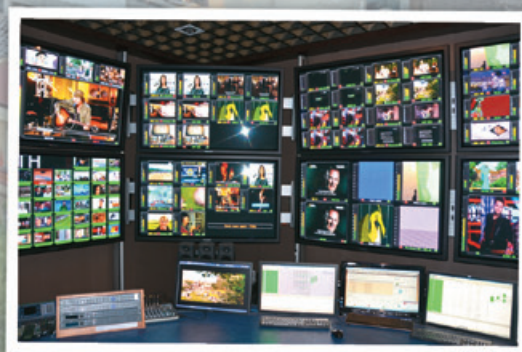




Asia-Pacific
Broadcasting
Union

Technical *Review*

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ABU TECHNICAL COMMITTEE MEETS IN HANOI

**TECHNICAL
REVIEW**
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Contents

3	Experimental Broadcasting of 4K UHDTV via Terrestrial Network in Korea – KBS Korea
10	ABU Technical Committee 2013 Meeting
12	Profiling ABU Members in Vietnam
20	Outlook and New Members
24	e-Radio – TRT Turkey
32	Technical Advisory Service to Palestine Broadcasting Commission
33	BroadcastAsia2013 – Report from ABU Members
34	DAB+ Technology Workshop and Transmission Demonstration
35	ABU Festival of Technology Webinars 2013
36	Central Asia Media Forum 2013
37	Meetings in Seoul
38	Pacific Media Partnership Summit 2013
39	News from the ABU Region
41	Digital Broadcasting Update
43	Equipment Trends
44	Personalities & Post



Cover:
ABU Technical Committee Meets in Hanoi, Vietnam



Asia-Pacific Broadcasting Union

TECHNICAL REVIEW

From the Editor's Desk



This 255th issue offers two technical articles contributed by Korean Broadcasting System and Turkish Radio and Television Corporation together with profiles of ABU members in Vietnam.

The KBS article shares practical experiences regarding the implementation of 4K using DVB-T2 technology and how to deliver 4K television signals to television viewers terrestrially. The article reports the success and the potential of the service.

The TRT article describes the implementation of a building block of a system to enhance the efficiency and effectiveness of the production of radio programmes and broadcasting in all stages.

A report on a six-day Technical Advisory Service to the Palestine Broadcasting Commission is included together with details of the ABU Festival of Technology Webinars that was held over August and September.

This issue also provides reports on BroadcastAsia2013, the DAB+ Technology Workshop held in Hanoi, the Central Asia Media Forum held in Bishkek and the 2013 Pacific Media Partnership Conference held in Vanuatu.

In addition, our usual features, news from region, updates on digital broadcasting and new broadcasting equipment, make up the rest.



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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Experimental Broadcasting of 4K UHDTV via Terrestrial Network in Korea

by Zungkon Yim, Sungho Jeon, Sanghun Kim, Sangjin Hahm, Byungsun Kim

KBS (Korean Broadcasting System), Korea

abstract

Four major terrestrial Broadcasters (KBS, MBC, SBS and EBS) of Korea performed experimental broadcasts of 4K UHDTV (Ultra High Definition Television) during the last three months of 2012. This showed the service feasibility of a 4K UHDTV service in 6MHz bandwidth and also gave content production know-how to the participant broadcasters. In the first experimental broadcasts carried out in 2012, we did transmit-receive experiments for 4K-30p video services. The second experimental broadcasts, of 4K-60p video services and testing the combination of various transmit parameters were performed over four months, from May 2013. This gave us a valuable opportunity to identify the possibility of early realisation of 4K UHDTV from various angles, via terrestrial broadcast networks.

Introduction

A 4K UHDTV transmitter (DVB-T2 transmitter) was installed at the KBS Gwan-Ak transmission station, one of the main commercial DTV transmission sites, covering the southern Seoul metropolitan area of the Republic of Korea [1]. The fixed reception point was installed on the rooftop of KBS R&D building in Seoul. Each broadcaster was in charge of 4K content planning, production, HEVC (High Efficiency Video Coding) [2-3] encoding and TS (Transport Stream) multiplexing and provided its content for the experimental broadcasting project.

The world's first 4K UHDTV experimental broadcasting via terrestrial network, which is based on DVB-T2 (Digital Video Broadcasting – Second Generation Terrestrial) standards, with 6MHz bandwidth at 785MHz centre frequency, and 100W transmission power with 6.03dBi antenna gain [3-4]. The 4K (3840x2160) content of 30 frames per second was delivered, and the field measurement campaign conducted at 15 points with the almost same distance of 5km radius from the transmission site [5].

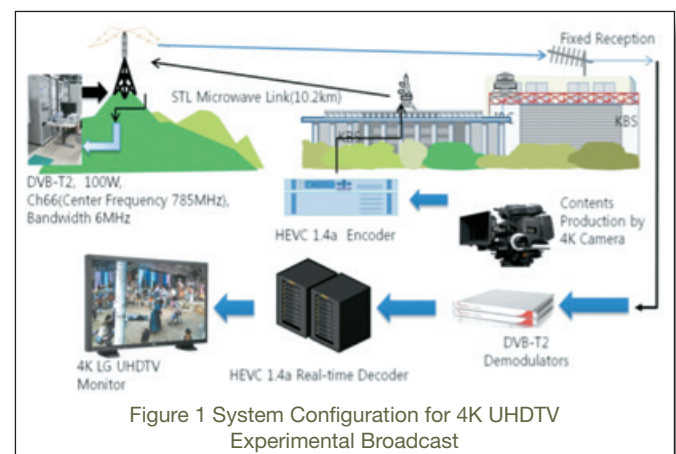
In the following categorized sections the details will be explained. Part 2 and 3 are about the system, Part 4 is about content, Part 5 concerns transmission parameters, Part 6 is a summary of test result and Part 7 describes the second experimental broadcasts of 2013. Lastly, Part 8 presents the conclusion of paper.

System Architecture for Experimental Broadcasting

The transmission system is based on the DVB-T2 standard, which is the extension of the television standard DVB-T,

designed for the broadcast transmission of digital terrestrial television. DVB-T2 employs many advanced technologies, such as LDPC (Low Density Parity Check) code, the rotated constellation, and 256-QAM symbol mapping with large FFT size so that an enhanced data transmission capacity with high spectral efficiency can be achieved. To deliver 4K type content via a terrestrial channel within 6MHz bandwidth, HEVC compression technology, having more than 4 times the compression ratio than MPEG-2, is essential. HEVC is now under the standardisation process led by JCT-VC (Joint Collaborative Team on Video Coding) which was established by MPEG of ISO/IEC and VCEG of ITU-T in 2010, aimed at developing a next generation codec having more than twice the performance of H.264/AVC. The HEVC standardisation process is scheduled to be completed in 2013 and it is considered to be the strongest candidate for a UHDTV codec.

The experimental broadcast chain, depicted in Figure 1, consists of content production, encoding, microwave link,



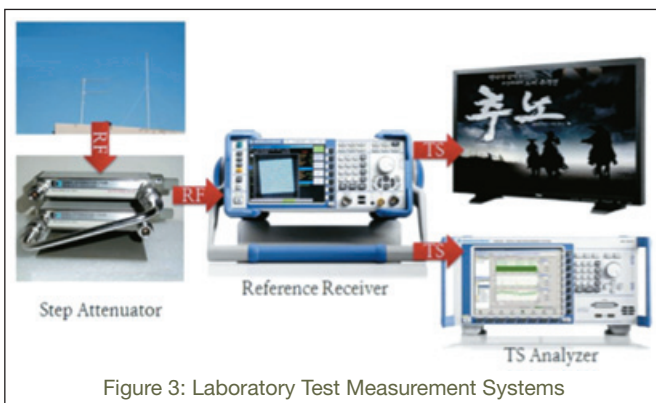


DVB-T2 modulation, on-air transmission, reception, and monitoring. The video content was produced in the 4K-30p format and multiplexed by real-time MPEG-2 TS for delivery to the transmission station via a KBS microwave link.

Measurement and Monitoring System

Field trials for the experimental broadcasts were conducted as indoor and outdoor tests. Indoor tests measured transmit-receive performance and ToV (Threshold of Visibility), and outdoor trials measured the quality of the received signal and created the delay profiles at a radius of 5km from the transmission site.

The measurement system for indoor tests consisted of baseband signal analyzer to check MPEG-2 TS stream and RF analyzer to analyze the received DVB-T2 signal. They are depicted in Figure 3. DVM 400 of Rohde-Schwarz was used to analyze MPEG-2 TS stream and ETL TV Analyzer with DVB-T2 option from the same company was used to analyze DVB-T2 RF signal.



The outdoor field trials were done to analyze radio-wave propagation characteristics over a broad area and acquire the basic parameters for the design of the broadcast network to be applied to the second experimental broadcasts. The KBS field test vehicle, equipped with a rotor to rotate the antenna and mast system to control the height of antenna to the maximum 9.2m, was used for the field trials. The measurement system installed in the test vehicle collected the major physical and transmission layer parameters, such as the received spectrum and power level, MER (Modulation Error Ratio), constellation diagram, channel impulse response

and TS packet error rate, as well as geographical locations and geographical land-shape profiles. Figure 4 and 5 show the outside and inside of the test vehicle respectively.



Test Contents for Experimental Broadcasting

4K UHD TV test content was planned and produced by the four broadcasters. They were provided in the MPEG-2 TS format. We mainly delivered KBS's 4K UHD TV content in October and November 2012, and then content made by the four terrestrial broadcasters was scheduled and delivered in November and December 2012. Table 1 shows a list of 4K UHD TV content provided for the trials. Figure 6 shows some sample images of the 4K content made by KBS.

Table 1: 4K UHD TV Content List

Broadcaster	Title	Genre	Length	Quantization Parameter	Camera
KBS	Chuno	Soap Opera	12'49"	28	Red One
	Gaksital	Soap Opera	6'10"	28	Red One
EBS	Jeju Island I	Documentary	9'50"	32	Sony F65
	Jeju Island II	Documentary	9'51"	32	Sony F65
MBC	Arangsato I	Soap Opera	1'33"	28	Red Epic
	Arangsato II	Soap Opera	2'44"	28	Red Epic
	Road	Documentary	3'8"	28	Red Epic
SBS	Soul in Seoul	Documentary	3'27"	32	Sony F65



Figure 6: Test 4K Contents of KBS

Table 3: FEC Parameter Sets and Effective Data-rates

Parameter Set	FEC Code-rates	Effective Data-rates(Mbps)
1	5/6	36.568597
2	4/5	35.077556
3	3/4	32.873545
4	2/3	29.222227
5	3/5	26.261912
6	1/2	21.854090

B. HEVC Codec System and Parameters

The HEVC encoding parameters for 4K video and audio are given in Table 4. The real-time HEVC decoder was cooperatively developed from a national project conducted by KBS, ETRI (Electronics and Telecommunications Research Institute) and Kai media Co. [6].

Table 4 Video and Audio Coding Parameters

	Items	Contents
Video	Codec	HEVC (HM6.0)
	Video Spec.	4K(3840x2160), 4:2:0, 8 bits, 30fps
	HEVC Parameters	MaxCUsize(64x64), IntraPeriod(32), GOPsize(8), Main profile Rate-Control Not Used Quantization Parameters: 28,30,32,34 etc
Audio	Specification	Dolby AC3, 48kHz Sampling-rates, 2 Channel Stereo, Bit-rate for each channel 384kbps
Multiplex	Specification	MPEG-2 TS, 30Mbps

Transmission Parameters for the Experimental Broadcasts

A. Transmission Parameters

In order to transmit the 30Mbps MPEG-2 TS input stream, we carefully selected the DVB-T2 parameters shown on Table 2. We defined the transmission parameter set for the trials, shown on Table 3, to satisfy the minimum required bit-rate only by controlling LDPC code rate. From Table 3, we could meet the condition in parameter set 1, 2, and 3 to transmit more than 30Mbps in 6MHz bandwidth and 256QAM symbol mapping.

Table 2: Transmission Parameters

Items	Contents
Specification	DVB-T2
Channel Bandwidth	6MHz
FFT Size	32K mode
Guard Interval Length	1/128
Pilot Pattern	PP7
LDPC Size	64,000 blocks
Symbol Mapping	256QAM
Constellation Rotation	On
Time-Interleaver Type/Size	Single Type/3

Results

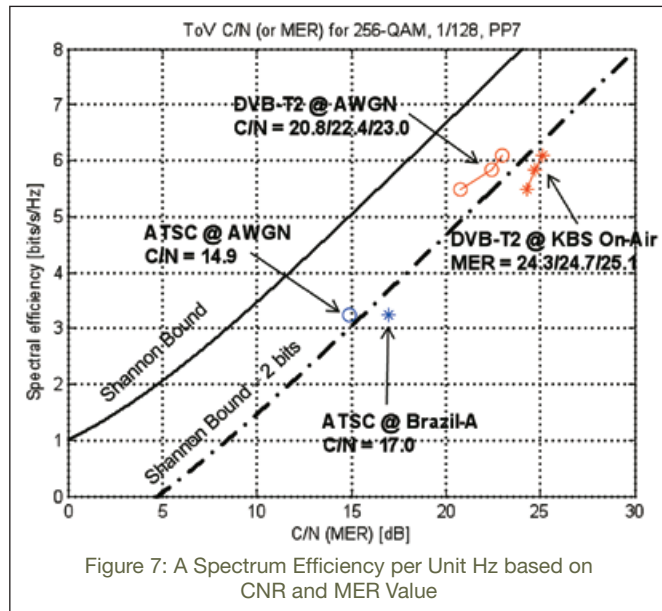
A. KBS R&D Building Rooftop Reception

The MER at transmitter output is 40.3dB and it is similar to the value obtained from normal OFDM broadcast transmitters. The MER at KBS R&D building rooftop reception, LoS (Line of Sight) point, is 39.6dB and it shows about 0.7dB degradation via on-air propagation. A 20dB amplifier was used in the middle of feeder line between the reception antenna and measuring instruments.

The threshold level of electric field strength is a minimally required level to provide broadcast service. ToV is measured as a function of two major measurement criteria: one is the CNR (Carrier to Noise Power Ratio) value in the AWGN (Additive White Gaussian Noise) for laboratory test, and the other is the MER value for the on-air signal received from the rooftop of KBS laboratory building. Therefore, CNR and/or MER represent the minimum requirement to receive the broadcast signal carrying a UHDTV service via the DVB-T2 system [7-9].

The CNR and/or MER value are measured by applying 1dB step attenuation to the received on-air signal using the power attenuator, and their values were recorded until the error-free reception is not possible.

The ToV results are shown on Figure 7. For example, the parameter set #2 from Table 3 gives the effective bit-rate of 35.08Mbps, its ToV CNR in AWGN is 22.4dB and ToV MER from on-air signal is 24.7dB. Additionally, the parameter set #3 gives 32.87Mbps bit-rate, 20.8dB ToV CNR and 24.3dB ToV MER.



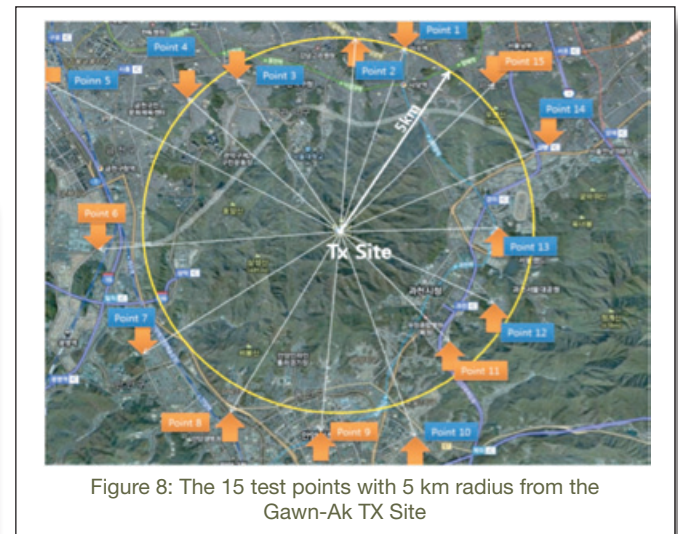
According to the results, we can come to a conclusion that 4K UHDTV service can be supported if the transmission parameters from Table 2 and the parameter set #1~3 from Table 3 are applied to DVB-T2 even if the spectrum bandwidth is 6MHz.

B. Field Test Results

The field tests were done to achieve the following objectives. First, the service coverage of a 4K UHDTV transmission system, based on DVB-T2 and installed on Gwan-Ak transmission site with 100W transmission power, needed to be measured. Second, the pattern of transmission antenna with one-stage and three-panels and its effects on broadcast service area needed to be measured. We installed 3 panels except 240° not to interfere with the existing commercial DTV service in the other region of Korea using the same frequency band. The field test results can

be used as reference data to design and introduce 4K and 8K transmission systems in the future.

We conducted the field tests at 15 points with the almost same distance of 5km radius from the transmission site and tried to keep an equal angle interval for each measuring point as depicted in Figure 8. The field tests were conducted from December 2012 by using the KBS field test vehicle. Measuring the received T2 signals using the test vehicle required many devices to collect various parameters such as channel delay profiles, reception power level, constellation diagram, MER values, geographical land-shape profiles, and GPS information. In particular, the test vehicle employed a 9.2m high mast system, with remotely controlled rotor system, in order to give each point a similar condition to a real rooftop situation.



In Figure 8, the good reception points are represented as blue boxes with the number and location, and the poor reception points RE represented by orange colored boxes. 10 out of the 15 points give good signal reception. The averaged values of measured results are summarised in Table 5.

Table 5: Average Value of Reception Power Level for the Test Points

	Average Rx Power Level (dBm)	Average MER (dB)
Total 15 points	-58.80	-
Good Rx Points	-53.91	30.79
Bad Rx Points	-73.84	N/A

From the analysis of each point, the places with the LoS condition mark the reception power level around -50dBm, and the other places with good reception in spite of non-LoS are the level around -63dBm. The area in which the transmission antenna does not secure the LoS condition commonly indicates very low reception power levels. The bad reception locations such as the southern part of the Gwan-Ak site gives a level below -74dBm. The average MER at the good reception points is 30.79dB which is about 4.6dB greater than the MER result of 25.1dB measured in KBS laboratory. The MER values of bad reception points cannot be observed, because the T2 measurement system could not achieve frame synchronization, making any further analysis impossible.

4K-UHDTV Field Trial Plan for Phase 2

Following to the first experimental broadcasts of terrestrial 4K UHD TV in 2012, we got permission for the second experimental broadcasting from the government for 2013. In the second series of experimental broadcasts, we have a plan to analyze radio-wave propagation for 4K UHD TV more specifically and test transmit-receive conformity between production, distribution, and transmission systems. In addition, 4K-60p encoding and decoding, 4K-60p content productions and the development and optimization of content production workflow will be also verified.

Conclusions

For the success of the first experimental broadcasts, KBS played a leading roles in installing transmit-receive system and conducting field trials with a lot of new 4K-UHDTV test content provided by four participant broadcasters. The success has favorably influenced overseas as well as domestic markets. It has also provided valuable knowledge on content production, workflow and broadcast networks to serve 4K UHD TV via terrestrial broadcasting.

UHD TV seems to be the most prominent successor to the post-HDTV era. Now, 4K displays are being rushed to the market in search of a new source of revenue and KBS, as a public broadcaster responsible for establishing the foundation of the future broadcasting for the good of national and public wealth, has a strong will to carry forward terrestrial UHD TV broadcasting experiments in a bid for the invigoration of UHD TV broadcasting.

To clarify this intent KBS worked on 4K-UHDTV experimental broadcasts last year and plans to carry out an 4K-60p UHD TV over-the-air trial. After the completion of this experiment, KBS will ceaselessly devote its best efforts to fulfill the aspiration of starting 4K-UHDTV and 8K-UHDTV broadcasting in the near future.

Acknowledgement

These projects are based on the MOU (memorandum of understanding) among KBS, MBC, SBS and EBS, which was signed by the superintendents of the digital and technical divisions of each broadcasting company in April, 2012. We would like to express the special thanks to the two government bodies of the Republic of Korea,

KCC (Korean Communications Commission) and MSIP (the Ministry of Science, ICT and Future Planning) who issued the all permissions to execute the UHD TV experimental broadcasts in Seoul.

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- Establishment of TV studio for IGNC, Educat setup for Delhi Technical University and Sangeet Natak Academy.

- Manpower outsourcing for specialised service to Doordarshan and AIR News Unit Delhi, RNUs and EMMC.
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- Supply, installation, testing & commissioning of HDTV Studio setup for Rajya Sabha's RSTV Channel.
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ABU Technical Committee 2013 Meeting

Hanoi, Vietnam

The 50th ABU General Assembly and associated meetings will be held in Hanoi, hosted by Vietnam Television.

The ABU Technical Committee Meeting, which will be held on 25-26 October, is a valuable opportunity for broadcast engineers from the region and beyond to come together to discuss key issues facing the industry in a time of rapid change. The ABU Technical Committee meeting this year has been reduced to two days, to cut costs for members and reduce the time spent away from the office.

The ABU Engineering Awards Announcements & Presentations will take place immediately after the Opening Session of the TC. The inaugural ABU Developing Broadcasters' Excellence Award sponsored by Sony will be among the awards presented.

Workshop presentations during the ABU Digital Radio Forum will be made by Voice of Vietnam, Digital Radio Mondiale, WorldDMB and TRT-Turkey.

Sony, CCTV, KBS and AVG will make presentations at the workshop during the ABU Developing Broadcasters' Forum.

The Special Topic Session for the TC will be presented by Vietnam Television on the topic Moving to a Digital World. The session will be moderated by Mr Nguyen Duc Tue, Deputy Director, Technical Centre and ABU Honorary Vice Chairman who will also make a presentation.

The Keynote Presentation will be delivered by Mr Shuichi Fujisawa, Head of NHK Science & Technology Research Laboratories, NHK-Japan.

The topic of the CTO Forum is Broadcasting Technologies for 2020.

A meeting between ABU Technical Liaison Officers and ABU Technology staff will be held on the first day of the TC.

ABU Technical Committee Meeting Hanoi 25-26 October 2013

TIME/DATE	DAY 0 THURSDAY, 24 OCTOBER	DAY 1 FRIDAY, 25 OCTOBER	DAY 2 SATURDAY, 26 OCTOBER
09.00-10.00am		Opening Session ABU Engineering Awards Announcements & Presentation	Keynote Presentation Novel Initiatives in UHDTV & Hybrid Broadcasting NHK-STRL
10.30am-12.30pm		Director's Report Facilitated Session: Member Developments based on their Status Reports Bureau Proposals	Topic Area Reports Outcomes from Production, Transmission, Training & Services, Spectrum ABU Forum Reports CTO Forum Broadcasting Technologies for 2020
2.00pm-3.30pm		ABU Digital Radio Forum Including Workshop Presentations by: • VOV-Vietnam • DRM • WorldDMB • TRT-Turkey	Special Topic Session Vietnam Television Moving to a Digital World New Recommendations & Decisions of the Technical Committee
4.00pm-5.30pm	Technical Bureau Meeting Restricted to Members of the ABU Technical Bureau	ABU Developing Broadcasters' Forum Including Workshop Presentations by: • SONY • RTPRC-China • KBS-Korea • AVG-Vietnam	New Member Introductions and Cooperation with International Organisations Interactive Session: Exchange of Information Provided by Members CLOSING
		5.30-6.30pm Meeting of ABU TLOs	

50th General Assembly & Associated Meetings

Hanoi Vietnam, 23-29 October 2013

Wednesday 23 October	Sports Group Meeting	Women With The Wave High Level Forum Series Information and Communication Technology (ICT) and Media Inclusion of Women and Girls and People with Disabilities	Planning & Strategy Group Meeting
Thursday 24 October	Sports Group Meeting Technical Bureau Meeting (Restricted to Members of the ABU Technical Bureau)	Radio Working Party Programme Committee	–
Friday 25 October	Technical Committee Meeting of ABU TLOs	Programme Committee	Meeting of the Presidency
Saturday 26 October	Technical Committee	ABU/FES Seminar Building Public Trust in Media: Asia-Pacific Perspective	Administrative Council Meeting (Council Members Only)
	Final Show for ABU TV Song Festival		
Sunday 27 October	FULL DAY EXCURSION President's News Conference		
Monday 28 October	Official Opening of the 50th General Assembly 1st Plenary Session 2nd Plenary Session 3rd Plenary Session ABU Prizes Night		
Tuesday 29 October	Super Panel Session Cutting-Edge Content: Opportunity and Challenges in a Fragmented Digital World Professional Discussion Crucial Role of Frequencies for Radio and TV Broadcasting Restricted Working Session (Full and Additional Full Members only) NHK Reception		

The Sports Group Meeting will take place on 23 and 24 October and will discuss the 2013 SEA Games, 2014 Commonwealth and Asian Games, the 2014 FIFA World Cup and World Athletics Championship.

The Programme Committee Meeting will begin in the afternoon of 24 October and conclude the following day.

A full day excursion on 27 October has been arranged to the Trang An Ecotourism Complex in Ninh Binh Province.

The General Assembly will be held on 28-29 October. The Super Panel Session this year will address Cutting-Edge Content: Opportunity and Challenges in a Fragmented Digital World. The Professional Discussion will cover the Crucial Role of Frequencies for Radio and TV Broadcasting. The Final Show for the ABU TV Song Festival will be held on 26 October and the ABU Prizes Night will be held on 28 October.

ABU General Assembly and Associated Meetings 2013
Hosted by Vietnam Television



Profiling ABU Members in Vietnam



VTV (Vietnam Television)

Vietnam Television (VTV) is a national broadcaster, having the highest viewer rating among TV broadcasters in Vietnam. VTV currently broadcasts six FTA channels 24/7 and tens of cable TV channels on its pay TV platform. The six FTA channels are:

- **VTV1:** General Informative Channel
- **VTV2:** Scientific and Educational Channel
- **VTV3:** Sport, Entertainment and Economic Channel
- **VTV4:** Channel for overseas Vietnamese
- **VTV5:** Channel for ethnic minority viewers
- **VTV6:** Youth Channel

As the leading news and mass communication organisation in Vietnam, VTV plays an active role in the nation's ideological and cultural forefront by disseminating information to the general public across the country and overseas Vietnamese, providing scientific and educational programming to targeted audience groups. Besides, it's also an effective channel for mutual communication among over 50 ethnic groups in Vietnam as well as between Vietnam and the rest of the world.

Over the last decade, with its financial self-reliance mechanism, VTV has maintained a remarkable growth, and developed diversified services from television broadcasting to other fields such as film making, pay-TV, the Internet and publication of printed media. It has proved its increasing influence on the spiritual, cultural and entertainment life of the Vietnamese people.

Nowadays, in line with the current trend of the world's television industry, the migration to digital systems supporting HD or even higher is a must for every broadcaster all over the world. However, it is still not an easy task because the migration requires a lot of time and budget. It's more difficult for a national broadcaster like VTV because strategic decisions made in a time of technological change are always tough, as they could affect to the whole development trend of VTV. Thanks to the determination of VTV's Presidential Board, the digitalisation process of VTV so far has had significant achievements, enabling VTV to become the vigorous, modernised national broadcaster of Vietnam.

I Programme Production System

In the 1990s, all the programme production systems of Vietnam Television were analogue based. Lately, several systems have been digitalised individually and the migration has been conducted massively.

1. Pre-Production System

Till 2005, a single camera system and magnetic tape was used for production in VTV. Since then, digital fibre disk, memory card cameras have been utilised. And as of 2013, all of VTV's camera system is HD based.

The digitalisation of VTV's studio system also started in 2005. In order to obtain a fast growth in airtime, Vietnam Television has invested dramatically in its professional and modern technical facilities by building up a new Technical & Program Production Centre in 2011, with all of the

studios fully digitalised. Most of the main studios are HD supported, with video server based recording/transmitting equipment.

The first digital OB van of VTV was set up in 1996. Now, all of its OB vans are digital ones, of which 03 vans are HD, using fibre disk and memory card based recording/transmitting equipment.



2. Post-Production System

From the very first non-linear editing system in 1996, with its investment VTV has developed its editing system to SAN based in 2006. The editing system used for post-production in VTV has basically migrated to SAN with HD support. Recently, VTV has also invested in numerous projects to enhance the production system of news and the digitalisation of Archive Centre. These systems are being used efficiently in the production workflow.

3. Playout system and MCR

VTV had server playout systems in 2007, initially used for two channels and later for other channels. Now all of VTV's channels are broadcast via servers. Within this year, the Playout and MCR Divisions will move to another location, equipped with fully digitalised infrastructure, ranging from ingest to distribution and monitoring. It is hoped that at the end of 2013, VTV's playout system will be sustainably operated in the digital environment, with file based workflow, and half of its broadcast channels will be HD compliant.

II Transmission System

The Transmission System of Vietnam Television is currently carrying out its digital broadcast plan, namely:

- DVB-T2 Standard Appliance
- By 2014: Formation of a Broadcast and Transmission Company under VTV
- By 2015: Cover 64 percent of the population
- By 2016: Completion of a National Network Control Centre
- By 2018: Cover 74 percent of the population, completion of a national fibre based transmission network which can be used for all of VTV's units.
- By 2019: In collaboration with relevant governing authorities, enhance the coverage up to 80 percent of the territory (including offshore and mountainous areas).
- By 2020: Completion of SFN systems for VTV's DTT in HD format (in collaboration with relevant central and local authorities to complete the plan for supporting households' acquisition of STBs).



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VOV (Voice of Vietnam)

Established on 7 September 1945, the Voice of Vietnam is the national broadcaster under the government. It performs the functions of providing information, education and entertainment via its programmes on radio, television, the Internet and print.

VOV Broadcasting Channels

- **VOV1** – News and Current Affairs Channel, provides the fastest and most accurate current affairs, political, diplomatic, economic and literature issues to all listeners within and outside the country, broadcasting daily from 04:45 to midnight.
- **VOV2** – Cultural, Social Life and Educational Channel, is the specialised channel broadcasting issues relating to culture, literature, moral life, and distance education. The channel broadcasts from 05:00 till midnight.
- **VOV3** – News, Music and Entertainment Channel, broadcasts round the clock on FM. VOV3's music programmes comprehensively reflect all aspects of composing, performing, debating and criticising.
- **VOV4** – Ethnic Language Broadcasting Channel, provides information for Vietnam's ethnic minorities. It broadcasts in 11 languages with a total airtime of nearly 40 hours a day.
- **VOV5 (World)** – broadcasts on medium wave and shortwave in 12 languages. With nearly 52 hours of daily airtime, these programmes target audiences in different continents, getting feedback from listeners in more than 70 countries.
- **VOVGT** – National Traffic channel: the channel on air to help traffic users with useful information and instructions and provide the general audience with exciting programming.
- **VOVTV** – the television network making full use of radio advantages and multimedia to provide more diverse and quality information. The channel began operation on 7 September 2008 on the 63rd anniversary of VOV. Starting

with 10 hours of daily airtime, it has been telecasting round the clock since 2010.

Engineering

With 60 studios and 33 transmitting stations providing more than 220 hours of daily airtime, VOV's national coverage reaches 99.5 percent of Vietnam's population.

Audio Centre

The Audio Centre undertakes the production of all VOV's radio programmes. With more than 100 engineers and technicians, the Audio Centre accommodates a modern, fully digitalised compound with dozens of production and transmitting studios and an advanced digital audio archiving system.

Broadcast Engineering Centre

VOV's Broadcast Engineering Centre caters to transmissions of VOV channels with an annual airtime totaling 400,000 hours. VOV programmes are transmitted via satellite, FM, medium wave and shortwave as well as cable television, and streamed online on the Internet.

Radio Information Technology Centre (RITC)

Established in 1999, RITC has been assigned to research, explore and keep VOV updated with information on the world's latest advances in broadcast science and technology and apply them to VOV. The centre also provides monitoring and measurements of broadcast technical standards and has extensively researched and applied to VOV the latest IT and broadcast technological advances.

International Cooperation

VOV has so far established cooperative ties on a bilateral and multilateral basis with more than 40 broadcasting institutions and international organisations worldwide.

VOV exchanges radio programmes and music on a monthly basis with partner stations from Eastern Europe, Northeast Asia and ASEAN to promote understanding and cooperative ties with those broadcasters and countries.





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VTC (Vietnam Multimedia Corporation)

Vietnam Multimedia Corporation (VTC) was established 1988 and was originally named Vietnam Television Technology Investment and Development Company.

VTC is a state-owned corporation, directly under the management of the Ministry of Information and Communications. VTC's functions are: broadcasting television programmes and providing services on a digital platform: DVB-T, DVB-H, DVB-S2, IPTV, mobile TV; in telecommunication, providing services for Internet connection (IXP), including services for internal Internet connection (NIX) and service for international connection (IIG); providing service for Internet access (ISP); providing telecommunications service over Internet (OSP telecommunications); and providing long-distance telecommunications service in the country over IP.

Under the management of Ministry of Telecommunication and Information, VTC Digital Television is one of the two biggest television stations in Vietnam. VTC is now covering 15 SD channels and 5 HD channels, being one of the three most reliable television programme producers in Vietnam. These channels are digital terrestrial and satellite, digital, cable network, IPTV and MobiTV. VTC has four of 10 national channels (VTC1, VTC10, VTC14, VTC16), transmitting and broadcasting on all transmission systems in Vietnam.

Important timelines in the development of VTC:

- 2002: VTC channels using the DVB-T technology.
- 2003: VTC broadcasts live TV channels on the Internet using H264 video codec.
- 2006: VTC broadcasts TV channels for mobile phone.
- 2008: VTC broadcasts HDTV channels on satellite using DVB-S2.
- 2013: Transition DVB-T network to DVB-T2.



Monitor room in new building (23 Lac Trung Street, Hanoi)

Systems and equipment to build production systems of quality television programmes including HDTV: studio systems, studio equipment numbers, equipment and programme production HDTV format fixed and mobile, the mobile equipment industry for outdoor work. The production system programme will be the basis for research; application and development of programme formats produce a new generation, high-quality technology convergence. Output is the television format compatible with most modes of terrestrial broadcasting, cable, satellite and mobile TV.

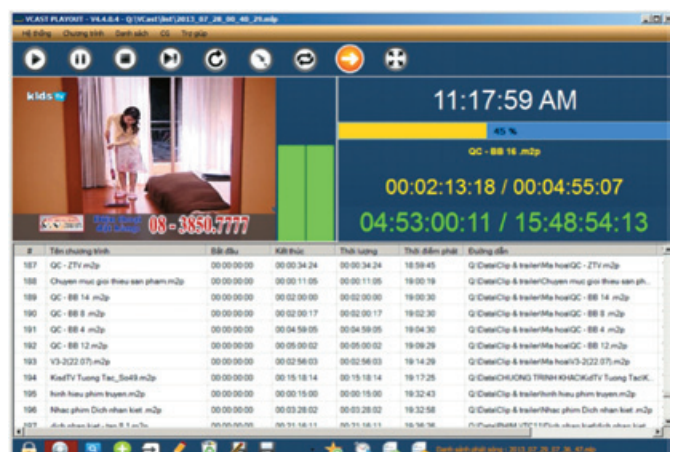
The system produced television programmes will apply the new generation of advanced digital technology, modern production, collection, storage, and transmission of multimedia content including TV programmes: high quality format with the appropriate format on a national scale and reach to the world. The quality of TV programmes is being raised to meet the new demands of a rapidly growing and diverse audience.

The programmes produced are transmitted on the network infrastructure available in DVB-T/DVB-T2 to the whole country, and DVB-S2 satellite and broadband networks across the country and the globe, allowing people to enjoy the TV content in HDTV anytime, anywhere.

Production of diverse TV content and the technical applications are designed to meet the needs of cultural enjoyment, information, economic, social, environmental resources and education. Content is produced to meet the numerous demands across the social strata. People can access the content by many different means: digital terrestrial TV, digital satellite TV, mobile TV, broadband Internet, television and radio.

VTC video servers, shared storage and content management systems (CMS) offer professional media organisations with open platforms optimised for production. VTC CMS produced television programming was developed to meet the requirements of the production process management programme of digital TV. The system is designed to enhance management; the department provides interactive consistency when producing television programmes. The CMS system should provide users with the ability to work remotely, removing geographical distance. By connecting to the Internet, users can participate in the system even when they are travelling abroad.

VTC development TV playout software and broadcast automation systems, known as Vcast. The Vcast integrated playlist manager, CG and graphics can play files of any resolution, frame rate, compression and container format together with live feeds in a single playlist. Vcast can create sophisticated news tickers and on-screen graphics, and playback H.264, MPEG-2, M-JPEG, MXF, MP4. Items with different resolution, frame rate, compression format and container can be played out from a single playlist.



AVG - An Vien Television



Overview

AVG was officially launched on 11 November 2011, nearly 2 years ago. AVG – An Vien TV is a new brand in Vietnam's Pay TV market. Though born later than the well-known state TV stations, AVG – An Vien TV joined the market in good faith and as a tough competitor to provide a good and economical Pay TV service, making a best effort to become, "The pride of Vietnamese people".

Different from old Pay TV service providers, using a cable platform, AVG – An Vien TV chose digital technology to set up their transmission and broadcasting infrastructure. This is a long-term strategy because AVG, as masters of technology, know what the future key technologies will improve high quality audio and video. Moreover, using digital technology, AVG are contributing to the acceleration of the TV digitalisation programme instituted by the Government of Vietnam with the target of a national analogue switch off in 2020.

With rapid and strong development, An Vien TV's subscription base is growing steadily; its coverage area has spread nation-wide, even to the country's remote mountain terrain. Using two transponders (54MHz and 36MHz) on the NSS-6 satellite of World Skies (SES) which has network coverage stretching across the whole territory of Vietnam and the Asia-Pacific region, An Vien TV bring many excellent channels to the Vietnamese people, even to the Truong Sa archipelago (Khanh Hoa province).

AVG's State of the Art Technology

AVG is the pioneer in Vietnam in applying single frequency networks (SFN), Digital Video Broadcasting – Second Generation Terrestrial (DVB-T2) and MPEG4 compression.

Using advanced technology, AVG effectively operates its transmission and broadcasting system with compatible advanced equipment and facilities. To monitor the transmission and broadcasting system, AVG has researched and set up a Network Operation Center (NOC) and Network Control Center (NCC), Conditional access system (CAS), etc. The NCC is considered to be the most advanced in South East Asia.

To assure signal quality, AVG is equipped with a specialised field measurement van, which is designed suitable for the

Vietnam environment and installed with automatic advanced technology, including GPS, broadcast monitoring system and a spectrum analyzer.

With a long-term strategy, AVG is the unique technical partner of The Public Security Ministry of Vietnam, which officially launched the An Ninh Television Channel (ANTV) on 11/12/2012 on AVG's DTT and DTH and some other delivery systems. Lieutenant General, Mr. Huu Uoc - General Editor of ANTV emphasized: *"We have the advantage to broadcast on AVG's system. We had different offers, but we choose AVG as a strategic partner. AVG supports and invests in ANTV with technology and experts"*.

Many Special Dedicated Channels to Meet Different Audiences' Favorites

Besides technology investment, AVG pays a lot of attention to content as decisive factor to develop its services and bring compelling channels to audiences. All channels packaged in the An Vien TV service are outstanding with large audiences.

To be up to date and different from other Pay TV service providers, AVG cooperates with local potential TV stations to produce five dedicated channels which are now exclusively broadcast on AVG, including An Vien (oriental culture), NCM (Sport and entertainment), Phim Hay (film), Vietteen (Youth entertainment and music), Sam (for children).

The On An Vien TV, audience will enjoy licensed international channels such as HBO, Star Movies, National Geographic Chanel, Fox Sport Plus, Star World, etc. Of these the favorite channels are HBO and Star Movies with voiceover and dubbing in Vietnamese, to suit audience preferences. If audiences particularly want to watch these channels in their original language, they can select this themselves using AVG's remote control.

With a long-term investment strategy, AVG aims to bring competitive services to Vietnam's Pay TV market. Also, AVG is committed to be an active member of the ABU, contributing to common activities, exchanging experts among ABU's members and supporting each other to enhance technical qualifications and skills with the common target of television development.





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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.

www.worlddab.org

Getting ready for Technical Committee Meetings in Hanoi

The ABU Technical Committee Meeting will be held from 25 to 26 October in Hanoi in conjunction with the 50th ABU General Assembly scheduled from 23 to 29 October.

The ABU Technical Bureau will meet in the late afternoon of 24 October to discuss administrative matters of the Technical Committee. This meeting is restricted to the bureau members only.

During the Technical Committee meeting, various topics relating to members of the ABU including key developments and achievements will be discussed. This will also include radio and television access services for people with disabilities such as hearing difficulties and visual impairments, in addition to spectrum and inference issues for broadcast services.

A facilitated members' session based on the status reports received for the TC meeting, will be held on the first day. On the second day of the TC meeting the topic chairmen will present their progress reports for the year.

The ABU Technology hopes that members will consider contributing more articles to the ABU Technical Review.

The ABU Technology intends to propose the idea of an eTechnical Review, with only a few printed copies for formal requirements and libraries. The electronic version in the form of pdf files will be made available to members through the ABU's ftp site.

From Amal, Nadeem, Kyaw Zaw, Nam, Geraldine, Hamidah and Ramlah

Affiliate Member

SPACETECH TV ENGINEERING, JORDAN

SpaceTech TV Engineering is a private company established in Amman, Jordan, on 1 January 2005. SpaceTech provides technical consultation, systems designs, planning, implementation, installation, testing and operation of television and broadcast studios, terrestrial and satellite transmission facilities as well as telecommunications and IPTV solutions. SpaceTech has been awarded a number of broadcast projects in MENA and African countries. They provide technical consultancy to public and private radio and television production and broadcasting organisations in the Arab world for establishing and upgrading their infrastructure.

ARQIVA PTE LTD, SINGAPORE

Arqiva Pte Ltd is a private limited company, established in Singapore on 12 December 2012. They were first

established as a leading communications infrastructure and media services company in the UK and they provided the transmission capability for the UK Government's first budget broadcast in 1928, the first satellite TV tests in 1978, the world's first digital terrestrial TV launch in 1998 and the world's first outsourced mobile phone network in 2001.

iBIQUITY DIGITAL CORPORATION, USA

iBiquity Digital Corporation is a private corporation incorporated in Delaware, USA, on 28 October 1998. They have the sole license to commercialise terrestrial digital radio technology in the United States of America. They license digital radio technology to broadcasters and manufacturers of radio broadcast and receiver equipment worldwide. iBiquity Digital Corporation's mission is to drive forward the consumer mass adoption of HD Radio Technology not just in USA but also worldwide.

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e-Radio

by Cemal GAZALCI, Doğuş ÇIFTELER, İbrahim, İzlem GÖZÜKELEŞ, Zeynep YENİARAS PAZAR

Turkish Radio and Television Corporation (TRT)

Last year, Hakan Kacmaz, chief engineer of TRT (Turkish Radio Television), concluded his article with the announcement of an in-house radio automation system which was planned for launch in the middle of 2012 [1]. According to plan, the first release of our radio automation system, e-Radio, started operation at Turkey's most popular radio station, TRT FM, on July 2012.

e-Radio (electronic radio) is more than an automation system. e-Radio refers to utilisation of ICT (Information and Communication Technology) to enhance efficiency and effectiveness of the production of radio programmes and broadcasting at all its stages. e-Radio is not a single system but the integration of many systems and applications. Additionally, e-Radio servers and specialised workstations use only free and open source software (FOSS).

One may argue that with many sophisticated radio automation systems available, reinventing the wheel is unnecessary and economically unviable.

e-Radio's development started in 2009 and different automation systems had already been tried before this. Most of these systems were successful, but only locally. These were independent systems and none of them could communicate with other systems. In addition, TRT's unusual organisational structure did not permit an overall interconnected system.

Secondly, ICS systems are live systems. They evolve and progress according to new user requirements and technological developments. In this process, interoperability and vendor lock-in are two inherent problems. An enterprise system's success depends on its capacity to eliminate these problems.

Organisational Structure

If there had been a working 'wheel' at TRT, we wouldn't need to have developed e-Radio. Then there is TRT's unusual radio broadcasting structure, including its many stations:

- 8 national radio stations (Radio-1, TRT FM, Radio-3, Radio-4, Radio-6, TRT Melody, TRT Folk Song, TRT Radio News).
- 5 regional radio stations (Antalya, Çukurova, GAP-Diyarbakır, Erzurum, Trabzon).
- international radio stations The Voice of Turkey Radio (Broadcasting in 32 languages) and Europe FM.

These stations have widely varying broadcasting policies.

Furthermore, TRT has a distributed organisational structure. There are three national units (at Ankara, Istanbul and

Izmir), five regional units (Antalya, Çukurova, Diyarbakır, Erzurum and Trabzon) and a unit for international radio stations. Unlike the regional and international stations, national stations are not dedicated to a single unit and regional units may also work with national radio stations. For example, while TRT FM may broadcast from Istanbul between 7 AM and 10 AM, it may broadcast from Izmir after 10 AM, and later from Çukurova.

More to the point organisational structure may change and an automation system must be agile enough to incorporate such changes, which may involve a new division of labour among broadcasting units as well as requiring interoperability with running systems.

Interoperability and Vendor Lock-in

Interoperability is the main rationale behind the in-house development of e-Radio. Interoperability is the ability of diverse systems and organisations to work together. Nowadays, there are no stand-alone systems. Each ICT system must exchange data with other systems in order to function. Often however, legacy systems do not adhere to publicly available open standards. Additionally, interoperability is still an essential issue in newer ICT systems since there are vendors, who try to dominate the market by developing proprietary standards which result in vendor lock-in. Vendor lock-in, which makes customers dependent on a specific vendor for products and services, is one of the main problems we have experienced in recent years.

ICT systems evolve by nature with new user requirements, integrating with other systems and technological developments driving the change. Proprietary software however does not permit modifications. Any modification or improvement has to be paid for; another instance of vendor lock-in. Enterprise systems need FOSS (free and open source software) and if proprietary systems have used when there aren't any alternatives they need to comply with open standards. For this reason, we did not only choose an in-house development, but e-Radio is completely developed using FOSS. Because of this, there are no license fees and vendor lock-in problems.

e-Radio is not a simply radio automation system, it is:

- an enterprise system which aims to computerise the radio broadcasting work flow.
- an enterprise system for all TRT's stations and broadcasting units.
- an agile system which can be customised and extended according to different requirements.
- a system based solely on FOSS.

In the following paragraphs the architecture of e-Radio, its applications, sub-system relationships and architectural decisions are presented.

Architecture Of e-Radio

e-Radio is based on service oriented architecture (SOA). The main benefit of SOA is to allow mutual data exchange between programmes. SOA is the solution for our principal problem of interoperability among different systems.

Main systems of e-Radio are the, e-Radio Authorisation System, e-Radio Logging System, Music Archive System, e-Radio Scheduling System, e-Radio Advertisement System, e-Radio Production System, Copyright Reporting System and e-Radio Data System.

Because of the distributed organisation of TRT radio stations and broadcasting units, we also had to implement a distributed architecture. There are central servers and storage areas at TRT's Oran campus. These servers' and storage area mirrors are also deployed at Ankara, Istanbul and Izmir units. There are also smaller scale mirrors at regional units.

Central servers are used for persistent operations and mirrors are used for reading. In case of any connection loss between central servers and mirror stations, broadcasting can continue with existing programme and music archive content. Should a natural disaster affect any broadcasting unit, another unit can take over. Before e-Radio, this was impossible.

e-Radio services are used by other services or e-Radio applications. According to the policy of e-Radio, for specialised tasks we use Debian GNU/Linux workstations. Others are platform independent, either web or JWS (Java Web Start) applications.

Main applications of e-Radio are Music Archive Input Application, Music Archive Search Application, e-Radio Scheduling Application, e-Radio Advertisement Scheduling Application, e-Radio Production Application and e-Radio On Air.

e-Radio Logging System (RLS)

RLS is used by all services of e-Radio.

There are two e-Radio logging policies: log to file and log to database. Each sub-system and application has its own log text file used for error detection.

All user operations which insert, delete or update records are logged for security reasons. A log contains its actor's ID and IP address, operation, arguments of operation and its date.

e-Radio Authorization System (RAS)

RAS is used by all systems.

There are two authorisation policies of e-Radio: by IP address and username. Each system has its authorised IP address list. Authorization by IP address policy is used by servers' interrelationship and e-Radio On Air workstations.

Producers, advertisers, managers, archivists, administrators etc. have to log in by username and password. At the moment, there are more than 700 registered users.

Each system has roles and groups. First, roles are assigned to groups. As one role may be assigned to many groups, groups may have many roles. Secondly, registered users are assigned to roles. Each user may be assigned to several groups. Some users may also have privileges on a station. However, for security reasons, users' memberships to groups are valid only for a limited time.

RAS is managed by e-Radio Management Application (RMA). New services, roles, groups and units are defined by RMA. While administrators of the systems are only defined by RMA, each system's users and their roles are defined by their own RAS user interfaces.

Music Archive System (MAS)

MAS is a content delivery and archive system.

Before MAS, there were no digital music archive systems. Audio content was on CD-ROMs or on local disks held by individual staff members. Metadata of some audio contents were on Excel files or Access databases. There were no professional solutions for archiving audio content.

Consequently,

- Storing content on CD-ROM was very insecure and we had unpleasant experiences.
- It was very hard to search for content.

MAS handled these problems by storing content in storage areas and organising and indexing metadata for simple and advanced searches.

When a user, authorised as archivist in MAS, adds new audio content, its metadata is saved in a database and audio content is stored in a storage area. MAS accepts only lossless audio format, WAV, for archiving. FLAC can also be archiving format, but there was only WAV on old disks and CD-ROMs.

After a WAV is uploaded, a daemon named Encoding Daemon, converts WAV files into MP2 for broadcast and MP3 for listening from network. We store WAV files for archiving purposes and in case of any demand for another format, WAV files can be easily converted to them.

For fast and easy downloading, MP3 and MP2 files are synchronised to mirror servers, which reside in Ankara, Istanbul, Izmir and other regions.

MAS has a very detailed metadata structure. Archivists may enter metadata about content, artists, instruments, country, language, genre etc. Later, this detailed metadata structure is indexed for fast and easy search and then again synchronized to mirror servers.

At the moment, there are more than 180,000 songs in MAS.

Music Archive Input Application (MAIA)

MAIA is a JWS application used for uploading audio content and entering metadata. Using Java, a platform independent programming language, MAIA can be used on any operating system. However, if a user also wants to rip CD-ROMs, instead of just uploading WAV files, she has to use our Debian GNU/Linux workstations, which are prepared for ripping.

At Figure-1, you see MAIA's GUI:



Figure 1

M Music Archive Search Application (MASA)

MASA is a web application developed for all TRT staff. Every user in the TRT network can listen MP3 files and make their own playlists for listening. Authorised users can download MP2 files. In Figure-2, you see MASA's Google-like GUI for simple and in Figure-3 there is MASA's advanced search:

Furthermore, MASA makes use of Web 2. MASA users correct and improve metadata by their feedbacks and comments.

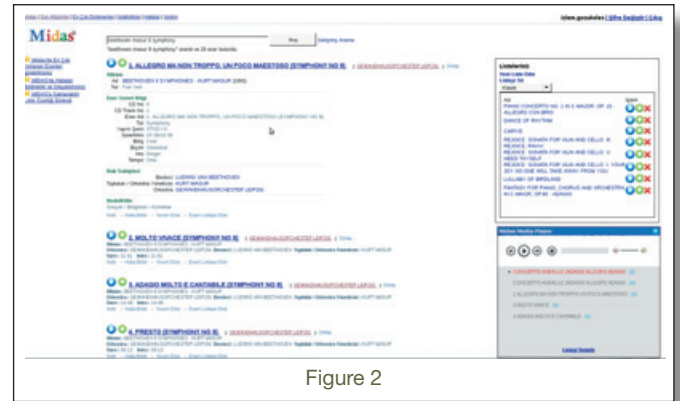


Figure 2

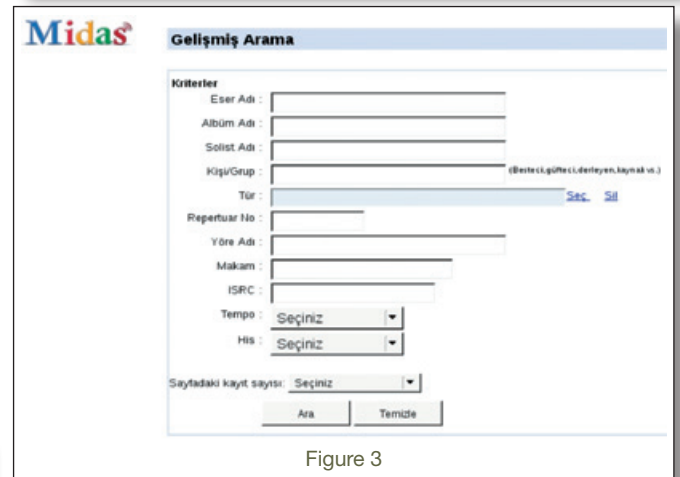


Figure 3

e-Radio Scheduling System (RSS)

RSS has a central role in e-Radio. It uses RLS, RAS and MAS and it is used by many services and applications: radyo.trt.net.tr, e-Radyo On Air, RDS, smart-phones, copyright reporting system and e-Radio Production System.

Before e-Radio, there were also a few scheduling systems. radyo.trt.net.tr, advertisement scheduling, copyright reporting, stand-alone radio automation systems etc. had been using diverse scheduling systems. In other words, there were not any enterprises scheduling systems serving for all purposes of radio broadcasting. Consequently, there were many staff performing the same job and data inconsistencies were a serious problem. While there was programme A on radyo.trt.net.tr at 10 A.M, radio automation system was playing programme B and copyright reports were listing programme C. An easy question, "What are the most played songs at TRT FM?" was unanswerable unless one listened to all the programmes.

e-Radio integrated all systems with its scheduling system, RSS. Any change in the schedule is instantly transmitted to other systems. Web, e-Radyo On Air, copyright reporting system etc are fed by a single system.

However, RSS is not solely a schedule planning system:

- Recorded programmes are uploaded and approved through RSS.
- Producers use it to upload their jingles.

- Producers enter promotional information about their programmes.

Although RSS is used by other systems, it is mainly managed by the e-Radio Scheduling Application.

e-Radio Scheduling Application (RSA)

RSA is a web application developed for management of RSS. It has a simple GUI and can be used from anywhere in the intranet.

In the first step, programmes of the season are defined and producers are authorised for programmes. Authorised producers, can upload their recorded programmes, jingles, signals; prepare playlists and enter web promotion information.

In the second step, defined programmes are scheduled. The figure below shows the scheduling of station Radyo-3, on 7th June.

In the third step, recorded programmes should be uploaded by the technician or producer.

In the fourth step, producers should approve validity of their programmes and in the last step, station's manager's approval is needed. Programmes which are not approved by the station manager can not be broadcast. The approval screen is presented in Figure-4:

As shown above, producers can upload jingles for broadcast and enter promotional information for web using RSA. Furthermore, any song, jingle or advertisement played by e-Radyo On Air is transmitted to the RSS servers within five minutes. You can observe this by RSA (Figure-5):



Figure 4

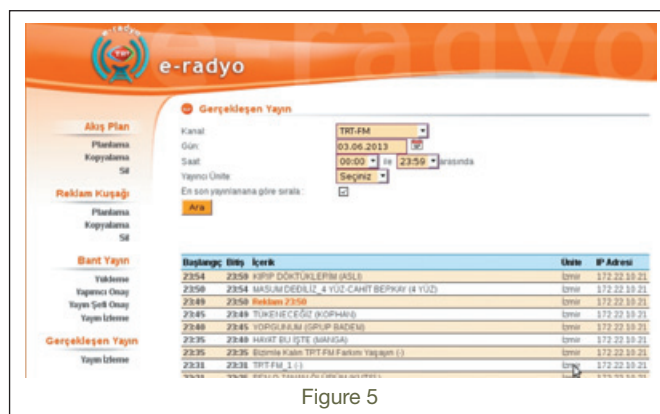


Figure 5

e-Radio Advertisement System (RAS)

RAS uses RSS and is used for downloading advertisement spots.

RAS is mostly used by advertising companies which schedule their advertisements according to the business rules defined by TRT.

RAS uses RSS and advertisement slots in the schedule are planned by RSS. Advertising companies can only demand reservations these slots via the e-Radio Advertisement Scheduling Application (RASA):

RASA is also a JWS application and platform independent. Advertising companies upload their spots by RAS and later, they place them in slots (Figure-6).

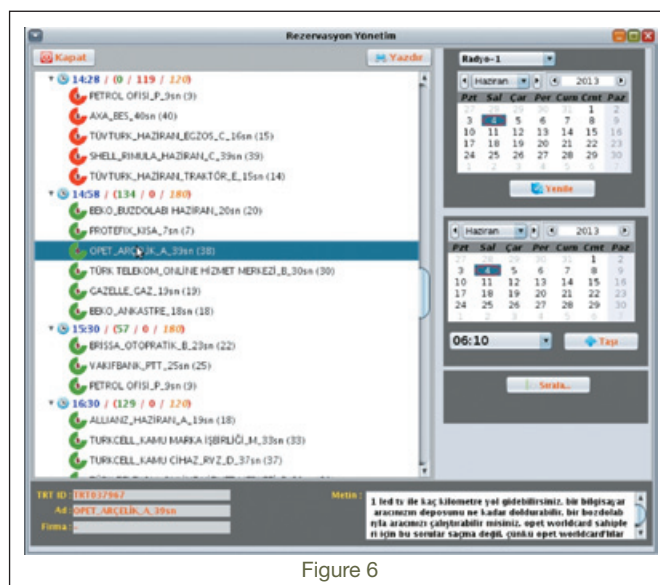


Figure 6

RASA has also an advanced reporting module.

e-Radio Production System (RPS)

MAS and RSS are incorporated under RPS. Producers use RPS by another JWS application, e-Radio Production Application (RPA), which is used for many purposes.

1. Producers prepare song lists for live programmes and play songs from their prepared lists.
2. Producers can instantly find a song from MAS and send it to e-Radyo On Air.
3. Producers can prepare block playlists (Figure-7).
4. In TRT, producers are responsible for filling copyright forms. Most of the time, producers do not have to fill form, since copyright information is automatically produced. However for particular situations, such as a guest's live performance, producers must fill form.
5. Authorised users prepare special song lists, which are planned to be used in special situations (e.g disasters, festivals).

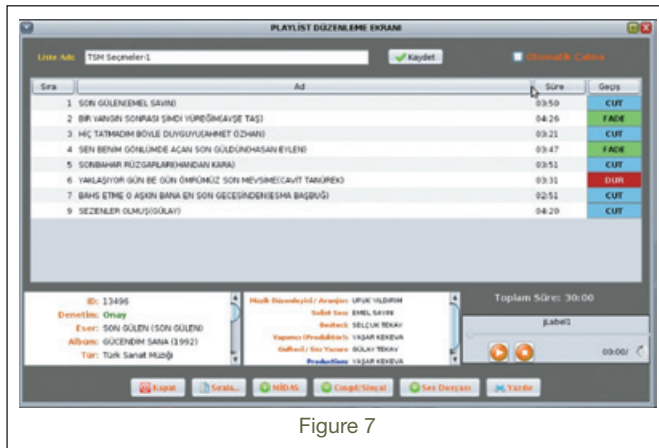


Figure 7

However, producers essential use of RPA is for production of songs. In production, user must mark the beginning and end of a song. Since during CD ripping, there are spaces which are especially unpleasant during song mixes. Furthermore, user also marks the intro of the song. Marking song is not a operation on audio file, it is a metadata information (Figure-8).

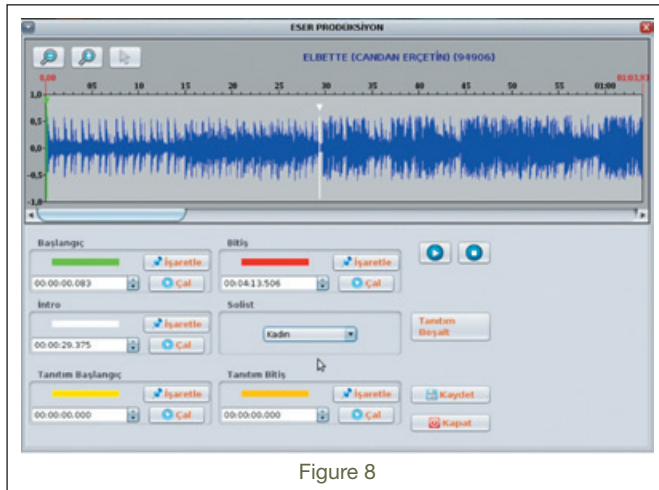


Figure 8

e-Radio On Air

e-Radyo On Air is the playout system of e-Radyo which run on specialised Debian GNU/Linux workstations. There are two daemons on e-Radyo On Air Workstations. First daemon is responsible for downloading daily schedules and content. For this reason, it has to communicate with MAS

and RSS. Second daemon sends information about played content to the RSS.

e-Radio On Air uses Echo Layla 3G. However, it can be used by any soundcard which is supported by Linux kernel.

Before e-Radio, there were a few different automation systems and some stations use merely Winamp. Technician experiences on legacy systems determined the GUI and features of e-Radio On Air. Because of their old practices, we tried to synthesise GUIs and features of legacy systems.

Here, you see e-Radio On Air. e-Radio On Air needs two screens. Left screen is called Preparation Screen (Figure-9) and right screen is called On Air Screen (Figure-10).

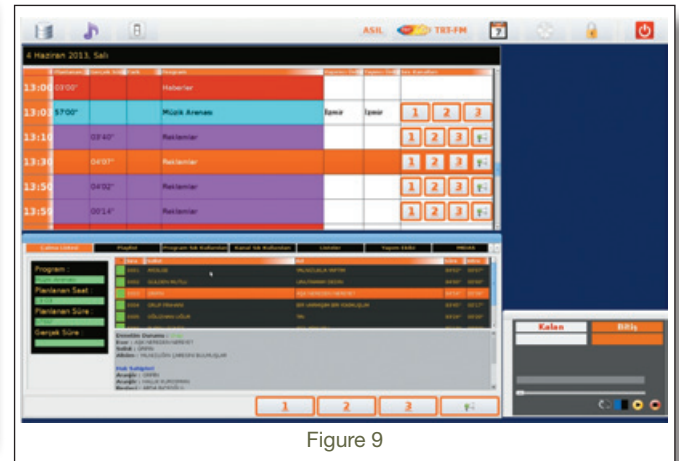


Figure 9



Figure 10

Preparation Screen

This screen is used for selecting and browsing content for On Air Screen. In this screen, technician can see the station's daily schedule.

Under the schedule window, there is content browser window. Browser window has tabs containing the contents of playlists, jingles, signals, advertisements, station's backup programmes for emergency and simple MAS search. Programme and station specific jingles are categorised.

Contents of the browser window and schedule window can be transferred to On Air Screen either by 1, 2, 3 buttons

or drag and drop. Technicians can listen them before transferring to On Air Window.

On Air Screen

This screen has three playcard boxes. Playcard box's physical soundcard output can be configured: e.g first playcard's output from channel #1, second's from channel #2, third's from channel #3 or all of them may use channel #1 (Figure 11).

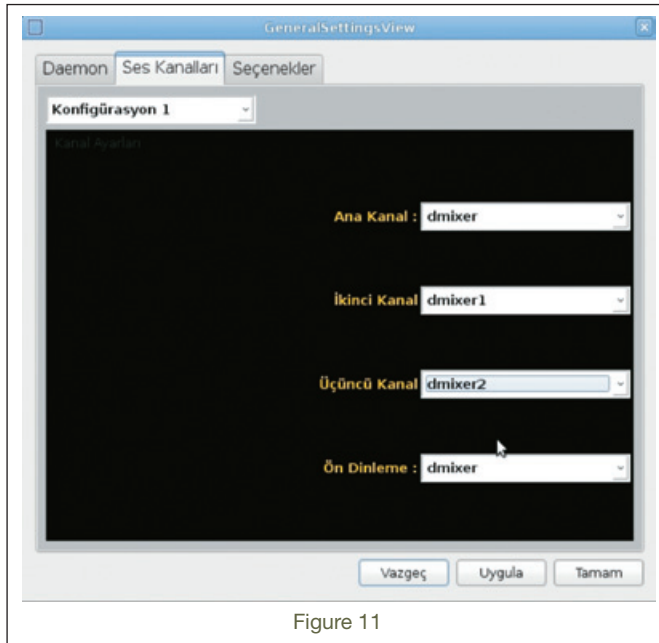


Figure 11

Playcard boxes have playcards which have audio content. When top of a playcard is clicked, its content is played on the playcard box's player. Contents of box's can be sorted or transferred to another box by drag and drop.

On the right of the screen, there is a GPS clock, alert and song details.

The GPS clock uses e-Radio's time servers.

An alert window is used for reminding the next programme or advertisement in the schedule.

The song info window is to aid spoken announcements. Technicians can mix songs and jingles by right-clicking on playcards.

As mentioned above, technicians' early experiences determined the development of e-Radio On Air and it was because of this that we also implemented the fader-start feature. Technicians can play and stop music either by mouse-clicks or fader-start. Every played song is sent to e-Radio Copyright Reporting System and e-Radio Data System (RDS).

Conclusion

As stated in the introduction, e-Radio's vision is "Utilisation of ICT (Information and Communication Technology) to enhance efficiency and effectiveness of the production of radio programmes and broadcasting at all it stages." In this context, e-Radio is still an incomplete system.

Our plan to 2014 is

- inclusion of all radio stations in the e-Radio system
- developing a recorder for live programmes.
- developing a simple audio editing application. This application will probably be an integration of Audacity into e-Radio.
- integration of a monitoring system (Nagios or Zabbix) for servers and e-Radio On Air workstations.

In 2015, besides improvements on e-Radio services and applications, our main goal is diminishing bureaucratic processes, towards paperless radio!

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Technical Advisory Service to Palestine Broadcasting Commission

A six-day ABU Technical Advisory Service mission to the Palestine Broadcasting Commission (PBC), one of the ABU's newest members, took place from 16 to 22 April.

The mission was conducted on a voluntary basis by Walid M Yousef, Director of May Electrical Engineering in Amman, Jordan. He made a number of recommendations on how PBC could improve its radio and television transmission services.

PBC arranged for him to make field visits to five Voice of Palestine (VOP) transmitting stations within an 85 kilometre range of Ramallah. VOP is a subsidiary of PBC, which is using an uncontrolled simulcast where three of these stations' transmitters are working on one frequency, 99.4MHz, and two are working on another frequency, 90.7MHz.

Four of these stations are using vertically polarised Omni directional stacked dipole antenna systems and the station in Ramallah is using a circularly polarised antenna system, with two bays, each with three panels facing north, east and south. All these stations are transmitting one analogue stereo audio programme.



2A Coverage area of each Transmitter 5KW in Ramallah



2B Coverage area of each Transmitter 10KW in Ramallah

PBC also arranged two technical meetings to discuss their regional studios project and networking methods among these studios and the master control room in Ramallah. A field visit was also made to a new building under construction which will house Palestine Broadcasting (Radio & Television) and Palestine News & Information Agency.

A specialist company created coverage, field strength and interference maps after collecting technical details of transmitting stations. The company used space shuttle views of the earth that included terrain data and access to sensitive signal measurement capabilities.

Based on his observations during the field visits, discussions with PBC engineers and the use of these maps, Mr Yousef submitted a detailed report to PBC which included these recommendations:

1. Verify the predication maps by taking field strength FS measurements and to confirm building penetration losses at FM frequencies as being 18 dB loss for the ground floor of a medium size building.
2. To contact antenna systems manufacturers/supplies to provide null fill for all antenna systems and beam tilt for three antenna systems to provide higher signal in targeted cities.
3. More directivity toward the southerly direction (Jerusalem) at the Ramallah antenna system and modify antenna systems at other stations to Omni directional with preferred direction.
4. Change the operating frequency of the Nablus or Hebron stations since the existing signal distribution network cannot provide the requirements for synchronisation of multiple transmitters.

Mr Yousef also proposed to PBC a signal distribution network by providing the block diagram of audio codec's multiplexing equipment for programme audio, voice and data for transport over E1 contribution and distribution networks connecting the master control room in Ramallah to regional studios and national and regional transmitting stations.



**Walid M Yousef,
Director of May
Electrical Engineering
in Amman, Jordan**

The Palestine Public Broadcasting Commission was established in 1993 shortly after the formation of the Palestinian Authority. It started operating as a state-owned radio and TV service in the Gaza strip with a branch office in Ramallah City under the name Palestine Broadcasting Corporation (PBC). In 2010, the status of PBC was changed by presidential decree from a state-owned institution into a public institution. The role of the Palestine Public Broadcasting Commission is to represent the Palestinian people wherever they are.

BroadcastAsia 2013 Draws Big Turnout

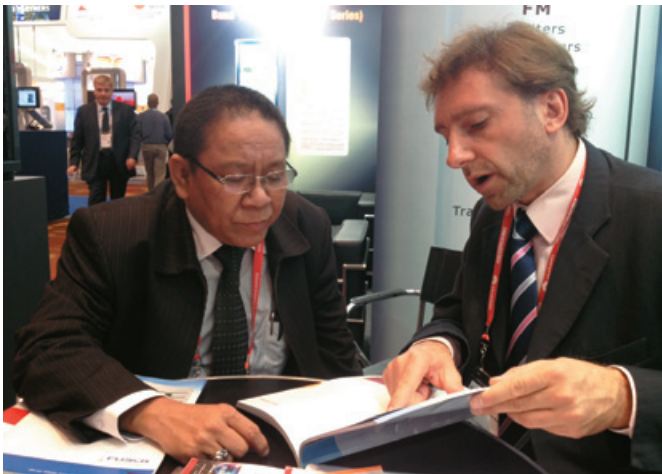
This article is based on the reports of two SES sponsored engineers who attended the event in Singapore

BroadcastAsia 2013 took place in Singapore on 18-21 June. It attracted more than 16 thousand attendees and showcased latest technologies including 4K, OTT, DVB-T2, digital media asset management and cloud based video management.

The Singapore Exhibition Services, which organised the event, provided fellowships for two ABU members, under a longstanding arrangement between SES and the ABU. The fellowships went to Phan Manh Anh of Radio the Voice of Vietnam and Mohammad Rohanudin of Radio Republik Indonesia.

Both provided reports to the ABU on their participation in the event.

Mr Mohammad said his attendance brought great benefit for Indonesia, which plans to implement DAB+ technology and is presently holding trials.



Mohammad Rohanudin of RRI-Indonesia

“From the conference we got a lot of knowledge and valuable input, especially in the digital technology that likely can be implemented in Indonesia,” he said.

He described the BroadcastAsia exhibition as “remarkable”, saying it enabled participants to learn so much more about the era of digitalisation. In particular it provided important information about digital broadcasting technologies that are compatible with the climate and geography of Indonesia.

This year’s DAB+ trials are focusing on the capital, Jakarta, and RRI will hold similar trials early next year in other major urban areas such as Surabaya, Semarang, Yogyakarta, Makassar and Denpasar.

“The most important thing, and the question for Indonesians, is how to provide DAB+ receivers at low prices so that the people of Indonesia in every segment can purchase them.

“This technology may be beneficial for Indonesian society because as a public service broadcasting, RRI aims to provide good broadcast services to all the people of Indonesia.”

Mr Mohammad said the areas where BroadcastAsia provided valuable information included transmitter safety, transmitter temperature stability, antenna matching, antenna gain, multiplexing and the differences between digital and analogue transmitters.

Mr Phan Manh Anh of VOV described BroadcastAsia as a meaningful event and thanked SES and the ABU for giving him the opportunity to take part.

He said the top three challenges he faced in his role at VOV were changing to an IP system, integrated archiving of audio and video, and transporting broadcasting outside.

He identified the three main trends shaping the broadcasting industry as audio over IP, broadcasting on the Internet and the use of portable satellite antennae.

Mr Phan, who works in VOV’s Audio Centre, held discussions with a wide range of exhibitors and expressed special interest in the range of studio consoles being displayed.

This year’s BroadcastAsia was held at Marina Bay Sands, under one roof with CommunicAsia2013 and EnterpriseIT2013. This enabled visitors to gather information about satellite, cable, Internet and server technologies in one place.

BroadcastAsia2014 will take place on 17-20 June at the same venue.



Hanoi

Workshop Report

DAB+ Technology Workshop and Transmission Demonstration

A three-day DAB+ Technology Workshop and Transmission Demonstration took place in Hanoi, Vietnam, on 26, 27 and 29 July. The event was jointly organised by WorldDMB and Voice of Vietnam and supported by the ABU and the ITU. Also supporting it were industry partners including Harris, ATDI and Radioscape.

More than 100 delegates from Vietnam, Thailand, Malaysia and Macau attended the workshop, which was held in the lead up to the Radio Asia conference on 29-31 July. Their attendance reflected the growing interest in digital radio in the Asia-Pacific region.



Voice of Vietnam invited WorldDMB to conduct the workshop for senior management and regulatory personnel as well as broadcast engineers following similar events conducted recently in Bangkok and Jakarta.

The workshop drew up a list of recommendations on the steps necessary when moving towards the implementation of digital radio services:

- Choose powerful spectrum efficient technology: DAB+
- Start now
- Broadcasters keep analogue spectrum
- Broadcasters own the spectrum licence
- Broadcasters have first right to own and operate transmission infrastructure
- National staged project
- Planning for high power and indoor coverage
- New content and affordable receivers
- Marketing strategy to inform listeners

The event showcased DAB+ equipment and expertise from Australia, Hong Kong and Europe, where digital radio is on air. Delegates were the first to hear and see VOV radio stations live on air in DAB+. They gained first-hand knowledge



of the transmission equipment and experienced the digital quality audio and new text and slideshow features on a wide range of receivers.

A live drive test demonstration was conducted in vehicles in Hanoi, using a DAB+ transmitter installed at VOV's transmitter facility. Groups of about seven broadcasters took to the streets at various times of the day for the drive test. The results showed that even a low powered demonstration can reach significant audiences in a bustling city such as Hanoi. Advice was provided on network planning, content development and the structural and regulatory considerations which will be needed when Vietnam plans the roll out of permanent high powered digital radio services.

Vietnam is well advanced in the digitalisation of its broadcast systems and this workshop will advance the planning for digital radio services.

WorldDMB Asia Pacific Committee Chair, Joan Warner, who spoke at the workshop, said: "WorldDMB offers broadcasters information on all aspects of the switch from analogue to digital. These workshops and demonstrations are tried and tested services that WorldDMB has offered to other markets that are also planning their rollout of DAB+. For Vietnam, DAB+ offers the opportunity for key broadcasters like VOV to offer more educational and cultural diversity."

WorldDMB is a global industry forum for digital radio promoting DAB, DAB+ and DMB as digital radio broadcasting standards in Europe and the Asia-Pacific. Its members include public and commercial broadcasters, network providers, receiver manufacturers, chip manufacturers, and car manufacturers. WorldDMB says more than 500 million people worldwide are within range of a DAB/DAB+/DMB digital radio transmitter.



ABU FESTIVAL OF TECHNOLOGY WEBINARS 2013

ONLINE WEBINARS ON BROADCAST TECHNOLOGY

The ABU Technology organised a series of technical webinars to impart knowledge and provide information on new technologies and developments in the industry. The webinar series "ABU Festival of Technology Webinars" was held from 12 August to 10 September 2013. Participation was open to all ABU members and others in the industry interested in broadcast technologies and their applications.

ABOUT THE WEBINAR SESSIONS

The content for these webinar sessions was taken from the workshops, seminars and conferences held during the past year. The webinar sessions started with a presentation by an expert on the subject followed by a question and answer session. The webinar sessions started at 0130hrs GMT (9:30am KL/Sin/HK time) each day and were repeated at 0700hrs GMT of the same day (3:00pm KL/Sin/HK time). This was to facilitate participation of attendees from different time zones.

WEBINAR TOPICS

The webinar sessions were grouped together to address the following main themes, with each area having three to six presentations for a total of 22 sessions and topics covered during the month long series.

Frequency Planning and Digital Roll-Out

The presentations under this theme addressed techniques and issues in frequency planning and the digital roll-out. They looked at the planning and implementation of digital broadcasting services in both radio and TV. This has been a difficult task for broadcasters in the region with the fast changing digital technologies and tight budgets they are confronted with. The topics provided expert knowledge on the road to digitalisation focusing on key issues such as frequency planning, spectrum management, digital broadcast technologies and case studies on the digital roll-out sharing the experiences of digital migration from within and outside the region.

Digital Radio Technology & Implementation

The topics addressed digital radio standards, technologies, implementation and applications. They also looked at the emergence of digital radio and the principal features of the various systems available, as well as the current developments in digital radio and how it will march into the new future.

DVB-T2 Technology & Roll-out

The presentations discussed the basic fundamentals of the key technologies around DVB-T2. They looked at the similarities and differences between DVB-T & DVB-T2 and the key technologies that make this second generation

standard one of the most efficient transmission standards in the digital world today. They also addressed the advanced features of DVB-T2 and how a service can be planned to achieve the required payload or coverage objectives including SFN/MFN networks.



Satellite Broadcasting Technologies

The topics looked at satellite broadcasting technologies, a widely used means of delivery of content for broadcasters around the globe. Satellite technology has evolved over the years with many new and cutting edge innovations helping broadcasters and operators provide better quality services to their audiences. The presentations provided important information on these technologies focusing on the fundamentals of satellite communications, broadcasting over C-band and Ku-band, and the enabling systems behind these platforms.

MAM & Archiving System

The sessions presented approaches towards media management and workflow automation. They provided information on the techniques and some of the available tools. They also looked at one of the biggest issues faced by broadcasters today: the digitalisation of archives.

WEBINAR PRESENTERS

Experts from our broadcaster members and industry partners presented the sessions. The presentations are available for download from the website and on-demand on MLC-Online for those who want to listen to them again.

The Webinar festival attracted a good participation with over 215 people registered and an average of 30-40 participants for each session. This was the third such webinar series organised annually by ABU Technology and we hope to welcome everyone back to the fourth edition in August/September next year.

The Central Asia Media Forum 2013

“On the Digital Wave”



The Central Asia Media Forum 2013 with its associated workshops was held from 26 to 28 August in Bishkek, Kyrgyzstan. The event was organised by the ABU and hosted jointly by our members The Public Broadcasting Corporation of Kyrgyz Republic (OTRK) and New Broadcasting System (NTS).

The Central Asia Media Forum 2013 (CAMF), themed “On the Digital Wave”, was the first such event organised by the ABU in the region with the aim of providing a platform for the broadcasters and media players to share knowledge and expertise to improve and promote media coverage in the region. The three-day event comprised two days of pre-summit workshops followed by a full day summit.



The Minister of Culture and Communication of Kyrgyzstan officiated at the opening session which was also addressed by high ranking officials from OTRK, NTS and the parliamentary committee on media development. Over 150 delegates representing journalists, programme professionals, senior executives, engineers, policy makers and regulatory authorities from 17 countries attended the event. They included more than 25 industry experts and professionals from around the world who made presentations at the forum sessions.

Pre-Summit Workshops

The 10 pre-summit workshop sessions focused on areas of interest within the industry with experts from advanced broadcasters and industry professionals presenting and sharing their experiences in an interactive environment. The workshops covered a variety of subjects including:

- Digital Transition and Innovation
- Economics reporting in Central Asia
- Broadcasters' role in Disasters and Climate Change
- New Media Applications and Management
- Gender Mainstreaming and Role of Media
- Migration to Digital – Studio Workflow and Archiving
- Animation Production for Children
- Content Exchange Services for Central Asian Broadcasters
- Puppet Shows for Children
- HIV/AIDS: Educating through Media

The pre-summit workshops were conducted in parallel sessions allowing the participants to join their session of interest with a choice of technical, content production, journalism and the role of media in social development. This also allowed enough time for the participants to engage in Q&A discussions with the experts. Many of the workshops



included demonstrations and presentations of case studies with audio and video content, which allowed the participants to get the real feel of what was being discussed. The sessions received a good contribution and participation from the attendees.

The CAMF Summit

The full day summit that followed presented sessions streamlined to make the participants aware of the rapidly changing media landscape and help them in responding to the changes that are taking place in the industry. It offered an opportunity to the senior executives to discuss issues crucial to the sustainability and development of broadcasting at organisational, national and regional levels. The summit sessions addressed various issues that pertain to Digital Migration, Role of Media in Development, Importance of Editorial Independence, and News Gathering and Reporting in the New Media Environment, as well as case studies from Asian and European perspectives. Special emphasis at the summit was placed on areas of development of the media in the region and how it can help in transforming the social well-being of society.



The workshops and summit sessions were presented in both English and Russian allowing the participants from the region to be fully involved in the discussions.

The summit and associated workshops provided a platform specifically intended for Central Asian Broadcasters, in particular the smaller broadcasters, to articulate their views and experiences and help in finding effective solutions. The forum enabled the participants to interact, share and learn from the experts and professionals present.

The event was supported by our members and industry partners IRIB, Prasar Barati, TRT, NHK, TBS, KBS, ARD, SONY, Newtec, UNESCO, UNDP and Internews. We are thankful for their kind support and partnership in making the CAMF2013 a success.



Meetings in SEOUL



The Director ABU Technology, Dr Amal Punchihewa, was invited to attend a course on Broadcasting Content Distribution in Seoul, Korea from 2-8 September 2013. The five-day course was hosted by the Ministry of Science, ICT and Future Planning and was organised by the Korea Internet & Security Agency (KISA) and the Korea Radio Promotion Association (RAPA).

The course included lectures on the transformation of the media industry in Korea, a discussion session on global media and news production, attendance at the Global News Forum and visits to Samsung Digital City, SK Telekom and Munhwa Broadcasting Corporation.

At the invitation of the KBS Technical Department, Amal visited the Korean Broadcasting System where he was able to introduce himself to the KBS Technical Department and

touch base to enhance future cooperation between the ABU Technology and the KBS Technical Department.



Visiting the KBS facilities

Amal also took the opportunity to meet the top management at Korea E&Ex Inc/KOBA, the sponsor of the ABU Green Broadcast Engineering Award.



Mr Sean Shin, Ms Ashley Kim, Dr Amal Punchihewa, Mr Choong Jin KIM, CEO/President of Korea E&Ex Inc and Mr Scott Kim



Mr Myung Nam Kim, Mr Seongwoong Kim, Dr Amal Punchihewa, Mr Jong-Ok Lee, Mr Sedrick Ahn and Mr Chang-Geun Yang

ABU Pacific

Conference Looks at Key Media Issues



The 2013 Pacific Media Partnership Conference and associated workshops were held in Port Vila, Vanuatu, from 17 to 19 September. The fourth in a series of conferences, it was organised by the ABU and hosted by the Vanuatu Broadcasting Television Corporation (VBTC).

The event, themed 'Broadcasting for Development', was aimed at providing a platform for the Pacific region's broadcasters and other media professionals to share knowledge and expertise to improve media in the region.

Edward Nipake Natapei, Acting Prime Minister, Acting Media Minister, and Minister of Foreign Affairs and External Trade, said at the opening that it was important to share information and learn from the region's experiences.

"There is an important issue of climate change affecting the Pacific region," he said. Broadcasters must provide information about rising sea levels affecting people living in coastal areas.

The ABU's Director Technology, Dr Amal Punchihewa, said it was particularly important for isolated broadcasters to exchange information and share their experiences in finding effective solutions for local and regional problems.

"The conference enabled the participants to interact, share and learn from experts who presented on wide ranging topics including implementing digital technologies, journalism, sports coverage and reporting," he said.

The three-day PMP 2013 comprised two days of pre-

conference workshops followed by a full day conference that offered media personnel an opportunity to discuss issues crucial to the sustainability and development of broadcasting in the region.

More than 80 delegates including journalists, programme professionals, senior executives, engineers, policy makers and regulators from 13 countries attended the event, which drew some 12 experts from around the world.

It was supported by NHK International and the ITU. The UNDP provided a moderator for a panel session, and media advocates, ombudsman and members of the Pacific Media Assistance Scheme, PACMAS, assisted as panel members in panel sessions.

Radio New Zealand International conducted a workshop on 'Journalism; Threading the line between Professional and Personal'.

NHK International speakers presented on election reporting and the role of Pacific Islands broadcasters in crisis management.

ITU expert Colin Knowles and Dr Punchihewa conducted workshops and a conference session on ICT and Broadcasting, Analogue to Digital migration.

Cai Yanjiang of the ABU Sports Department, with assistance from TVNZ sports expert Steve Jamieson, conducted workshops and conference sessions on sports coverage and sports writing.

News

from the ABU Region

Afghanistan

Afghanistan Issues Digital Broadcasting Network License

Afghanistan's Ministry of Communications & Information Technology (MCIT) signed the contract of changing the existing analogue TV system to Digital TV system with ACG company in a press conference. TV programmes are currently broadcast in Analogue System in Afghanistan. The telecom technology has developed in the world now and many countries utilise DTV technology in order to broadcast TV services. Taking in to account telecom technology developments, ITU held a conference in 2006 on realizing frequency utilization efficiency and enhancement of broadcast QoS. As a result, the member states agreed on migration process from Analogue to Digital by 15 July 2015. As per recommendations of the ITU, some of the world countries have implemented the migration process from Analogue to Digital and some of other member states are implementing the related process.

(APB News)

India

India's Public Broadcaster Trials Four More Channels

Doordarshan is launching new 24-hour TV channels in Patna, Bhopal, Jaipur and Lucknow, to take its regional language channel tally to 15. India's public broadcaster says the soft launch is to trial the channels, which will be based on the format of Doordarshan (DD) National and have a mixture of news and general entertainment, according to Indian Television.

(Rapid TV News)

Indonesia

Televisi Republik Indonesia Improves File-based Workflow

Televisi Republik Indonesia (TVRI), the government-owned TV station in Indonesia, has selected NVersion NControl Lite to increase the efficiency and reliability of its file-based broadcast operations.

Using the new system, TVRI can quickly perform file-based operations such as ingesting, segmenting and playlist creation, maximising workflow efficiencies and minimising Opex and Capex. Operators simultaneously access content from a highly intuitive graphical user interface that can be customised to meet any of the 22 regional stations' specific broadcast needs.

(TVTechnology)

Japan

NHK World TV Now Available in MENA via Nilesat

Japan's public broadcaster NHK has announced that its World TV service is now available in the Middle East and North Africa region through Nilesat 201 on the OSN DTH platform.

NHK World TV is the Japanese public broadcaster's English-language channel distributed worldwide 24 hours a day, bringing Japanese and Asian news and lifestyle programming.

NHK World TV is currently available around the clock in 170 million households spread over 140 countries and regions (as of July 2013).

(Broadband TV News)

Singapore

MediaCorp Sets The Stage

MediaCorp and Singapore Infocomm Technology Federation (SiTF) have announced a joint venture to produce Singapore's first innovative technology trade show called The Stage.

Debuting in 2015, the three-day trade show, to be held at Marina Bay Sands Expo & Convention Centre, will target more than 250 exhibitors from various sectors, including audio and visual, connected home devices, digital imaging/photography, telecommunications, electronic gaming and music, robotics, computer hardware and software, lifestyle electronics and automotive electronics.

(APB News)

Vietnam

Voice of Vietnam Starts Online Streaming

Voice of Vietnam, the national radio broadcaster in Vietnam, is using PYKO IP-based network audio terminals to make daily radio broadcasts and on-demand content from Vietnam available to listeners worldwide. Supplied and installed by the Vietnam regional office Digigram, the PYKO-in systems convert 70 audio feeds from around the country into audio-over-IP streams that are transmitted for centralised processing and streaming via the Voice of Vietnam website (radiovietnam.vn). More than 4 million Vietnamese live overseas in about 100 countries, and now they have access to daily radio from all areas of their homeland.

(C+T News)

Digital Broadcasting Update

Digital TV

NHK to Launch Hybridcast Service

Japan's NHK is launching its "Hybridcast Service" this September, featuring what the Japanese broadcaster calls "collaborative operations" between broadcasting and telecommunications.

Starting on 2 September, the new service will be available via NHK's existing terrestrial platform, by connecting Hybridcast-enabled TV to the Internet.

The Hybridcast Home Screen is the first phase of the service that will be introduced in September, and will enable the display of breaking news, weather forecasts, sports information, exchange rates as well as other information.

NHK expects the service to be used for audience participation in quiz programmes and for releasing supplementary programme-related information such as additional videos, commentary and facts.

Hybridcast-capable receivers support the HTML5 browser and will support multi-screen viewing through tablet terminals, added NHK.

(Asia-Pacific Broadcasting)

Sony Plans OTT Offensive

Sony is close to striking a deal to stream live channels from Viacom for a new internet-based Over-the-Top TV service, according to the Wall Street Journal.

The service would first become available on Sony's PlayStation game consoles and some of its Bravia smart HDTVs and later on Sony-made tablets and phones. The deal would give Sony access to popular channels such as MTV, Nickelodeon, Comedy Central and others.

The Japanese company is also speaking to Time Warner, CBS and Disney about potential programming deals, the newspaper said.

Sony's move follows attempts by other companies such as Microsoft, Google, Intel and Apple to offer OTT alternatives to traditional cable, IPTV, DTT and DTH platforms – but so far no one has cracked the case to offer a sustainable business model.

The Sony/Viacom agreement would not only offer on-demand content, but streaming channels as well.

(Broadband TV News)

Google Considers OTT

Google is looking into the possibility of launching an OTT service offering traditional TV rather than on demand programming.

According to a report in the Wall Street Journal, it has already approached media companies about licensing their content for such a service. Furthermore, it has in at least one instance provided a demonstration of the product it would offer.

Google previously held such talks around two years ago. Although they came to nothing, the market has since changed considerably, with several other companies, including Intel and Sony, working on similar plans and pay-TV providers asking entertainment companies for nationwide streaming rights.

Google has also already made significant progress in developing TV and online video in the last few years.

Should Google launch an OTT service, it would compete directly with pay-TV platforms already facing pressure from the likes of Netflix, Hulu and Amazon, though the latter offer on demand rather than traditional TV content.

(Broadband TV News)

Europe Ahead of U.S. for Smart-TV Penetration

Smart TV penetration in Europe is ahead of the U.S., although with significant differences between countries. France has the lead with 42 percent of households having a smart TV, compared with 40 percent in Turkey and Poland, 34 percent in Germany, 28 percent in Italy, 26 percent in Spain and the Netherlands, and the U.K. trailing at just 22 percent. These figures come from Concentra Marketing Research in a survey for the German consumer electronics trade association GFU, while a report by research and advisory firm TDG found that just 25 percent of US households had a smart TV, lagging behind all leading European markets except the UK.

Although penetration was lowest in the U.K., those that did have a smart TV there were most likely to connect it to the Internet, with 86 percent of them having hooked them up. This compares with 79 percent of smart-TV owners in France, 76 percent in the Netherlands, and 58 percent in Germany.

(Broadcast Engineering)

Internet

EBU to Study Cross-platform Login

An EBU project group is to develop an alternative to proprietary single sign-in systems, such as Facebook and Yahoo, which could be used across connected TV and radio receivers.

The project, led by the BBC's Sean O'Halpin, the lead engineer in the BBC R&D Internet Research and Future Services section, will develop an alternative to proprietary single sign-on systems that already exist. The group will develop a variant of the widely implemented open standard OAuth 2.0 protocol specifically targeted at IP-connected media devices. The proposal may ultimately be submitted for adoption in OAuth 2.0.

For its web-based services, including the BBC iPlayer, the BBC has introduced the BBC iD. It also allows users to sign in through Facebook and Google accounts.

The EBU says that there is a distinct shortage of non-commercial alternatives. "The lack of standards in this area has led to early adopters taking the easy option of hooking into pre-existing authentication systems from popular web-based services like Facebook or Yahoo!. However for broadcasters, and public service media organisations in particular, it would be preferable to have the option of using an independent solution that is not under the control of a commercial company."

(Broadband TV News)

Miscellany

ITU Readies New 1Gbit/s Broadband Standard

The ITU has taken an important step forward in the development of G.fast, a new ITU broadband standard, that promises to allow operators to deliver up to 1 Gbit/s over existing copper telephone wires.

The standard would cut costs of delivering the very high speed service because operators would not have to install fibre between the distribution point and people's homes.

The standard took an important step forward with a meeting of ITU-T Study Group 15 in Geneva, Switzerland that paves the way for G.fast to be approved in early 2014.

That meeting saw first stage approval of ITU standard, Recommendation ITU-T G.9700, that specifies methods to minimise the risk of G.fast equipment interfering with broadcast services such as FM radio.

G.fast could be used for such bandwidth-intensive applications such as streaming Ultra-HDTV movies, uploading high-resolution video and photo libraries to cloud-based storage and communicating via HD video, the ITU noted.

(Broadcasting & Cable)

HbbTV Starts Licensing Consumer Devices

The HbbTV Association has announced plans to license the HbbTV logo to consumer electronics manufacturers.

Any vendor selling an HbbTV device is now able to use the logo on their device to indicate compatibility with the standard in addition to printed and web-based promotional materials.

"Using the HbbTV Logo is an excellent way for consumer device manufacturers to demonstrate HbbTV certification and interoperability," said Klaus Illgner, chairman, HbbTV Association. "As the standard continues to gain momentum around the world, our logo will become more familiar to consumers enjoying a connected television experience based on HbbTV – including compelling catch up TV, news apps, and other innovative services."

Before receiving approval to use the HbbTV logo the devices must first pass the HbbTV Association's Test Suite in order to verify compatibility.

(Broadband TV News)

IBC Announces A New Series of Global Events

IBC has announced a new series of global events called IBC Content Everywhere, which will be launched in Amsterdam in 2014.

"Video and linked content over mobile and Internet is now so widespread that it's become an industry of its own," IBC said. "Although it relates to so many of the workflows and processes that we see at IBC, it's outside of what can be called 'broadcast' IBC Content Everywhere will therefore bring together producers of rich media, device makers, app builders, digital marketers, big data and cloud services in a series of unique shows. The global series of events will take place in Europe, Latin America (the host for the 2016 Olympics), and the super-growth market of the Middle East."

IBC Content Everywhere will be launched formally in Amsterdam in 2014 and then rolled out in Dubai in November 2014 and Sao Paulo in 2015, at a date to be confirmed.

(Broadband TV News)

IEEE-USA Requests Rules to Enable Wireless Innovation Above 95 GHz

IEEE-USA has petitioned the Federal Communications Commission (FCC) for a spectrum ruling to spur new technologies.

In its Petition for Declaratory Ruling, IEEE-USA urged the federal government "to issue a declaratory ruling that petitions or applications related to technologies and services in the frequency spectrum above 95 GHz be classified presumptively as 'a new technology or service' in the context of the terms of Section 7 of the Communications Act of 1934, as amended".

IEEE-USA stated that at present no FCC service rules address any applications for services that utilise spectrum above 95 GHz and that the only use permitted of this spectrum is with experimental licenses. IEEE-USA noted that while U.S. licensed amateur radio operators above Novice Class are allowed to use 122-123 GHz, 134-141 GHz, 241-250 GHz and all frequencies above 275 GHz and that ISM (Industrial, Scientific, Medical) use is permitted at 122.5 GHz and 245 GHz, neither of these provisions allow for the sale and use of communications equipment by non-amateur licensees or unlicensed users.

(IEEE-USA)

Equipment Trends

Cameras and Accessories

4K Sensor High Speed FS Series Camcorder (with Lens)

The NEX-FS700UK is equipped with a new 4K Exmor Super 35 CMOS sensor (Total 11.6 million pixels) capable of cranking at up to 960 frames per second. This high-speed readout chip is optimised for motion picture shooting, producing exceptional image fidelity with high sensitivity, low noise and minimal aliasing. The NEX-FS700UK includes the Sony SEL-18200 zoom lens with an extra wide focal length: 18 ~ 200mm. The NEX-FS700 has full interoperability with this lens including: auto/ manual focus and iris aperture, Spot Focus and automatic Focus Transitions between two subjects in a scene.



FS series camera's E-mount is designed to accept virtually all 35mm SLR, DSLR and cinematography lenses, with the use of simple, inexpensive third party adapters sold separately -without optical degradation-. FS series camera owners are able to continue to use their existing 35mm lenses and add more lenses without being limited to a particular lens brand or mount type. The NEX-FS700UK started as a 4K sensor Super 35mm camcorder capable of a vast array of high frame rate (HFR) and recording options to the superb on-board AVC-HD recording capability. The NEX-FS700U now features an upgrade that enables full 2K RAW up to 240fps or 4K RAW up to 60fps recording to Sony's AXS-R5 RAW recorder.

(www.sony.com)

Panasonic Full HD 3D Camcorder



The AG-3DA1 is the world's first professional, fully-integrated Full HD 3D camcorder that records to SD card media. The AG-3DA1 will democratise 3D production by giving professional videographers a more affordable, flexible, reliable

and easier-to-use tool for capturing immersive content as well as providing a training tool for educators.

At less than 6.6 pounds, the AG-3DA1 is equipped with dual lenses and two full 1920 x 1080 2.07 megapixel 3-MOS imagers to record 1080/60i, 50i, 30p, 25p and 24p (native) and 720/60p and 50p in AVCHD. It can record for up to 180 minutes on dual 32GB SD cards in Panasonic's professional AVCHD PH mode, and offers professional interfaces including dual HD-SDI out, HDMI (version 1.4), two XLR connectors, built-in stereo microphone and twin-lens camera remotes.

(www.panasonic.com)

Sony Gives 4K Content Creation to the People with New FDR-AX1 Handycam

Sony is making a big push into 4K resolution. It announced it's releasing more than 70 movie and TV titles in 4K, and it's even offering lower-priced 4K TVs. It's clear 4K is where it wants to dominate – from the cinema to the home – so it's appropriate that it also announced the FDR-AX1 4K Handycam, the “world's first consumer 4K capture device” designed for creating 4K content at home.



Unlike cinema 4K camcorders designed for creating 17:9 format for movie theaters, the AX1 shoots in the 16:9 format for 4K TVs, at a resolution of 3840 x 2160 – four-times larger than Full HD at 1920 x 1080. Sony says that because the pixels are smaller, it's a much more engaging viewer experience with more details. While 4K image capture has been around, Sony feels now is the right time to introduce 4K content creation to the general consumer.

www.digitaltrends.com

Production Equipment

17" TV Logic XVM-175W Multi-Format LCD HD/ SD Monitor

The XVM-175W is a 17" version of the XVM series that



reproduce highly accurate colours required by the most demanding applications. TVLogic's advanced video processing engine and unique colour calibration technology, combined with 10bit IPS LCD panel with RGB-LED backlight, makes the state-of-the-art reference monitor for professionals. All the professional features are included : Focus Assist, Markers, Waveform & Vectorscope, Timecode display, UMD, Closed Caption, Fast mode, various colour standards with 3D LUT, Backlight and Gamma control, Import of 3rd party 3D LUTs and etc.

www.3dbroadcastsales.com

Cobalt Digital To Roll Out Expanded Range of Card-Based Options For Broadcasters



Cobalt Digital, manufacturer of award-winning 3G/HD/SD-SDI conversion gear, offered an array of new and enhanced card-based signal processing solutions to international broadcasters at this year's IBC2013. With a line-up that further extends the company's position as a leader in card-based solutions, Cobalt will unveil the latest in converter technology with its new OBSIDIAN3G™ range of cards, highlight enhanced colour correction features in its 9084 COMPASS® HD/SD-SDI RGB Colour Correction Card, feature extended capabilities of its SPOTCHECK® to provide both a video and audio compliance monitoring and recorded data logging system, as well as show its new fiber units both in card form and in Cobalt's popular Blue Box Group™ family of throw-down modules.

www.cobaltdigital.com

Apantac Launches New IP Multiviewer at IBC 2013

Apantac, provider of cost-effective multiviewers, video walls, extenders, and signal processing solutions launched its new TAHOMA IP Multiviewer at IBC 2013.



TAHOMA IP is the latest addition to the award winning TAHOMA Universal input Multiviewer platform that accepts DVI, VGA, YPbPr, YC, Composite, HDMI and SD-SDI/HD-SDI inputs for multi-image display. The TAHOMA IP Multiviewer accepts transport streams over IP and ASI, and supports MPEG-2, MPEG-4 and H.264 video formats at resolutions

up to 1080P at 60Hz. It also supports MPEG-1 Layer 2 and AAC audio formats.

www.apantac.com

Panasonic Smart VIERA TC-L65WT600 Ultra HD 4K TV



Panasonic, a leader in High Definition technology, announced the Smart VIERA TC-L65WT600, the world's first Ultra HD TV with a 4K 60p input designed based on HDMI 2.0 and DisplayPort 1.2a specifications. Offering up to 60 frames per second 4K playback, the WT600 is the ultimate choice for consumers looking to access the next level in home entertainment, or for anyone for who picture quality is imperative.

The 65-inch class (64.5 inches measured diagonally) Panasonic Smart VIERA WT600 Ultra HD TV with its THX™4 4K certification is perfectly tailored for home cinema enthusiasts. The WT600 panel's 2,400 Back Light Scanning (BLS) technology provides incredibly high motion sharpness, even in fast action scenes. The TV also features a minimalist design, with a thin metal frame that focuses attention on the stunning 4K images.

www.benchmarkreviews.com

Miscellany

Starter Series iPad Straight-Read Prompter



A complete hardware package enables you to turn an iPad into a straight-read teleprompter (iPad not included).

The iPad slots into a custom-made mounting plate to hold it securely in position. This mount can be fitted in landscape or portrait mode. The iPad is positioned above the lens via a small magic arm that attaches to the hot shoe of an ENG style camera and allows you to position the iPad directly above the lens or to the side.

It is designed to be used with the teleprompting software available for download from the App Store.

Source: www.autocue.com

Personalities & Post

NEW TLO FOR DOORDARSHAN



A K Dixit
ABU Technical Liaison Officer
and Technical Bureau

A K Dixit is the new ABU Technical Liaison Officer and Technical Bureau member for Indian national broadcaster Doordarshan. He succeeds R Sinha in both positions.

Mr Dixit is Additional Director General (Engineering), Doordarshan Directorate. He is responsible for planning, designing, project implementation and maintenance of satellite broadcasting systems in the Doordarshan network.

Mr Dixit has 35 years of experience in broadcasting. He joined All India Radio in 1977 and served in many senior positions.

He has wide experience in planning and designing radio studios, research in acoustics and audio fields, and the execution of various studios and transmitter projects, among other fields.

NEW DIRECTOR ABU PROGRAMMING



Tatsuhiro Beniko
New Director
ABU Programming

Tatsuhiro Beniko, Senior Producer and member of the Strategic Planning Division of NHK, has been appointed the new Director Programming at the ABU.

As a TV producer and director at the NHK for the past 25 years, Mr Beniko has worked on a wide variety of educational, local, news and radio programmes, with particular interest for science and natural history.

Mr Beniko also has in-depth knowledge in budget control, risk and human resources management and experience in conducting various outreach projects and working in a multi cultural environment.

Mr Beniko has worked in the UK as an executive producer overseeing numerous documentary programmes produced throughout Europe and Africa by NHK Cosmomedia Europe, Ltd. (formerly NHK Enterprises Europe, Ltd.).

Mr Beniko replaces Mr Takeshi Doki.

LIEVEN VERMAELE LEAVES EBU



Lieven Vermaele
Director of Technology &
Innovation at the European
Broadcasting Union

Lieven Vermaele stepped down in June as Director of Technology & Innovation at the European Broadcasting Union after six years in the post.

Mr Vermaele returned to his hometown Ghent, in Belgium, to be CEO of CandIT-Media, a fast-growing technology start-up.

He is also Chairman of DigiTAG, a cross industry organisation that promotes the implementation of digital terrestrial television services.

The EBU Director General, Ingrid Deltenre, praised Mr Vermaele's contribution to the broadcasting union and the media industry as a whole.

"Under his direction, EBU Technology & Innovation has sharpened its focus on increasing member cost effectiveness and enhancing the media consumer's experience," she said.

BAHADIR GURLER RETURNS TO TRT



Bahadır Gurler
ABU Technology Department

The ABU Technology Department has farewelled Bahadır Gurler, who completed his two-year secondment as Specialist Engineer with the ABU.

Bahadır took an active role in the running of TD activities and TAS missions and in particular enjoyed putting together the ABU Technical Review. Bahadır was instrumental in securing more advertisements for the TR.

Obituary



Humayun Choudhury

Humayun Choudhury, who served for 23 years as the Senior Editor of Asiavision, the ABU's daily news exchange, has died in the United States at the age of 71.

Humayun joined the ABU Secretariat from BTV-Bangladesh in 1983. He was responsible for the launch of Asiavision in January 1984 and ran the daily operations until his retirement in 2006.

His many other duties included chairing meetings of journalists and engineers from Asiavision member organisations and representing the ABU at international meetings.

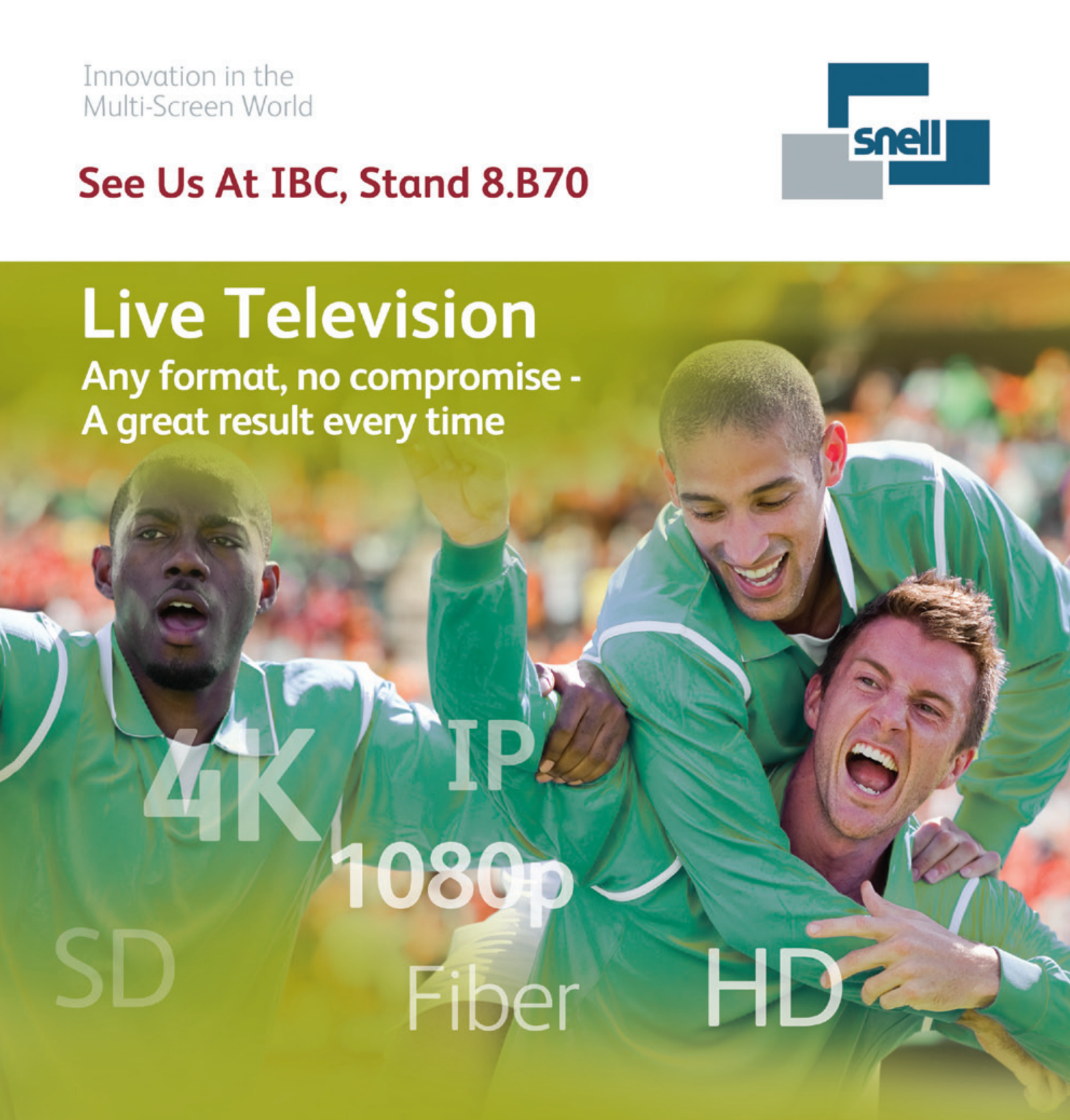
Innovation in the
Multi-Screen World



See Us At IBC, Stand 8.B70

Live Television

Any format, no compromise -
A great result every time

A photograph of three male athletes in green tracksuits celebrating. One athlete is in the foreground, looking intense. Two others are behind him, one with his arm raised and another shouting. The background is a blurred crowd.

4K IP
1080p
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Whatever your live television application, be it sports, news, studio or live events, Snell has the solution to help you make exceptional productions. With our focus on flexibility, quality, ease of use and value for money our systems improve engineering workflows and save time on setup whilst providing total peace of mind - allowing you the freedom to create the very best live TV.

snellgroup.com/livetv

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

Panasonic

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Memory Card Camera Recorder "P2 Cam"

AG-HPX600EN

Main unit only

AG-HPX600ENF

Bundled with AG-CVF15G Color LCD Viewfinder and FUJINON 16x Auto Focus Lens

AG-HPX600ENC

Bundled with AG-CVF10G Color LCD Viewfinder and FUJINON 16x Auto Focus Lens

The New Concept P2 cam Meets Needs of a Wide Range of Use

- A 2/3-type mount allows use of existing lenses
- A compact body weighing 2.8 kg
- HD/SD multi-codec, including AVC-Intra100
- Versatile upgrade options, including proxy playlist editing
- Compatible with the microP2 card*1
- Future support for AVC-ULTRA codecs*2

<http://pro-av.panasonic.net>

*1: An upgrade (free of charge) may be required.

*2: Future support scheduled as an upgrade (paid option). Not all formats will be supported.



P2HD