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Technical Review's Journey in Time

Celebrating the 250th Issue



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Cover:
*Technical Review's
Journey in Time
(Celebrating the 250th Issue)*



Asia-Pacific Broadcasting Union

TECHNICAL REVIEW

From the Editor's Desk



Now is the time to celebrate the 250th issue of the Technical Review. We send our felicitations to our contributors, from the first issue in March 1969 until today. The magazine has had a long journey and goes into the future with a greater sense of responsibility. Long live!

This 250th issue offers a variety of articles and reports on events of interest to members. Three technical articles for this edition have been contributed by our members: KBS-Korea, TVB-Hong Kong and MRTBN-Mongolia.

The KBS article describes the status of analogue switch-off and DTV transition in Korea. The TVB article shares that company's experience in setting up a metadata input system and expectations for future developments. The article of AVG explains the successful implementation of first DVB-T2 Single Frequency Network in Vietnam. The article from MRTBN defines the radio and TV stations in different provinces of Mongolia, the services of the organisation and its transmission coverage. MRTBN has a unique mission in the region, that of employing LF broadcasting in large area coverage.

A short report on the ABU Technical Bureau meeting lists the key decisions taken. Also we have newly added a "Book Review" item to inform our members about valuable publications. A report on a workshop organised in Maldives highlights 21st century management.

Technical Review readers will find a short history of the magazine as well as our regular features; news from the ABU Region, updates on digital broadcasting, equipment trends, personalities and posts, which make up the rest of the publication.

The Asia-Pacific Broadcasting Union (ABU) is a professional union of broadcasting organisations in the Asia-Pacific area which aims to co-ordinate and promote the development of radio, television and allied services in the region. It is non-governmental, non-political and non-commercial.

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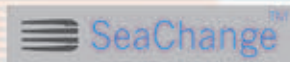
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Metadata Project – TVB Experience

by Garry Kum

Television Broadcasts Limited

Abstract/Introduction

TVB starts digitisation of historical contents and the creation of conjunctive metadata for the digitized contents in 2010. Contents digitisation and metadata creation are two separate projects. The content digitisation portion uses a commercially available solution; while the solution for metadata creation is developed by TVB Engineering.

During content digitisation, two file forms are produced, namely, non-compressed AVI for preservation purpose and, low bit-rate MPEG-4@2.5Mbps for Metadata System.

Metadata System uses commercially available hardware while the Metadata Input System (MIS) software is developed in-house. Operators use the in-house developed MIS to retrieve the MPEG-4 files from server and enter the conjunctive metadata. TVB defines four levels of metadata and only Scene level metadata has time code information associated to indicate the location of the scene within the file. Not all metadata need manual input, some of them are obtainable from other systems.

To date, there are more than 62,000 programme hours of MPEG-4 video files produced and around 25,000 hours of them have had metadata created. The metadata created is stored in dedicated storage and does not share MPEG-4 video file storage.

In addition to the Metadata System, TVB is developing a Basic Metadata Search Engine (BMSE) to assist searching digitised content using the metadata created. It is in a trial stage and will be released to Programme, Production, Research and Marketing & Sales etc. when comments received during trial are tackled. A report regarding BMSE system will be submitted to ABU later.

Overview

“The word “metadata” means “data about data”. Metadata articulates a context for objects of interest – “resources” such as MP3 files, library books, or satellite images – in the form of “resource descriptions”. As a tradition, resource description dates back to the earliest archives and library catalogs. The modern “metadata” field that gave rise to

Dublin Core and other recent standards emerged with the Web revolution of the mid-1990s.”¹

~ Dublin Core Metadata Initiative

In addition to Dublin Core Metadata Initiative’s definition of metadata, metadata is also considered as recursive since there is data about the metadata.

Dublin Core Metadata schema which has 15 elements defined and was categorised into three groups by Chris Taylor to indicate roughly the class or scope of information stored in them. The three groups are:

1. Content & about the resource
2. Intellectual property
3. Electronic or physical manifestation”²

This report provides information to the Metadata System project in terms of overall block diagrams, hardware information, TVB metadata structure and constraints encountered.

The MIS was developed referring to the Metadata element set described in ISO Standard 15836:2009. In accordance with TVB operation practice, four major levels of metadata are categorized - Programme level, Episode level, Item level and Scene level.

Structure of Metadata

TVB has defined four levels of metadata when developing Metadata Input System (MIS). Metadata creation for the four levels is basically an aggregation of both manual input way and data capturing from other systems. Following is description of the four metadata levels and snap shot of their main input pages.

1. Programme level

Programme level metadata is a collection of data of a programme which contains one or more episodes. The metadata is generic to all the episodes when they are with the same programme name.

Currently, programme level metadata comprises 34 data fields and are summarized into the following categories

¹ Dublin Core Metadata Initiative, <http://dublincore.org/>

² An Introduction to Metadata by Chris Taylor, July 29, 2003, <http://www.library.uq.edu.au/iad/ctmeta4.html>

– programme contents, Programme information, Casting information of the entire programme, production & promotion materials, graphics & setting & costume design artworks and Intellectual Property information. Appendix A is a list of the 34 data fields being used.

Most of the metadata required for this level are obtainable from other systems, however, there are still large portion of data fields need to be input manually.

2. Episode level

Episode level metadata comprises 32 data fields dedicated for this episode, which are summarized into five categories – basic content, basic information, casting information, promotion and production materials and intellectual property information.

Most of the metadata required for this level are obtainable from other systems; however, there are still data fields need operation effort to input.

3. Item level

Each episode may contain items and each item may contain many scenes. Item level metadata is the information of the scenes. There are six data fields for item level metadata – Part number (data belongs to which part of programme), item number of each scenes collection, type of collection, title or name of the collection, timelines of the collections.

4. Scene level

Scene level metadata is a collection of information regarding each scene, merchandise licensing, musical materials, thematic highlights, programme licensing, notes for particular scenes and roller credit information.

Scene level metadata is the only metadata collection that has time information indicating the start time and end time of each scene associated.

component modules, namely, Domain Controllers, Application Servers, Database Servers, NAS Servers, Data Archiving Servers, Metadata Input Terminals and Subtitle Preparation Terminals. Following is a block diagram of TVB Metadata System for digitised contents.

Following is a brief description of functions of each module:

1. Domain Controllers

To control the authentication and right of each users, as well as the logical disks they can access.

2. Application Servers

Application Servers are basically web servers that serve as gateway to outside systems and are being used to handle requests for content retrieval from NAS. It is being enhanced to serve another in-house developed system – Basic Metadata Search Engine (BMSE).

3. Database Servers

Metadata created are stored in Database Servers and will be archived onto LTO twice a day.

4. NAS Servers

The MPEG-4 2.5Mbps video files produced by Digital Archive system are stored in NAS Servers for metadata input operation. The NAS Servers has 6 months storage capacity for MPEG-4 2.5Mbps and will be expanded when needed.

5. Data Archiving Servers

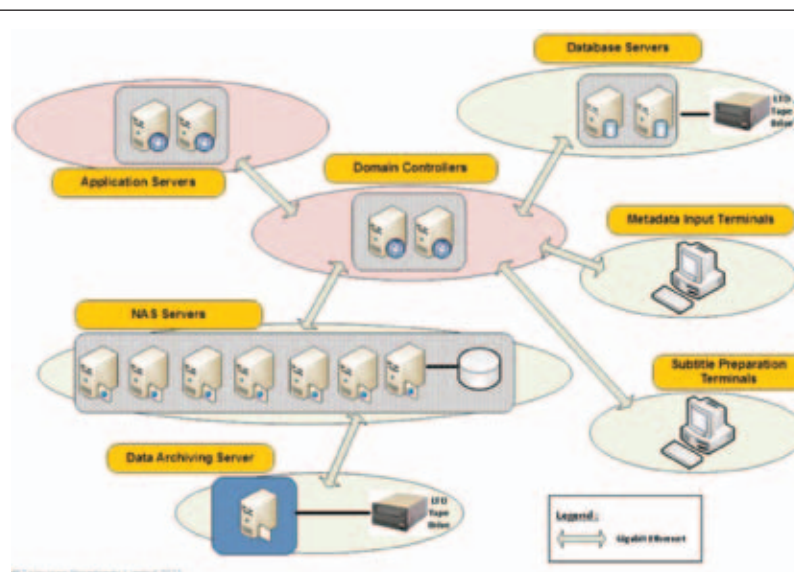
Old MPEG-4 2.5Mbps video files are archived onto LTO tape when 80% of NAS storage capacity is reached.

6. Metadata Input Terminals

There are more than 90 terminals for metadata input. These are consumer grade PCs with Window XP OS. Each terminal is equipped with a Jog & Shuttle Multimedia Control Device to control file play back modes such as Play, FF, RWD, and Pause/Still. In addition to the TVB in-house developed Metadata Input System (MIS), Quick Time Player, Microsoft Office Viewer and HKSCS 2001 Support Package are also installed on these computers.

Metadata System

The infrastructure of TVB Metadata System comprises 7



Block Diagram – TVB Metadata System

7. Subtitle Preparation Terminals

Most of the content waiting digitisation have subtitle files associated. The subtitle file contains VITC time information of the each subtitle lines, which is required for automatic subtitle play out. However, due to the reality that VITC would become unavailable after digitisation, and need to use frame count as timing information instead. The Subtitle Preparation system was developed to convert VITC timing information to FC (Frame Count) timing information. Since frame count starts from 0, the value of the first frame count of the converted FC information will be set to zero and the rest of the FC will be aligned automatically.

Metadata Input System (MIS)

The MIS was developed using Microsoft Visual Studio 2005 Professional, and database servers are running on SQL Server 2008. Two database servers are running in mirror mode to achieve one to one back up configuration. There are more than 90 workstations for metadata input. They are running Windows XP Chinese to support not only Traditional Chinese but also Japanese, Korean and Simplified Chinese metadata input. Metadata of Episode, Scene and Item levels are basically in Traditional Chinese, however, Simplified Chinese, Korean and Japanese are used for metadata occasionally.

User requirements were collected from different departments in March 2010, to identify the metadata needed for their daily operation. Software coding commenced in April 2010 and beta version became available in June 2010 for fine tuning. The beta version was released for soft launch in August 2010. The software was official launched in February 2011.

Metadata Input

Currently, there are more than 30 staff working on metadata input. It is observed that around ten hours is required to complete one episode metadata input which has 81 data fields. The MIS has been enhanced to assist metadata input in order to increase input efficiency, such as pull down menus which contain generic data applicable to the entire programme and capturing of data from other systems etc.

Future Development

Currently more than 25,000 programme hours of digitised content have metadata created, a Basic Metadata Search Engine (BMSE) has been developed to assist Research, Programme and Production colleagues to find their desired materials from the digitised content archive. Proxy of the found content will be available for preview purposes, LTO tape number of the archive (non-compressed) is also available when a user decides to use it for broadcast or programming. The BMSE will be released to certain users for trial next month. Thumbnail generation for the found content is a feature to be included in the next development stage.

Research on ways to improve metadata input efficiency continues. It includes the study of using voice recognition methods to input Chinese metadata and interface with other in-house metadata sources to reduce the necessity of re-entering duplicate data.

Snap Shots of the Four MIS input main pages

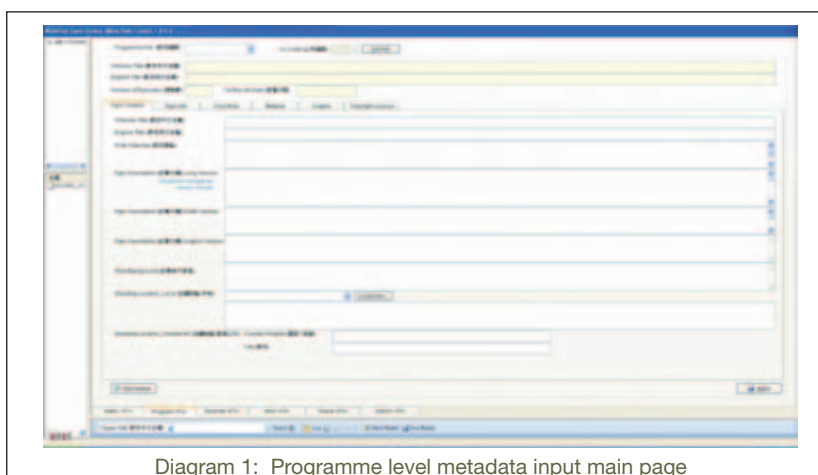


Diagram 1: Programme level metadata input main page



Diagram 2: Episode level metadata input main page

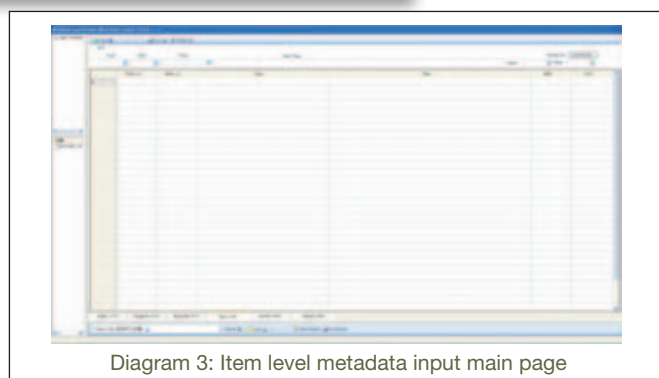


Diagram 3: Item level metadata input main page

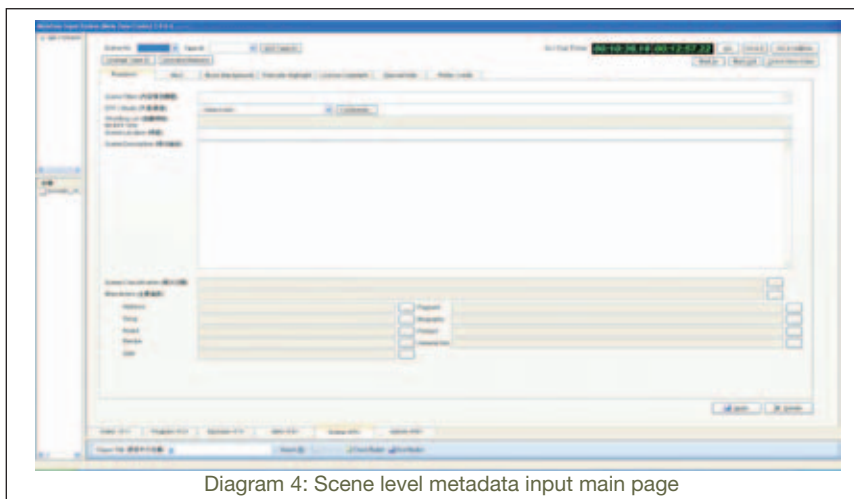


Diagram 4: Scene level metadata input main page

author



Gary Kum
TVB - Hong Kong

Mr. Garry Kum is the Chief Engineer in the Engineering Division (Technical Services Dept.) of TVB-Hong Kong. He graduated from Far East Flying and Technical School - Certificate in Airborne, Marine and Radar Electronics and then studied for a Master of Business Administration at the University of Leicester, UK. He worked in the Engineering Department of CKVU TV, Vancouver, Canada and then as TVBI Project Manager, TVB Engineering Division Manager (Technical Service), Technical Services Department, TVB Engineering Division Chief Engineer (Technical Service), Technical Services Department of TVB's Engineering Division.

A large, vibrant advertisement for TVB. At the top center is the TVB logo, consisting of a stylized globe icon followed by the letters "TVB". Below the logo, the text "Expand Your Business to the New Boundary" is written in a large, bold, serif font. In the center of the advertisement is a glowing globe showing the continents of Asia and Australia. A wide, blue ribbon-like banner curves around the bottom of the globe, containing the text "Global Coverage Over 300 Million Households" in a white, sans-serif font. Below the banner, the website address "www.tvb.com/tvbi" is displayed. At the bottom of the advertisement, there is a row of logos for various TVB channels and services: the TVB logo, the Chinese characters "翡翠台" (Jade Terrace), the "TVB8" logo, the "TVB 星河" (TVB Star) logo, the "tvb.com" website logo, the "MYTV" logo, and the "TVBS" logo. The background of the entire advertisement is a bright blue sky with white clouds and a grid pattern.



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- Revamping and Restoration of Print Media, Radio and Television Network in Afghanistan.
- Design and establishment of State of the Art Electronic Media Monitoring Centre for 24x7x365 monitoring and logging of 300 Satellite TV channels.
- Involved in setting up of 16 out of 22 Private FM Stations that have come up in India in FM Phase-I and all 245 stations in Phase-II.
- Designed, integrated and supplied Ku/C-band vehicle mounted DSNG Van to Doordarshan India.
- Installation & commissioning of 160 Cable Head Ends in the difficult terrain of NE Region for Doordarshan India.
- Supply & commissioning of GSM / CDMA surveillance system to Haryana Police, Assam Rifles and Assam Police.

- Supply of security equipment like Laser Range Finder, Non Linear Junction Detector, Real Time Viewing System, VSAT Monitoring etc. to Para Military, Military, State Police Depts. Etc.
- Establishment of TV studio for IGNOU, Edusat setup for Delhi Technical University and Sangeet Natak Academy.
- Operation & maintenance of studios & uplinks for ANSSIRD, Mysore, CES IGNOU, New Delhi, SRSAC studios & Earth Station at Jaipur, TV studios of RCI, New Delhi, TV studios of IGNOU, New Delhi.
- Manpower outsourcing for specialised service to Doordarshan and AIR News Unit Delhi, RNU and EMMC.
- Establishment of much applauded Main Press Centre of Commonwealth Games 2010 for PIB.
- Designed and created broadcast compounds & facilities for Prasar Bharati, the host Broadcaster of Commonwealth Games 2010.

On Going Projects

- Supply & installation of studios production equipment for Bangladesh TV for an amount of US \$ 2.1 Million.
- Supply & commissioning of 2 nos. of 1000 kW MW AM Super Power Transmitters to AIR for their external services.
- Upgradation of T.V. Studio at Jamia Millia Islamia University.
- Providing additional facilities in Lok Sabha T.V setup.



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ABU Expected to Take on Practical Roles at ITU and WRC

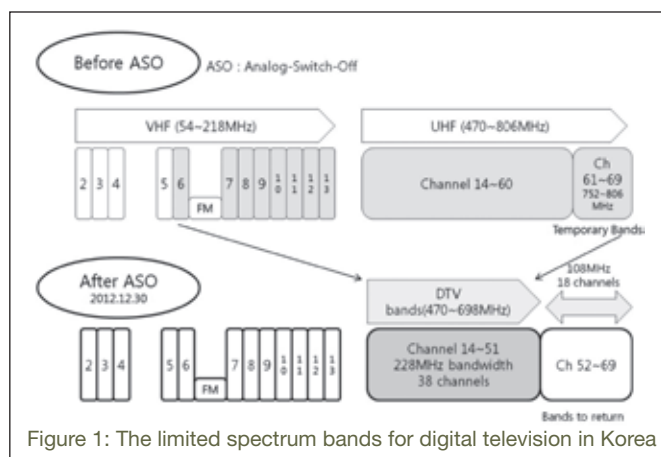
by Yim Zungkon

KBS, Korea

Limited Radio Spectrum for DTV Transition in Korea

On December 30, 2012, Korea will shut down its analogue TV broadcasts and, to that end, all the broadcasters are expanding their digital TV networks in a phased manner, according to the digital TV transition plan. Depending on the regional situation, five or six terrestrial TV broadcast channels are to be serviced in Korea. However the government body, KCC (Korea Communications Commission) has allocated only 38 channels of 228MHz bandwidth from 470MHz to 698MHz to digital TV broadcasting. After the DTV transition, KCC will take back the digital dividend of 108MHz bandwidth in the 700MHz band.

Korea adopted the ATSC (Advanced Television System Committee) TV system as a digital TV transmission standard that generally needs separate TV channels in order to cover shadow areas. Unlike the DVB-T, DVB-T2 and ISDB-T based on the OFDM (orthogonal frequency division multiplex) technology, the ATSC system, based on single carrier method, is not simple to deploy in a single frequency network and needs relatively more frequency spectrum. In addition, there are a lot of weak signal strength areas, such as mountainous areas and islands far from the main DTV transmitters in Korea, and which should be covered by small-power on-channel DTV repeaters.



Broadcasters' Request to Delay the Band Plan of 700MHz Band for the Complete DTV Transition

Despite the fact that the interference effects among the new transmission and repeater TV sites are not verified yet, KCC

retains a policy stance to allocate the entire radio spectrum of the 700MHz band to the mobile telecommunications industry.

KBA (Korean Broadcasters Association), which consists of the terrestrial broadcasters in Korea and represents their rights, sent a request document to KCC to delay the plan for the 700MHz band until the completion of the DTV transition which was not expected to take longer than one and a half years. KBA advised that it would take at least 10 months for stabilising of the DTV network throughout the country, after the analogue-switch-off.

Other than that, KCC firstly passed the agenda of allocating 40MHz bandwidth of the 700MHz band to mobile broadband without any comment regarding the DTV transition in January, 2012.

Free and General DTV Services Prior to the Commercial Use of the Digital Dividend

The radio spectrum is indispensable for a number of services, for communications, broadcasting and other applications. But spectrum is a finite resource and the demand for spectrum exceeds supply and therefore needs to be carefully managed. The main idea of spectrum management is to enable as many users as possible to operate without harmful interference and at the same time to settle the existing services such as TV services in the newly allocated and relocated bands.

KBA believes that the broadcasters have a deep understanding of the value of the digital dividend of analogue-switch-off and before considering the band plan, the regulatory body should have allocated the appropriate amount of spectrum to establish, move and maintain the new DTV services. It also believes that the concept of the nondiscriminatory supply of the free and general DTV services to people all over the country should have priority over the commercial use of the digital dividend spectrum.

Some Conflicts Between the Broadcasters and the Regulatory Bodies

Radio spectrum issues are generally dealt with by the ITU (International Telecommunication Union), the WRC (World

Radiocommunication Conference) and the APT (Asia-Pacific Telecommunity). Reflecting the trend of reaping rich returns through auction of spectrum to radio mobile telecommunication services, government bodies in various countries seem to push pro-communications policies rather than those for broadcasting.

Though broadcasters in each country have their own plans or opinions which may be different from those of the government body, they have no authority to participate in the radio frequency regulating process of ITU, WRC, APT and so on. Because every broadcaster has only the right of observing as a sector member in the international bodies, it has neither a contact point nor a proper channel for the conflicted issues.

The Expected Roles of ABU as the Representative Body

The ABU as the union of the broadcasters of the Asia-Pacific region, similar to the EBU for European broadcasters and the IARU (the International Amateur Radio Union) for the

amateur radio users throughout the world. The ABU is thus able to participate actively in the international regulatory process, supply background technical results and suggest proper solutions to get over the conflicting issues in its role as a representative body for Asia-Pacific broadcasting organisations. It also takes on many effective roles in ITU and WR and even in ITU research groups.

As mentioned above, with the increasing value of radio spectrum, the governmental bodies of many countries no longer seem friendly to the terrestrial broadcasters. Nevertheless, the Asia-Pacific countries are now facing the issues of digital TV transition including analog-switch-off and will be confronted with the TV White Spaces, both of which include the conflicts between the relevant governmental regulatory bodies and the terrestrial broadcasters.

From now on, there will be many critical issues related to the digital television transition in the Asia-Pacific region. In these the ABU is expected to play its many representative roles, amongst which are standing up and speaking for the Asia-Pacific broadcasters' positions at international regulatory conferences and studying the status of radio spectrum for broadcast in Asia-Pacific region.

author



Yim Zungkon
KBS (Korea Broadcasting System)

Yim Zungkon received his B.E. and M.E. degrees in electronic engineering from Inha University, Korea. He joined KBS (Korean Broadcasting System) in 1996. From 1996 to 2000, he researched the OFDM system and Eureka-147 DAB (Digital Audio Broadcasting) system in KBS TRI (Technical Research Institute). From 2000 to 2001, he researched the ISDB-T system in NHK STRL (Japan Broadcasting Corporation Science and Technology Research Laboratories) as a visiting researcher sponsored by ABU research award program. Since 2002, he has been working at the KBS TRI and researched the digital mobile service system of T-DMB (terrestrial digital multimedia broadcasting). His research issues are MIMO technology, 4k UHDTV transmission and OFDM transmission systems.

He was a member of the Korean national delegation to ITU-R from 2006 to 2009.

INTERACT WITH VIEWERS

KBS World interacts with viewers by communicating through social networking services and video sharing website, such as Twitter, Facebook and YouTube.

In order to meet the needs of audiences, KBS World updates the channel information in real-time. This two-way communication is paying off since we can get direct feedbacks from viewers.



<http://twitter.com/kbsworldtv>



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WORLD



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- China
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- Indonesia
- Kuwait
- Mongolia
- New Zealand
- South Korea
- Vietnam

radio

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multimedia

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- production of new digital radio content

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About WorldDMB

WorldDMB is *the* global industry forum for digital radio, facilitating the implementation of digital broadcast radio based on DAB+ and DMB. Its global membership includes stakeholders from across the industry and from around the world and includes public and commercial broadcasters, network providers, car, receiver, chip and equipment manufacturers.

Contact Bernie O'Neill, the WorldDMB Project Director for more information at bernie.oneill@worlddab.org

www.worlddab.org

The First DVB-T2 Single Frequency Network (SFN) in Vietnam

by Dr Ngo Thai Tri, MS Nguyen Chien Thang, Hoang Thanh Tung
Vietnam

1. About DVB-T2

DVB-T is a digital terrestrial television standard which has been successfully implemented in many countries world-wide. First released in 1995, it has been adopted by more than one hundred countries and regions. In parallel with implementing the DVB-T standard, researchers made continuous efforts to improve digital transmission and broadcasting technology. Moreover, the demand for broadcasting frequency spectrum has been increasing raised the question of how to maximise frequency spectrum efficiency. In response, the DVB Project developed the second-generation digital terrestrial television (DVB-T2) standard. The specification, first published by the DVB Project in June 2008 was standardised by the European Telecommunication Standards Institute (ETSI) in September 2009. Implementation and product development using this new standard has already begun.

The possibility of increasing the capacity within a digital terrestrial television (DTT) multiplex is one of the key benefits of the DVB-T2 standard. In comparison with the earlier DVB-T standard, the second-generation standard, DVB-T2, provides an increase in capacity of at least 30% in equivalent reception conditions, using existing receiving antennas. In particular the DVB-T2 specification allows for the possibility of maximising performance in SFN applications. Compared with the DVB-T standard, new carrier modes have been added to improve the performance of SFNs and increase the symbol period.

Many countries, such as the United Kingdom, Italy, Sweden, Finland,...have adopted and successfully deployed DTT systems according to the criteria of the DVB-T2 standard. Following the above trend, Audio Visual Global JSC., (**AVG Vietnam**) has conducted tests and deployed a DTT broadcasting network using the DVB-T2 standard for SFN technology, which helps save frequency resource.

2. SFN design based on DVB-T2 Standard

2.1 SFN Technology

When setting up SFN, all transmitters in network transmit on the same channel, which is convenient for planning and saving frequency resource.

Three requirements for all transmitters in one SFN as below:

- (1) The same transport stream (TS)**
- (2) The same frequency**
- (3) At the same time**

To set up and adjust the synchronisation between the transmitters in SFN network, AVG use T2 Gateway blocks, GPS receiver to transmit the synchronous signal to transmitters through 1pps and 10 MHz signal from the satellite.

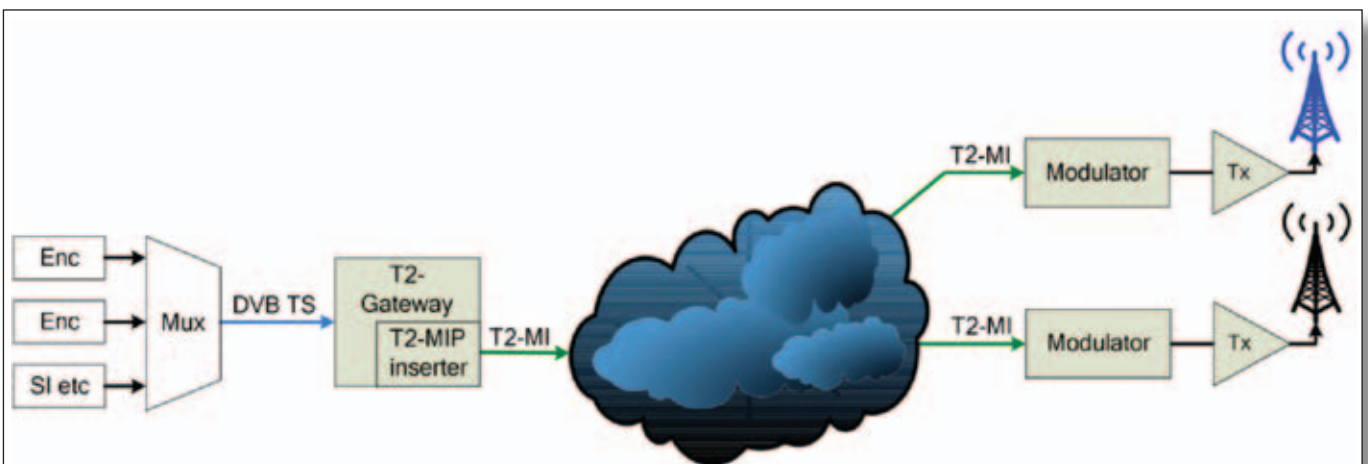


Figure 1: General Structure of over-air distribution of the T2-MIP to a SFN Sub-network

Source: ETSI TS 102 773 V1.2.1 (2010-12)

2.2 Configuration of DVB-T2 SFN set up by AVG

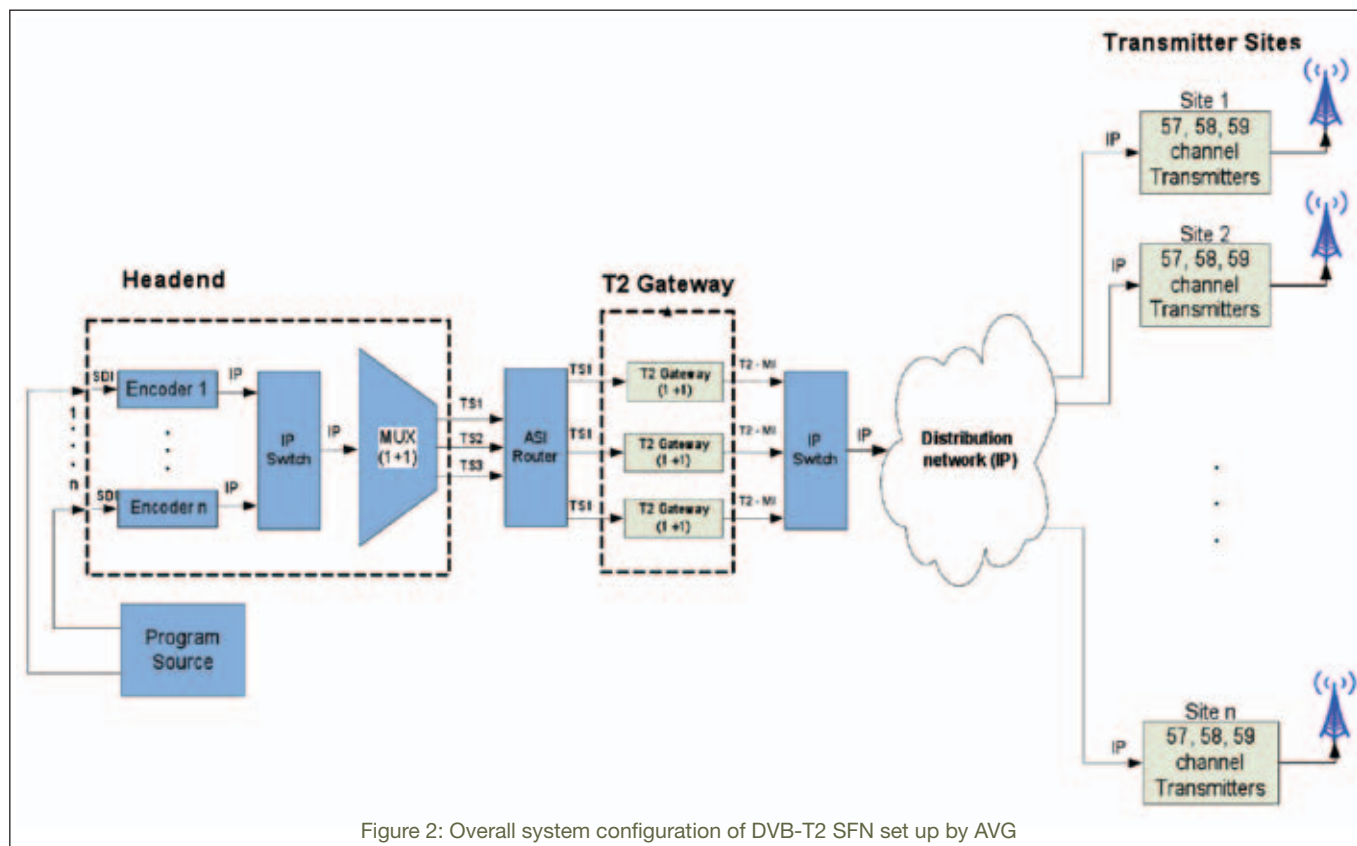


Figure 2: Overall system configuration of DVB-T2 SFN set up by AVG

Figure 2 shows the overall system configuration of the DVB-T2 SFN broadcasting system applied to channels 57 (762Mhz), 58 (770Mhz), 59 (778Mhz). The system comprises:

Programme source: This includes television channels produced by AVG and other programme sources.

Headend: The Headend centre functions to compress programmes, using MPEG4 encoder devices, applying Control Access (CA) system and subscriber management, and programme channels multiplexers (MUX). Output Multiplexer (MUX) includes three transport streams (corresponding to the three frequency channels) into the T2 Gateway system.

T2 Gateway: This system consists of three main T2 Gateways receiving the third output stream TS MUX, performing the functions of encapsulating the framework (Baseband Frame), L1 signaling information, sync information,... on T2-MI packets. The output of T2 Gateway are T2 MI packets which are packaged and transmitted via the IP transmission network to the transmitter sites nation-wide, ensuring broadcasting synchronous signals in SFN.

Transmission network: Performs the distribution of output signals from Headend centre to the transmitter sites.

Transmitter sites: Transmitter sites are being implemented through the nation, with three frequencies. Each site consists of three DVB-T2 transmitters of average power less than 3kW.



Figure 3: Network Control Center (NCC)



Figure 4: Network Operation Center (NOC)

authors



Dr Ngo Thai Tri

Dr. Ngo Thai Tri joined Audio Visual Global, JSC (AVG) as Deputy Director General in October 2010. Prior to joining to AVG, Dr. Ngo Thai Tri worked for approximately 35 years in Vietnam television (VTV). His highest position was Director General of IT & Measurement Centre, VTV. He has written two books on Digital Television and many other articles for broadcasting and engineering journals as well as presenting many papers at different conferences in Vietnam. He obtained Bachelor Degree in Telecommunication from University of La Habana, Cuba in 1974; Master of Engineering from University of South Australia in 1995 and PhD. in 2001. He is also an invitational lecturer at Hanoi National University.



MS Nguyen Chien Thang

MS Nguyen Chien Thang is a senior engineer of Coverage Planning and Measurement Department - Audio Visual Global JSC. He received his MS Degree in engineering from Tokyo Institute of Technology in 2000 and spent eight years working in R&D Development for a Japanese Company, specialising in BTS stations for telecommunication and mobile phone. Since 2009 he has worked for AV, in charge of planning and measuring nation-wide SFN and MFN, based on DVB-T2.



Hoang Thanh Tung

Hoang Thanh Tung is has worked for Audio Visual Global JSC., specialising in coverage planning, measurement and antennas, from 2009. He received his Engineering degree from Hanoi University of Technology. During his studies his achievements earned him a place in the Department of Research and Communication Development of the University.

AVG

**TRUYỀN HÌNH
AN VIÊN**

AVG's Pay-TV now available throughout Vietnam!

AVG's is proud to announce that its Pay-TV services are now available and distributed throughout all Vietnam. Combining both Digital terrestrial and Direct-to-home broadcasting, AVG offers the most suitable Pay-TV services for Vietnam's large TV audience base.

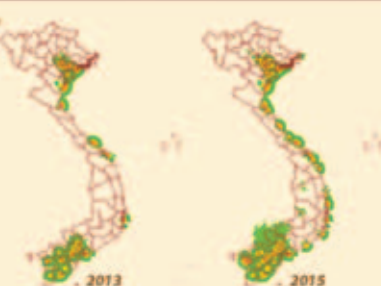


AVG's DVB-T2 HD equipment set

AVG self or jointly produced channels brings the best of oriental and Vietnamese culture to its subscribers



DTT Coverage Map
AVG's Digital Terrestrial network coverage extension program



AVG single frequency network (SFN) development based on DVB-T2 standards across the country



"Source of interest and pride of the Vietnamese"

AVG is the first and only private integrated media services company in Vietnam, providing nationwide Pay-TV services, content production and distribution, advertising, communications and interactive services in a multi-platform environment.

AVG quality of service is supported by a uniquely designed infrastructure to operate both Digital Terrestrial broadcasting (DVB-T2 Single Frequency Network) and a Direct-to-Home broadcasting platform, managing signal and controlling access via state-of-the art technologies and jointly designed end-user equipments.

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more engineers. more innovation. more award winning



MOREFM



VS SERIES FM 300W – 2.5kW



NV SERIES FM 3.5 – 88kW

MOREAM



NX SERIES AM 25kW – 2MW



MORECONTROL



NAUTEL AUI
(ADVANCED USER INTERFACE)

Nautel offers the industry's broadest portfolio of digital/analog solid-state transmitters including 1kW to 2000kW MW and 300W to 88kW FM models. Outstanding reliability, global presence, efficiency and exceptional support have resulted in more than 10,000 Nautel transmitter deployments in 177 countries. Expect more from Nautel.

Making Digital Radio Work.
See what more looks like at nautel.com/expectmore/

The Industry in Constant Change

The broadcasting industry is in a constant flux of change, mostly driven by innovations in technology but also by the demands of the audiences.

Among several factors of change that have emerged in the recent past are the Connected TV, enhanced usability of OTT, use of 3G for broadband multimedia products, greater interest in mobile broadcasting and delivery of products via Smart Apps. All of these developments have put innovative devices into the hands of the consumers and this has generated demand from them for equally innovative applications. As a result, broadcasters are under pressure to cope with the rapid change in technology and with the demand for new applications and services.

In this changing environment, some of the system standards are now being set, not by the broadcasters or standards institutions, but by the manufacturers. For example, so many genres of connected TV or hybrid broadcast broadband have emerged. The emergence of the 3DTV receiver is also another example, with the standards either set by major manufacturers or by closed groups of industry players. While the differences in the technical aspects of the standards may not be major, it is the accessibility to content on the Internet that separates the standards from each other. In this context, the World Broadcasting Unions Technical Committee is making a concerted effort to develop some commonly agreed objectives and practices in the connected TV area.

In the media space, we cannot ignore the new services of the 'near future', Ultra-HDTV, high scan rate TV and 3DTV. The current premise is that audiences, having watched HDTV, are not satisfied to continue watching their programmes in SD and are demanding full-scale HDTV from their broadcasters and service providers. This is a compelling factor for the drive to full HD and many broadcasters are taking the plunge. It is expected that Ultra-HDTV will also capture the attention and imagination of audiences and will be an instant hit. 3DTV, when perfected, will follow the same pattern. As such, the broadcasters need to assess the situation and take initial steps. We believe that these services are going to be demanded sooner rather than later.

According to some surveys conducted recently, the viewing of broadcast TV overwhelmingly outstrips that on mobile devices as well as on the Internet. On average, people watch 30 times more TV in the broadcast mode than on the Internet and mobile combined. This is an important factor for the progression of the broadcasting services and their future.

While the industry is in constant change, the industry players have to move with the times.

From Sharad, Nadeem, Bahadir, Kyaw Zaw, Geraldine and Ramlah

New Members

Full Member

State Committee of Turkmenistan for Television, Radio Broadcasting and Cinematography, Turkmenistan

The State Committee of Turkmenistan for Television, Radio Broadcasting and Cinematography oversees 7 television channels and 4 radio stations. It covers all events taking place in Turkmenistan with a particular focus on social and economic changes as well as its success and achievements in various spheres of life, emphasizing the history of the Turkmen people. These productions reflect the unique features of the country's historical development.

Associate Members

1. Emerge Media LLC, Mongolia

Emerge Media LLC is a private broadcasting organization in Mongolia operating under the name ETV. Manned by professional staff, its fully equipped studios produced broadcast programmes suitable for all ages covering music and entertainment, sports, business and new sets of programmes that reflect Mongolian culture. Despite a new entrant in the broadcasting industry in Mongolia, ETV has been awarded "The Best Television for Children" and "Entrepreneur Organization of the year".

Affiliate Members

1. Broadcasting Satellite System Corporation, Japan

Broadcasting Satellite System Corporation (B-SAT) is a private corporation established in April 1993 in Japan. It is engaged in the procurement, management and leasing of transponders on communications satellites. It provides broadcasting satellite services, uplinks, and generation of electronic program guides (EPG) for broadcasters. It uses five broadcasting satellites: BSAT-2a, BSAT-2c, BSAT-3a, BSAT-3b and BSAT-3c. It is jointly owned by NHK, TBS, TV Asahi Corp, BS Nippon Corp, BS Fuji Inc, BS Japan Corp and Wowow, Inc.

2. Green Wave Telecommunication Sdn Bhd, Malaysia

Green Wave Telecommunication Sdn Bhd is a private company in Kuala Lumpur, Malaysia. Their main activities include design and production of Digital Video Broadcasting equipment based on DVB-S, DVB-T, DVB-H and also Microwave radio links. They are able to provide full end-to-end solutions for both broadcast and telecom and their primary business consist of design, product and implement electronic, computer (Software, hardware), Telecom, Broadcasting and control projects; to provide engineering services and maintenance of telecom and electronic systems.

3. International Media & Broadcasting Academy, Australia

The International Media & Broadcasting Academy, an Australian training company formed as a division of AMT Pty Ltd, is a professional broadcast training institute operating in the Asia Pacific, Africa and the Middle East. Courses are conducted online and in centres including Mumbai, Dubai, Sydney and Johannesburg. Its headquarters are based in New South Wales, Australia. IMBA runs radio, television and new media courses, and can also develop tailor made courses for delivery in-house.

4. Soroush Multimedia Corporation, Iran

Soroush Multimedia Corporation (SMC) was established as an affiliate of Islamic Republic of Iran Broadcasting (IRIB) to expand IRIB's public relations, to produce video and audio commercials for TV and radio and to support the organisation's commercial activities. They are one of Iran's major producers and distributors of audio and visual products. SMC is actively involved in marketing and sales of audio and video products.

Additional Full Member

Sawt Al Madenah Radio, Jordan

Sawt Al Madenah Radio is a private radio broadcasting company in Jordan, a part of Jordan Broadcasting Channels (JBC Group) which comes under the Al Baddad Holding Group. Its nationwide broadcast reaches 70% of the population through its stations in Amman (88.7 Hz) and in Arbid (99.3Hz), covering entertainment, news, talk shows and sports. Its well-researched programmes are complemented by three state-of-the-art studios, the first such high-end technology in the Middle East.

2. RT Channel (The Russian TV Channels), Russia

The Russian TV Channels broadcast 24/7 in English, Arabic and Spanish in more than 100 countries around the world. RT is a global television news network, broadcasting from studios in Moscow and Washington across 5 continents, consisting of three news channels in English, Arabic and Spanish, a video agency and four multimedia web-portals. With a global reach of 400 million viewers RT broadcasts through 19 satellites and more than 200 cable and over-the-air TV provides to diverse and demanding international audience.

5. Telstra Singapore Pte Ltd, Singapore

Telstra Singapore Pte Ltd is a private company incorporated in Singapore and is a leading global supplier of managed network services and international data, voice and satellite services company, a division of Telstra, Australia. They provide global telecommunications services and solutions with its offshore subsidiaries and international investments, serving over 200 of the world's 500 companies throughout Europe, Asia Pacific and the Americas.

6. Ten Alps Communications Asia Pte Ltd, Singapore

Ten Alps Communications Asia Pte Ltd is a leading contract publisher with over 600 titles. It publishes leading business to business titles in print, online and events such as Television Plus, Asian Television Awards, Asia Image, Control Engineering Asia/China, Payload Asia, and Asia Food Journal, to name a few. It is the publishing arms of Ten Alps Plc, of United Kingdom.

7. Triton Digital Media Asia Pte Ltd, Singapore

Triton Digital Media Asia Pte Ltd is a digital service provider to traditional and online radio with a rapidly expanding roster of media clients emerging from television and print media. Its products include Delivery, Ad Injection and Measurement, The Delivery platform allows streaming audio to be delivered at broadcast quality seamlessly to any device anywhere in the world. Ad Injection enables broadcasters to substitute ads when simulcasting is not permitted, or when an advertiser chooses to target specific audience segments.

8. TTOC Media Pty Ltd, Australia

TTOC Media Pty Ltd is a propriety Australian company and the abbreviated name TTOC stands for The Television Technical Operators College and founded by Australia's largest television production facilitator, Global Television Services Pty Ltd (Global) as one of its subsidiaries. They are in partnership with the Australian Government (TAFE) and Australian Television Industry, to run 54 industry approved courses which have been accredited by TAFE. They aim to launch their training services into Asia in 2012, offering short courses on audio, EVS, HD Switchers, HD Camera, RF Systems.

250th Issue of the ABU Technical Review

Down The Memory Lane

Noting that this issue of the ABU Technical Review is the 250th, we thought it would be a good idea to trace the origin and evolution of this notable publication which has served the broadcasting industry for the last 43 years.

Delving into our very well preserved records we found the first issue of the ABU Technical Review was published in March 1969. It comprised 62 printed pages. At that time the Union was known as the Asian Broadcasting Union. However over the years, the name of the journal, the ABU Technical Review has remained unchanged.

The first issue referred to the then ABU President, Mr Yoshinori Maeda, also the President of NHK. The two Vice-Presidents were Mr Gilbert Stringer, Director-General New Zealand Broadcasting Corporation and Mr Dol bin Ramli, Director Radio Malaysia. The Secretary-General was Sir Charles Moses, CBE. The Union was headquartered in the NHK Building in Tokyo and the Secretary-General's office was in Sydney. The Editor of the Magazine was Mr V Balasubramaniam, Assistant to the Secretary-General.



The TR debuted in
March 1969



The first technical article by
All India Radio (AIR)

The first technical article was provided by All India Radio on 'Night-time Transmitting Antennae for Tropical Broadcasting', containing field strength measurements and field strength curves. An article on an Electronic Television Standards Converter was provided by the BBC. This issue also furnished a description of the ABU activities in what were designated as Study Groups 4 and 5, the former dealing with Videotape Recording and the latter with International Programme Exchange.

An interesting feature in this issue was the Question Box, where members asked for possible technical solutions. One of the first questions was from RTM-Malaysia on setting up of three 300KWz Medium Wave transmitting stations. This issue also had reports on development in broadcasting in ABU member countries, CCIR (ITU) activities and features on developmental news and reviews of technical publications.

It is interesting to note that, at that time, the Union had 22 Full Members (all of which are current Members) and around 25 Associate Members.

Further on in time, the Chairman of the Technical Committee, Mr S S Aiyar, Chief Engineer of All India Radio, addressed the readers through the September 1969 issue. In that same issue there was a review of a book by Mr Friedrich P H Meier, on experience gained in colour film production for television. The writer of this piece had the privilege of being trained by Mr Meier in colour film processing, in 1975.



Radio Hong Kong's Broadcasting Centre (1969)



The Engineering Committee during one of its meetings

Further on there is a comprehensive article on the broadcasting developments in the Fiji Islands provided by the FBC. In the development section, one of the items relating to a sub-miniature wireless microphone developed by NHK.

Evidently, since its inception, the ABU Technical Review has been regarded as a well devised publication containing a wide variety of information in areas of interest to the industry, as well as to its members.

Going further in time, the first colour advertisements in the Review started appearing in the late seventies, including an ad for Ampex video recorders.

One of the Directors of the ABU Technical Centre, Mr A M M A'abad, joined the ABU in 1981 and remained for about ten years. The early 1980s also saw advertisements coming from a large number



Ampex advertisement in 1990s

of broadcasting manufacturers which included Sony, Broadcast Electronics, Yagi Antenna, Hitachi, TCI, NEC, AEG Telefunken, LTG Telecommunications, HARRIS and Thomson-CFF.

In the 1990s, the Review got a new cover and focused on high quality technical articles as well as news from the ABU region and the rest of the world. Mr O P Khushu, the then Director, brought in several new features.



Sony advertisement in 1990s

The first decade of the new millennium was a watershed for the Review as it was up-sized to A4 size and published in full colour. Mr Wayne Heads, the Director of the Technical Department during that time, initiated this transformation, providing the Review with a new cover design and presentation style.

Towards the later part of the last decade, the Review saw further enhancements such as profiling of the members, including those hosting the General Assembly meetings, interviews with the Engineering Heads of organisations, full reports on events such as the Technical Committee meetings and the ABU Digital Broadcasting Symposia. The latest change was the new cover design which was brought in with the first issue of 2012.

The Technical Review has journeyed over time and has provided its readers with industry news and high level articles on technology developments and implementation.

The latest is that, following the current demand for Smart Apps, the TR can be downloaded on Android devices using a QR Code.

Dear Reader, thank you for your support.



2012 ABU Technical Bureau Meeting: DECISIONS TAKEN



The 2012 mid-year meeting of the ABU Technical Bureau was held in Kuala Lumpur in May. The Bureau reviewed the progress of current activities and studies. Also addressed were several important issues of concern to the members, summarised in the following:

Technical Strategic Issues

The Bureau set up an Advisory Group on Technical Strategic Issues, comprising six members and chaired by Mr Hamid Nayeri of IRIB. The Group will conduct studies on two issues: 'Human resource development and information transfer and consultancy' and 'Making ABU more attractive to members and commercial broadcasters.' The Group will point out ways on how these can be addressed effectively by the Technical Committee. An initial set of Recommendations will be provided by the Group at the TC 2012 meeting.

Engineering Excellence Awards

Reviewing the ABU Engineering Excellence Awards, the Bureau decided that the award nominations should be judged on the basis of impact of contributions made within the respective organisations, so that both larger and developing members have an equal chance to compete for the awards. To facilitate this, it was decided to provide guidelines for the panels of judges.

Expansion of Bureau Membership

The Bureau agreed to increase its total membership by three, with one of the new positions being provided

in the Associate Member category, one position in the Full and Additional Full Member category (higher subscription fee category) and one position in the Full and Additional Full Member category (subscription level A to J). The Bureau identified the need to attract highly expert and experienced Senior Executives to be members of the Bureau and proposed to include the Criteria/ Guidelines for pre-qualification for Bureau membership in the Rules of Procedure of the Technical Committee.

New Topic Area

A new Topic Area, 'Spectrum – WRC-15,' was set up to carry out studies on the relevant issues of the ITU Conference, with five projects addressing agenda items 1.1, 1.2, 1.3, 1.6.2 and 1.10. Another project was set up on solutions for global/regional organisation of frequency bands and tuning ranges for ENG use. The Bureau once again supported the spectrum related activities of the ABU and asked the TD to go ahead with plans for a study in this area.

Topic Area 'Spectrum – WRC-12' was terminated, as the work on WRC-12 has concluded. It was also decided to terminate the work of the Study Project on Local Broadcasting in the 26MHz Band as a comprehensive report on the subject is now available.

DB Symposium

The Bureau's view was that the ABU DB Symposium was going from strength to strength and has transformed itself into a premier industry event, sharing knowledge and expertise and providing excellent value for money.

Smart App for TR

The initiatives taken by the TD to set up a smart application for downloading of the Technical Review on smart phones, tablets and other devices was highly appreciated the Bureau.



Helping to Preserve the Broadcasting Spectrum

The ITU convenes conferences (WRCs) every few years at which national governments agree to any changes necessary in the ITU's Radio Regulations on radio frequency spectrum. The objective of the decisions does not define what individual countries should do inside their own borders, but rather to regulate any interference that one country may cause to another. However, in practice, this has a significant impact of what individual nations can do inside their borders.

A headline development at WRC 12 was the decision by Region 1 countries to take another slice of what are the frequency bands used for broadcasting and give them to mobile phone and associated services. At the previous conference, WRC-07, many countries in the Asian region secured for themselves use of a part of the UHF band for mobile applications.

and broadcasting services and their development would be impaired if further spectrum is lost.

What Needs to be Done

At this juncture, some experts in Europe are debating whether or not terrestrial TV broadcasting will continue and, if so, in what form. To many broadcasters it is very clear that given the current spread of TV services all over the world, the dedicated audiences that they have, their well established business plans, investments and revenue streams, there is no doubt that the TV broadcasting has to continue in the present form in the foreseeable future. So it is important that a movement be generated by the broadcasters to ensure that they have sufficient spectrum for their on-going TV services and enough room for expansion of those services.

The value of terrestrial broadcasting, and the additional spectrum needs of broadcasters, require to be addressed



A Session from the Conference

Growing Pressure on UHF Band

These developments reflect a continuing major policy challenge for broadcasters, one being debated throughout the world. The WRC conclusions are just one of a number of developments in the broadcasting world. Since the year 2000, the broadcasting spectrum, in particular the UHF TV spectrum, has come under increasing pressure to cede valuable spectrum for mobile. Some experts in the field observe that the national spectrum regulators are generally sympathetic to the demands and efforts of the mobile telephone network operators.

There is growing pressure across the world from mobile operators to take away the radio spectrum that has hitherto been assigned for analogue television broadcasting. Many experts believe that this has now reached a watershed

and resolved at a senior management level, both nationally and internationally. It would be very helpful if

- Senior managements within broadcasting organisations are briefed on the importance of the broadcasters taking up these issues with their respective national regulators.
- Senior managements among the broadcasters take up this matter to ensure this issue is addressed at the higher levels of Government.

The ABU places a lot of emphasis on spectrum matters. The Spectrum – WRC issues study group has been quite active on spectrum studies in the four-year preparatory period which resulted in ABU contributions to WRC-12 on 10 agenda items. The principal role of the ABU is to safeguard the frequency spectrum for the broadcasting industry and to bring forth the requirements of the broadcasters (as the members deem it) and work towards including these in the conference outcome.

RAI Amsterdam

Conference 6-11 September : Exhibition 7-11 September



Conference

Leading the electronic media and entertainment agenda through innovation and debate, the IBC Conference is attended by the most influential thinkers from the leading companies in the world.

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- Connected TV
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- Sport
- Transmedia
- Workflow



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Exhibition

IBC welcomes over 50,000 attendees from over 160 countries & 1,300+ key international technology suppliers each year. In addition, attendees can take advantage of a variety of extra special features including:

Future Zone

showcasing the latest developments in broadcast technology

IBC Connected World

including demonstration area in Hall 14

IBC Big Screen

providing the perfect platform for manufacturer demonstrations and the Saturday Night Movie

IBC Production Village

presenting the latest camera technology in a purpose built environment

IBC Awards Ceremony

acknowledges those who have made a real contribution to the industry hosted on Sunday 9 September



For more information please visit: www.ibc.org/exhibition

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Workshop on Management in Maldives

The Norms of 21st Century Management and Evolution for Decision Makers



The two-day in-country Workshop on Management was held from 25-26 April 2012 in Malé, the capital of Maldives. The workshop titled, “The Norms 21st Century Management and Evolution for Decision Makers”, was targeted at senior executives, decision makers and senior management staff of broadcast and media related organisations in the Maldives. The workshop was organised jointly by the ABU, Maldives Broadcasting Corporation (MBC) and Island Broadcasting Company (VTV) and was held at the MBC’s radio broadcast facility in Malé.

The participants were presented with the core elements of 21st century management and how it supports the rapidly changing technological environment. It is of paramount importance that the professionals and business managers conceptually understand these 21st century norms namely, Uncertainty, Ambiguity, Paradox & Chaos. In the time to come, such parameters may supercede the core classical management parameters such as Planning, Organising, Leading and Controlling. Thus, managers and decision makers must learn the art of coping with such issues and explore the associated opportunities. Leadership and decision making in the current environment is becoming increasingly difficult and challenging. Not only to keep the pace of change, but also to face the challenge of creating new knowledge in a global marketplace which requires the adaptation of existing understanding and creation of new ways of thinking and learning.

Among the areas discussed was the importance and significance of knowledge in modern management. The core performance dimensions of knowledge management are, knowledge driven culture, knowledge oriented leadership, innovation, intellectual capital management, collaborative

knowledge sharing, organisational learning, managing customer knowledge and transformation of knowledge into wealth. The process of gathering, organising and sharing information is called Knowledge Management. Many organisations are now moving towards transforming from an “Experience Based” management to “Knowledge Based” management. Some modern organisations have a Chief Knowledge Officer (CKO), which is a parallel position to the CEO to supplement the CEO with knowledge inputs, whenever required. The practical alternative to the role of CKO in a traditional organisation is the formation of a Think Tank. Younger generations of today are more advanced, educated and knowledgeable. As some of the experts have said ‘organised knowledge is the power in the 21st Century’.

The other important subject looked at was invention, innovation and creativity. Creativity is composition of expertise, task motivation and creative skills. It results in the production of new ideas and once an idea is given life, it becomes either a product or a process. An Invention is a new thing and an Innovation is a new way of doing things. An innovation can come about accidentally as well.



(continued from page 23)

It may be possible to transform a project or a product into a remarkable success, which may have miserably failed in its original intended purpose. A product innovation shall not attempt to change the behaviour of people to suit the product but rather move towards enhancing their lives.

If a ratio R defined as $R=X/Y$ where X is the numerator and Y is the denominator, the value of R can be increased either by increasing the X or reducing the Y . Most of the organizational efforts such as corporate planning, strategic planning, organization restructuring, business process re-engineering, etc. all focus on denominator management functions, which attempt to make the inputs efficient. Most modern companies who have made it a success in a short time applied the concept innovation known as numerator management, which is the key to success in the 21st century. A concept innovation immediately causes a paradigm shift in the industry that will compel the others to follow the new trend. This comes about with strategic thinking, what is most essential for the 21st century.

The core objective of this workshop was to create the mindset that decision making is the core of all managerial activities and to acquire the thinking process to make the best decision under conditions of uncertainty, ambiguity, paradox and chaos using modern tools and techniques to enhance the decision making capabilities of the participants to a higher level.

This participants were presented with topics such as; The Norms of 21st Century Management; Significance of Knowledge in Modern Management; Innovations & Paradigms; a conceptual overview of the DISC Ideology; Decision Making



A session from the workshop

Process and the Limitations; and a conceptual overview of Risk and Strategy. The presentations and discussions looked at the decision support systems, techniques of motivating human resources (peers & sub-ordinates), developing positive leadership styles and communication skills.

In addition to the lecture sessions they also participated in exercises which allowed them to try and understand the concepts of human resource management, developing strategic plans and innovative ideas for problems in hand and how to approach and analyse situations for decision making.

The workshop was attended by more than 35 participants representing heads of organisations and senior executives and staff involved in management and decision making in their daily activity. The workshop leader and expert, Mr Ajith Rohana Colonne, is a consultant and lecturer in Management and Business Economics with many years of experience in innovating and training on the concepts of 21st Century Management practice.

The New Radio-in-a-Box from ABU:

RiB Mark II

The ABU's Radio-in-a-Box (RiB) is truly an FM Radio station in a portable box. It is very versatile, comes complete with audio production facilities and an FM transmitter, configured in a flight case that is portable and can easily be transported. The radio station can be quickly and easily deployed at remote locations requiring only a simple power source, such as a power generator.

The RiB has been recently re-designed, as RiB Mark II, to be more compact, lighter and cost effective. The unit is equipped to play and record from MP3 and other supported digital audio formats, directly from a USB or common memory cards. The unit comes



with an industry standard audio workstation, playout and scheduling software.

The RiB comes in two versions with 30W or 100W FM transmitters and is bundled with an antenna and feeder cable. Spare transmitters are provided as a standard accessory.

The unit has all facilities needed to make short audio productions, including editing capabilities using open source software which comes pre-installed in the portable audio workstation. Using the pre-loaded playout and scheduling software, the unit can also be programmed to play automatically from a playlist, without the necessity for manned operation. The unit can take multiple inputs from external sources, such as microphones for announcements and can easily be operated by less experienced operators using the integral audio mixer. It can also play audio files direct from USB flash memory or standard memory cards in addition to audio CD's. The audio workstation can be used to make recordings from all these sources, edit and playout material directly without the need for any addition equipment.

In many cases disaster stricken areas have most of their crucial communication facilities such as radio stations and mobile telephony infrastructure damaged or in inoperable. The RiB can quickly and easily be transported by a vehicle, or by air to the affected areas, where it can be quickly deployed at the remote location using a power generator. If its antenna can be suitably placed the unit can easily cover a radius of more than 5km.

Such a radio station can be used for providing information to the affected public regarding relief measures, such as the location of rehabilitation, medical, food, clothing and shelter assistance centres.

The use of RiB can only be effective if such units are stored in strategic locations in disaster prone areas, so that they can be deployed in affected locations as quickly as possible. For effective application, it is also necessary that the affected population is provided with, battery operated, low-cost FM radio receivers.

This communication channel has been proved to be vitally effective in disaster mitigation efforts and activities.

The ABU has manufactured and delivered many RiB units,

which are now in use around the world, mainly in South America, Africa and Asia. The ABU provides these units as a service to its members at minimal additional cost, apart from the equipment to cover overheads of assembly and logistics. This is just one of many activities in which the ABU has been involved in; creating awareness and promoting the use of technology for disaster risk reduction and establishing effective communication in post-disaster mitigation efforts.



For more information please contact:
bahadir@abu.org.my

Progression of 3DTV and Ultra High Definition Television

Extract from the Report of ABU Advisory Group on Next Generation Broadcasting Services

Introduction

With the rapid progress of the digital transition around the world the term 'new media' has become common to content consumers. Previously the term 'new media' mostly referred to 'media that are different from normal TV'. However, as newer and newer media has emerged, 'new media' cannot fully generate a mental image that signifies newness, to the consumers. This conceptual change has given way to narrow and specific terms like 'N-screen', 'Smart media', 'Social Media', 'Connected/Hybrid Media', etc.

The versatility, interoperability, compatibility, and flexibility of recent technologies has created better developed content systems, where content is no longer bound to technology platforms. Once the media content is produced it can be served 'any time', 'any where', on 'any device'. A platform revolution, accelerated by the digital transition is now generating a technology-driven content shift.

Better and stronger technologies are coming one after the other relentlessly, without giving the broadcasters a break. Should they sit and watch the technologies come and go, or should they try to employ every new technology at the risk of replacing each new system with one even newer?

This report provides a glimpse of some of the new services, so that broadcasters can grasp recent developments in the media industry and ponder what action may be relevant in the future.

1. 3DTV

Even though 3DTV is not so dominant in the production and broadcasting of programmes, TV manufacturers are equipping their mid-to-high-end TV sets with 3DTV capabilities. Also, 3DTV content has significantly increased on VOD services.

Improvement and research into 3DTV is ongoing in every part of content production and delivery.

- **3D Visualisation:** Projection and display technology for 3D videos, stereoscopic and auto-stereoscopic display techniques, holographic display technology, reduced parallax systems, integral imaging techniques, underlying optics and VLSI technology, 3D mesh, texture, point, and volume-based representation, object-based representation and segmentation, 3D motion analysis and animation.
 - **3D Quality of Experience:** Subjective quality evaluation, objective quality metrics, multimodal experience, interaction with 3D content.
 - **3D Applications:** 3D television, cinema, games and entertainment, virtual studios, advanced 3D audio applications, 3D imaging in virtual heritage and virtual archaeology, augmented reality and virtual environments, underlying technologies for 3DTV, medical and biomedical applications, 3D content-based retrieval and recognition, 3D watermarking, other applications.
 - Physical and mental effects on viewers
- Sales of 3DTV sets have kept rising and studies show that consumers buying 3D television sets buy them simply because 3D is available on a widening range of TVs. It is generally not that they particularly aim to watch 3D TV. Having got the facility however they do watch 3D content once in a while.
- The problems the 3DTV industry is facing on its way to the mass market can be summarised as follows:
- High 3D programme production costs
 - Low resolution due to lack of bits available in conventional HDTV. This problem being tackled by introducing higher compression technology or using a separate data link to deliver additional (e.g right-eye image) However this needs modification to the receiver.
 - The inconvenience of having to wear 3D glasses. . Glasses-free 3DTV technologies are being researched in many countries but have tended not to show satisfactory results so far.
 - Lack of (low-cost) content. Consumers are reluctant to pay extra for 3D content.
 - Possible harmful physical and/or mental effects (especially worrisome to parents of young children)
 - Different 3D television Formats. 3D formats include. Side-by-Side, Top/Bottom, Line-by-Line, Dual-Stream etc.
 - Uncertain revenue. TV viewers are not so eager to pay for 3D devices and content.
 - A less immersive 3D experience in the home. For example, a small living room space can limit the experience of visual and aural 3D effects.
- **3D Capture and Processing:** 3D audio-visual scene capture and reconstruction techniques for static and dynamic scenes, synchronisation and calibration of multiple cameras, holographic camera techniques, multi-view and multi-sensor image and 3D data processing, mixing of virtual and real worlds, 3D tracking.
 - **3D Coding and Transmission:** Systems, architectures and transmission for 3DTV, coding of multi-view video, 3D meshes, and holograms, audio coding for 3DTV, error resilience and error concealment of 3D video and 3D geometry, signal processing for diffraction and holographic 3DTV.

2. UHDTV (Ultra High Definition TV)

Due to its undefined physical effects, 3DTV has not met the initial expectation that it would be prevalent within a few years. While 3DTV and UHDTV both utilise the increased resolution of digital TV, it is UHDTV which is now gaining ground as a next generation TV platform.

Last April, Four Korean terrestrial broadcasters, KBS, MBC, SBS, and EBS signed an MOU to field test UHDTV. The test broadcasts will be performed on the newly-assigned CH66, using a 1kW transmitter in the Seoul metropolitan area. Actual schedules and technical specifications have not been decided yet.

NHK has long been planning a UHDTV (Super Hi-Vision, SHV) demonstration during the London Olympic Games in cooperation with the BBC and OBS (Olympic Broadcast Services). The planned format is known to be 7,680 X 4,320 pixel definition ('8K'mode) with 22.2CH audio.

Though there is yet no agreed international standard for this next generation TV, those core technologies that are not heavily dependent on standardisation are being tested and demonstrated by many organisations.

Screen sizes under consideration for UHDTV are normally called '4K' and '8K', related to their horizontal pixel

numbers. The table below shows the UHDTV formats under consideration for standardisation by the EBU.

	UHDTV1	UHDTV2
Number of Pixels (W * H)	3,840 x 2,160	7,680 x 4,320
Aspect Ratio of Screen	16:9	16:9
Aspect Ratio of a Pixel	1:1	1:1
Sampling Lattice	Orthogonal	Orthogonal
Capture Frame Frequencies	120, 60, 60/1.001, 50, 30, 30/1.001, 25, 24, 24/1.001	120, 60, 60/1.001, 50, 30, 30/1.001, 25, 24, 24/1.001
Scanning Algorithm	Progressive	Progressive

From the broadcaster's point of view, evolving to UHDTV is thought to promise benefits to them by longer viewing time with less of the viewer stress experienced with HDTV and other lower resolution systems. For the manufacturers there is the promise of a new consumer market, going beyond HDTV which is set to become saturated.

Several manufacturers have already formed UHDTV product families (mostly for 4K) to preempt the market.



Sony F 65 4K Camera
 – 4K Real time output
 – Sony SR memory
 – 4K 60P possible



Canon C500 4K Camera
 – 4K real time output (3G HD-SDI)
 – AJA Ki pro quad storage
 – 4K 60P possible



Panasonic 4K Camera
 – Prototype
 – AVC-Ultra 4K (4:4:4)



JVC 4K Camcorder
 – 4K real time output (4 HDMI outs)
 – SD memory card
 – 4K 60P possible



RED 4K Epic Camera
 – 4K real time output
 – Internal SSD Storage
 – 4K 60P possible



<4K I/O Board>
BlackmagicDesign DeckLink
– 4 HD-SDI I/O's



AJA Ki Pro Quad
– Removal SSD
– Compressed/Uncompressed
– Compressed format



BlackmagicDesign HyperDeck Studio Pro
– Removal SSD
– Compressed Format



Astro 4K recorder
– Fixed Storage
– Uncompressed



• UHDTV – SUPER Hi-VISION IN LONDON

NHK's next generation TV -SUPER Hi-VISION - is to be used for Public Viewings of the 2012 London Olympics in collaboration with the Olympic Broadcasting Services (OBS) and the BBC (UK).

These SUPER Hi-VISION Public Viewings will take place in the UK, Japan and the USA, from 28th July to 12th August, 2012.

SUPER Hi-VISION, is known for its dynamic images and sound, with 16 times the resolution of current HDTV.

SUPER Hi-VISION offers visually outstanding features: 4320 scanning lines in comparison with HD's 1080 or 16 times standard HD resolution. It also features audio excellence, by way of 22.2 multichannel sound, compared with the 5.1ch surround offered with standard HD. NHK began R&D into SUPER Hi-VISION in 1995.

The Broadcasting Network of Mongolian Radio and Television

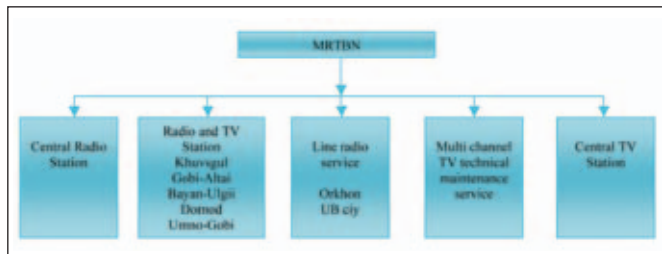
by **Davaasuren Santiv**

MRTBN (Mongolian Radio & Television Broadcasting Network)

The mission of the Mongolian Radio and Television Broadcasting Network is to develop and expand the national radio and television network of Mongolia in optimal ways, matching current and future demands of customers; to establish opportunities to deliver all types of radio and television services to the public through updated techniques and technologies; to cover the entire territory of the country with the aim of broadcasting and transmitting multiple channel radio and television programmes at a high technological level; to provide continuous and reliable operation of networks and to introduce new technical innovations.

Organisation

MRTBN employs over 250 engineers and technicians in Ulaanbaatar city and 21 provinces.



Central Radio Station

The radio programme broadcasting facility was built in the 1930s and the first radio programme was broadcast on September 1st, 1934. Since the first radio station became operational the development of the service has progressed nationwide.



Transmitting station near Ulaanbaatar

In 1960, facilities for a radio programme Broadcast and Receiving Centre were built in Ulaanbaatar and became a starting point for establishing a technically integral network for radio programmes throughout the country.

As a result of three technical upgrades to the radio network, Mongolian National Public Radio programmes are broadcast on a daily basis via three networks, utilising long, medium and short wave. For instance, programmes of the 1st channel are re-transmitted through RNTC, a LW station with a capacity of 500 kWt, located in the Khonkhor area and LW and MW broadcast stations with capacity of 75 kWt in four other towns. The 2nd channel's programmes are re-transmitted by SW stations with a capacity of 10-50 kWt which were built in Ulaanbaatar and two other towns in 2003. The 1st and 2nd channel programmes of Mongolian Radio are then re-transmitted by FM stations located in over 70 town centres.

Radio and TV Station in Khuvsgul Province



Feeder for LF antenna

A typical provincial facility, the “Murun” Radio and TV station, equipped with 150kw MW and 12kw power SW transmitters, was established to rebroadcast National Radio programmes in the Central Mongolian area. Since its establishment, listeners have received National Radio programme with good quality. Since the commissioning of the SW transmitter in 2003, two channels of National Radio Programmes have been broadcast simultaneously. Multi-channel Television broadcasting started in 2009.

Central Television Station

In 1967, a high power station with a 180 meter-high tower was built to broadcast television programmes via UHF in Ulaanbaatar and, in 1991, technical upgrades were undertaken and the 2nd and 4th channel transmission stations were replaced by a complex station with each reserve blocks.

Nowadays, the TV station transmits Mongolian National Public Television's 2nd channel to the Ulaanbaatar area using a 5 kWt station and the 6th channel to Ulaanbaatar satellite areas via a 300 Watt station.



Modern Transmitter

In addition, MRTBN is responsible for the technical operation of FM radio stations broadcasting to Ulaanbaatar residents. A 200 meter high central television tower is mounted with over 60 antennas and feeder systems serving 37 organisations.

Following a technical innovation plan, an internationally open bid for upgrading the 2nd channel equipment of the UHF Station has been announced. Additionally a 5 kW capacity station, which fully provides modern PAL system services, together with an antenna and feeder system was installed in October, 2007.

The above technical improvements were made by MRTBN's technical staff in collaboration with Russian engineers and technicians. The main feature of the above station was an additional combiner to integrate the output signals of 1st and 2nd channels before feeding to a single antenna. With two stations connected to one antenna it then became possible to transmit additional TV channels.

Ulaanbaatar Radio Line Service

This service provides radio broadcasting to 55,000 listeners in the six districts of Ulaanbaatar and Erdenet City, using a 195 km long central line and 430 km long user lines. In addition the radio line service also provides technical readiness for nationwide live radio broadcasting of the annual Naadam festival.

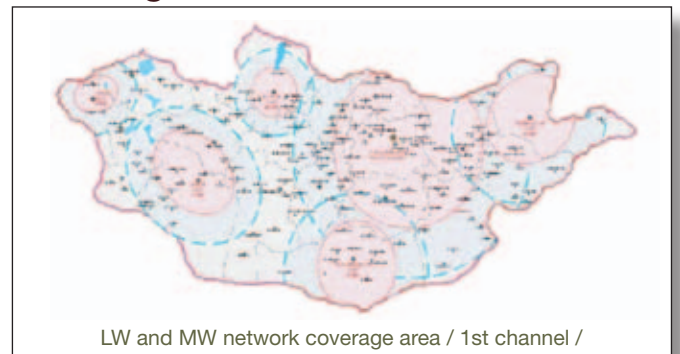
Service for Technical Management and Control



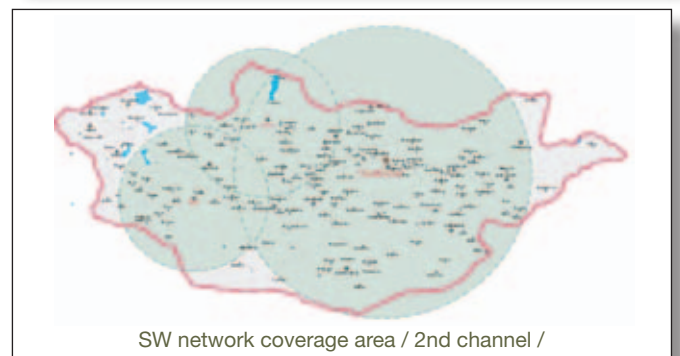
Tx Display panel

This service takes care of the control of technical equipment and the quality of broadcast programmes being transmitted by stations located in centres in over 380 soums (administrative districts) and populated areas, attempting to solving the grievances received from citizens on an immediate basis. The service is responsible for transmitting programmes of multi-channel radio and broadband television throughout Mongolia.

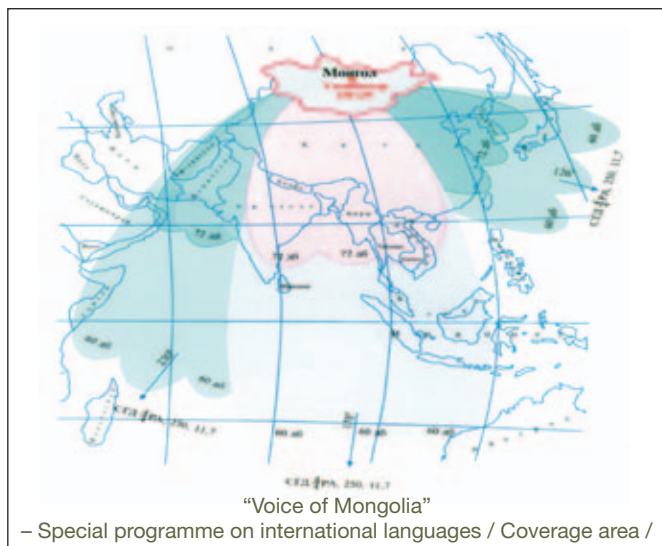
Coverage



LW and MW network coverage area / 1st channel /



SW network coverage area / 2nd channel /



Utilisation Service for Multi-channel Television

The multi-channel television service controls the operation of television re-transmission stations located in Ulaanbaatar

and provincial centres, provides local technicians and engineers with technology management on a daily basis, ensures normal and reliable operation of the network and makes quality control on national multi-channel television programmes and broad band radio programmes being transmitted through satellite.

Mongolia migrated to KU band satellite communication in 2010 when it started to re-transmit national multi-channel television programmes via the APSTAR-V satellite. This enabled high quality reception and/or re-transmission of foreign and domestic television channels in any part of the country.

Multiple television channels compacted by the use of digital transmission technology DVB-S/MPEG-2 are received from satellite and re-transmitted via 4-6 analogue television signals in local areas by repeater stations operating in the 450-860MHz band.

The Centre employs 19 engineers in local areas and five engineers in Ulaanbaatar city. These engineers are responsible for the operation and maintenance of 377 stations with capacities ranging from 50 to 500 Watts. Our overall goal is to provide our audience with reliable and continual delivery of quality programmes.

author



Davaasuren Santiv
MRTBN (Mongolian Radio & Television Broadcasting Network)

Davaasuren Santiv received her B.E. in radio communication engineering from the School of Information and Communication Technology of Science and Technology University in 2008. Since 2008, she has been working at the MRTBN as engineer of Television Broadcasting Center. Currently, she is the technical planning manager in General Administrative Department.



News

from the ABU Region

Australia

Olympics Trial in 3D

The Australian Communications and Media Authority (ACMA) has agreed to issue 3D/DTT licences to Nine Network Australia, to conduct trials of 3DTV featuring daily highlights of the 2012 Olympic Games.



Nine's will use unassigned TV channels for 3DTV trials in Adelaide, Brisbane, the Gold Coast, Melbourne, Perth and Sydney.

(Asia-Pacific Broadcasting)

India

India Reaches Phase Three of FM Development

India is set to soon welcome another 839 FM radio stations in 227 cities. Added to the private FM stations already running in 86 cities this means that a grand total of 313 cities will be covered by private FM radio.

The grandness of that number – 313 – may seem to diminish when one considers that India is the second-most populous country in the world; yet it also offers some prospect for radio at time when the medium here has appeared to be stagnating. With this third stage of radio expansion, new stations will be vying to reach populations of more than 1 million each in many overcrowded cities – a huge potential. The question is whether broadcasters can take advantage of the vast possibilities.

Dozens, if not hundreds of the FM stations risk going

unnoticed in an “unviable market” – exactly what happened in Phase II to many of the FM frequencies available in the Northeast and island territories. The latest Indian Readership Survey (which does not reflect those who tune into radio via mobile phones) suggests that radio listenership has been falling steadily, while television viewership has been rising. And for the most part, short and medium-wave still dominates the airwaves, since many areas in the country still do not have FM services. Even with this latest phase, many medium-sized towns are still being ignored with most stations focusing on the largest centres.

(Radio World)

India Sees Growth in TV

The Indian set-top box (STB) market has been increasing at a steady pace over the past few years. A strong surge of consumers moved to satellite platforms during 2011, representing 80% of the Indian market. Despite the large cable TV subscriber base in India, satellite TV growth will slow somewhat from the ten million consumers that added services last year.

The government's cable TV digitalisation policy now specifies that cable TV digitalisation will occur in four phases to December 2014. Therefore, cable STB deployments will surge from 2012 as larger operators begin their digital STB deployments. The cable digitalisation process will progress far slower than the government mandate specifies – otherwise, consumers will be forced to abandon cable in favour of satellite as cable operators struggle to procure the set-top boxes.

High definition (HD) STB adoption in India currently accounts for only 11% of overall shipments. Nearly 70% of set-top boxes installed in Indian households are imported from foreign manufacturers, especially from China. Domestic STB production is likely to increase in the years to come with some overseas manufacturing set-top box factories in India, as well as Indian companies focused on building low-cost set-top boxes.

(www.abiresearch.com)

Japan

Hitachi to End TV Manufacturing in Japan

Hitachi plans to end in-house production of television sets in Japan, a response to overcrowding in the market and strengthening of the yen. The last remaining Hitachi Joei

Tech Company plant, located in Gifu Prefecture, is scheduled to shut down TV production by October 2012, and is to shift focus to the component industry. The decision will not affect Hitachi TVs sold in other countries, all of which are currently manufactured outside of Japan.

As one of the major early adopters of flat panel display televisions (FPD TV), Japan thrived during the last decade in terms of TV shipments and growth. However, Japan's recent growth was fuelled by a government energy subsidy and is expected to begin a downward descent as shipments have fallen from 24.5m units in 2010 to around 21.0m units in 2011. With over half of Hitachi's TV business unit relying on the Japanese TV market, these changes are expected to have a negative effect on Hitachi's domestic sales.

As FPD TV consumption has spread to new regions, so too has its manufacturing. In 2004 when the FPD TV market was at 10.8m units, Japanese vendors took over 50 per cent market share, while Korean vendors held less than 15 per cent. In 2010 the market grew to 213.4m units with Japanese vendor market share falling to 31 per cent. Korean vendors took 32 per cent, and Chinese vendors comprised much of the remaining market. With the increase in competition, retail TV prices have been driven to lower-than-production-cost levels. Moreover, exporting television sets has been made difficult for many Japanese brands with a strengthened yen hindering price-competition.

Hitachi's two major markets after Japan, North America and Western Europe, have also reached a state of maturity. Hitachi may work to support its brand presence in other markets such as China and emerging APAC; two growing regions that are expected to collectively purchase 34 per cent of all TVs sold during 2012, but currently only make up less than 3 per cent of Hitachi's total TV shipments.

(Screen Digest)

Advanced Research in NHK STRL

The number of images per second in a video sequence is called the frame rate (unit: frames per second). A higher frame rate, that is, a higher time resolution for moving images, makes it possible to attain clearer and smoother video reproduction, even for a fast moving subject. The frame rate for the current Hi-Vision (HDTV) system is 30 frames / second (interlaced scanning: 60 fields/ second). The next generation of ultrahigh-definition broadcasting (e.g., full-spec SHV system) may have up to 120 frames per

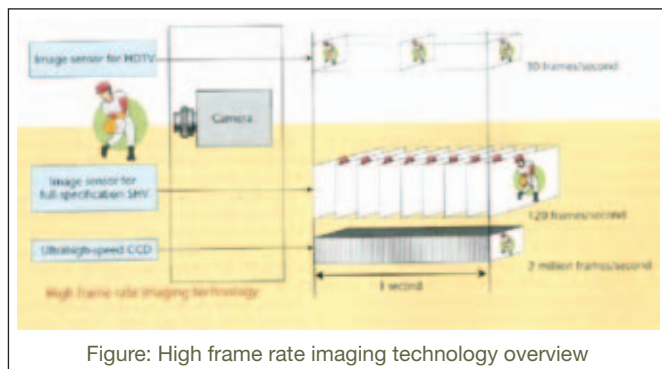


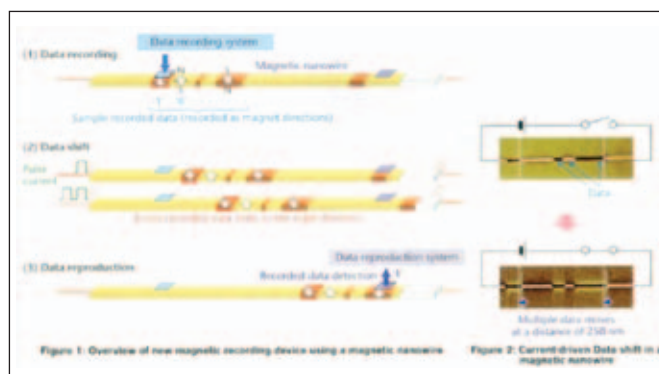
Figure: High frame rate imaging technology overview

second (progressive scanning) for better video image quality. The NHK Science and Technology Research Laboratories (STRL) has been engaged in developing a new image sensor to make this system a reality.

Work is also advancing to enable new forms of video expression, through the construction of an ultrahigh-speed image sensor that can capture split-second phenomena that are not perceivable to the human eye and a camera system that will incorporate such an image sensor. An -ultrahigh-speed single-chip colour CCD with a driving speed of 1 million frames/ second has been developed, and a prototype camera based on this device constructed. Replaying video clips taken with this camera using a standard television frame rate can produce clear, super-slow motion video of a fleeting event and has become a useful tool in sports and science programme production. We are improving the sensor's performance by constructing an ultrahigh-speed CCD with a new structure capable of being driven at 2 million frames per second.

(NHK Broadcast Technology)

Ultrahigh-speed Recording Device using Magnetic Nanowires



A magnetic nanowire consists of numerous small sequentially aligned magnets whose width is only a few thousandths the width of a human hair, set in a line. The difference from the current hard disk drive is that the data recorded by each magnet in the nanowire moves to the next magnet when a current is applied along the length direction of the magnetic nanowire without any mechanical operations (Figure 1). The potential exists for ultrahigh-speed continuous recording because the speed of the data shift by the current occurs more than ten times faster than the relative rotation speed between the recording head and the disk in a conventional hard disk drive.

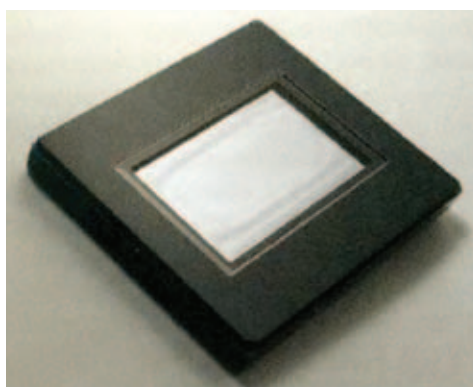
Not having any moving parts also helps the device to be durable. We constructed a prototype magnetic nanowire device in which cobalt and palladium are alternately layered in several atom thicknesses to form atomic scale artificial crystallite lattices. This prototype nanowire was used to verify that multiple pieces of data in a wire could be collectively shifted when a current was applied to the nanowire (Figure 2). Our future work will involve the development of recording/ reproduction functions suited to magnetic nanowires with the goal of constructing a small SHV recording device in the near future.

(NHK Broadcast Technology)

120 frames per second CMOS Image sensor for Super Hi-Vision (SHV) Camera

Advances are being made by the Science & Technology Research Laboratories on the Super Hi-Vision (SHV) system. A recent joint development with the Research Institute of Electronics, Shizuoka University, involved the construction of a CMOS image sensor for an SHV camera with a frame rate of 120 fps, which will allow a fast-moving subject to be clearly captured on video.

The previous SHV system could handle ultrahigh-definition video images with approximately 33 million pixels (7680 horizontal x 4320 vertical pixels) by using progressive scanning at approximately 60 frames per second. The recent enhancement doubled the frame rate; the new image sensor is for an SHV camera operating at up to 120 fps (progressive scanning).



120 fps CMOS image sensor for SHV system

Our newly developed devices such as a circuit that converts the analogue signal outputs from each pixel into digital signal (AD converter circuit) and a circuit to output the digital signal from the sensor (signal output circuit) have made it possible to increase the sensor's speed of operation. This image sensor can shoot a fast-moving subject in clear, smooth, moving ultrahigh-definition images.

(NHK Broadcast Technology)

Reconstructive Video Coding – A New Video Coding Paradigm with Super-resolution

Super Hi-Vision requires an extremely efficient video coding technique to compress the vast amounts of the video data to a reasonable bitrate for delivery to homes. However, conventional video codecs such as MPEG-2, MPEG-4 and AVC/H.264 would severely impair SHV signals with block distortions and flicker (Figure 1, top chart).

Super-resolution (SR) technologies have become practical, and some television sets now have SR functionalities built in to up-sample low-resolution videos clearly. STRL is seeking to exploit SR's potential to restore lost textural information and is trying to combining it with a conventional video codec (core codec) under a new video coding paradigm named reconstructive video coding.

The proposed encoder first decimates the less important pixels before performing the core coding (Figure 1, bottom chart). The pixel reduction depressurizes the compression ratio at the core codec, leading to less image distortion.

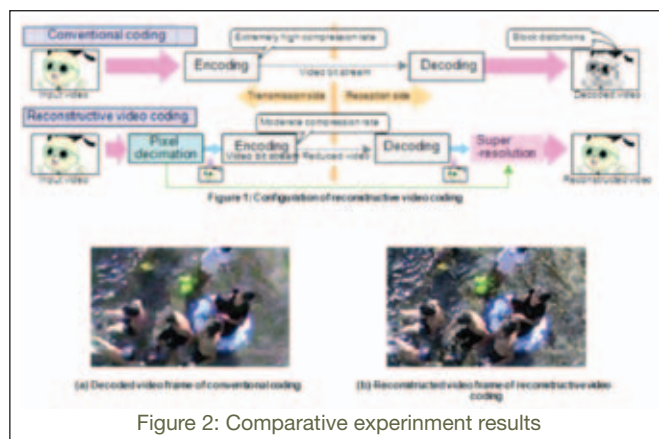


Figure 2: Comparative experiment results

On the reception side, the decoded small video frames are up-sampled to the original resolution. STRL's original SR technology in the up-sampler reconstructs sharp and clear video frames. As a unique feature of the reconstruction process, the video bit stream is accompanied by side information. The side information includes the optimal way of up-sampling and the locations of visually important regions, which are available by referring the original video frames on the transmission side.

An experiment was conducted to compare the subjective qualities of the video decoded by a conventional AVC/H.264 codec and video reconstructed by the proposed method at the same bitrate (Figure 2). While the conventional decoded image lost textures and showed flattened block patterns, the image reconstructed with the proposed method had a clear and natural appearance.

We will continue to improve the SR tools we are developing for SHV video coding.

(NHK Broadcast Technology)

Inter BEE Show in Japan

The Japan Electronics and Information Technology Industries Association (JEITA) will be holding Inter BEE 2012 – now in its 48th year as a professional show for Audio, Video and Communications from November 14-16 at the Makuhari Messe in Mihama-ku, Chiba.

Inter BEE is an opportunity for broadcasting companies, equipment manufacturers and companies offering other broadcast related services to display their latest products.



A photo from Inter BEE Show 2011

The show also presents opportunities to engage in dialogue on standards and rules relating to broadcasting and visual technologies, and make notifications about operational matters. The event is also expected to play a role as an information hub for the various aspects of the media business.

(Asia-Pacific Broadcasting)

Netherlands

Radio Netherlands Dutch service closes down

Radio Netherlands has begun its 24-hour farewell transmission in Dutch that may also see the final transmission from Orfordness in Suffolk.

Various frequencies and sites will be used during the 24 hours but for Europe it is simplest to remember that 5955 kHz (Wertachtal) and 9895 kHz (Nauen) will be on throughout. 10t will also be on 1296 kHz from Orfordness for the whole 24 hours. As things stand, this may be the last ever transmission from Orfordness.

After BBC World Service dropped its two hours a day of DRM on 1296 kHz in March, Radio Netherlands in Dutch has been the only user of the site (648 kHz has been silent since last year).

No new clients have been announced for Orfordness, so Babcock will have to decide whether to keep the station in mothballs in the hope of a customer appearing, to sell it as a working transmitting station or to dismantle it and hand the site over to the National Trust.

(www.southgatearc.org)

Pakistan

ETN in Pakistan Equips its DSNG Vans with HD Encoders

ETN has invested in HD encoders for its uplinking equipment in Pakistan. Its DSNG vehicles have now been upgraded with HD encoders from Advent Communications.



DSNG vehicle

Meeting the day-to-day needs of broadcasters with OB requirements for sports and news, ETN is now able to provide HD uplinks not only from its DSNG vans but also from all its studios in Islamabad, Lahore and Karachi.

ETN states it is now the only uplink provider in Pakistan with such an extensive coverage span, with HD studios and uplinking, and is able to offer the most comprehensive facilities in the country.

(www.easernrtvnews.com)

New Transmitter for Radio Pakistan

Radio Pakistan added a new 100-kW medium-wave transmitter to its network in the southern Balochistan province city of Turbat. The transmitter, inaugurated in early February, provides access to new and entertainment to people of remote areas of Balochistan province.

Murtaza Solangi, director general of Radio Pakistan said the transmitter has a 300-kilometer range during the day with the range tripling during the night, ensuring clear signals to southern parts of Balochistan and other countries.

(Radio World)

Singapore

BroadcastAsia2012:

A Showcase of Multi-screen Strategies

Broadcasters and other industry players are gearing up for next month's BroadcastAsia2012. The show, which will be held at Suntec Singapore from June 19-22, promises visitors showcases of the latest broadcast technologies and conference sessions that are relevant to the current needs of the industry.



A session from the BroadcastAsia2011 Conference

BroadcastAsia2012 International Conference returns with an impressive line-up of over 80 reputed industry speakers to deliberate on the most critical issues facing broadcasters today.

The conference agenda foretells the "reinvention" of the broadcast industry as content is re-purposed towards viewers who have become increasingly more mobile and who view content on various devices.

SES added that broadcasters are forced to reckon with this fact and gear up to cater to this growing trend.

(Asia-Pacific Broadcasting)

Digital Broadcasting Update

Digital TV

Prototype Flexible Oled Display Construction

A fine pattern of developed blue fluorescent OLED by using mask vapor deposition and made a color video display has been fabricated. This research will continue with the development of new materials that can be used with a printing method to make a large-screen/high-definition display construction.

Fast response and high-contrast organic light-emitting diode (OLED) will be used in future thin, lightweight, and flexible TV displays. STRL has been conducting research on flexible displays with the goal of constructing a large-screen home TV system for Super Hi-Vision (SHV) programmes.



Figure 1: Flexible display conceptual image

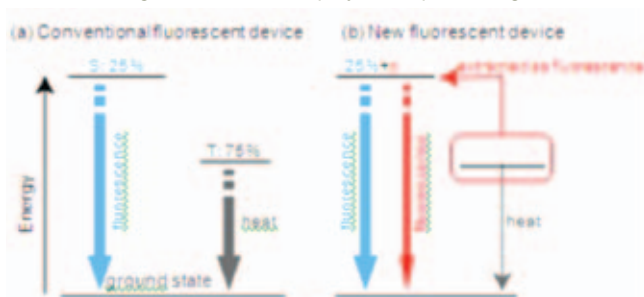


Figure 2: Fluorescent device light-emission mechanism diagram

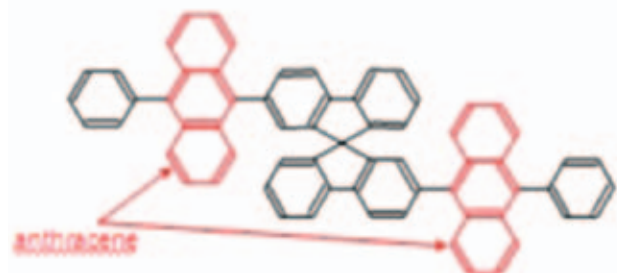


Figure 3: Newly developed blue-light-emitting material

NHK Experiments with TV Interactivity

NHK's new Hybridcast service combines TV broadcasting

technology with the interactive capabilities of the Internet. The Japanese broadcaster hopes to commercialise the new technology and have it in consumers' homes by next year.

At this year's NHK Science & Technology Research Laboratories Open Day, NHK showed prototype receivers – developed together with equipment manufacturers – as well as a prototype of the new iTV service. Sony, Toshiba, Panasonic, Sharp and Mitsubishi Electric have each developed receivers for the Hybridcast concept.

When used with live sports broadcasts, updates about the game and players can be synchronised with the broadcast timeline and superimposed on the screen. The service uses HTML5 applications that can be displayed even on portable tablets. For example, if you're watching a travel program, you can show where the subjects on TV are walking on a map. And if you're watching a quiz program, you can take part by answering the questions. By using technology that supports interoperability between TVs and various terminal devices, it is possible to implement services that use different screen sizes in different ways. This includes large screens for TV viewing to using hand-held terminals to display information tailored to each individual viewer.

(Broadcast Engineering)

ATSC Adopts Standard for Transmission of Non-real-time DTV Content

The Advanced Television Systems Committee (ATSC) has announced the approval of the ATSC NRT (Non-Real-Time) Content Delivery standard, a backwards-compatible enhancement to digital TV broadcasting that provides a framework for the delivery of a broad range of new services.

The new ATSC NRT standard is designated "A/103." The delivery of non-real-time services via A/103 will now allow broadcasters to deliver file-based content, including programs and clips, information for emergency alerts and even commercial applications such as digital signage.

The ATSC NRT broadcast standard will support terrestrial transmission to both fixed location and mobile DTV receivers designed to make use of the new flexibility. Such a system would allow a user to watch on-demand a specific program that has been cached to the mobile device. Applications thought to be strong for NRT services include push VOD content, news, information and weather services, personalized TV channels, music distribution and mobile emergency alerts.

(Broadcast Engineering)

Developing API-based HDTV CE Ecosystem

According to some observers, Apple will imminently be launching a connected HDTV 'iTV,' and the latest break is

that the computing giant is looking to kick-start an ecosystem for compatible accessories. An API will be released to be embedded by consumer electronics manufacturers. This would be a huge change in strategy for the company, which typically has mostly held proprietary control over accessories for its products, except where standardisation has prevented that, i.e. with speakers and headsets.

The “control out” API from Apple will allow the Apple remote to have universal control over DVRs, set-top boxes from cable operators, gaming consoles and anything else that has it embedded.

(Broadband TV News)

Mobile TV Viewing on the Increase

Mobile TV viewing is set to reach three hours per month on tablets by 2014, according to recent research. As users become more accustomed to viewing content on tablets, and as a wider range of content becomes available on tablets, consumers will increase their viewing times. This increase will be most apparent in North America where there is already significant mobile TV usage, and where some internet TV services are extremely popular.

Another driver for this growth is the continued integration of mobile services into pay-TV packages. Tablets can offer a richer viewing experience when used alongside traditional television by allowing the user to access supplementary information such as plot synopses and actor biographies. These devices also enable users to view pay-TV content or to watch catch-up services when away from home, extending the reach of traditional TV services.

(Broadband TV News)

France Officially Declares Mobile TV Dead

CSA has now officially declared the end of mobile TV. Mobile TV was originally licensed in 2008, but never got off the ground. The authority had issued licences to 16 channels, but the parties involved – broadcasters, mobile operators and transmitter companies – were not able to find a suitable business model. The CSA will now use part of the frequency spectrum for the six new HD channels, while the remainder will be used for a new project, B2M (Broadcast Mobile Multimedia).

(Digital TV News)

ITU Defines UHDTV Formats

The ITU-R Working Party 6C has officially defined the parameter values for the next two generations of television formats. Under their current name the two formats are the 4K and 8K UHDTV formats – Ultra High Definition Television. The same group defined the parameter values for HDTV and the 720p families in the late 1990s. The new formats take advantage of future displays’ greater colour range, have the option of ‘constant luminance’ encoding, and allow up to 120 pictures/second. Discussions to broadcast these systems currently centre on the largely unused 22GHz satellite broadcast band, but terrestrial broadcasting may eventually be possible. Tests of the UHDTV format will take place at the London Olympics.

(Digital TV News)

Asia Pacific to Add 440 Million Digital TV Homes

According to a new report, Asia Pacific is undergoing a digital TV boom that will see penetration increase from 36% in 2011 to 83% by 2017 – or up by 440 million homes. It forecasts that China alone will provide 268 million of the additional digital TV homes, with India adding 82 million.

Of the 440 million digital homes, 103 million will come from DTT. Digital cable will contribute a further 195 million, with pay DTH supplying a 34 million more and pay IPTV 86 million. By contrast, the region will lose 152 million analogue cable homes and 196 million analogue terrestrial ones.

China and India have a massive influence over the region, due principally to their 1 billion-plus populations. By 2017, they will provide 541 million digital TV homes combined – or three-quarters of Asia Pacific’s total.

(IPTV News)

London Begins Analogue Switch-off

Some 75 years after the first regular TV service began, London is switching off its analogue channels – beginning with BBC Two. On April 14 this year, Analogue BBC Two was taken off the air in London and some other cities.

The remaining analogue channels – BBC One, ITV1, Channel Four and Channel Five – were subsequently turned off on April 18. The rolling switchover programme to turn the UK over to digital TV began in 2007 and has so far been carried out with few hitches. A third of UK homes have already switched to digital, but the London region was the biggest to do so. Across the UK, a full digital switchover is expected to be completed this year. The digital switchover also comes as London prepares to host the 2012 Olympic Games in two months’ time.

(Asia-Pacific Broadcasting)

Italy to Introduce DVB-T2 by 2015

From 2015 onwards, all DTT tuners sold in Italy must include the DVB-T2 standard, both for stand-alone set-tops and for IDTVs. The government has decided to opt for DVB-T2 due to the launch of new mobile services, including LTE and 4G, in part of the spectrum that is now being used by broadcasters.

The number of available multiplexes for digital broadcasting is being reduced from 55 to 34 and in order to accommodate all the terrestrial broadcasters, there is an urgent need for more efficient use of the available bandwidth.

For consumers, there will be a need to buy new tuners, although a number of DVB-T channels will remain on air for some time.

(Broadband TV News)

White Spaces Can Bring Broadband to 2 Million

The use of the “White Spaces” within the broadcast spectrum could bring broadband services to 2 million premises currently left unserved. The precocious Cambridge TV White Spaces Consortium trial also involved the BBC, Arqiva, DTG and Microsoft. 10 months of testing took place in urban and rural Cambridge.

As part of the Consortium trials, broadband service of 8Mbps over a single 8MHz TV channel was delivered, via a white

space link between its headquarters, to a remote village 5.5 km away. It is possible to achieve speeds of 20Mbps or more using future generations of hardware over a single channel link, compared to wired ADSL broadband that struggles to achieve 2Mbps across less than half the range. *(Digital TV News)*

Thailand to use DVB-T2 Standard

Thailand will adopt the DVB-T2 standard for commercial digital TV service, the National Broadcasting and Telecommunications Commission has confirmed. The cabinet approved DVB-T2 as the digital broadcasting standard in compliance with the NBTC's proposal. The adoption of the technology standard is a crucial step towards the digital transition, and the technology standard could accommodate future technology development. It could also maximise the use of spectrum to yield a greater number of TV channels. The NBTC expects set-top boxes for digital TV to range in price from \$30-35 per unit. The change to digital TV will affect 20 million households in Thailand. *(Bangkok Post)*

Digital Radio

Fraunhofer

Fraunhofer has introduced Extended HE-AAC, the latest upgrade to the MPEG AAC family, at the Mobile World -Congress held in Barcelona.



Extended HE-AAC audio codec

The codec developer said Extended HE-AAC significantly improves the audio quality of music and speech, particularly at very low bit rates of 8 kbps and more, and is compatible with HE-AAC streams.

As a result, Extended HE-AAC can improve the quality of existing low bitrate services or more audio channels can be transmitted at a given bit rate according to Fraunhofer.

Radio Listening Goes Digital



Digital Radio

Nearly 30% of radio listening is now digital. Digital platforms accounted for 29.2% of all listening in the first quarter of 2012, marginally up from 29.1% in the previous quarter. The number of adults who claim to own a DAB set at home is now 42.6%, more than double the 19.5% who said they owned one five years ago. *(www.guardian.co.uk)*

Digital Boost in Australia

According to information released by Commercial Radio Australia in the Digital Radio Industry Report 2012, digital radio sales are ahead of forecast. Some 1.2 million people in the country are listening to digital radio in an average week and almost 800,000 digital radios have been sold in the top five cities Sydney, Melbourne, Brisbane, Perth and Adelaide. The largest upsurge took place during the holiday season – between October of 2011 and January of 2012. The commercial radio industry has invested in the promotion of digital radio and worked very hard with retailers. *(Radio World)*

Internet

BBC Plans New TV Download Service

The broadcaster is developing a video download service that will allow viewers to permanently download copies of favorite shows from the BBC archives – minutes after they have been aired. The service to be known as project Barcelona, would enable the purchase of programmes for a relatively modest fee, adding that the digital archive would stay open for good and shows would remain available to license fee payers.

The plan will be put before the BBC trust governing body of the BBC later this year. The content producers in the UK would also need to give their support to the project. At the moment, BBC shows are available for free for 30 days on the BBC iPlayer service; the rights are then sold by BBC Worldwide or the producers themselves to services such as iTunes to sell as downloads. With Project Barcelona, BBC intended to set up a “digital shop” for programme downloads, although other existing providers would also be able to buy the content. *(APB)*

New Bollywood on Demand

Premium Indian films and TV shows can now be streamed to Apple mobile devices from the new online entertainment service Spuul, following the launch of a free iOS application. Over 100 titles are offered for free, with others charged at US\$0.99 per movie for 72 hours of unlimited viewing. In addition, a premium subscription is available for an introductory price of \$4.99 a month. One attractive function allows users' playback positions to be saved between different devices. So, for example, if a movie is paused on an iPhone, viewing can be resumed from the same point on an iPad or computer. *(Rapid TV News)*

Astro Unveils New Service

Astro Malaysia is targeting to penetrate households in Malaysia with its new service ‘Astro On-The-Go,’ which delivers non-stop entertainment on smartphones, tablets and laptops. The service will be launched in three phases, of which the first will see all existing Astro customers having a free preview. The second phase, will see only Astro Beyond Internet protocol TV customers and those with more than one decoder entitled to the service. Astro On-The-Go will also be available to Android devices in this phase. In the last phase, the service will be offered to all Astro customers and subsequently non-Astro customers by year-end. *(ABU News)*

ITU 3DTV Recommendations

The International Telecommunication Union (ITU) has set out new recommendations that will make television programming, picture quality and viewing comfort more enhanced. The new ITU Recommendations have been developed by the ITU's Radiocommunication Sector (ITU-R) in collaboration with experts from the television industry, broadcasting organisations and regulatory institutions in its Study Group 6.

The group focuses on 3DTV programme production and broadcasting in two formats which are in use worldwide – the '720p' and the '1080i' environments. Recommendations were also agreed on the digital interfaces used in studios for 3DTV programme production, and on the general requirements for 3DTV, the statement noted.

ITU-R Study Group 6 also agreed on a Recommendation for the methods to evaluate the quality of 3DTV images, which relate to picture quality, depth, and comfort levels. (www.advanced-television.com)

HbbTV Consortium Holds Second General Assembly

The second General Assembly of the HbbTV consortium has been held at the EBU headquarters in Geneva. Around 30 delegates heard reports of successful launches for the hybrid broadcast and broadband protocol in France, Germany, Spain, Austria and the Netherlands. There were also updates on the development of the specification and details of the proposed testing regime. The consortium, which published its first specification in June 2010, now has some 60 members.

(*Digital TV News*)

HbbTV makes DASH to Version 1.5

The HbbTV (Hybrid Broadcast Broadband TV) consortium has announced the publication of version 1.5 of its hybrid TV specification. Support has been brought in for HTTP adaptive streaming based on the recently published MPEG-DASH specification, which improves the perceived quality of video presentation on busy or slow internet connections.

It also enables content providers to protect DASH delivered content with potentially multiple DRM technologies based on the MPEG CENC specification, improving efficiency in markets where more than one DRM technology will be used. Broadcast TV schedule information has also been enhanced to allow for full seven-day electronic programme guides to be deployed across all compatible receivers.

(*Broadband TV News*)

BBS's New Interactive Video Player for Olympics

UK broadcaster the BBC has unveiled the new interactive video player it has developed for live coverage of the 2012 London Olympic Games which start in July. The new player is intended to enable broadband-enabled viewers to watch any event taking place during the games, jump back in time within the player to watch a previous event, and move back to live coverage. It also offers HD coverage of the action in the full-screen player, and features an array of add-ons, including an extras button for additional information, alerts

to key moments from around the games, and an "athletes panel" which delivers in-depth information on the competitors. (*IPTV News*)

Miscellany

New Palmcorder for Stable ENG

Sony showed a new palm-sized HD camcorder that uses a gyro-stabilised-style lens assembly to ensure steady shots with a single hand. It is one of the smallest, lightest handheld professional camcorders currently available for professionals. The new camera will be available in June 2012 and employs the company's proprietary Balanced Optical SteadyShot image stabilisation technology to reduce camera shake in challenging shooting applications. It combines the entire lens and image sensor assembly into one floating element that moves as a unit to protect against an unsteady hand.

The camera records at full 1920 x 1080 HD resolution and its 1/2.88-inch image sensor uses CMOS technology, which significantly enhances low-light performance, speeds image readout, reduces rolling shutter artifacts and enables a range of frame rates. Using AVCHD recording, the camera includes 96 GB of internal memory (for approximately 40 hours of HD content storage).

(*Broadcast Engineering*)

Next-Gen "Natural User Interface" For Cable TV

Following a new trend in television interaction, a company has developed new ways to allow consumers to experience television via multi-channel "natural user interfaces". The company showed how digital TV consumers can forego the remote control and use voice, facial-recognition and simple gesture-based movements to access personalized content and interact with a cable set-top-box.

This natural user interface help consumers find personalised content and to navigate to their favourite show with the wave of a hand. Natural user interfaces (NUI) – including touch, voice, video and gesture interfaces – in devices ranging from smartphones and tablets to peripherals such as videogame consoles provide an opportunity for cable companies to deliver personalized interactive customer experiences.

(*Broadcast Engineering*)

Satellite Manufacturing and Launch Markets Ready for a Bumpy Ride

The satellite manufacturing and launch markets will be facing both softening demand and increasing competition until 2016. However, in the second half of the next decade the manufacturing market will be back on an upward track, while the launch services market will see more years of stagnant growth according to a published report.

Overall, the report forecasts more than 950 satellites will be ordered between 2012 and 2021. At an average rate of 108 satellites launched every year over the same period. (*IBE News*)

Equipment Trends

Cameras & Accessories

Efficient LED Wash

The new Nick NRG 1201 LED Wash is an efficient wash light produced by a high-efficiency optical group. This optical group consists of 30 high-powered, full-colour LEDs (RGBW). This enables the device to achieve an exceptional brightness/power consumption ratio making it a 'green' LED fixture.



LED wash unit

The unit also features an 8 to 50 degree motorised zoom enabling it to be used as a very wide wash or as a PC beam. In addition, the unit is also equipped with a system which enables limitless pan rotation in both directions with no need for inversion. The unit's ultra-fast and silent pan/tilt movement has four selectable speed ranges. It can pan 540 degrees in 2 seconds and tilt 270 degrees in 1.2 seconds.

www.dts-lighting.it

New Professional Solutions at BroadcastAsia 2012

Remote Camera Line-up

Raises performance standards of Remote Cameras with the latest ultra-high resolution BRC-H900 equipped with three type Exmor CMOS Sensors, full HD with 1000 TVL (horizontal) in HD-SDI mode, excellent sensitivity of F10 and a remarkable signal-to-noise ratio of 50dB. With powerful 14x optical zoom and innovative image stabilization feature, the BRC-H900 meets the demands of capturing superb quality footage in full HD resolution even in large venues such as auditoriums, large meeting rooms, studios, concert halls and stadiums/sporting arenas.

(Sony Press Release)



HD remote camera

Live Production Camera Line-Up

Both the HDC-2000 and HDC-2550 deliver high picture quality through a newly developed 2/3-inch-type Charge-



HD Live production camera

Coupled Device (CCD) image sensor and Digital Signal Processing (DSP) with a 16-bit A/D converter. It also includes a number of different outputs, which making it compatible with most applications across the world. These innovations mean it is an ideal camera for all types of outdoor and indoor applications.

(Sony Press Release)

Production Equipment

New Image-Processing Platform

KudosPro has been introduced by Snell to deliver high-quality image-processing capabilities in a compact, affordable, format-flexible package. It is a universal platform that can seamlessly handle and converts all SD, HD, and 3Gbps video formats, as well as a wide range of audio formats including AES, embedded audio, and Dolby E. The flexibility of the platform makes it an ideal choice for applications such as broadcast, playout, international program exchange, content repurposing, and high-density teleport and satellite distribution.

The company has also introduced six new products including single-, dual-, and quad-channel format and frame rate converters. Housed in robust 1-RU package, all KudosPro products are said to offer comprehensive control capabilities via an intuitive control panel. Full system management and monitoring is provided via SNMP or Snell's RollCall system. Additional functionality includes relay bypass, HDMI monitoring output, closed caption and timecode management, and AFD support.

(Digital Production ME)

Graphics Creation and Playout

BlueNet has been demonstrated by Chyron, a comprehensive solution that fully addresses broadcasters' requirements for streamlined end-to-end graphics workflows. The device leverages acclaimed suite of graphics tools for ordering and graphics asset management, collaborative graphics creation, and real-time playout. Cutting-edge cloud-based services offering, extends the power of workflows to speed even the most advanced graphics to air.

In fast-paced news or sports workflows that require many complex graphics, BlueNet minimizes the cycle time from

creation to air. Order management tools allow producer-driven content to move smoothly into a rundown, and easily accessible templates enable instant and efficient collaboration in preparing graphics.

www.chyron.com

Channel-in-a-Box

New features to ICE v3.0 further extend Snell's channel-in-a-box cost benefits. With a focus on incorporating more of the channel into the box, ICE includes powerful integrated 3D graphics and CG functionality with timeline control and the ability to populate fields from Morpheus automation schedule events, as well as external data sources. Changes in broadcasters' file-based workflows can introduce incompatibilities that's why a new content validation feature in ICE analyzes source material as soon as it's available to prevent invalid formats or impaired content from reaching the on-air output. Integrated SAN storage brings high-performance shared storage to the platform and aids in optimizing system performance and overall broadcast workflows.

(www.snellgroup.com)

New Signal Protection Technology

Signal Sentri is a new technology that addresses the need to protect revenues by maintaining unimpaired signal transmission despite any technical difficulties or maintenance requirements within the on-air chain. Targeted at the automated playout environment, the system watches over the main and back-up signal paths, using Hyperion content monitoring system and an intelligent 2x1 changeover switch to play an essential role in signal-path decision-making and switching. Deployed within this environment, the device serves as a comprehensive video, audio, and metadata monitoring and reporting solution that can trigger the signal changeover automatically or provide detailed information for an operator-controlled decision. Packaged in a compact 19-inch, 1U form factor and offering a variety of interfaces including RS-422, GPI, and Ethernet back-up, Signal Sentri has the flexibility to integrate fully with automation or network management systems including.

(www.snellgroup.com)

MAM

Momentum is a breakthrough solution for media asset management (MAM), workflow automation, and resource planning. The system delivers maximum control and flexibility to media and broadcast operators, enabling them to reduce operational costs by allocating resources more efficiently and making content more accessible. Morpheus Automation version 3.0 now boasts full virtual machine support that facilitates lower space and power requirements while improving system resilience.

(www.snellgroup.com)

A Field-Based 'Studio System'

South Korea-based Twin Pictures Specialises in shooting historical dramas for television. In order to film the shows, the company tapped Seoul-based systems integrator Besco SI to devise a compact 'portable studio' system. It allows the production to be shot using four Sony HD Cameras



File-based studio system

with onboard Ki Pro digital recorders for recording and monitoring.

Twin Pictures records with Ki Pro in the ProRes 422 Codec, then edits with Final Cut Pro. The Ki Pro allows them to link multiple recorders to 'gang-record' simultaneously with a time code synchronizer.

The Ki Pro serves as a low-cost recorder with much higher image quality and lower power consumption. Combined with the camera, it can be shot in as many different locations each day as needed, taking up a much smaller footprint and saving time and money as well. Since the Ki Pro is a file-based recorder, editing multi-camera in Final Cut Pro is easier and faster, eliminating time traditionally needed for tape ingest and camera sync. The file-based system also locates scenes much more quickly than their previous tape-based solution.

(www.aja.com)

Audio Equipment

Cardioid and Hypercardioid Microphones

New ATM510 Cardioid Dynamic Handheld microphone and ATM610a Hypercardioid Dynamic Handheld microphones have been introduced by Audio-Technica. With the respective cardioid and hypercardioid polar patterns of the microphones, both of these are more sensitive to sound that originates directly in front of the element, giving more control of feedback and reducing pickup of sounds from the sides and rear to provide a complete isolation between performers.



The ATM510 is designed specifically for close-up vocal use in professional live-sound applications and the ATM610a is intended for both lead and backup vocal use and is especially effective on loud stages.

Both microphones feature a rugged, all metal design construction for years of trouble-free use in delivering durable performances for professional application. Both mics are equipped with a newly designed superior internal shock mounting which reduces handling and stage noise. Hi-Energy neodymium magnets provide articulate vocal reproduction and a multi-stage grille design offers excellent protection against plosives and sibilance without compromising high-frequency clarity. Both microphones also come with Quiet-Flex stand clamps for silent, flexible microphone positioning as well as corrosion-resistant contacts from the goldplated XLRM-type connector.

(www.audio-technica.com.sg)

Live Sound Console

Soundcraft Vii Digital Live Sound Console has been launched by PMC Solution. The unit is a complete standalone console with 32 channels of analogue input to 27 analogue outputs, plus six digital inputs, four stereo FX returns and six digital outputs in one chassis. It is equipped with the new Widescreen Vistonics interface which displays all parameters for 16 channels side by side, on a single 22" Vistonics touch screen. The Vii also has many of the functions of its larger Soundcraft siblings including "Soundcraft FaderGlobe", four stereo Lexicon effects engines, BSS Audio graphic EQs on all output busses and integral dynamics on all channels.

(www.pmcsolution.com.sg)

Transmitters

FM Transmitter with Digital Input



"All-in-one" FM transmitter

TX range of FM transmitters now come with AES/EBU digital input and multiband audio processing as standard from BW Broadcast. Broadcasters with a digital signal chain can interface straight into the transmitter and onboard processor. There is also the option of an Ethernet interface to allow instant control no matter how remote the site. This is on top of the existing frequency agile exciter and built-in stereo encoder. These "all-in-one" transmitters are available from 1 W to 1,500 W; they are standard 19-inch rack size and a maximum 2 RU high.

The FM transmitters include six preloaded processing presets and front-panel LCD control interface. The Underlying architecture includes a unique dual-loop virtual VFO exciter, an ultralow distortion modulator and stereo encoder integrated into a very stable FM transmission system. Developed for global use, units are frequency agile and comply with applicable CE, EU and FCC regulations.

(www.bwbroadcast.com)

iPad Control Interface

TRAM AM transmitters iPad 2 control interface has been announced by Transradio.

Transmitter functions can be supervised and monitored by the iPad-based control interface; safety functions of the transmitter are still implemented locally at the transmitter itself. Analogue parameters are monitored by A/D converters for remote monitoring and integration into the GUI, based on iPad 2 technology.



iPad-based control interface

The WPA2-secured Wi-H connection between transmitter and iPad 2, and the possibility to remove the iPad from the front panel, makes supervision more comfortable.

Even if the whole computer control system were to fail, basic functions of the transmitter are still controllable via local pushbuttons.

The TRAM premium LCD offers a choice among TCP/IP, BIT bus, RS-232 or dry contacts for remote control. The focus of the TRAM premium LCD line is to offer more comfort for Local and remote control while maintaining the unmatched reliability of the TRAM line transmitters. The line ranges in power from 5 kW to 600 kW as standalone transmitters or up to 2 MW in a combined version which are available with the TRAM premium LCD option.

(www.transradio.eu)

RF Transmitter Touches Green

New Green RF transmitter line introduced by DB Broadcast is eco-friendly COLD FET technology, based on energy-efficient LDMOS devices. It can supply transmitters up to 5 kW. The transmitter includes a deviation limiter and a variety of protections such as over-voltage, toad mismatch and overheating. These RF devices use high-efficiency and high-output switching-mode power supplies, making them light, compact and energy-efficient. Like many new transmitter Lines, the Green RF Line can be controlled via a Web application along with local control from the front panel.

(Radio World)

High efficiency Digital Radio Transmitters

The Fidelity Line of solid-state digital AM/ DRM transmitters launched by RIZ-Hungary. The device has an efficiency of over 90 percent and output power up to 400 kW without combining. By combining several lower-powered transmitters, higher power Levels are attainable.

The Fidelity transmitters are modular in construction; the 2 kW Class D power modules are hot-swappable. The line offers an integrated DRM exciter, making DRM operation available with the push of a button.



Digital AM-DRM transmitter

The transmitters can be controlled locally or remotely via IP Settings and logs can be stored on an SD card.

RIZ also makes shortwave transmitters with solid-state modulators and output power up to 500 kW; solid-state long-wave transmitters with up 2,000 kW in output power; and FM transmitters with output power up to 30 kW.

(www.riz.hr)

Miscellany

Nimbra 310 Unveiled

The Nimbra 310 has been introduced by Net Insight, a compact one-box access MSR for true multi-service transport of media and data services. The Nimbra 310 is a multi-service router (MSR) for remote access application designed to accommodate a variety of settings, including remote production branch offices, "leaf" nodes in a DTT transmitter network and event contribution settings where only one uplink is available. The system offers an alternative to IP gateways, providing a full set of signature MSR capabilities. It contains one trunk port, one slot for plug-in units and one sync/time transfer interface. The Nimbra 310's built-in Ethernet access functionality provides support for Ethernet switching between eight physical ports and up to 119 logical ports.

(*Broadcast Engineering*)

Content Extractor in Monitoring



Content extractor device

The VB280 CONTENT EXTRACTOR offers thumbnail and metadata extraction for up to 100 TV multicast streams concurrently via GigE interfacing. The VB280 CONTENT EXTRACTOR is ideal for visual at-a-glance monitoring in the NOC, VOC, head-end or remotely via any standard web browser. The VB280 is typically inserted before scrambling insertion in the head-end and the extracted

metadata and decoded imagery is fed to the VideoBridge Controller. Disruption of descrambling services is one of the main causes for service production disruptions in the head-end and for the first time cost-effective monitoring of scrambling is available.

Further applications are in middleware scenarios for generating thumbnail mosaics or for extracting stream metadata such as picture resolution, video bandwidth or wide screen signalling information.

The VB280 is equipped with Ethernet data input either as 10/100/1000T electrical or SFP based optical. A separate Ethernet management port is provided for data transfer. Each VB280 runs an HTTP server with the client as a web browser, so no need to install custom software on computers needing access to the measurement data.

(www.bridgetech.tv)

Open System for IP Set-top Boxes

The latest version of the open operating system for IP set-tops – Motorola KreaTV, version 4.4 has been released.

Some of the new features available in KreaTV 4.4 include web browsing, as well as HTTP live streaming, including support for content encryption, enabling service providers to expand their footprint with over-the-top (OTT) services. This allows the same hardware to be used in an IPTV as well as OTT environment.

USB time-shift enables operators to add new time-shift features such as pause live TV to the set-top, using a USB memory stick as storage. Retransmission and fast channel change, based on IETF (Internet Engineering Task Force) standards: these capabilities improve the user experience, as channel changes are quicker and there is less video degradation in the event of packet loss, making services over longer xDSL connections possible.

(*Broadband TV News*)

New Professional Solutions at BroadcastAsia 2012

IP Transmission System for Live HD Video Production



IP transmission unit

To bring IP technology into the world of video production, Sony has developed the NXL-IP55, a video network unit that can transfer multiple HD image signals, audio signals and control signals over a single network cable. These units may be used, for example, when filming in a theatre or stadium, whereby images are transmitted simultaneously from multiple cameras with as minimal delay time as possible.

(*Sony Press Release*)

Book Review

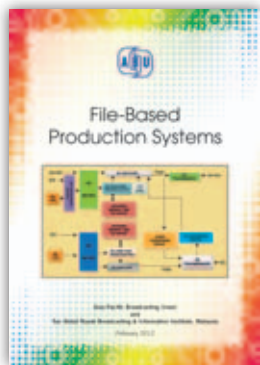


Digital Video and Audio Broadcasting Technology, Walter Fischer, Rohde & Schwarz, 2010

- **A practical engineering guide**

This 800-page edition which has been published in four languages is a practical master guide for engineering executives in interpreting the picture of tomorrow's broadcasting. At the time of going towards to digital, an assessment of the options available is vital. Broadcasters will find the book as a valuable source in this regard.

Picture quality analysis of digital TV signals, methods of measuring video quality, signal processing in satellite transmission, DVB-S/S2 modulation and measuring, broadband cable transmission in DVB-C, DVB-T standards, transmissions and measurement, DVB-H, comparison of DAB and DVB, DVB-C2 parameters and definition of DTMB are some of the issues that Mr Fischer has addressed.



File-Based Production Systems

- **ABU publishes a new monograph**

In the modern broadcasting environment, File-Based production systems are becoming a necessity worldwide. Considering the interest in this area, the Asia-Pacific Broadcasting Union (ABU) and the Tun Abdul Razak Broadcasting and Information Institute (IPPTAR) have published this monograph on "File-Based Production Systems" for the benefit of broadcasters, particularly the developing broadcasters in the region.

The monograph provides a general introduction to TV station network development, general architecture, design, and typical blocks of TV station network, network systems, interconnections, network security and quality control. The last chapter examines and analyses SD and HD simulcast technologies and strategies.

The monograph has been developed by experts from Radio and TV of People's Republic of China (RTPRC). (2012)



Implementing Mobile TV, Amitabh Kumar

- **Useful publication**

This book is entirely dedicated to mobile TV, which is a killer application for broadband services, riding on the success of 3G transition to digital TV and wireless broadband. A lot has changed since mobile TV initially appeared in 2005. There have been breakthroughs in terrestrial broadcasting of mobile TV across countries, addressing potentially a billion additional users in 2010 alone. Today it presents a great opportunity for service providers, content producers, application developers, handset vendors and users alike to target high revenue generating applications. This revised edition is about the new opportunity. It provides a comprehensive overview of the whole landscape, answers all the questions and provides the tools that are required to become a meaningful player in the new markets.

Innovation in the
Multi-Screen World

See us at Broadcast Asia
Booth 4L3-01



You Need a Flexible, Scalable, Reliable Channel-in-a-Box Solution



Just Add ICE

ICE is the only channel-in-a-box solution designed from the point of view of the channel rather than the box. The result is an integrated IT-based playout solution that delivers robust, scalable and affordable operation whether you have one channel or 100+ channels.

Get the cold hard facts at
snellgroup.com/ICE

Routing & Multiviewers
Modular Infrastructure
Conversion & Restoration
Live Production
Automation & Media Management
Control & Monitoring

Make it Real

Integrated Twin-Lens FULL HD 3D Camera Recorder



The world's first*¹ integrated twin-lens 3D camera recorder for professional use.

Fall 2010 Debut

In the Panasonic's new full-HD camera recorder, the lenses, camera head, and a memory card recorder are integrated into a single, lightweight body. This is much less expensive, smaller, more portable, and easier to maintain than the current professional 3D systems.

The twin-lens system adopted in the optical section allows the convergence point**² to be adjusted. Functions for automatically correcting horizontal and vertical displacement are also provided. Conventional 3D camera systems require these adjustments to be made on a PC or an external video processor. This new camera recorder, however, will automatically recalibrate without any need for external equipment, allowing capturing 3D image immediately.

Right and left full-HD video streams can be recorded as files on memory cards, ensuring higher reliability than on other media. Eliminating moving parts helps to significantly reduce maintenance costs. Users also enjoy a fast, highly productive file-based workflow.

*1: As an integrated twin-lens 3D camera recorder capable of recording full-HD video to its memory card. As of January 2010 (based on our investigations).

*2: The point at which the left and right-camera lenses' optical axes converge. Specifications and functions are subject to change without notice.

 pro-av.panasonic.net/en/3d

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