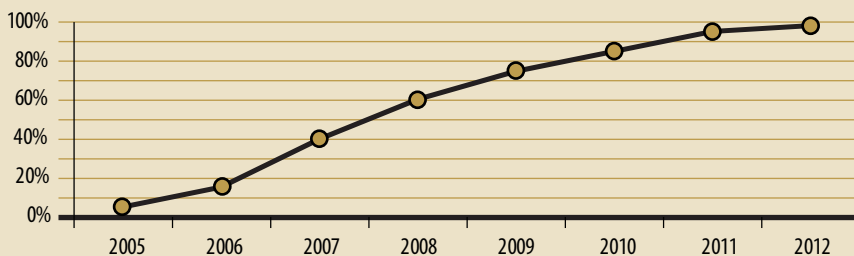
Price of FTA set-top box 2000 - 2012 (USD)
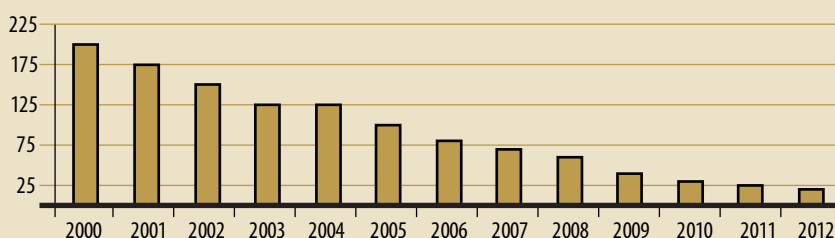
Sports Lead 3D Broadcast Push

Ben Keen, Chief Analyst, Screen Digest

Screen Digest is a research company focusing on the media and entertainment industries. Screen Digest is a primary source of market analysis and strategic insight for many of the world's largest communications corporations. More information on the company and its latest research is available at **www.screendigest.com**

3D broadcast is rapidly becoming a commercial reality, driven initially by the push to add another visual dimension to coverage of major sports events. By mid-2010, our database of 3D channels included 36 major trials or active deployments planned for this year. This includes some of the industry's best known operator names, like BSkyB, CanalSat, Comcast, DirecTV, Orange and SkyLife, along with major content brands including Discovery, ESPN and IMAX.

Around 40 per cent of planned launches are for permanent standalone channels or segments within pre-existing channels, and a similar percentage will be one-off events with the remaining 20 percent unannounced or trials.

Since all expected 3D channels will either substitute for an existing HD channel or require a separate transmission, the scope for 3D channel launches is partially defined by the platform used for distribution, whether cable, IP, satellite or terrestrial. Digital terrestrial broadcasters have limited bandwidth, and so 3D terrestrial transmissions are likely to be limited as well. Pre-existing channels may choose to include a segment of 3D programing within normal channel transmissions, or to include a trial or one-off event. However, even this will be limited by the lack of HD channels over terrestrial and the broadcasters' relative lack of control over the set-top box in the home - since DTT platforms are predominantly free-to-air, with set-top boxes purchased at retail. More closed platforms such as cable and satellite tend to retain control of the set-top box and have significantly more bandwidth to use for new channel launches, as well as more HD channels to include segments or events in. Finally, IP distribution, or more generally video-on-demand, further reduces the bandwidth constraints and allows for more content to be made available.

The majority of launches are sport-related and most of these are synchronized with major sporting events. Almost 80 percent of launch plans include a sports element, with 12 percent each for documentary, entertainment and film. Over 80 percent of launches are single content genre launches, for example a sports channel or event, rather than mixed-genre channels. This means that, of 39 announced and planned commercial launches (including trials), 24 are single-genre sports launches. However, a full 15 of these are single-event only broadcasts for events such as Roland Garros 2010 or the 2010 FIFA World Cup. In part, this reflects the cost overhead of providing 3D coverage of major sports events.

Channel Launches By Genre
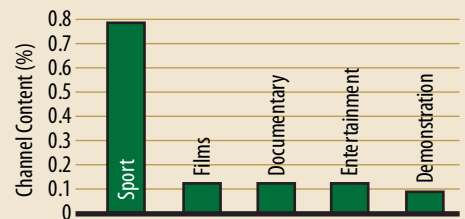
MARKET WATCH

www.rgbnetworks.com

RGB's high-density BNP3xr supports an array of digital video applications, including grooming, statistical multiplexing, transrating, digital ad and overlay insertion, operator messaging and program substitution. Able to simultaneously process more than 760 MPEG-2 and MPEG-4/H.264 video streams in a flexible 2RU chassis, the product also offers redundant, hot-swappable power supplies and fans, and support for DVB-CSA. This compact, multifunction platform significantly reduces the cost and complexity to deploy HD, advanced advertising and other critical services.

www.roverinstruments.com

Rover's DVB-S2 multistream modulator supports VCM & ACM for fixed or mobile SNG transmission. It has 4 ASI inputs, 70/140 MHz IF and L-band outputs. Optionally, it will feature 8 ASI inputs and 1 Gigabit Ethernet interface for ASI over UDP/IP streams (with COP3 error correction), for mixing, in the same transponder, streams from ASI and IP networks. It will have 1+1 redundancy PSU and bit rate policing to control bit rates from different TS contributions.

www.humaxdigital.com/uk

For the UK market, the Humax HDR-FOX T2 gives subscription-free access to high definition content from the BBC, ITV and Channel 4, and up to 50 standard definition channels on Freeview. The box comes with a built-in 500GB hard drive to store up to 125 hours of HD content and offers recording features such as live pause, instant rewind and series linking. It also offers multimedia and home networking capabilities through its USB and Ethernet ports.

www.pixelmetrix.com

The Automated Channel Package Audit feature of the Pixelmetrix ECP performs automatic, unattended verification of channel packages for quality assurance and monitoring of multi-region networks. This is a vital, timesaving improvement for operators and content owners, eliminating time consuming, expensive manual audits of channel packages.
Deployed at central or regional head-ends, it continuously scans through all channels and reports availability of subscribed-to channels. Operators can use the remote Telepresence feature to view channels for positive confirmation.

www.rohde-schwarz.com

The Rohde & Schwarz R&S DVMS1 monitoring system is engineered to ensure high reliability of DVB-T/H networks. It simultaneously monitors the MPEG transport stream and the transmitted RF signal for use at transmitter sites. The modulation error ratio (MER) is typically measured up to 38 dB. Due to the system's high MER measurement range, the network operator is able to detect deterioration even in high quality signals and thus respond faster to potential transmitter faults.

www.verimatrix.com

Verimatrix recently launched its third-generation Video Content Authority System, VCAS 3, featuring the Operator Management Interface (OMI) as a core component. OMI provides a single VCAS integration point for customer care, billing and middleware systems through a set of content, device and entitlement management interfaces. OMI enables VCAS domain-based business models for multi-screen digital TV services by providing homogenous subscriber and rights management for heterogeneous networks and devices: DVB, Hybrid, IPTV, Internet TV/OTT and mobile TV.

www.blankom-digital.de

BLANKOM Digital's new MPEG-4 decoder & IP streamer, the DRP 393, is designed for professional DVB-T2 applications. The second-generation standard DVB-T2 allows higher data rates and is therefore ideally suited for terrestrial HD transmissions. Multi-service descrambling is supported by two DVB-CI cards and the output stream is available via ASI and IP. The DRP 393 decodes services to professional HD-SDI/SD-SDI or allows downscaling to high quality analog audio/video signals.

www.t-vips.com

The T-VIPS CP525 cMUX is a powerful tool for processing, re-multiplexing and scrambling of MPEG transport streams at regional head-ends and other locations. It allows network operators to easily perform, regional insertion of local programs, opportunistic data insertion and PSI/SI/PSIP processing,

and delivers increased robustness and redundancy features such as traffic policing and input port switching. This solution supports DVB-ASI and IP networks and is proving popular with DVB-T networks.

ProTelevision Technologies has extended its family of DVB modulators to support DVB-T2. The PT2082 DVB-T2 modulator is based on the company's proven industrial platform PT2000, Terrestrial Gateway.
Existing customers, using the DVB-T2 ready platform, can easily FW upgrade to DVB-T2 via the built-in web interface. As the unit supports DVB-T/T2 it is ideal for customers that have commenced or plan to start DVB-T2 transmissions. The product is available as a separate module or standalone 19" version.

System Engineering Solutions' PCM modulation platform, for analog and digital operations, including DVB-T2, is a standalone (1U size) system delivering up to 10W RMS. It can be configured as TX (ASI input-hierarchical), SFN gapfiller (echo canceller) or re-transmitter, with input signals either satellite, Ethernet or repeating DTT signals on air. Frequency agility and overall performance are enhanced by linear and nonlinear pre-correction. The control unit can directly supervise low-complexity systems: accessible through front panel or web/ SNMP.

KATHREIN is now offering its new series of cost efficient UHF Antenna Panels with Elliptical Polarization that are preset for a 70 percent horizontal and 30 percent vertical polarization.
All power and phase distribution is integrated inside the panel making the antenna easy to set up and allows an optimal narrow mounting radius to achieve best radiation pattern results. This antenna is particularly suitable for fixed and mobile DTV services.
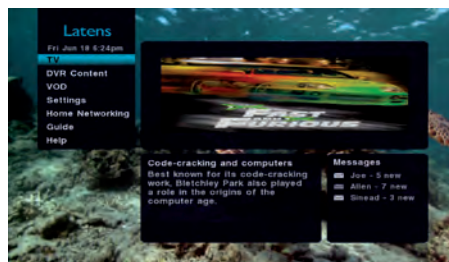
Latens, the software conditional access and middleware specialist, has updated its ECO Middleware and CAS solutions for pay TV operators. The CAS-5 with Second Source CAS mode supports protection of content across multiple devices. ECO UI5 Middleware with pre-integrated CAS allows operators to offer enhanced TV services such as EPG manager, internet applications for TV, home networking, VoD, PVR services and much more across multiple devices.

DekTec has released its first DVB-C2 tools. The modulator, called C2Xpress, supports the new multi-dataslice concept, as well as all other parameters currently defined for DVB-C2. Also

available is a complementary software defined receiver called C2Xpert. Next to demodulating a DVB-C2 signal to a Transport Stream over UDP, the receiver shows several measurements and diagrams, amongst others the transfer function, impulse response and constellation diagram.

T-MOD is a new range of TeamCast's products which creates an effective means in the laboratory for performance testing of digital broadcast receivers and tuners across the UHF and S bands. The range now covers DVB-T/-H/-SH/-T2, and all other main standards around the world. These robust signal generators can be easily integrated into a test bench setup, offering high quality signals on frequencies from 100MHz to 900MHz and playing real time streams for test purposes.

SIDSA introduces COFDM modulation and multiplexing in its EtherTV Platform with the new modules EtherTV Mux and Mod, providing more flexibility to its IPTV Platform for reaching new customers and applications such as cable operators and coaxial wired premises. In addition to the existing DVB-IP gateways, ASI and COFDM outputs are added to the platform, including efficient multiplexing capabilities. All the modules are presented in blade format housed in a 19" 4RU chassis.

UBS
Unique Broadband Systems Ltd.

UBS CANADA | UBS EUROPE | UBS CHINA | UBS UNITED STATES | UBS RUSSIA

# DIGITAL BROADCASTING PRODUCTS

DVU5000 UNIVERSAL MODULATOR

#1 ISDB-T

Software Selectable support for the following International Broacasting Standards:

- **ISDB-T / TB (ARB STB-B31 and TR-B14)**
- **DVB-T / H / SH (ETSI DVB)**
- **ATSC (A/53, A/54, A/64 and SMPTE-310M)**

- **DAB, DAB+ and T-DMB (ETSI DAB and EU147)**
- **CMMB (GY/T 220.1-2006 and 220.2-2006)**
- **DTMB (GB20600-2006 and GY/T 229.1-2008)**

UNA7000 (DV-IP-ASI-1G) IP TO ASI/ASI TO IP CONVERTER
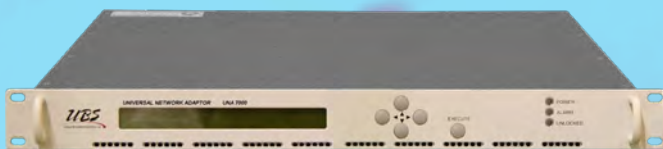
- DVB-ASI-to-IP and IP-to-DVB-ASI modes of operation
- Forward Error Correction (Pro-MPEG Forum CoP #3)
- SFN Network preservation (SFN over IP)
- 10 MHz reference clock and drift correction
- Low induced PCR jitter
- Low processing latency
- Protection against IP network jitter
- Configurable input buffer size for IP packets
- Front Panel, Web GUI, Telnet, CLI and SNMP support
- Remote upgrade support

DTX1200U 120W UHF TRANSMITTER SYSTEM

- 470 MHz - 860 MHz Broadband Transmitter/Repeater
- DVB-T/H, CMMB, DTMB, ATSC and ISDB-T/TB waveforms
- Linear and Non-linear Digital Pre-correction
- SFN and MFN support
- Touch screen display for real time user interface
- Remote via Ethernet and RS485 interfaces
- Built in Web GUI
- Remotely manageable via SNMP
- GbE Transport Stream Input based on ProMPEG Cop 3
- Occupying only 3 RU of standard 19" cabinet space

Optional

- Adaptive Pre-correction
- Integrated GPS Receiver
- Integrated DVB-T/H Receiver
- Integrated DVB-S/S2 Receiver
- Integrated ISDB-T/TB Receiver